Abstract Book

MedEspera 2026

The 11th International Medical Congress for Students and Young Doctors

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Chisinau, Republic of Moldova

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DESCRIEREA CIP A CAMEREI NAȚIONALE A CĂRȚII DIN REPUBLICA MOLDOVA

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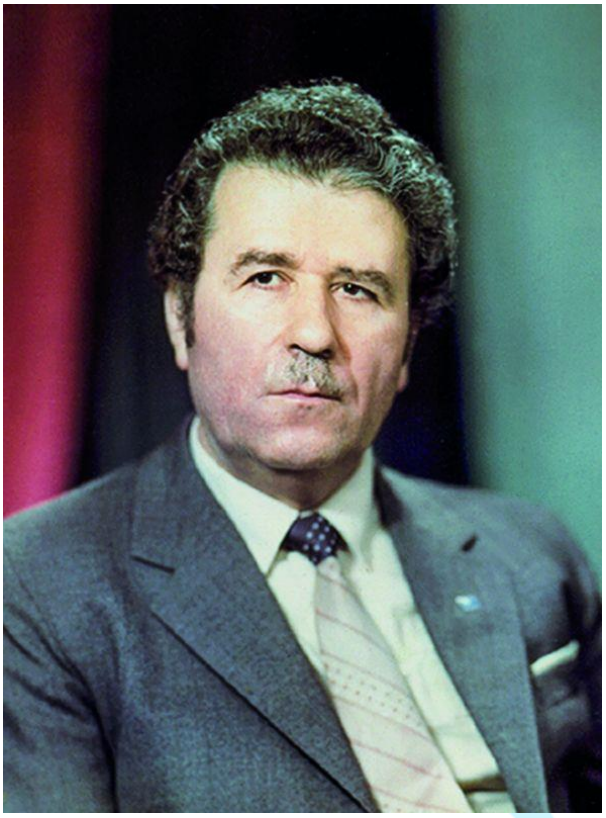
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NICOLAE TESTEMITANU

Rector, Minister of Health,
Academician, Professor and Statesman

Nicolae Testemitanu was born on August 1, 1927 in Ochiul Alb village, Balti district. He had graduated from gymnasium in Baraboi village, then he pursued his studies at the Secondary School No.1 in Balti.

In 1951 he graduated from Chisinau State Institute of Medicine (CSIM). In the same year he was admitted to fellowship training at the General Surgery Chair of Institute, in parallel carrying out his activity as a physician at the Surgery Department of Riscani District Hospital. In 1954 he was employed as Assistant Professor, then as Associate Professor, Professor and later on as Head of this Chair. He also held the position of Head Physician of the Republican Clinical Hospital and founded the Healthcare Journal.

In 1958 *Nicolae Testemitanu* defended his doctoral thesis in medical sciences. A year later, at the age of only 32, he was appointed Rector of Chisinau State Institute of Medicine. The young rector managed to establish the Faculties of Dentistry (1959), Continuing Education in Medicine (1962), Preventive Medicine (1963) and Pharmacy (1964). Due to this fact, the number of students doubled, the staffing shortage being solved in the country. He strengthened the academic staff and technical-material basis, provided equipment and teaching materials for the training process, and improved the living conditions for staff and students.

In 1963 *Nicolae Testemitanu* was appointed Minister of Health, continuing at the same time his activity at the Chair of Traumatology, Orthopedics and Surgery. As Minister, he developed strategies aimed at upgrading the healthcare system patrimony, ensuring enough

healthcare specialists, improving the forms and methods of rendering healthcare services to people.

Professor Testemitanu encouraged a sufficient supply of healthcare professionals, mostly local, and the introduction of Romanian language in the medical training process, an initiative for which he was dismissed from the position of Minister in 1968. Later on, he was appointed Associate Professor at the Chair of Social Medicine and Organization of Healthcare.

In 1973 he defended the thesis of Habilitated Doctor of Medical Sciences. After he had received the scientific-academic title of Professor, he was appointed Head of Social Medicine Chair, which he led until his last breath.

Nicolae Testemitanu was an experienced educator, always devoted to the cause and ideals of young generations. He published over 220 scientific papers, including 15 monographs, methodical works dedicated to public health management and the history of medicine. Under his guidance, the concept of delivering specialized medical services to the rural population had been developed, for which the State Prize in the field of Science and Technology was awarded. Also, the Chair headed by Professor Testemitanu was recognized in the USSR as a rural healthcare coordination scientific center.

Professor Testemitanu was a leading authority of the medical community in the Republic of Moldova, a brilliant scientist and Statesman who brought an essential contribution to the reformation and development of higher medical education and the enhancement of the national healthcare system. A modern primary healthcare system, functionally integrated with the specialized medicine, has been created due to his efforts.

Nicolae Testemitanu passed away on September 20, 1986. He was conferred the title of Academician of Academy of Sciences of Moldova post-mortem.

Starting from 1990 the State University of Medicine and Pharmacy of the Republic of Moldova bears the name of the brilliant scientist.

MESSAGE OF THE MINISTER OF HEALTH OF THE REPUBLIC OF MOLDOVA



Dear students and young doctors,

I extend a warm welcome to you at the *Nicolae Testemitanu* State University of Medicine and Pharmacy, a space of academic excellence, professional development, and innovation in the field of health.

As Minister of Health, I consider scientific research to be one of the fundamental priorities for the sustainable development of the healthcare system. The progress of medicine is not possible without new ideas and without the active involvement of the new generation. For this reason, I firmly believe that young people must be encouraged to engage in research, to contribute to the advancement of science, and to become the future leaders in the medical field.

The MedEspera International Congress for Students and Young Doctors represents a valuable platform for dialogue, exchange of experience, and academic affirmation. It is living proof of your extraordinary potential and your ability to bring positive changes to society. I appreciate the efforts of the Association of Students and Residents in Medicine of Moldova in organizing this event, which promotes academic excellence and civic engagement.

I hope that this congress will be, for each of you, an opportunity to learn, to make your voices heard, and to build international collaborations.

I encourage you to make the most of every moment of this event, to ask questions, to explore, and to trust your own potential. The future of the healthcare system depends on your courage, vision, and involvement.

I wish you all the best and remarkable achievements!

Yours sincerely,

Minister of Health of the
Republic of Moldova, Emil CEBAN,
Doctor habilitated
in medical sciences, Professor

MESSAGE OF THE FIRST VICE-RECTOR

Dear participants, colleagues, and distinguished guests,



It is my great pleasure to welcome you to the 11th edition of the *MedEspera* International Congress for Students and Young Doctors, a valuable platform that brings together aspiring medical professionals, researchers, and educators in a spirit of collaboration, innovation, and academic excellence.

This event reflects the commitment of our academic community to advancing medical knowledge, fostering interdisciplinary dialogue, and encouraging young researchers to explore, question, and contribute to the ever-evolving field of medicine and pharmacy. *MedEspera* has become a meaningful tradition, offering participants the opportunity to share ideas, present research findings, and engage with peers and mentors from diverse backgrounds.

During the Congress, participants will have the opportunity to take part in scientific sessions featuring research presentations and clinical case discussions, keynote lectures delivered by national and international experts, practical workshops and interactive sessions, as well as academic and professional networking in a dynamic environment.

I am confident that this edition of the Congress will inspire new perspectives, strengthen professional connections, and stimulate impactful discussions that will shape the future of healthcare.

On behalf of *Nicolae Testemitanu* State University of Medicine and Pharmacy of the Republic of Moldova, I extend my sincere appreciation to the organizers and participants for their dedication and enthusiasm. I wish you all a productive, insightful, and memorable experience.

Yours sincerely,

First Vice-rector, Vice-rector for Academic Activity Management,
Olga CERNEȚCHI,
Doctor habilitated in medical sciences,
Professor.

WELCOME MESSAGE

OF THE ORGANIZING COMMITTEE

Dear colleagues and friends,

It is our pleasure to welcome you to the 11th edition of the MedEspera International Congress for Students and Young Doctors, taking place in Chișinău, Republic of Moldova, at *Nicolae Testemitanu* State University of Medicine and Pharmacy.

This year, MedEspera is held under the theme "Building a New Era of Medicine with Artificial Intelligence", reflecting how AI is no longer the future - it is transforming medicine today, from clinical practice and diagnostics to research and education.

The congress aims to inspire young medical professionals by providing access to cutting-edge scientific knowledge through keynote lectures, workshops, and interdisciplinary sessions. It is an opportunity to develop new skills, explore diverse medical fields, and engage with peers and experts from around the world.

Since its first edition, MedEspera has grown into an internationally recognized platform for students, residents, and young doctors to share ideas, present research, and foster professional growth. We hope that this abstract book will serve as a valuable guide to the innovative research and clinical work presented during the congress.

We wish you an inspiring and rewarding MedEspera 2026.

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PUBLIC HEALTH SECTION

1. WHOLE-GENOME SEQUENCING FOR DETECTION OF ANTIMICROBIAL RESISTANCE IN NEISSERIA GONORRHOEAE: A SYSTEMATIC REVIEW

Author: Sam Adwin**; Co-author:** Fathima Nizamudeen

Scientific adviser: Emilia Behta, Assistant Professor, Department of Microbiology and Immunology, *Nicolae Testemitanu* State University of Medicine and Pharmacy, Chisinau, Republic of Moldova

Introduction. Neisseria gonorrhoeae represents a major global public health concern, with its antimicrobial resistance threatening the effectiveness of current treatment regimens. Whole-genome sequencing (WGS) has emerged as an impactful genomic tool for detecting genetic determinants associated with antimicrobial resistance and for monitoring the spread of resistant lineages. However, the extent to which genomic methods predict phenotypic antimicrobial susceptibility across different settings has not been consistently quantified.

Aim of study. Evaluate the ability of whole-genome sequencing to detect antimicrobial resistance determinants in Neisseria gonorrhoeae and assess its concordance with phenotypic antimicrobial susceptibility testing through a systematic review.

Methods and materials. A systematic literature search was conducted in major biomedical databases for studies published between 2022 and 2026 investigating antimicrobial resistance in Neisseria gonorrhoeae WGS. A total of 275 studies were identified, of which 111 articles were assessed for full-text eligibility. Fifty-five studies met the inclusion criteria and were included in the final analysis.

Results. A total of 55 studies published between 2022–2026 were included, representing multiple global regions, most frequently Asia and Europe (16 studies each). The median sample size was 347 isolates (IQR 54–876; range 5–14,000). Whole-genome sequencing was used in all studies, predominantly on Illumina platforms (40 studies), with limited use of hybrid Oxford Nanopore sequencing. Among resistance determinants, penA (42 studies) was the most frequently reported gene, followed by gyrA (37), mtrR (35), parC (33), 23S rRNA (26) and blaTEM (23). Mosaic penA alleles, particularly penA-60.001, were associated with reduced susceptibility to extended-spectrum cephalosporins, while gyrA S91F was the dominant marker of fluoroquinolone resistance. Macrolide resistance was mainly linked to 23S rRNA mutations (A2059G, C2611T). The most evaluated antibiotics were ceftriaxone and azithromycin (45 studies each), followed by ciprofloxacin (42), cefixime (37), tetracycline (36) and penicillin (35). Ciprofloxacin showed the highest resistance prevalence (27.7–100%), whereas ceftriaxone resistance remained generally low but with reports of reduced susceptibility. Genotype–phenotype concordance was frequently described, particularly for prediction of ciprofloxacin resistance using gyrA mutations.

Conclusions. Whole-genome sequencing provides valuable insights into the molecular mechanisms of antimicrobial resistance in Neisseria gonorrhoeae, enabling detection of key resistance determinants such as penA, gyrA, parC, and 23S rRNA mutations. Genomic surveillance is essential for monitoring emerging resistant lineages and supporting evidence-based treatment strategies.

Keywords. Neisseria gonorrhoeae. Whole-genome sequencing.

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2. EPIDEMIOLOGICAL DIFFERENCES IN URINARY BLADDER CANCER BETWEEN INDIA AND MOLDOVA: A DESCRIPTIVE OBSERVATIONAL STUDY

Author: Sreelatha Ganga Kuttan

Scientific adviser: Andrei Oprei, Associate Professor, Department of Urology and Surgical Nephrology, *Nicolae Testemitanu* State University of Medicine and Pharmacy of the Republic of Moldova.

Introduction. Bladder cancer is the ninth most prevalent cancer in the world, and the highest prevalence of 36.6 percent is registered in Europe.It is predominant in men compared to women.

Aim of study. A bladder cancer comparison in Moldova and India through epidemiological indicators such as incidence, mortality, ASR and possible risk factors.

Methods and materials. The current research is an observational epidemiological study where epidemiological variations in bladder cancer in India and Moldova were investigated. The sources of data utilized in this study include GLOBOCAN 2022, PubMed and EAU guidelines. The indicators considered: incidence, age-standardized rate(ASR), mortality rates, mortality to incidence ratio and absolute number of cases and deaths were gathered in the two countries.

Results. There are 498 new cases of bladder cancer in Moldova, having an incidence ASR of 7.2 per 100,000 of the population (GLOBOCAN 2022). There are 229 deaths, which makes mortality ASR of 3.2 per 100,000. India has 22548 new cases of bladder cancer, which gives an incidence ASR of 1.6 per 100,000 people. The death toll was 12,353, which amounts to a mortality ASR of 0.87 per 100,000. On comparing the incidences, Moldova has about 4.5 times more than India. This implies that the individual risk of having bladder cancer is greater in Moldova, even though India has a higher number of cases. A comparison of mortality rate ratios shows that Moldova is approximately three times higher than that of India. However, an indirect measure of the degree of morbidity and the effectiveness of the healthcare system is the mortality to incidence ratio was estimated. This indicates that India has a greater proportion of 57% compared to Moldova 46%. So the lower incidence and mortality reported in India can be due to its large population, possible underdiagnosis, less screening and differences in cancer registration system. These are higher in Moldova because of the older population age structure, tobacco smoking, occupational exposures to carcinogens, early diagnosis and an organised health care system. Both countries have smoking as their major risk factor.

Conclusions. This research shows that epidemiological variations of bladder cancer are considerable in both Moldova and India, which may be due to disparities in medical services, environmental exposures and risk factors such as tobacco use and work carcinogens, and demographic factors. Thus, understanding such differences is important for early diagnosis, development of region specific management and prevention of bladder cancer globally.

Keywords. Incidence, Mortality, Risk factors, GLOBOCAN 2022.

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3. EVALUATION OF ADOLESCENTS' PERCEPTION OF HEALTH EDUCATION

Author: Cătălina Costin

Scientific adviser: Elena Ciobanu, MD, MPH, Associate Professor, Discipline of Hygiene, Department of Preventive Medicine, *Nicolae Testemitanu* State University of Medicine and Pharmacy, Chisinau, Republic of Moldova

Introduction. Adolescence is a critical stage of behavioral formation, in which daily habits significantly influence long-term health. Correct information and the development of health-promoting skills contribute to the prevention of risk factors and the improvement of quality of life. Environmental pressure, misinformation and denial of one's own health needs can generate negative consequences, which underline the essential role of health education during this vulnerable period.

Aim of study. Evaluating the influence of health education on adolescent behaviors and formulating specific recommendations.

Methods and materials. A descriptive study was designed on a sample of 120 adolescents (70% girls, 30% boys), aged 13-18, from middle and high schools. Data were collected through an online questionnaire (Google Forms) with 30 questions, completed with the consent of parents or guardians for minors under 18. The analysis focused on the level of knowledge, sources of information and perception of the usefulness of health education.

Results. Most respondents know the term "health education", but 11% declare partial knowledge, indicating gaps in understanding. 83% received information about health at school, 14% only occasionally, and cases of lack of information are isolated. The main sources of information are: the internet (26%), family (25%), doctors (22%), teachers (21%) and friends (6%). The dominance of the online environment highlights the accessibility of information, but also the risk of exposure to unverified sources. Regarding the credibility of information on social networks, 73% consider it partially truthful, 21% consider it credible, and 6% do not trust it at all, demonstrating a moderate level of critical thinking. Regarding the usefulness of health education at school, 70% consider it useful, 27% partially useful, 2% not useful, and 1% did not benefit from information. Trust in information received at school is high (80%), but 16% express occasional trust and 4% lack trust. Interest in addressing health topics more frequently is expressed by 67% of adolescents, 30% prefer occasional approaches, and 3% declare themselves uninterested.

Conclusions. The results highlight that most adolescents perceive health education as useful and trustworthy, and school, family, and the online environment significantly influence their level of knowledge and behaviors, highlighting the need for continuous and tailored educational programs.

Keywords. adolescents, health education, healthy behaviors, information sources, prevention.

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4. ANTI-DOPING PROGRAMS AS AN ESSENTIAL INSTRUMENT IN PROMOTING ETHICAL VALUES AND PRESERVING THE INTEGRITY OF CLEAN SPORT

Author: Mădălina Jîmbei

Scientific adviser: Artiom Jucov, Associate Professor, *Nicolae Testemitanu* State University of Medicine and Pharmacy, Chișinău, Republic of Moldova

Introduction. Ethical principles in sport represent the cornerstone of fair competition and respectful interaction among participants, while strict adherence to them is indispensable for safeguarding integrity, promoting the spirit of fair play and preserving credibility and moral value. Digital technologies in anti-doping education enable continuous monitoring of the learning process and ensure compliance with the standards established by the World Anti-Doping Agency by promoting ethical behavior and encouraging athletes to compete in accordance with the principles of fair play and the integrity of clean sport. Effective anti-doping programs integrate education, prevention and control measures to minimize doping practices.

Aim of study. Analyzing the applicability of digital anti-doping programs and highlighting the imperative need of aligning them with established ethical standards.

Methods and materials. Scientific publications from the last ten years were reviewed using PubMed, Google Scholar, Medscape, and ScienceDirect databases. The review examined the integration of digital tools and structured learning strategies in promoting adherence to anti-doping principles.

Results. The study highlights the importance of adapting educational content based on age and performance level, using programs such as Play True Challenge for youth and ALPHA 2.0 for elite athletes. The Anti-Doping Education and Learning Platform plays a central role in harmonizing anti-doping education globally. Programs like ALPHA 2.0 and ADVICE provide structured modules that increase awareness of Therapeutic Use Exemption and prohibited substances. According to a study carried out in the United Kingdom in 2023, involving a representative sample of 302 athletes with an average age of 18.7 years (41% women and 59% men), the implementation of an anti-doping program showed positive effects by reducing doping susceptibility by 6.3%, with the average score decreasing from 1.58 to 1.48. The tendency to use supplements decreased by 13.4%, from 4.10 to 3.55. The most significant improvements were observed in anti-doping knowledge, which increased by 36.9% (from 4.07 to 5.57), as well as in self-determined anti-doping behaviors, which improved by 44.1% (from 2.38 to 3.43).

Conclusions. This study demonstrates that the deployment of digital anti-doping initiatives constitutes a significant advancement in promoting fairness and accountability in athletic competitions. Their success relies not on technical advancement only, but equally on compliance with moral guidelines. Consequently, harmonizing these tools with recognized ethical frameworks is crucial for safeguarding the legitimacy and trustworthiness of sports activities.

Keywords. Anti-doping measures, Educational programs, Clean sport.

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5. INFECTIOUS COMPLICATIONS AFTER COSMETIC AND PLASTIC SURGERY: A SYSTEMATIC REVIEW OF RISK FACTORS AND CLINICAL OUTCOMES

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Introduction. Interest in plastic and aesthetic procedures is rising worldwide. Over the past decade, both minimally invasive techniques (like injections, thread lifting, lasers, and contouring) and surgeries have increased sharply. According to the World Society of Plastic Surgeons in 2024, about 38 million procedures (17.4 million surgical, 20.5 million non-surgical) were performed, with a 42.5% growth in aesthetic interventions from 2020–2024. Plastic surgery is evolving under conditions of competition between countries with varying income levels, conditions, and equipment capabilities. Differences in national resources and standards affect patient outcomes and care quality. Patient safety and the risk of infectious complications are key concerns.

Aim of study. To analyze scientific publications on the causes and specifics of infectious complications after cosmetic and plastic surgery.

Methods and materials. A systematic review conducted according to PRISMA guidelines identified 95 articles published in English within the past decade and retrieved from PubMed and Google Scholar, addressing postoperative infections and risk factors in plastic and aesthetic surgery. Non-human and non-cosmetic studies were excluded.

Results. The rate of infectious complications associated with plastic surgery and cosmetic procedures is 39% (4 times higher than the global prevalence of surgical site infections), leading to 51% surgical recurrences. Particularly high risks arise following procedures and interventions involving implants, volume interventions, and breaches of aseptic standards. The most common complications are postoperative infection (45–50%), fat and thromboembolism (25–30%), and bleeding and hematoma (20–22%). Wound dehiscence was observed in approximately 18–20% of cases, and skin necrosis was diagnosed in approximately 15%. The determining factor is medical tourism, which compromises monitoring and treatment, leading to an increased risk of complications such as postoperative infections and antibiotic-resistant infections, particularly in patients who may not receive adequate follow-up care after returning home. Additionally, antibiotic-resistant microorganisms, such as S. aureus, S. epidermidis, Ps. aeruginosa, E. coli, and others, increase hospitalization duration and the frequency of reinterventions. The most common complications include abscesses, cellulitis, and necrotizing fasciitis. Liposuction (0.1–1.1%), breast surgeries (0.5–2.5%), and abdominoplasty (1.0–3.8%) are the procedures that have the highest risk of infection.

Conclusions. The increased demand for cosmetic procedures and the frequency of complications underscore the urgent need to optimize preventive strategies, improve the quality of medical care, and strengthen systematic registration and monitoring of postoperative complications.

Keywords. complications, plastic surgery, surgical site infections, risks.

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6. NONCOMMUNICABLE DISEASES – A BURDEN FOR THE HEALTHCARE SYSTEM OF THE REPUBLIC OF MOLDOVA

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Introduction. Noncommunicable diseases (NCDs) are the main cause of morbidity and mortality globally and a health burden for the population of the last century. According to the WHO data, annually, globally, about 43 million people (74%) die from NCDs. At the national level, NCDs cause over 80% of all deaths and determine 4 out of 10 cases of primary disability. In the Republic of Moldova (RM), priority public health problems are: cardiovascular diseases (CVDs), tumors, digestive and respiratory system diseases, diabetes mellitus (DM), and mental and behavioral disorders.

Aim of study. Studying the impact of NCDs on the healthcare system in the Republic of Moldova by analyzing morbidity indicators, and the burden generated at the population, social, and economic levels.

Methods and materials. The study is a longitudinal, descriptive, observational epidemiological study that included an epidemiological analysis of official data on NCDs at the national level during the period 2014-2024.

Results. In the RM, CVD is the main cause of morbidity and mortality of the population, ranking first in the hierarchy of registered diseases, followed by neoplasms, digestive system pathology, chronic respiratory diseases, and mental and behavioral disorders. In 2021, CVD was the cause of 50% of all registered deaths. Tumors are the second cause of death, accounting for 12.6% of overall mortality. The overall prevalence of malignant tumors in the population in the last 10 years has shown an increasing trend. Digestive system pathologies caused about 10% of all deaths, of which about 80% are the result of chronic hepatitis and cirrhosis. On average, in the years analyzed, both the incidence and prevalence of digestive system diseases recorded a decreasing trend in the number of causes. Chronic respiratory diseases occupy 4th place in the structure of causes of death, with an increasing trend from about 485 thousand cases (2014) to about 604 thousand cases (2019). In the last 10 years, the incidence and prevalence of DM in the Republic of Moldova have experienced a significant increase, with the number of cases doubling along with the increase in obesity cases. During the analyzed period, the prevalence of mental and behavioral disorders in the country's population decreased from about 159 thousand cases (2014) to about 143 thousand cases (2024).

Conclusions. In the Republic of Moldova, NCDs represent a burden on the medical system. The implementation of preventive measures and the early detection and management of them are essential to reduce the impact on the health of the population and the health system.

Keywords. Noncommunicable diseases, burden.

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7. ELECTRONIC CIGARETTES – THE ILLUSION OF SAFETY FOR YOUNG PEOPLE.

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Introduction. In recent years, the use of electronic cigarettes (vapes) has increased significantly among young people. These products are often promoted and perceived as a less harmful alternative to traditional smoking. However, scientific research indicates that e-cigarettes contain nicotine and other chemicals that can negatively affect health, especially in adolescents, whose bodies are in the process of development.

Aim of study. Assess the impact of e-cigarette use on the health of young people and identify the main risks and consequences associated with the use of e-cigarettes.

Methods and materials. This study was based on a review of scientific literature retrieved from electronic databases, including PubMed, IBN, and Google Scholar, focusing on the health effects and addiction risks associated with e-cigarette use among youth.

Results. Analysis of recent studies shows that electronic cigarettes contain nicotine, a highly addictive substance, which stimulates the release of dopamine in the brain, promoting addiction even after short periods of use. Vape liquids usually include propylene glycol and vegetable glycerin, which serve as solvents and form aerosols when heated; these aerosols can irritate the nasal mucosa, throat and bronchi, causing coughing, a burning sensation and breathing difficulties. Flavorings such as diacetyl, vanillin or acetylpropionyl are also found in liquids. Nicotine also affects the development of the adolescent brain, interfering with memory processes, attention and learning capacity, and may increase susceptibility to other addictions in the future. Repeated exposure to these substances can lead to decreased lung function, worsening asthma or the development of chronic obstructive pulmonary disease. Studies also show that young people who vape are at a higher risk of later switching to traditional smoking, which amplifies the harmful effects on health. Even flavors considered “harmless” can cause allergic reactions, local inflammation and irritation of the mucous membranes. Thus, the use of e-cigarettes is not without risks; the combination of nicotine, chemicals in the liquids and metals in the device creates a complex and potentially dangerous impact on the health of young people.

Conclusions. E-cigarettes pose a real health risk to young people, as they expose the body to nicotine, toxic chemicals and metals, affecting lung and cardiovascular functions and brain development. The popularity and attractiveness of vaping creates a false perception of safety, which can lead to the initiation of nicotine consumption and, subsequently, to the transition to traditional smoking, highlighting the importance of education and prevention among adolescents.

Keywords. electronic cigarettes, vaping, nicotine, youth, health, risks.

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8. EVALUATION OF SOCIO-HYGIENIC FACTORS AMONG THE STAFF OF THE PLACEMENT AND REHABILITATION CENTER FOR YOUNG CHILDREN IN THE MUNICIPALITY OF CHIȘINĂU

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Introduction. Socio-hygienic factors represent a complex of social, economic, and environmental conditions that influence the health status and work capacity of staff working in medical-social institutions. Within placement and rehabilitation centers for young children, the personnel are exposed to an increased level of professional responsibility, psychological demands, and various occupational risk factors.

Case presentation. The research was conducted within the institution, involving 40 voluntarily selected employees, working in various roles.

Discussions. The analysis of the data obtained from the survey of the staff of the aforementioned institution highlighted a number of socio-demographic, occupational, and behavioral characteristics relevant to the evaluation of socio-hygienic factors. The structure of the study group is characterized by a predominance of female participants 82.5%, with the majority of respondents coming from urban areas 55%. In terms of age, most participants belong to the 36–45 age group 30%, followed by the 46–59 age category 25%. The educational level of the staff is relatively high, with most respondents holding higher education or postgraduate degrees. The analysis of work experience showed that most of the staff have professional experience of up to 10 years. Regarding health status, the majority of respondents do not suffer from chronic diseases. However, several conditions were reported, the most frequent being arterial hypertension 25%. Other identified pathologies included gastritis 12.5%, pancreatitis 10%, diabetes mellitus 7.5%. In addition, less frequently reported conditions included migraines, varicose veins, and ischemic heart disease. The analysis of lifestyle revealed that a considerable proportion of respondents do not regularly engage in sports activities 35%, while the majority prefer walking as a form of physical activity 45%. The assessment of dietary habits indicated that most respondents consider their diet to be relatively healthy, characterized by the consumption of cooked and balanced meals. Nevertheless, some participants reported consuming processed foods or having mixed dietary habits. Respondents also reported the presence of certain undesirable factors in the workplace, such as lighting conditions, noise, temperature, and air humidity. In general, these factors, to varying degrees, were perceived by some respondents as sources of discomfort and were associated with the intensive activity within the departments, the presence of children, and the use of equipment.

Conclusions. The results of the questionnaire highlight the presence of certain occupational hazards in the work environment and emphasize the importance of promoting occupational health and implementing measures to prevent professional stress and discomfort.

Keywords. Socio-hygienic factors, Occupational health, Working conditions.

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9. EPIDEMIOLOGY OF CATHETER-RELATED BLOODSTREAM INFECTIONS

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Introduction. Catheter-related bloodstream infections (CRBSI) are an important category of healthcare-associated infections and remain a challenge for modern healthcare systems. Central and peripheral venous catheters are widely used in hospitalized patients for drug administration, parenteral nutrition, and hemodynamic monitoring. Although these devices are essential in clinical practice, their use is associated with an increased risk of infectious complications. Epidemiological data suggest that catheter-associated infections represent approximately 20–30% of hospital-acquired bloodstream infections and are associated with prolonged hospitalization, increased treatment costs, and higher mortality rates. Microbial colonization of catheter surfaces and biofilm formation play a central role in the development and persistence of these infections.

Aim of study. The aim of this study was to analyze the epidemiology, etiological agents, pathogenesis, and prevention strategies of infections associated with venous catheterization.

Methods and materials. A literature review was conducted using international biomedical databases including PubMed, Scopus, and Web of Science. Clinical guidelines, systematic reviews, and original studies addressing catheter-related infections were analyzed. The selected publications focused on epidemiology, microbiological etiology, risk factors, diagnostic approaches, treatment options, and preventive measures.

Results. The most frequently reported pathogens include Staphylococcus aureus, coagulase-negative staphylococci, Gram-negative bacilli, and Candida species. Infection development is strongly related to microbial adhesion to catheter surfaces followed by biofilm formation, which increases resistance to antimicrobial therapy and host immune responses. Major risk factors described in the literature include prolonged catheterization, immunosuppression, severe underlying diseases, and inadequate aseptic technique during catheter insertion or maintenance. Diagnosis is based on clinical evaluation combined with microbiological confirmation through blood cultures and laboratory methods such as differential time to positivity. Treatment includes targeted antimicrobial therapy and, when necessary, removal or replacement of the infected catheter.

Conclusions. Catheter-related bloodstream infections remain a significant cause of morbidity in hospitalized patients. Early diagnosis, appropriate antimicrobial therapy, and proper catheter management are essential for improving patient outcomes. Implementation of standardized infection prevention measures and continuous training of healthcare personnel play a key role in reducing the incidence of these infections.

Keywords. catheter-related bloodstream infection, venous catheterization, biofilm, antimicrobial therapy, infection prevention.

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10. FACTORS ASSOCIATED WITH DAILY TOBACCO USE AMONG ADOLESCENTS

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Introduction. One of the highest preventable causes of disease and death worldwide is the consumption of tobacco among adolescents. During adolescence, individuals are particularly susceptible to risk-taking behaviors and social influence, which lead to smoking initiation. The risk of long-term nicotine dependence and chronic illnesses in old age, is significantly increased by daily tobacco use, established during adolescence.

Aim of study. To identify and analyze the main factors associated with daily tobacco use among adolescents based on current scientific literature.

Methods and materials. A literature review was conducted using the scientific databases PubMed and PubMed Central. Priority was given to systematic reviews, cross-sectional studies, and epidemiological studies examining factors that are associated with smoking among adolescents.

Results. Research has shown that there are a multitude of interrelated factors with a major influence on tobacco use among adolescents. A major predictor of smoking initiation and subsequent regular use is parental smoking and family attitudes towards tobacco. Friend influence also plays an important role, as adolescents are more likely to adopt tobacco use when their peers smoke. Additionally, reduced school connectedness, academic difficulties, and socioeconomic status are additional factors associated with increased rates of tobacco use. Adolescents are also exposed to tobacco marketing and the accessibility of nicotine products, while e-cigarettes may serve as a gateway to smoking initiation.

Conclusions. Daily smoking among adolescents is a multifactorial phenomenon influenced by family environment, peer influence, socioeconomic conditions, and exposure to nicotine products. Solid prevention strategies must combine family interventions, school-based prevention programs, and more effective public health policies to reduce adolescent access to tobacco and new nicotine products.

Keywords. Adolescents, tobacco use, cigarette smoking, risk factors, peer influence, parental smoking.

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11. ANTIMICROBIAL SUSCEPTIBILITY OF PROTEUS MIRABILIS STRAINS ISOLATED FROM URINARY TRACT INFECTIONS

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Introduction. Urinary tract infections (UTIs) are among the most common bacterial infections worldwide, affecting both community and hospital populations. Most cases are caused by Gram-negative bacteria belonging to the Enterobacteriaceae family. Among them, Proteus mirabilis is an important opportunistic pathogen frequently associated with complicated and catheter-associated UTIs. Its pathogenicity is related to several virulence factors, including urease production, swarming motility, and biofilm formation, which facilitate urinary tract colonization and promote urinary stone formation. The increasing antimicrobial resistance of P. mirabilis strains represents a significant public health concern and highlights the need for continuous monitoring of antimicrobial susceptibility patterns.

Aim of study. To evaluate the antimicrobial susceptibility profile of Proteus mirabilis strains isolated from urine samples and to identify the main resistance patterns associated with urinary tract infections.

Methods and materials. Proteus mirabilis strains were isolated from urine samples collected from patients with clinical suspicion of urinary tract infection. Identification was performed using standard microbiological culture methods and biochemical tests. Antimicrobial susceptibility testing was carried out using the Kirby–Bauer disk diffusion method on Mueller–Hinton agar, according to international standards established by the Clinical and Laboratory Standards Institute (CLSI) and the European Committee on Antimicrobial Susceptibility Testing (EUCAST). Analysis and interpretation of antimicrobial resistance patterns were supported by current scientific literature and clinical guidelines from PubMed/MEDLINE, WHO reports, and European Association of Urology (EAU) guidelines.

Results. The analysis demonstrated variability in antimicrobial susceptibility among the isolated Proteus mirabilis strains. Increased resistance was observed to ampicillin, trimethoprim-sulfamethoxazole, and early-generation cephalosporins, which are commonly used in empirical UTI therapy. Higher susceptibility was recorded for aminoglycosides, fluoroquinolones, and beta-lactam/beta-lactamase inhibitor combinations. A proportion of isolates exhibited multidrug-resistant phenotypes, indicating a growing trend of antimicrobial resistance among uropathogenic bacteria.

Conclusions. Proteus mirabilis from urinary tract infections show variable antibiotic susceptibility, with increasing resistance. Ongoing monitoring and rational antibiotic use are essential to guide therapy and limit multidrug resistance.

Keywords. Proteus mirabilis, antimicrobial susceptibility, urinary tract infection, antimicrobial resistance, uropathogens.

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12. LABORATORY DIAGNOSIS OF CLOSTRIDIOIDES DIFFICILE INFECTION: CURRENT APPROACHES

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Introduction. Clostridioides difficile infection (CDI) is a major cause of healthcare-associated diarrhea worldwide and is strongly associated with broad-spectrum antibiotic use and disruption of intestinal microbiota. Accurate diagnosis is essential for appropriate treatment and prevention of nosocomial transmission. However, laboratory diagnosis remains challenging because detection of the microorganism or toxin genes may also reflect asymptomatic colonization. Recent advances in immunological and molecular diagnostic methods have improved diagnostic accuracy when used within integrated diagnostic algorithms.

Aim of study. To evaluate the main laboratory diagnostic methods used for the detection of Clostridioides difficile infection and to analyze the effectiveness of diagnostic algorithms recommended by international clinical guidelines.

Methods and materials. A literature analysis was conducted using major biomedical databases including PubMed/MEDLINE, Scopus, Web of Science, UpToDate and PubMed Central (PMC). Articles published between 2015 and 2024 were selected, including original studies, systematic reviews and international clinical guidelines. The analysis focused on the main diagnostic methods used for CDI detection: glutamate dehydrogenase (GDH) antigen detection, enzyme immunoassays for toxins A and B, nucleic acid amplification tests (NAAT/PCR) and toxigenic culture.

Results. Individual diagnostic methods show important limitations. GDH antigen assays demonstrate high sensitivity (85–95%) and are commonly used as screening tests, but cannot differentiate toxigenic from non-toxigenic strains. Enzyme immunoassays for toxins A and B have high specificity (95–99%) but moderate sensitivity (60–80%). Molecular methods such as NAAT/PCR detect toxin genes (tcdA and tcdB) with sensitivity and specificity exceeding 95%, although they may also identify asymptomatic colonization. Current studies indicate that two- or three-step diagnostic algorithms combining GDH screening with toxin detection and/or NAAT significantly improve diagnostic accuracy.

Conclusions. Laboratory diagnosis of Clostridioides difficile infection requires integrated diagnostic strategies. Algorithms combining immunological and molecular methods significantly improve diagnostic sensitivity and specificity and allow differentiation between colonization and active infection. Implementation of these strategies in clinical laboratories facilitates appropriate patient management and reduces the nosocomial transmission of CDI.

Keywords. Clostridioides difficile, laboratory diagnosis, GDH, toxins A and B, PCR.

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13. THE IMPACT OF COVID-19 ON MULTIPLE ORGAN SYSTEMS

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Introduction. COVID-19 is an infectious disease caused by the SARS-CoV-2 virus strain. Symptoms range from fever, cough and sore throat to more serious and life-threatening conditions such as respiratory failure and septic shock. Although it primarily affects the lungs by increasing vascular permeability and ultimately causing pulmonary edema, multiple organ complications following COVID-19 infections have been identified in a large number of individuals including acute kidney injury, hearing loss, increased risk of fractures and neurological and psychiatric disorders. Studies are currently conducted on recovered patients to better understand the consequences of the virus on multiple organ systems and to identify the correlation between COVID-19 and the onset of various organ diseases.

Aim of study. The aim of this study is to evaluate the prevalence of multiple organ complications following COVID-19 infections.

Methods and materials. The study was conducted based on scientific literature available on platforms such as PubMed, The Lancet, SciELO Brazil and ScienceDirect from Elsevier.

Results. The most common complication following lung damage in COVID-19 patients is acute kidney injury due to acute tubular injuries or collapsing glomerulopathy. Older individuals infected with the virus experienced increased bone fragility and risk of major fractures such as hip or clinical vertebral fractures compared to non-infected individuals. There is evidence of an increased risk of neurological and psychiatric disorders following infections with the SARS-CoV-2 virus including cognitive deficits, dementia, psychotic disorders, and epilepsy. Although not a common complication, there are a number of recorded cases of patients experiencing profound sensorineural hearing loss, requiring cochlear implants in extreme cases.

Conclusions. COVID-19 is a multisystemic disease that affects the function of multiple organs, leading to a number of long-term consequences such as impaired kidney function or an increased risk of neurological disorders. This accentuates the need for a multidisciplinary approach in the treatment of COVID-19 patients to further manage and prevent life-altering complications.

Keywords. COVID-19, multisystemic, infection, SARS-CoV-2.

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14. IMPACT OF EXCESSIVE ALCOHOL CONSUMPTION ON HEALTH AND SOCIETY IN THE REPUBLIC OF MOLDOVA

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Introduction. Excessive alcohol consumption is one of the most important public health issues in the Republic of Moldova, with an annual average intake exceeding 13 liters of pure alcohol per capita. It has been assumed that excessive alcohol consumption is associated with significant increases in morbidity and mortality, as well as the emergence of social problems.

Aim of study. Assessing the effects of excessive alcohol consumption on health and social security in the Republic of Moldova, using recent data from national studies.

Methods and materials. A descriptive study was conducted using data from the STEPS 2021 survey (n=4097 people aged 18–69). Data on the quantity of alcohol consumed, mortality, liver cirrhosis incidence, domestic violence cases and traffic accidents were analyzed. Data processing included descriptive statistics and chi-square test, with a significance level of $p<0.05$.

Results. The average annual consumption was 13 liters of pure alcohol per capita. While the prevalence of current drinkers remains high, heavy episodic drinking (binge drinking)- defined as consuming six or more standard drinks at once- affects 13.8% of the adult population. This behavior is eight times more prevalent in men (24.5%) than in women (3.1%). Harmful alcohol consumption is present in 8.5% of current drinkers. Unrecorded alcohol, primarily home-produced wine, is a major concern, used by nearly half of current drinkers and accounting for 41.5% of total volume. Adverse impacts are significant: 9.2% of drinkers failed daily obligations, and 9.7% required a morning drink to recover from a binge. Although binge drinking has dropped by 29.2% since 2013, the improvement was mainly among women, with minimal progress for men. Alcohol remains a primary behavioral risk factor for the country's high rate of noncommunicable diseases. Alcohol-related mortality accounted for 26% of all deaths. Liver cirrhosis incidence remained high, and excessive alcohol use was involved in 38% of domestic violence cases and about 30 road accident deaths per year. The differences were statistically significant ($p<0.001$).

Conclusions. The hypothesis that excessive alcohol consumption is associated with increased medical and social problems was confirmed. It is recommended to implement effective prevention programs, population education and strict control of homemade alcohol production.

Keywords. alcohol, public health, mortality, cirrhosis, violence, STEPS.

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15. POST-PANDEMIC EPIDEMIOLOGY OF PERTUSSIS AND THE IMPORTANCE OF VACCINATION IN DISEASE CONTROL

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Introduction. Whooping cough (pertussis) is an acute respiratory infection caused by Bordetella pertussis, characterized by high transmissibility and a significant public health impact, particularly among infants. Although vaccination has markedly reduced incidence in recent decades, the disease remains endemic with cyclical outbreaks every 3–5 years. During the COVID-19 pandemic, reported cases temporarily declined, likely due to distancing and hygiene measures. However, recent data indicate a resurgence of pertussis, with over 32,000 cases reported in Europe in the first quarter of 2024.

Aim of study. To synthesize recent epidemiological data on pertussis in the post-pandemic period and to identify factors contributing to the re-emergence of the disease, with emphasis on vaccination for prevention.

Methods and materials. This study represents a narrative review of the scientific literature published between 2021 and 2025. Articles indexed in international databases (PubMed, Scopus, Web of Science) were analyzed together with official reports from the World Health Organization (WHO), the European Centre for Disease Prevention and Control (ECDC), and the Centers for Disease Control and Prevention (CDC). Studies addressing incidence, vaccination coverage, vaccine effectiveness, and prevention strategies—particularly maternal vaccination—were included. Data were synthesized to highlight recent epidemiological trends.

Results. After the decline in pertussis incidence during the COVID-19 pandemic, many regions reported a rapid increase in cases. Globally, more than 24 million cases and about 160,000 deaths are estimated annually, mostly among young children. Adolescents and adults represent an important reservoir of transmission because post-vaccination immunity decreases over time. Studies show that Tdap vaccine effectiveness in adolescents may decline from about 69% in the first year after vaccination to around 9% after four years. Delays in routine immunization during the pandemic and insufficient booster doses in adults have also contributed to the accumulation of susceptible individuals. Maternal vaccination remains one of the most effective strategies to protect infants, reducing the risk of disease in the first months of life by up to 78%.

Conclusions. The resurgence of pertussis in the post-COVID-19 period highlights persistent challenges in controlling this vaccine-preventable infection. Strengthening immunization programs, increasing booster coverage among adolescents and adults, and promoting vaccination during pregnancy are essential to reduce transmission and protect infants at highest risk.

Keywords. Whooping cough, Bordetella pertussis, epidemiology, vaccination, post-COVID-19.

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16. PHYSIOPATHOLOGICAL DYNAMICS AND CLINICAL DETERMINANTS OF SEVERITY IN LASSA VIRUS INFECTION: AN ANALYTICAL SYNTHESIS

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Introduction. Lassa Fever (LF) represents a major clinical entity within the spectrum of viral hemorrhagic fevers (VHF), caused by a systemic-tropic arenavirus. Distinct from other VHFs, the pathogenesis of LF is characterized by viral-induced immunosuppression, marked by the impaired activation of dendritic cells and a restricted proliferation of T-lymphocytes during critical phases. Given the expanding geographical range of its vector, Mastomys natalensis, and the increasing potential for imported cases, elucidating clinical markers of severity has become a global medical priority.

Aim of study. To conduct a multidimensional evaluation of the clinical manifestations of Lassa fever, focusing on the correlation between viral load, systemic inflammatory response, and the vital prognosis of the adult patient.

Methods and materials. This study comprises a systematic review of specialized literature (2021-2026), querying the PubMed, and ScienceDirect databases. Forty-five relevant bibliographic sources were analyzed, utilizing Boolean operators for the terms: "Lassa virus AND pathogenesis", "Vascular leakage in LASV", "Neurological sequelae", and "Biochemical predictors of mortality".

Results. Integrative data analysis reveals a clinical spectrum bifurcated by the host's immune response: Vascular Homeostasis and Capillary Leak Syndrome: Severe forms are defined not by massive hemorrhage, but by profound endothelial dysfunction. Facial edema, serous effusions (pleural effusion, ascites), and refractory hypotension are the result of an atypical "cytokine storm," wherein pro-inflammatory interleukins (IL-6, IL-8) modulate capillary permeability. Organ-Specific Manifestations: Exudative Pharyngitis: Present in over 70% of patients, it serves as both the portal of entry and the site of primary replication, constituting a cornerstone in early differential diagnosis. Hepatic Impairment: Hepatic cytolysis (AST/ALT elevation >10 times the normal limit) is a robust predictor of mortality, reflecting the degree of multifocal hepatocellular necrosis. The Neurological Paradox: Sensorineural hearing loss occurs in approximately 30% of survivors. Recent data suggest a mechanism of molecular mimicry or immune-mediated injury to the vestibulocochlear nerve, independent of systemic viremia levels.

Conclusions. Lassa fever transcends the classic definition of a hemorrhagic disease, presenting instead as an immune-mediated multi-organ dysfunction syndrome. Early identification of the clinical triad—pharyngitis, edema, and hepatic cytolysis—is imperative for the initiation of nucleoside analogue therapy. Future research must pivot toward the immunomodulation of the host response, beyond mere viral replication inhibition, to mitigate permanent neurological sequelae.

Keywords. Lassa virus, endothelial dysfunction, sensorineural hearing loss, hepatic cytolysis, viral pathogenesis.

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17. FOOD INTOLERANCES AMONG MEDICAL STUDENTS

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Introduction. Food intolerances are increasingly reported in the general population and among university students, significantly affecting health, emotional well-being, and academic performance. Given the hectic lifestyle and limited access to specialized information, the effective management of these conditions often remains a major challenge in the academic environment.

Aim of study. The aim of this study was to assess food intolerances among students at Nicolae Testemițanu State University of Medicine and Pharmacy, by identifying the most common intolerances and evaluating their impact on students' well-being and academic outcomes.

Methods and materials. A cross-sectional quantitative study was conducted between January and March 2025. Data were collected through an anonymous online questionnaire distributed to students across all faculties and study programs of the university. A total of 469 students participated. The 27-item questionnaire covered demographic characteristics, health history, diagnostic methods, clinical manifestations and dietary habits, and the perceived impact of food intolerances on academic performance and students' emotional well-being.

Results. Of the 469 respondents, 80.4% were female and 19.6% were male, the dominant age group being 20-22 years (43.5%). Food intolerances were reported by 10.9% of participants (n=51). Among students reporting diagnosed food intolerances, lactose intolerance was the most frequently reported (68.6%), followed by gluten intolerance (21.6%). Other reported intolerances included other foods (23.5%), fructose (7.8%), nuts (5.9%), and seafood (2.0%). Symptoms such as abdominal pain, bloating, nausea, and digestive discomfort were commonly reported, with onsets most frequently occurring between the ages of 16 and 20. Reported confirmation methods included self-observation (41.2%), medical tests (39.2%), and consultations with healthcare specialists (19.6%). The predominant strategy for managing symptoms was the avoidance of foods identified as triggers (84.3%). Food intolerances were also reported to affect students' daily activities, influencing academic performance in 27.5% of cases and emotional well-being in 58.8% of respondents.

Conclusions. Food intolerances represent a current issue among medical students, significantly impacting their emotional well-being and academic performance. Although many take preventive measures, incomplete information and limited access to support highlight the need for targeted educational programs.

Keywords. Food intolerance, students, lactose, gluten.

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18. THE ROLE OF THE RED FOX (VULPES VULPES) IN MAINTAINING SYLVATIC RABIES IN THE REPUBLIC OF MOLDOVA

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Introduction. Unlike endemic regions where the domestic dog represents the main vector, in the Republic of Moldova the epidemiological profile is dominated by the red fox (Vulpes vulpes). This species ensures the continuous circulation of the virus in the natural environment and constitutes the primary source of infection for domestic animals and the human population.

Aim of study. To evaluate the role of the red fox as the main reservoir of the rabies virus in the Republic of Moldova and identify control interventions targeting this epidemiological aspect.

Methods and materials. A descriptive, retrospective epidemiological study was conducted using national data from the Republican Centre for Veterinary Diagnosis and the National Agency for Public Health, covering the period 2016-2025. The study focused on the analysis of the species distribution of rabies cases in animals.

Results. In 2025, out of a total of 47 confirmed rabies cases in animals, 10 were diagnosed in wildlife. Of these, 80% were attributed to the red fox. Infected domestic animals, such as cattle, dogs, and cats, represent secondary victims of transmission from the sylvatic reservoir. During the period of implementation of aerial oral vaccination of foxes, a significant reduction in the number of cases was observed, from 91 in 2020 to 18 in 2024. Following the limitation of this strategy, a resurgence of cases was recorded in 2025, reaching 47. These data support the central role of the red fox in maintaining the epidemiological cycle of rabies in the Republic of Moldova.

Conclusions. The red fox represents the predominant sylvatic reservoir of rabies in the Republic of Moldova. Control of the epidemiological cycle through nationwide oral vaccination of foxes represents the intervention with the greatest impact on disease incidence. Vaccination of domestic dogs remains necessary but is insufficient in the absence of strategies targeting the sylvatic reservoir.

Keywords. rabies Republic of Moldova, red fox, epidemiological surveillance, aerial oral vaccination.

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19. CUTANEOUS LEISHMANIASIS IN 2024 IN METHOUIA-MENZEL HABIB HEALTH DISTRICT

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Introduction. Zoonotic cutaneous leishmaniasis has been known in Tunisia since the late 19th century. It represents a major public health problem in Methouia and Menzel Habib (Gabes Governorate). Epidemic Outbreaks of cutaneous leishmaniasis have occurred over the last five years. In 2024, cutaneous leishmaniasis experienced a reactivation in previously affected areas, with the appearance of new foci

Aim of the study. The aim of this study is to establish the epidemiological and clinical profile of this leishmaniasis in light of the peak recorded in 2024.

Methods and materials. This is a retrospective study including all cases of cutaneous leishmaniasis recruited at our outpatient departments from January 2024 to December 2024, which were analyzed specifying age, gender, origin of the disease, clinical appearance of the lesions, date of onset, duration of evolution, biological and/or histological confirmation, treatment, and progression.

Results. A total of 235 cases were analyzed, with a sex ratio equal to 1 and a mean age of 25 years. The average duration of the lesion evolution was 3 months. Lesions were located on the face in 31 cases and on the limbs in 213 cases. Ulcerocrusted lesions predominated in 150 cases. Direct parasitological examination was positive in all cases. The lesions were cicatricial in 148 cases and progressive in 87. Intramuscular administration of Glucantime was administered for patients with multiple lesions or lesions located on the face or periarticular area. Patients with a lesion that was not superinfected and located outside the face received treatment via the intradermal route.

Conclusions. Given the current epidemic context, we must establish an effective prophylactic strategy and offer appropriate treatment before the lesions evolve into cicatricial forms.

Keywords. "Cutaneous leishmaniasis", "Epidemiology", "Epidemic outbreak", "Parasitological diagnosis", "Clinical presentation", "Tunisia".

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20. PATHOGENIC STRAINS OF CUTIBACTERIUM ACNES: FROM DYSBIOSIS TO THERAPY IN ACNE VULGARIS

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Introduction. Acne vulgaris is one of the most common inflammatory diseases of the pilosebaceous unit. Its pathogenesis involves complex interactions between excessive sebum production, abnormal follicular keratinization, immune dysregulation and microbial proliferation. Formerly known as Propionibacterium acnes, Cutibacterium acnes is a commensal member of healthy skin. Emerging evidence no longer supports the well-known paradigm of bacterial overgrowth. Instead, it suggests a strain-driven microbial imbalance, where virulent IA1 ribotypes are associated with increased CAMP factor expression, porphyrin production and a high capacity for biofilm formation.

Aim of the study. This review examines current evidence regarding the genomic diversity of Cutibacterium acnes, factors influencing its virulence and its capacity for biofilm formation. A particular emphasis is placed on strategies for targeted microbial modulation, including phage-based therapeutic approaches.

Methods and materials. A comprehensive review of relevant scientific literature from the past five years, including genomic analyses, molecular studies and in vitro biofilm experiments, was conducted using PubMed and ScienceDirect.

Results. Genomic profiling studies have confirmed that IA1 ribotypes predominate in inflammatory lesions, exhibiting increased porphyrin synthesis, enhanced expression of pore-forming CAMP proteins and marked biofilm formation. These pathogenic strains send signals to Toll-like receptors 2 and trigger the secretion of cytokines, mainly IL-1β, IL-8 and TNF-α, which sustain perifollicular inflammation. Traditional antibiotic therapy is increasingly limited by rising resistance to clindamycin and macrolides. In contrast, experimental data indicate that C.acnes-specific bacteriophages selectively target pathogenic ribotypes, disrupt established biofilms and most importantly, preserve commensal microbial diversity. Consequently, phage-based therapies act as precision microbiome engineering rather than broad-spectrum eradication.

Conclusions. Acne vulgaris should be redefined primarily as a strain-specific condition rather than a conventional bacterial infection. Integrating genomic profiling with precision modulation of cutaneous microbiome, particularly phage-based therapies, may offer the chance to specifically eliminate virulent ribotypes while preserving commensal balance, marking a shift toward resistance-sparing dermatological treatments.

Keywords. Cutibacterium acnes, biofilm, ribotype IA1, bacteriophage therapy.

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21. FROM VIRAL STRUCTURE TO MOLECULAR DETECTION: DIAGNOSTIC ADVANCES IN HEPATITIS C VIRUS

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Introduction. Hepatitis C Virus is one of the leading causes of cirrhosis, hepatocellular carcinoma, and liver failure, with almost 58 million people worldwide chronically infected, making it a significant global health concern. Characterized by extensive genetic diversity, this single-stranded RNA virus poses a challenge to diagnosis due to the lack of proofreading activity of its RNA-dependent RNA polymerase. HCV infection is frequently asymptomatic and has yet to have an available vaccine, therefore diagnosis is crucial, as early detection could prevent liver damage and interrupt transmission. Fortunately, the ongoing progress in molecular virology has significantly shifted conventional diagnostic techniques to highly sensitive approaches.

Aim of the study. This analysis evaluates current diagnostic strategies for HCV infection in the context of the virus's molecular and structural characteristics, with a particular focus on recent innovations in early microbiological detection and monitoring methods.

Methods and materials. A systematic literature review of studies published over the last 5 years was conducted using biomedical databases, such as PubMed, NCBI and Web of Science.

Results. According to studies, serological screening for anti-HCV antibodies remains the primary diagnostic method. Nevertheless, it cannot differentiate between active and resolved infection, which is why real-time PCR is used for detecting HCV RNA. This confirms active infection by means of its high specificity and sensitivity, allowing precise viral quantification during the pre-seroconversion window period. Recent innovations, including loop-mediated isothermal amplification, CRISPR-associated detection systems, digital PCR and microfluidic platforms offer enhanced detection with high accuracy while requiring minimal equipment, enabling point-of-care testing. Additionally, HCV core antigen evaluations provide practical and cost-effective alternatives where molecular testing is limited, indicating a strong correlation with viral RNA levels.

Conclusions. Understanding HCV molecular structure has led to the development of sophisticated and highly sensitive diagnostic tools that offer the chance of early, accurate and more accessible detection. Making them a part of routine clinical practice may considerably accelerate the efforts toward global elimination of HCV infection.

Keywords. Hepatitis C Virus, Digital PCR, Molecular diagnostics.

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22. ANTIBIOTIC SUSCEPTIBILITY OF ESCHERICHIA COLI STRAINS ISOLATED FROM URINE CULTURES

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Introduction. Globally, UTIs rank as a leading type of bacterial infection, commonly demanding clinical attention and antimicrobial therapy. Recent estimates reveal that nearly 150 million individuals develop urinary tract infections each year. Among uropathogens, Escherichia coli prevails, accounting for broadly ¾ of community-associated urinary infections. Widespread and improper antibiotic use has driven E.coli resistance, emphasizing the significance of susceptibility testing to steer rational treatment and constraint resistance spread.

Aim of study. This study intends to evaluate the current antimicrobial susceptibility of uropathogenic E.coli strains isolated from urine cultures, based on a review of recent scientific literature and laboratory findings. The findings aim to support enhanced therapy and resistance control.

Methods and materials. This research was directed through a review of scientific literature published over the last ten years (2016-2026). Relevant sources were retrieved from: PubMed, Google Scholar, ResearchGate, the WHO website, and peer-reviewed journals including the Polish Journal of Microbiology, Materia Socio-Medica, and the Romanian Journal of Infectious Diseases. A total of 34 articles were selected and analyzed.

Results. Current studies confirm the prevalence of E.coli among uropathogens in both community- and hospital-acquired UTIs, accounting for 70-80% of cases. Resistance profiles varied by antibiotic and region. High susceptibility was recorded for amikacin (>80%), carbapenems (>80%), and nitrofurantoin (75-90%). Conversely, elevated resistance was stated for ampicillin (up to 82%), amoxicillin-clavulanic acid (40-52%), co-trimoxazole (34-45%), fluoroquinolones (ciprofloxacin 9-32%). ESBL-producing strains were reported in 2-30% of isolates, with multidrug-resistant (MDR) strains reaching 50-70% in specific populations. Resistance was higher in hospitalized patients, older adults (>50 years), males, and subjects with prior antibiotic exposure. Virulence factors (fimH, pap, cnf1, hlyA) were frequently linked to resistance and complex infections. These results underscore the significance of local susceptibility data and persistent monitoring to guide empirical therapy and limit the spread of resistant strains.

Conclusions. The outcomes illustrate an increasing level of antimicrobial resistance among urinary E.coli isolates, especially to commonly prescribed antibiotics and rising reports of MDR and ESBL-producing strains. Sustained susceptibility to nitrofurantoin, amikacin, and carbapenems supports the requirement for evidence-based empirical treatment directed by local antimicrobial susceptibility data.

Keywords. Antibiotic susceptibility, E.coli, urine cultures, MDR and ESBL-producing strains.

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23. HEALTHCARE-ASSOCIATED INFECTIONS IN CANCER PATIENTS

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Introduction. According to current prevalence studies conducted by ECDC, the prevalence of HAI in cancer patients is higher than the hospital average, reaching approximately 8–12% in hematology-oncology departments, compared to approximately 6% overall. In cancer patients, HAI is not only an infectious complication, but a major factor influencing survival, treatment efficacy, costs and safety of the medical act.

Aim of study. Analysis of the prevalence and impact of healthcare-associated infections in oncology patients, to substantiate the need to strengthen prevention, control and patient safety measures.

Methods and materials. A descriptive epidemiological study was conducted by analyzing 836 medical records of patients with oncological diagnoses treated in specialized medical institutions, during the period 2023–2025, studying the epidemiological aspects and risk factors of HAIs in cancer patients.

Results. According to the type of cancer, patients who were associated with at least one HAIs, with a predilection, have the following basic diagnosis: colorectal cancer (30.5%), digestive system cancer (22.7%), malignant tumor of the osteoarticular system (15.2%), malignant tumor of the urinary system (10.6%), followed by hematological cancer (5.7%), malignant tumor of the lungs (5.9%), breast cancer (4.8%) and gynecological cancer (4.5%). The average age of the patients is 63.9 years, the youngest cancer patient diagnosed with HAI is 22 years old and the oldest oncological patient with HAI - 86 years old. In the nosological structure, surgical site infections predominate (48.7%), followed by Clostridioides difficile infection (22.1%), nosocomial pneumonia (15.3%), urinary tract infections (9.3%), oral cavity infections (2.5%), soft tissue infections (1.9%). As a result of the study of 1170 strains of microorganisms isolated from 836 patients with HAI from oncology hospitals, it was found that their etiological structure is varied and includes over 17 species of microorganisms, mostly conditionally pathogenic. In the etiological structure of HAI in oncological patients, gram-positive microorganisms prevailed with 777 strains, 66.41% belonging to the most representative bacterial species: S.aureus (47.1%), C.difficile (22.1%), E. faecalis (10.9%), S.pyopenes (8.0%), etc. Gram-negative microorganisms were represented by 365 strains (31.19%), species with a rich population such as E. coli (19.3%), K. pneumoniae (7.7%), P. aeruginosa (6.7%), E. aerogenes (6.3%), etc.

Conclusions. The recognition and identification of the epidemiological characteristics and risk factors of HAIs in oncological patients determines the implementation/consolidation of an Infection Prevention and Control Program targeting the existing flora, sanitary-hygienic and epidemiological problems at the local level.

Keywords. HAIs, oncological patients, risk factor, epidemiology.

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24. AI USE IN ENHANCING THE UNDERSTANDING AND MANAGEMENT OF RECURRENT MENINGITIS

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Introduction. Recurrent bacterial meningitis in a fully vaccinated patient presents a diagnostic challenge, requiring complex anatomical, immunological, and microbiological data. This case illustrates how AI aids in understanding multifactorial causes and guides personalized treatment.

Case statement. A 25-year-old woman presented to the emergency department with a one-day history of fever (38°C), headache, vertigo, nausea, vomiting, odynophagia, and watery, non-severe diarrhea. Her condition deteriorated, with a progressive decrease in consciousness. She has a history of childhood traumatic brain injury (TBI) and has experienced five episodes of septicaemic meningitis from age 4 to the present. In the past year, she was immunised against Neisseria meningitidis (NIMENRIX for serogroups A, C, W-135, Y, and BEXSERO for serogroup B) and Streptococcus pneumoniae (APEXXNAR). A lumbar puncture identified Streptococcus pneumoniae by PCR DNA as the causative agent of meningitis. Based on previous computed tomography (CT) and a contrast-enhanced brain MRI, the imaging findings were suggestive of a Tornwaldt cyst, a deformed sella turcica, and a deformed, elongated pituitary gland. Therapeutic management with good results included an alternative antimicrobial regimen with intravenous Ceftriaxone and Levofloxacin, along with steroid anti-inflammatory treatment.

Discussions. AI synthesis visualised a persistent craniopharyngeal canal linking the lower end to a Tornwaldt cyst in the nasopharynx and the incompletely fused sphenoid bone, with the upper end attached to a deformed sella or elongated pituitary. A normal pituitary sits in the sella, but an elongated, deformed gland suggests abnormal descent during embryogenesis. This characteristic of a persistent craniopharyngeal canal involves the pituitary gland or stalk remaining connected via a fibrous canal through the sphenoid to the nasopharynx. Although a Tornwaldt cyst is often incidental, its presence with sellar/pituitary abnormalities indicates a congenital midline skull base anomaly. Additionally, vaccine response analysis shows the breakthrough results from specific serotype non-response or broader immune dysfunction. Integrating patient data into an AI model enables simulation of treatments and monitoring for recurrence.

Conclusions. AI integration consolidates subtle imagistic signals into a clear pathophysiological framework, with Computational fluid dynamics (CFD) simulations demonstrating a plausible pressure-driven pathway for bacterial pathogens. It conclusively linked a Tornwaldt cyst and pituitary deformity to a skull base defect, directly guiding the need for and planning of surgical repair to prevent fatal infections.

Keywords. AI, recurrent meningitis, simulation.

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25. THE IMPORTANCE OF COMMUNICATION BETWEEN THE FAMILY HEALTHCARE NURSE AND THE PARENTS OF A CHILD WITH HYPOACUSIS

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Introduction. Effective communication in the healthcare system is no longer a detail, but a necessity for many parents. The news that their child has a hypoacusis comes with many questions, emotions and uncertainties, and the family nurse becomes the point of support, being the first person in the healthcare system who welcomes the parents. Beyond communicating the diagnosis and treatment, parents need emotional support. When parents feel supported, the child has the chance to receive the timely help on which his psycho-emotional development depends.

Aim of study. Highlighting the importance of communication between the family nurse and the parents of children with hypoacusis for their support and integration into the family and society.

Methods and materials. This research was a qualitative exploratory study. The research instrument was the questionnaire, used in in-depth, semi-structured individual interviews. The interviews were conducted between 25.09.2025 - 25.11.2025 at the Republican Center for Audiology. The study group included 17 parents who have children with hypoacusis.

Results. In total, 16 mothers and one father participated in the interview. The collected responses were organized into a generalized table according to the questionnaire structure. The results revealed some nonconformities in the communication between parents and family nurses. Parents reported difficulties related to establishing effective communication with the family nurse, low professional competence, insufficient information, and inappropriate behavior. Although administrative support was sometimes provided, discussions about the child's condition and the family's needs were frequently neglected. For 14 out of 17 parents, the family nurse's support in helping integrate the child into family and social life was absent. Only one parent reported having a positive relationship with the nurse. Parents expressed a strong need for clear and accessible information, guidance without judgment, empathetic listening, and a calm environment where they feel safe to ask questions. Parents also suggested that healthcare staff should manage time more effectively so discussions about the child's needs can take place without haste.

Conclusions. The research results highlight the need for empathetic communication and more active involvement of the family nurse in supporting parents of children with hypoacusis. Communication between family nurses and parents must be open, respectful, non-judgmental, and guided by empathy. Supporting families raising children with hypoacusis is not only the responsibility of healthcare professionals, but also of society as a whole.

Keywords. family medical nurse, communication, parents, child with hypoacusis.

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26. ORGANIZATION OF WORKERS' NUTRITION

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Introduction. Workers' nutrition represents an essential determinant of occupational health, directly influencing work capacity, productivity, and the risk of developing chronic non-communicable diseases. Under current conditions, characterized by an accelerated work pace, extended working hours, and limited access to healthy food options, proper organization of nutrition at the workplace becomes particularly important for protecting the health of the working population.

Aim of study. To evaluate the organization of workers' nutrition in different fields of activity in order to identify factors that contribute to ensuring adequate workplace nutrition and the measures necessary to prevent health risks associated with improper nutrition.

Methods and materials. The study was conducted on a sample of 110 employees from four industrial units in the Republic of Moldova: light industry, cosmetic industry, food industry, and technical industry. Data were collected using a structured questionnaire that assessed respondents' socio-professional characteristics, conditions for organizing nutrition at the workplace, use of catering facilities, and perceptions of the impact of nutrition on health status and work capacity. Data analysis was performed using descriptive statistical methods, including frequencies and percentages.

Results. The analysis of the questionnaire highlighted differences among the investigated units regarding the perceived impact of nutrition on health and work productivity. In the cosmetic industry, 52% of employees reported a positive impact of nutrition on health and 55% on productivity, while in the food industry these values were 46% and 51%, respectively. In contrast, in the light industry and technical industry, the majority of respondents considered that nutrition does not significantly influence health (61% and 60%) or work productivity (56% and 56%). A negative impact of nutrition was reported in a small proportion across all units, ranging from 3% to 11%.

Conclusions. The study results highlighted the importance of nutrition in maintaining workers' health and work capacity. The organization of workplace nutrition remains insufficiently adapted to physiological and occupational needs, being influenced by the occupational environment, existing infrastructure, and the organization of working time. Inadequate nutrition is associated with fatigue, physical discomfort, and decreased concentration capacity, negatively affecting productivity, while improving the organization of nutrition can contribute to maintaining health and professional performance.

Keywords. workers' nutrition, occupational health, organization of nutrition, work productivity, eating behaviors.

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27. CLINICAL AND EVOLUTIONARY CHARACTERISTICS OF LYME DISEASE

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Introduction. Lyme disease is the most common tick-borne bacterial infection transmitted by Ixodes ticks in the United States and Europe. In the early stage of the disease, the characteristic skin lesion, erythema migrans, develops in only 60–80% of patients. Other early manifestations are nonspecific and may mimic viral infections, contributing to underdiagnosis or misdiagnosis. Early disseminated Lyme disease occurs weeks to months after a tick bite and is frequently characterized by multiple erythema migrans lesions, as well as neurological and/or cardiac manifestations. Most patients with erythema migrans recover completely; however, in approximately 25% of cases, the disease may progress to late stages. In the absence of treatment during the early phases, Lyme disease may lead to arthritis, meningitis, peripheral facial palsy, cognitive impairment, persistent fatigue, chronic headache, and cardiac complications.

Aim of study. The aim of the study was to evaluate the clinical, serological, and epidemiological characteristics of patients with Lyme disease.

Methods and materials. This retrospective cohort study included 33 adult patients hospitalized with Lyme disease at the "Toma Ciorbă" Clinical Hospital of Infectious Diseases between January 1, 2021, and December 31, 2025. Laboratory diagnosis was established using ELISA serological testing for the detection of Borrelia burgdorferi IgM and IgG antibodies.

Results. A total of 33 patients diagnosed with Lyme disease were included, aged 16–82 years (mean age 46.3 years). Of these, 30 (90.9%) reported a history of tick bite. Early localized Lyme disease was diagnosed in 26 (78.7%) patients, early disseminated Lyme disease in 2 patients, and late Lyme disease in 5 patients. Cutaneous manifestations (erythema migrans) were observed in 18 (54.5%) patients, Lyme arthritis in 12 (36.4%), and Lyme neuroborreliosis in 3 (9.1%) patients. Seasonal variations were noted, with a predominance of cases occurring between April and October among patients with cutaneous manifestations and neuroborreliosis, but not among those with Lyme arthritis. In 30 (90.9%) patients, the diagnosis was confirmed by detection of specific serum B. burgdorferi IgM and/or IgG antibodies. In 3 patients with erythema migrans, the diagnosis was established based on characteristic clinical findings and a history of tick bite 2–6 days prior to the onset of the skin lesion.

Conclusions. Early localized Lyme disease was the predominant clinical form, with cutaneous manifestations being the most frequent and showing a clear seasonal distribution, with increased incidence between April and October.

Keywords. Erythema migrans, Neuroborreliosis, Lyme arthritis.

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28. INCIDENCE AND CLINICAL IMPACT OF HYPERSENSITIVITY REACTIONS IN BACTERIAL INFECTIONS

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Introduction. Hypersensitivity reactions (HSRs) to antibiotics are a major challenge in treating bacterial infections. Beyond the immediate clinical risk, an unverified "allergy label" leads to the use of second-line antibiotics, which are often less effective, more toxic, and increase the risk of multidrug- resistant infections like C. difficile.

Aim of the study. To analyze the real incidence of hypersensitivity reactions versus reported cases and to evaluate the diagnostic protocols used in clinical practice for patients with bacterial infections.

Methods and materials. A systematic review of clinical protocols (EAACI, AAAI) and studies from 2018–2025. Data were extracted from databases such as PubMed and the World Health Organization (WHO) pharmacovigilance reports, focusing on the prevalence of Type I and Type IV reactions.

Results. Statistical analysis reveals a significant discrepancy between perceived and confirmed hypersensitivity: The "Penicillin Paradox": While 10-15% of hospitalized patients are labeled as "Penicillin Allergic", clinical protocols involving skin testing and oral challenges show that over 90% of these patients can actually tolerate the drug. True Incidence: The actual incidence of IgE-mediated anaphylaxis is low, estimated at 0.01% to 0.05% of antibiotic treatments. Cutaneous Reactions: Delayed maculopapular exanthema is the most frequent reaction, occurring in 1-3% of patients using Amoxicillin or Sulfonamides. Cross-Reactivity Statistics: According to modern protocols, the cross-reactivity between Penicillins and 3rd/4th generation Cephalosporins is less than 1%, contrary to older beliefs of 10%. Risk Factors: The incidence of HSRs is significantly higher in patients with frequent antibiotic exposure (e.g., Cystic Fibrosis) and those with certain HLA genotypes (e.g., HLA-B*5701).

Conclusions. Epidemiological Gap: There is a massive overdiagnosis of antibiotic hypersensitivity, which negatively impacts global health by driving antibiotic resistance. Protocol Efficiency: Implementing standardized "De-labeling" protocols can safely restore the use of first-line treatments in over 90% of suspected cases.

Keywords. Hypersensitivity reactions, Bacterial infections, Antibiotic allergy, Drug provocation test (DPT).

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29. MODERN METHODS FOR THE LABORATORY DIAGNOSIS OF NEISSERIA MENINGITIDIS INFECTIONS

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Introduction. Infection caused by Neisseria meningitidis is an acute infectious disease with rapid progression and a potentially fatal outcome, characterized by meningitis and/or meningococcal septicemia. Early diagnosis and laboratory confirmation are essential for the prompt initiation of appropriate antimicrobial therapy and for the implementation of epidemiological control measures.

Aim of study. The aim of the study was to evaluate and synthesize modern laboratory diagnostic methods for infections caused by Neisseria meningitidis, with emphasis on diagnostic performance and clinical applicability.

Methods and materials. This study represents a narrative literature review based on the analysis of 44 recent peer-reviewed scientific articles published between 2023 and 2026. The literature search was conducted in international biomedical databases such as PubMed, Google Scholar, Scopus, and Web of Science, as well as in official guidelines of international public health organizations.

Results. Gram staining of cerebrospinal fluid allows rapid presumptive diagnosis but demonstrates moderate sensitivity. Culture of N.Meningitidis from sterile body fluids remains the diagnostic gold standard due to its high specificity and ability to provide antimicrobial susceptibility and serogrouping data;however, sensitivity is reduced after antibiotic administration. Antigen detection methods offer rapid results but show variable sensitivity. Polymerase chain reaction (PCR), particularly real-time PCR, exhibits superior sensitivity and specificity, enabling detection and serogroup identification even in culture-negative cases. Molecular methods significantly increase diagnostic yield and support timely public health interventions.

Conclusions. An integrated diagnostic approach combining conventional culture methods with molecular techniques provides the highest diagnostic accuracy for meningococcal infections. PCR-based assays are indispensable in modern clinical practice, especially in pretreated patients, while culture remains essential for epidemiological and antimicrobial resistance surveillance.

Keywords. Neisseria meningitidis; meningococcal disease; laboratory diagnosis; PCR.

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30. ANTIBIOTIC SUSCEPTIBILITY OF PSEUDOMONAS AERUGINOSA STRAINS ISOLATED FROM VARIOUS CLINICAL SPECIMENS

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Introduction. Antimicrobial resistance is a major public health issue and currently poses a significant threat to global health. The World Health Organization has highlighted Pseudomonas aeruginosa as one of the most dangerous pathogens for humans, as it is an antibiotic-resistant bacterium, particularly resistant to aminoglycosides, quinolones, and β-lactams. It is one of the most common bacteria involved in severe hospital-acquired infections and is highly prevalent among patients admitted to intensive care units. Thus, Pseudomonas aeruginosa represents a significant therapeutic challenge, and the prompt initiation of appropriate antimicrobial therapy is essential for optimising clinical outcomes.

Aim of study. To evaluate the antibiotic susceptibility of Pseudomonas aeruginosa strains isolated from various clinical specimens, thereby contributing to the effective management of infections caused by this bacterium.

Methods and materials. This study analysed 46 publications identified in Medscape, PubMed, Scopus, and Google Scholar regarding the antibiotic sensitivity of Pseudomonas aeruginosa strains isolated from various clinical specimens, including urine, saliva, and blood. Only studies published between 2021 and 2026 were included in the analysis.

Results. The results demonstrated that the antibiotic susceptibility of Pseudomonas aeruginosa varies considerably depending on the type of clinical specimen from which the strain was isolated. The analysed strains originated from various pathological samples, including urine, saliva, and blood. The findings revealed a resistance rate of 90% to ticarcillin and 67% to penicillin combined with β-lactamase inhibitors. Resistance to fluoroquinolones reached 63%. Notably, a high level of resistance was also observed for reserve antimicrobials such as carbapenems, with a resistance rate of 77%.

Conclusions. These findings highlight the necessity of adapting therapeutic strategies for the monitoring and control of multidrug-resistant Pseudomonas aeruginosa, depending on the source of infection. The World Health Organization recommends several key approaches to combating antibiotic resistance: prevention, accurate diagnosis, and rational antibiotic prescribing. Furthermore, continued research into the development and optimisation of antibacterial drugs is essential to achieve a more rapid reduction in resistant strains of Pseudomonas aeruginosa.

Keywords. Pseudomonas aeruginosa, antimicrobial resistance, bacteria, clinical specimens.

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31. FROM SUPPRESSION TO TOLERANCE: THE IMPACT OF REGULATORY T CELLS ON AUTOIMMUNE DISEASE TREATMENT

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Introduction. Autoimmune diseases affect 3–5% of the global population and represent a major public health challenge. Over 100 autoimmune disorders exist, including rheumatoid arthritis, systemic lupus erythematous (SLE), Sjögren's syndrome, and type 1 diabetes (T1D). These conditions result from a breakdown of immune tolerance, in which autoreactive T and B lymphocytes attack the body's tissues, causing chronic inflammation and tissue damage. Genetic, environmental, viral, and other factors contribute to disease onset. Current treatments, such as immunosuppressive and anti-inflammatory drugs, reduce inflammation and control symptoms but act broadly, often increasing infection risk. Recently, research has focused on therapeutic strategies targeting immune dysregulation mechanisms. Regulatory T cells (Tregs) have emerged as key modulators of immune tolerance, maintaining immune homeostasis by suppressing autoreactive responses and controlling pathogenic immune activity without inducing generalized immunosuppression, making them promising candidates for next-generation therapies.

Aim of study. To analyze the role of Tregs in maintaining immune tolerance and to evaluate their therapeutic potential in autoimmune diseases.

Methods and materials. A systematic review was conducted using scientific papers identified through PubMed and UpToDate, published between 2001 and 2025, focusing on mechanisms of immune tolerance and experimental or clinical studies on Treg-based therapies, including low-dose interleukin-2 (IL-2) therapy and adoptive Treg expansion.

Results. Tregs express CD4, CD25, and FOXP3, and suppress effector T cells via cytokines (IL-10, TGF-β) and regulatory molecules (CTLA-4), maintaining peripheral tolerance. Patients with autoimmune diseases often have quantitative or functional Treg deficiencies, promoting autoreactive activation. Animal models show that increasing Tregs prevents T1D and chronic inflammation. Clinically, ex vivo Treg expansion and low-dose IL-2 therapy increase circulating Tregs, improve immune regulation, and reduce disease activity in conditions such as SLE. Advanced strategies include CAR-Tregs and antigen-specific Tregs, aiming for higher efficacy and safety.

Conclusions. Tregs may emerge as a novel therapeutic approach for autoimmune diseases, representing a paradigm shift from broad immunosuppression toward the restoration of immune tolerance. Preclinical and clinical studies suggest that enhancing Treg function is a highly promising strategy, although challenges such as stability, specificity, and scalability remain. Advances in cell engineering and IL-2 modulation may facilitate more precise, personalized, and effective treatments for patients with autoimmune diseases.

Keywords. Regulatory T cells, Autoimmune diseases, Immune tolerance, FOXP3, Immunotherapy, Treg-based therapy.

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32. TRAINED IMMUNITY - EPIGENETIC AND METABOLIC REPROGRAMMING OF INNATE IMMUNITY

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Introduction. The concept of "trained immunity" defines the capacity of innate immune cells to face persistent functional reprogramming, manifested by an amplified inflammatory response upon next re-exposure, in the absence of classical antigen specificity. This perspective revises the traditional paradigm, according to which immunological memory was considered an exclusive feature of the adaptive immune system. Experimental evidence accumulated over the past decade has highlighted distinct molecular mechanisms through which monocytes, macrophages, NK cells and mast cells can develop a form of functional adaptation, resulting in enhanced responses to secondary antigen-independent stimuli.

Aim of study. The present study aims to analyse the epigenetic and metabolic mechanisms involved in trained immunity and to evaluate the clinical relevance of this phenomenon in infectious diseases, low-grade chronic inflammation and vaccinology.

Methods and materials. A critical review of the literature published between 2014-2025 was conducted using online databases including PubMed, Scopus and Google Scholar. Experimental in vitro studies, animal models and clinical studies addressing chromatin reprogramming, immunometabolic alterations and functional consequences of trained innate immunity were included.

Results. Trained immunity is mediated through epigenetic remodeling at the chromatin level, including histone modifications (H3K4me3, H3K27ac), leading to increased accessibility of pro-inflammatory gene loci. At the same time metabolic reorganization of monocytes, macrophages, mast cells and NK cells occurs, marked by a shift toward aerobic glycolysis via activation of the mTOR and HIF-1α pathways, associated with reduced mitochondrial oxidative phosphorylation. Activation of the NLRP3 inflammasome and increased IL-1β production play a central role in this process. Stimuli such as β-glucan and the BCG vaccine represent key inducers of trained immunity. Clinically, trained immunity is associated both with heterologous protection against infections and with a potential contribution to low-grade chronic inflammation and autoimmune pathology under dysregulated conditions.

Conclusions. Trained immunity represents an intermediate stage between innate and adaptive immune responses, introducing an innovative concept based on epigenetic and metabolic reprogramming. Exploring this process provides important perspectives for the development of vaccination strategies and for the therapeutic management of chronic inflammatory diseases.

Keywords. trained immunity, epigenetics, immunometabolism, inflammation, innate immune memory.

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33. GLOBAL BURDEN OF ANTIMICROBIAL RESISTANCE

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Introduction. Antimicrobial resistance is associated with a significant burden on public health. A global analysis of bacterial infections estimated that in 2019 antimicrobial resistance was directly responsible for 1.27 million deaths and contributed to approximately 4.95 million deaths worldwide. In Europe, infections caused by multidrug-resistant bacteria are associated with increased hospitalization duration and mortality, particularly in healthcare-associated infections. In the Republic of Moldova, surveillance data indicate an increasing frequency of antibiotic-resistant bacteria, especially Escherichia coli, Klebsiella pneumoniae, and Staphylococcus aureus, pathogens frequently involved in urinary tract infections, respiratory infections, and septicemia.

Aim of study. To evaluate the global prevalence of antimicrobial resistance and to analyze the distribution of resistant bacterial pathogens reported in recent epidemiological studies.

Methods and materials. The study consisted of a systematic literature review and meta-analysis of studies published between 2019 and 2025, identified in the PubMed, Scopus, Web of Science, and Google Scholar databases, as well as reports from WHO, CDC, and ECDC. Initially, more than 750 articles were identified; after removing duplicates and applying inclusion and exclusion criteria, 13 studies were included in the final analysis. The analysis examined antibiotic resistance data for Escherichia coli, Staphylococcus aureus, Klebsiella pneumoniae, Pseudomonas aeruginosa, and Enterobacter spp.

Results. The analysis of the 13 included studies demonstrated high levels of antimicrobial resistance among the investigated pathogens. In Escherichia coli, 101 of 110 isolates (91.8%) showed multidrug resistance, with high resistance rates to tetracycline (92.7%), trimethoprim/sulfamethoxazole (84.5%), ampicillin (80%), and streptomycin (79.1%). Other studies reported resistance to tetracycline (63.5%), nalidixic acid (53.7%), ampicillin (52.3%), and trimethoprim/sulfamethoxazole (50.9%), as well as 51.6–65.3% multidrug-resistant or extended-spectrum β-lactamase–producing strains. For Pseudomonas aeruginosa, resistance rates varied considerably between studies, reaching 90.38% for imipenem, 92.30% for meropenem, 84.61% for aztreonam, and 71.16% for ciprofloxacin, while the proportion of multidrug-resistant strains ranged between 20% and 73%, depending on the region and study population.

Conclusions. The analyzed data confirm the increasing prevalence of antibiotic-resistant bacteria across different regions of the world. These findings highlight the need for continuous surveillance of antimicrobial resistance and the implementation of rational antibiotic use strategies.

Keywords. antimicrobial resistance, multidrug-resistant bacteria, global prevalence, meta-analysis, public health.

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34. PARTICULARITIES OF FALL-RELATED INJURIES IN THE LIVING ENVIRONMENT AMONG INDIVIDUALS AGED 65 YEARS AND OVER

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Introduction. Falls represent a major public health concern among older adults, being a leading cause of injury, disability, and reduced quality of life.

Aim of study. The aim of this study was to analyze the characteristics of fall-related injuries among elderly individuals in the living environment, from the perspective of healthcare service utilization.

Methods and materials. Data were retrospectively extracted from the iCREATE Trauma Registry, piloted in 2018 in the Republic of Moldova, covering all trauma cases among individuals aged ≥65 years admitted to the Institute of Emergency Medicine and the Municipal Clinical Hospital over a 12-month period. Data analysis was performed using SPSS version 20.

Results. During the study period, 7945 injury cases were recorded, of which 1409 (17.73%) involved individuals aged ≥65 years, predominantly within the 65–70 age group (44%), with a gradual decline after the age of 85. Most injuries occurred in the home environment (74.89%), while 24.26% were reported in residential institutions. Falls were the leading mechanism of injury (82.20%), followed by cuts/stab injuries (6.17%), road traffic injuries (2.77%), and unknown causes (2.27%). The majority of injuries occurred during daily living activities (51.04%), followed by mobility-related activities (12.99%) and educational activities (11.99%). A higher incidence was observed in autumn (31.9%), followed by winter (23.6%), spring (23.4%), and summer (21.0%). Hospitalization was the most frequent management approach (47.96%), followed by treatment with discharge and monitoring (43.25%). Fractures were the most common type of injury (50.07%), followed by contusions and bruises (19.01%), open wounds and abrasions (11.06%), and sprains/strains (10.64%). The most frequently affected anatomical regions were the hip (14.89%), lower limbs (10.71%), head/skull (8.44%), followed by the wrist (7.45%) and ankle (7.38%).

Conclusions. Fall-related injuries among older adults are predominantly associated with the home environment and routine daily activities. These findings highlight the need for implementing targeted preventive measures focused on home safety and health promotion among the elderly population.

Keywords. Falls, injuries, elderly, prevention, This research study was developed within NIH-Fogarty International Trauma Training Program “iCREATE: Increasing Capacity for Research in Eastern Europe” and “INITIATE: International Collaboration to Increase Traumatic Brain Injury in Europe”.

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35. WORLDWIDE EPIDEMIOLOGY OF LEPTOSPIROSIS

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Introduction. Leptospirosis is a zoonotic infection spread worldwide, which is caused by the bacteria of the genus Leptospira. It affects both humans and animals and is mostly seen in tropical and subtropical areas, mainly underdeveloped countries where the chance of poverty is higher. Climate change, increased population in cities, floods. And other environmental factors lead to the increased survival and persistence of the Leptospira species. It is the main cause of acute febrile illness.

Aim of study. To analyse the global epidemiology of Leptospirosis by evaluating the recent scientific studies, epidemiological research, worldwide distributions, way of transmission, risk factors, and public health impact.

Methods and materials. This study is based on a narrative review of scientific publications indexed in major international databases, including PubMed, Scopus, WHO, and Google Scholar, including articles published between 2015 and 2025 were selected and analyzed.

Results. The analysis reveals that leptospirosis is a significant public health problem mainly in developing countries. The incidence rates are highest in Southeast Asia, Latin America, and some parts of sub-Saharan Africa. In all these regions the environmental condition supports bacterial existence. Job sectors such as farmers, sewage workers, fishermen, and veterinarians are at high risk of infection due to repeated contact with contaminated water and infected animals. The patients are often present with flu-like symptoms and it can go up to jaundice. Acute kidney failure, pneumonia, etc. Heavy rainfall and flooding are major causes of outbreaks of the bacteria. Worldwide estimates show that leptospirosis causes more than one million serious cases yearly with a high death rate. Even so, the real impact of leptospirosis worldwide is likely underreported in many countries due to poor monitoring systems and diagnostic limitations.

Conclusions. Leptospirosis still remains a significant zoonotic disease, mostly in underdeveloped regions. Developing the monitoring system, improving the diagnostic challenges, and increasing the preventive measures and integrated public health actions are necessary to reduce the population health effect.

Keywords. Leptospirosis, epidemiology, public health, incidence, global health, zoonotic infection.

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36. ARTIFICIAL INTELLIGENCE IN PREDICTING GESTATIONAL DIABETES MELLITUS BASED ON MATERNAL NUTRITIONAL FACTORS: A LITERATURE REVIEW

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Introduction. Gestational diabetes mellitus (GDM) is one of the most common metabolic complications of pregnancy, associated with adverse maternal and fetal outcomes, such as macrosomia and neonatal hypoglycemia. Standard screening is usually performed between 24–28 weeks of gestation, which limits early risk identification. The development of artificial intelligence (AI) provides new opportunities to integrate nutritional and metabolic data into early predictive models.

Aim of study. To synthesize the most recent evidence regarding the role of artificial intelligence in predicting gestational diabetes mellitus by analyzing maternal nutritional and metabolic factors.

Methods and materials. A literature review was conducted using studies published between 2020 and 2026, identified in PubMed, Web of Science, and Scopus databases. Studies evaluating AI-based models for GDM prediction were included. The analysis focused on the integration of maternal nutritional and metabolic variables, as well as on statistical performance indicators of the models.

Results. The analyzed studies show that AI-based models improve GDM risk prediction by combining clinical data with nutritional and metabolic information. A study published in 2024 demonstrated increased predictive accuracy after incorporating dietary intake variables into machine learning models compared to conventional approaches. Another study from 2026 reported high predictive performance using a dataset including 45 dietary nutrients alongside baseline maternal characteristics. However, model performance remains heterogeneous across different populations and study designs.

Conclusions. Artificial intelligence is a promising tool for the early prediction of gestational diabetes mellitus and may contribute to personalized nutritional counseling during pregnancy. Nevertheless, further research and external validation are required before large-scale implementation in clinical practice.

Keywords. gestational diabetes mellitus, artificial intelligence, nutrition, pregnancy, prediction.

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37. COLORECTAL CANCER SCREENING IN THE REPUBLIC OF MOLDOVA: FROM OPPORTUNISTIC TO ORGANIZED

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Introduction. Colorectal cancer (CRC) represents the third most common type of cancer worldwide. The intensification of screening programs has led to an increased rate of early CRC diagnosis, including among individuals younger than 50 years. According to data from the scientific literature, it is estimated that by 2030 the incidence of cancer among individuals aged 20-34 years will increase by approximately 90%. The American Cancer Society has lowered the recommended age for initiating colorectal cancer screening to 45 years for individuals at average risk. However, a considerable number of people in this age group remain outside screening programs and continue to experience delays in diagnosis. In the Republic of Moldova, an opportunistic screening program is currently available, which targets two risk groups. Unfortunately, this type of screening cannot guarantee the expected outcomes in terms of a significant reduction in CRC - related morbidity and mortality.

Aim of study. The aim of this study was to evaluate the results of the pilot implementation of an organized screening program, in 2023, in order to determine the adherence rate to screening and the detection rate of precancerous lesions of the lower gastrointestinal tract.

Methods and materials. In 2023, within the framework of the National Cancer Control Program, and in partnership with the Ministry of Health of the Republic of Moldova, the National Health Insurance Company, the National Agency of Public Health, and the Oncological Institute, an organized screening program was implemented with active invitation of individuals aged 50-55 years from four regions of the country: mun. Balti, mun. Chisinau (AMT Botanica), Calarsi and Cahul district. Rapid immunochemical fecal occult blood tests (iFOB) with self-sampling were used (RapidFor – a rapid chromatographic immunoassay for the qualitative detection of human occult blood, with the cut-off value of 50 ng/ml).

Results. In 2023, a total of 9200 tests were distributed to testing centers. Of these, 8868 tests were performed by eligible individuals from the regions involved in the pilot program, with 821 tests (9,25%) yielding positive results. Among all individuals with positive tests requiring subsequent screening videocolonoscopy only 287 underwent the procedure, with precancerous lesions detected in 12,1% of cases.

Conclusions. The adherence rate to screening videocolonoscopy was 34,9%, which is predictable during the initial years of transition to an organized screening program. This finding may be explained by multiple factors, including the level of awareness, socio-economic characteristics, and personal reluctance. With the continued implementation of the organized screening program , this rate is expected to demonstrate a steady increase.

Keywords. screening, colorectal, cancer.

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PHARMACY SECTION

1. PHARMACEUTICAL LEGISLATION: LITHUANIA VS. MOLDOVA

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Introduction. Lithuania, as a member of the European Union, has fully harmonized its pharmaceutical legislation with the EU acquis, covering marketing authorization procedures, implementation of Good Manufacturing Practice (GMP) and Good Distribution Practice (GDP), and the functioning of pharmacovigilance systems. In contrast, the Republic of Moldova, although making progress in legislative harmonization, still faces procedural gaps and inconsistencies in the application and monitoring of EU standards. A comparative analysis of the two countries highlights recommendations for accelerating Moldova's alignment with EU requirements.

Aim of study. To evaluate legislative differences between Lithuania and the Republic of Moldova in pharmaceutical regulation, with reference to EU standards, aiming to ensure safer and more efficient access to quality medicines.

Methods and materials. The study employed documentary analysis of national and Lithuanian legislation, and EU regulations. Normative acts were examined in relation to marketing authorization, GMP and GDP, GPP implementation, and pharmacovigilance.

Results. Lithuania's framework is fully aligned with EU directives and regulations. The Medicinal Products Act (Nr. X-709/2006), Ministry of Health orders on GMP and GDP, and pharmacovigilance regulations ensure compliance and integration into the European safety network. Additional laws, such as the Law on Psychotropic and Narcotic Substances (Nr. VIII-602/1998) and regulations of the State Medicines Control Agency (SMCA), provide comprehensive oversight. In Moldova, the Law on Pharmaceutical Activity (No. 1456/1993) and the Law on Medicines (No. 1409/1997) establish basic frameworks, but remain only partially aligned. Regulations issued by the Medicines and Medical Devices Agency (AMDM) cover GMP, GDP, Good Pharmacy Practice (GPP), and pharmacovigilance, yet enforcement is uneven and international recognition is limited.

Conclusions. Lithuania represents a model of EU integration, while Moldova remains in transition. Strengthening legislative alignment, institutional capacity, and pharmacovigilance systems is essential to ensure safe, effective, and high-quality access to medicines.

Keywords. EU pharmaceutical standards, national legislation, harmonization.

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2. PHARMACEUTICAL SAFETY IN THE MEDICINE MANUFACTURING PROCESS

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Introduction. Pharmaceutical security represents a fundamental element of the modern healthcare system and encompasses all measures that ensure the quality, safety and efficacy of medicines throughout the entire production chain. The process of manufacturing medicines involves multiple technological stages, and any deviation from established standards can affect the quality of the final product and, consequently, the patient's health. Compliance with Good Manufacturing Practice (GMP) standards and the application of national and international legislative frameworks are essential to prevent contamination, production errors and the emergence of non-compliant products.

Aim of study. To evaluate the importance of pharmaceutical security in the medicine production process by highlighting the main mechanisms of regulation and quality control that contribute to guaranteeing the safety of pharmaceutical products.

Methods and materials. The work was carried out through the analysis of scientific literature and relevant normative documents in the field of pharmaceutical security. Scientific articles, guidelines, and legislative acts related to the regulation of pharmaceutical activities were consulted, including specialized works such as "Legislative Milestones Regarding Pharmaceutical Security", as well as recommendations from international health and pharmaceutical organizations.

Results. The analyzed data highlight that pharmaceutical security in the medicine production process is ensured through a complex system of control and regulation. The application of Good Manufacturing Practice standards established strict requirements regarding production conditions, premises hygiene, personnel qualification, quality and traceability of raw materials. Quality control represents an essential stage of the production process, carried out in specialized laboratories that verify the composition, purity and stability of pharmaceutical products before they are placed on the market. These procedures reduce the risk of non-compliant or counterfeit medicines appearing. Furthermore, competent authorities monitor compliance through periodic inspections, while digital tools provide monitoring of storage conditions, thereby contributing to strengthening pharmaceutical security.

Conclusions. Pharmaceutical security, the process of manufacturing medicines, is an essential factor for protecting public health. Adherence to Good Manufacturing Practice standards, rigorous quality control and the application of the legislative framework contribute to ensuring safe and effective medicines. Strengthening monitoring mechanisms and cooperation between manufacturers, authorities and pharmaceutical specialists is necessary to maintain a high level of safety in medicine production and to ensure the availability of a required range of medicinal products.

Keywords. Pharmaceutical security, medicine production, quality control, Good Manufacturing Practices, pharmaceutical legislation, medicine safety.

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3. PHARMACEUTICAL PREPARATIONS BASED ON RECOMBINANT HUMAN GROWTH HORMONE APPROVED BY THE UNITED STATES FOOD AND DRUG ADMINISTRATION (FDA) AND THE EUROPEAN MEDICINES AGENCY (EMA)

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Introduction. Recombinant human growth hormone (rhGH), also known as somatropin, is a biotechnological protein identical to natural growth hormone (GH). Since its approval by the United States Food and Drug Administration (FDA) in 1985, rhGH has replaced pituitary-derived extracts to ensure safety and efficacy in the treatment of growth disorders. Several pharmaceutical products have been approved by the FDA and the European Medicines Agency (EMA), establishing the gold standard for controlled therapy.

Aim of study. To investigate FDA- and EMA-approved rhGH preparations, their mechanisms of action, production technologies, and therapeutic applications.

Methods and materials. We reviewed regulatory documents, clinical guidelines, and biopharmaceutical data on rhGH formulations, alongside production methods and pharmaceutical dosage forms. The preparations approved by the FDA and EMA include Norditropin (Novo Nordisk), Genotropin (Pfizer), Saizen (Merck Serono), and Humatrope (Eli Lilly). All preparations act via growth hormone (GH) receptors, activating Janus kinase-signal transducer and activator of transcription (JAK-STAT) pathways and stimulating hepatic insulin-like growth factor 1 (IGF-1) production, which leads to anabolic and growth-promoting effects. Recombinant DNA technology employs Escherichia coli or mammalian cells to preserve the protein's native structure. Administration is performed through daily subcutaneous injections, ensuring systemic delivery.

Results. FDA- and EMA-approved rhGH preparations represent the latest stage in biopharmaceutical innovation. They demonstrate efficacy and safety in treating growth hormone deficiency and related disorders. Research on sustained-release formulations aims to improve patient adherence while reducing immunogenicity and risk.

Conclusions. FDA- and EMA-approved rhGH preparations consistently fulfill the therapeutic aim of treating growth hormone deficiency, demonstrating safety and efficacy while advancing biopharmaceutical innovation.

Keywords. Somatropin, recombinant human growth hormone (rhGH), United States Food and Drug Administration (FDA), European Medicines Agency (EMA), insulin-like growth factor 1 (IGF-1).

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4. THE ROLE OF HOSPITAL PHARMACY IN ENSURING PHARMACEUTICAL SAFETY OF HOSPITALIZED PATIENTS

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Introduction. The hospital pharmacy is a key element of the healthcare system with a direct impact on the quality of medical care provided to hospitalized patients. It is not limited to merely supplying medications, but includes a complex set of processes aimed at minimizing risks associated with drug therapy, such as drug interactions, serious adverse effects, medication errors and mistakes in drug administration. Recent studies emphasize that the systematic integration of the pharmacist into the medical process significantly reduces medication-related incidents, particularly during critical transitions between departments or at discharge.

Aim of study. To analyze the role of hospital pharmacy in guaranteeing pharmaceutical safety for hospitalized patients, including the contribution of the clinical pharmacist to improving clinical outcomes and reducing treatment costs, as well as preventing medication errors.

Methods and materials. The scientific paper is based on an analysis of recent scientific literature (2018-2025), including scientific articles from PubMed, EAS Journal of Pharmacy and Pharmacology, The National Authority for Quality Management in Healthcare and MedicHub.

Results. The hospital pharmacy is responsible for medication management, including procurement, storage and distribution under conditions that prevent contamination. For example, in intensive care units, clinical pharmacist intervention reduces medication errors and associated costs through therapy adjustments and monitoring of adverse reactions. Another major aspect is the prevention of nosocomial infections, where the pharmacist contributes to the rational use of antibiotics by monitoring consumption and microbial resistance, thereby limiting risks to patients. Additionally, the pharmacist integrates into medical teams to review daily therapeutic regimens, reporting potential interactions and adjusting doses based on the patient's condition, such as hepatic or renal function. In healthcare crises, the role extends to ensuring rapid access to essential medications and training medical staff on correct usage. Research shows that the presence of a clinician in the medication process mitigates medication discrepancies, improving treatment outcomes. Furthermore, the hospital pharmacy promotes a culture of safety through participation in pharmacovigilance and ethics committees, ensuring compliance with national and international regulations.

Conclusions. The hospital pharmacy plays an important role in ensuring the pharmaceutical safety of hospitalized patients, helping to reduce risk and optimize therapies. The integration of the clinical pharmacist into clinical teams yields favorable outcomes in terms of patient safety, quality of care and economic efficiency.

Keywords. Hospital pharmacy, pharmaceutical safety, hospitalized patients, therapy adjustments, medication safety.

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5. ASSESSMENT OF POTENTIAL DRUG-DRUG INTERACTIONS IN PATIENTS RECEIVING ANTIRETROVIRAL THERAPY

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Introduction. Human Immunodeficiency Virus (HIV) infection remains a major global health concern with an increasing prevalence. According to data from the World Health Organization (WHO), by 2024, around 40,8 million cases of HIV had been reported. Long-term antiretroviral therapy (ART) allows patients with HIV to achieve sustained viral suppression and requires continuous pharmacological management. These patients often develop comorbidities that require additional pharmacological treatment, which may lead to polypharmacy and increase the risk of clinically relevant drug-drug interactions.

Aim of study. This study aimed to assess potential drug-drug interactions in patients receiving ART, to identify the most commonly interacting medications and to classify these interactions based on their clinical significance.

Methods and materials. A retrospective observational study was conducted by analyzing 60 medical records of patients receiving ART who were hospitalized between January 2023 and December 2025. Potential drug-drug interactions were identified and evaluated using established drug interaction databases and resources, including DrugBank, the Liverpool HIV Drug Interactions Checker, FDA and EMA prescribing information, as well as relevant clinical guidelines.

Results. A total of 60 patient records receiving ART were analyzed. Potential drug-drug interactions were identified in approximately 97% of patients, while 3% showed no interactions. Most interactions were classified as moderate (76%), followed by minor interactions, while major interactions accounted for 8%. The antiretroviral agents that were most frequently involved in potential interactions were Efavirenz, Dolutegravir and Tenofovir Disoproxil Fumarate. Among the commonly noticed interactions were Dolutegravir with antacid drugs, which may reduce drug absorption due to chelation, Tenofovir Disoproxil Fumarate with nonsteroidal anti-inflammatory drugs such as Ibuprofen and Diclofenac, increasing the risk of nephrotoxicity and Efavirenz with Famotidine, causing QTc prolongation.

Conclusions. The prevalence of potential drug-drug interactions identified in patients receiving ART highlights the importance of careful pharmacological management and continuous monitoring of concomitant medications. In this context, the involvement of clinical pharmacists plays a key role in the prevention, detection and management of drug-drug interactions in patients undergoing ART.

Keywords. Antiretroviral therapy, drug-drug interactions, HIV infection, polypharmacy, comorbidities.

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6. OPPORTUNITIES FOR CLINICAL PHARMACIST INVOLVEMENT IN PERIOPERATIVE ANTIBIOTIC PROPHYLAXIS: MODERN RECOMMENDATIONS AND CLINICAL PRACTICE

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Introduction. Perioperative antibiotic prophylaxis is a key strategy to prevent postoperative infections. Appropriate antibiotic use before and during surgery significantly reduces the risk of infection, shortens hospital stay, and minimizes healthcare costs. The clinical pharmacist plays a crucial role in ensuring proper selection, dosing, timing, and duration of antibiotics in accordance with current guidelines and best practices.

Aim of study. This study aimed to evaluate the potential role of clinical pharmacists in perioperative antibiotic prophylaxis and assess current clinical practices regarding prophylactic antibiotic use in surgical procedures.

Methods and materials. The study retrospectively reviewed 100 patient records of surgical procedures performed between December 2025 and February 2026. Data were statistically analysed, including patient age, sex, body mass index, type of antibiotic prophylaxis, comorbidities, treatments, and surgery duration.

Results. A total of 100 patient records were reviewed, including 41 female and 59 male patients. Most were aged 55–80 years, with the remainder distributed across younger and older age groups. The majority weighed 80–120 kg. Patients were mainly treated in the neurosurgery department (22%), followed by general surgery (19%), trauma care (18%), orthopaedics (12%) and other departments. Surgeries were classified as clean (59%), clean-contaminated (21%), contaminated (4%), or dirty (16%). Antibiotic prophylaxis was indicated in 78% of cases, with the appropriate antibiotic selected in 73%. Common comorbidities included diabetes, hypertension, obesity, and anemia. Preoperative prophylaxis was administered to 81%, intraoperative to 26%, and postoperative to 32%, while 19% received no antibiotics. Cefazolin was the most commonly used agent (84.3%), occasionally combined with Metronidazole (15.7%). Appropriate dosing was achieved in 74% of patients. Surgical site infections occurred in 5% of cases. These results highlight that, while antibiotic prophylaxis is generally well implemented, there remain gaps in adherence to dosing and timing protocols.

Conclusions. The study demonstrated that preoperative antibiotic prophylaxis effectively prevents postoperative infections, with proper administration in the majority of cases (81%). Better adherence to timing and dosing protocols is needed to enhance patient safety further. Clinical pharmacists in managing antibiotic prophylaxis can contribute to optimising treatment regimens and improving overall healthcare quality.

Keywords. Antibiotic prophylaxis, clinical pharmacist, surgical infections.

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7. THE ROLE OF IRON-BASED MEDICINAL PRODUCTS AND DIETARY SUPPLEMENTS IN CORRECTING IRON DEFICIENCY ACROSS VARIOUS PATHOLOGIES

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Introduction. Iron deficiency is the most common nutritional disorder in childhood and a major cause of anemia in clinical practice. It is often associated with gastrointestinal and gynaecological bleeding, pregnancy, inflammatory bowel diseases, and malabsorption syndromes. Depletion of iron stores may lead to hematologic abnormalities, impaired cognitive development, behavioural changes, reduced physical performance, altered cellular metabolism, and weakened immune function.

Aim of study. This study aimed to analyze the role of iron-containing medicinal products and dietary supplements in the correction and prevention of iron deficiency related to different clinical conditions.

Methods and materials. A narrative review of PubMed/MEDLINE publications and clinical guidelines was performed, focusing on medicinal formulations, iron pharmacokinetics, and approaches to deficiency correction. Comparative studies of classical ferrous salts and alternative iron formulations used in dietary supplements were analysed to evaluate bioavailability, efficacy, and tolerability.

Results. Iron medications and supplements remain the gold standard for treating iron deficiency. Ferrous salts (sulphate, fumarate, gluconate) are effective, inexpensive, and recommended as first-line therapy, although their use may be limited by gastrointestinal intolerance and adherence issues. Newer formulations such as ferric polymaltose, iron polysaccharide complexes, amino acid chelates (ferrous bisglycinate), and encapsulated forms (sucrosomial and liposomal ferric pyrophosphate) have been developed. Ferrous bisglycinate has shown improved hematological parameters and better absorption compared with ferrous fumarate, with similar efficacy at lower elemental iron doses and fewer adverse effects. Sucrosomial iron is absorbed in the small intestine via transcellular and paracellular pathways independent of hepcidin and is less affected by dietary inhibitors. Studies in pregnant women show that these newer formulations, administered at lower doses, can prevent iron deficiency with efficacy comparable to ferrous sulphate but with fewer gastrointestinal adverse effects.

Conclusions. The selection of iron preparations should be individualized, balancing rapid correction with long-term adherence, tolerability, and safety. Ferrous sulphate remains the preferred option for rapid hematologic response, while newer chelated or encapsulated formulations (ferrous bisglycinate, sucrosomial ferric pyrophosphate) offer improved tolerability and favourable pharmacokinetics.

Keywords. Iron deficiency, iron preparations, iron supplementation, iron bioavailability.

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8. SPECTROPHOTOMETRIC DETERMINATION OF CHONDROITIN SULFATE IN TABLETS COMBINED WITH GLUCOSAMINE

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Introduction. Chondroitin sulfate is a sulfated glycosaminoglycan frequently administered in combination with glucosamine in the management of degenerative joint disorders, particularly osteoarthritis. Its quantitative determination in combined pharmaceutical formulations poses analytical challenges due to its polyanionic structure, high molecular weight, and potential matrix interferences. In this context, visible spectrophotometric methods based on the formation of ionic complexes with cationic dyes represent an accessible, rapid, and reproducible alternative for routine quality control of solid pharmaceutical preparations.

Aim of study. To evaluate the analytical performance of a VIS spectrophotometric method for the determination of chondroitin sulfate in combined tablets using two cationic dyes—methylene blue and Azure II—and to compare the sensitivity and precision of the two approaches.

Methods and materials. The analyzed tablets contained 600 mg of chondroitin sulfate and 750 mg of glucosamine. A sample (0.4005 g of finely powdered tablets) was dissolved in distilled water, subjected to sonication for 15 minutes to ensure complete extraction, then centrifuged and filtered. Serial dilutions were performed to obtain the working solutions.

Results. Measurements were carried out in the visible range, based on the formation of ionic complexes between the sulfate groups of chondroitin and the cationic dyes, with absorbance recorded at the characteristic wavelengths. Linearity was evaluated within the concentration range of 2–10 µg/mL by constructing calibration curves in three independent series. For the methylene blue method, a mean correlation coefficient of $r^2 \approx 0.9998$ and an RSD of approximately 0.10% were obtained, indicating excellent linearity and high precision. In the case of Azure II, the mean r^2 value was ≈ 0.9967 and the RSD was ≈ 2.20%, reflecting good but slightly lower reproducibility. Application of the methylene blue method yielded a mean content of 605.24 mg chondroitin sulfate per tablet, corresponding to a deviation of +0.87% from the declared amount. The Azure II method provided a mean value of 590.10 mg per tablet (–1.65%). Both methods complied with acceptable quality control limits; however, comparative analysis demonstrated higher sensitivity and lower variability when methylene blue was employed.

Conclusions. VIS spectrophotometric determination based on ionic complex formation represents a suitable and applicable method for the quantification of chondroitin sulfate in combined glucosamine tablets. The methylene blue method exhibits superior analytical performance in terms of linearity and precision and is therefore recommended for routine quality control of solid pharmaceutical products containing glycosaminoglycans.

Keywords. Chondroitin sulfate, glucosamine, VIS spectrophotometry, ionic complex, linearity, quality control.

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9. SELF-DIRECTED LEARNING AND PROFESSIONAL DEVELOPMENT OF PHARMACISTS

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Introduction. Global experience shows that many reforms in healthcare begin with the modernization of medical education. Today, medical education can no longer be based on a training model that assigns graduates the role of performers of specific professional functions. A modern specialist with higher medical education is characterized by professional responsibility to society, the ability to productively respond to changing social and professional conditions, competence in scientific, practical and preventive medicine, and an active social position. Professional development involves a value-based choice of promising paths of professional development and the identification of methods and means for their implementation, taking into account the dynamic demand for specialists in a changing world.

Aim of study. Taking into account the above, it was proposed to identify the factors, challenges, obstacles, barriers, and the latest methods of professional self-development applicable to specialists in the pharmaceutical field.

Methods and materials. A systematic review was carried out in academic databases (MEDLINE, Embase, PsycINFO, ERIC, and Cochrane Library). The inclusion criteria were studies involving health professionals and related fields, exploring methods of professional self-development, with an emphasis on describing and/or using a model or concept related to professional self-development.

Results. Health-related self-learning was analyzed in 34 studies, of which 12 (35%) used theoretical models, totaling 13 conceptual frameworks (combined, process, context, and personal). Interventions such as chatbots, blended learning, or mobile devices improved motivation and skills. The learning environment and social interactions influenced reflection and self-directed learning behaviors, and applying theory in practice led to increased clinical performance. Informal learning (feedback, reflection and integrating theory with practice) supported a focus on lifelong learning. Technology (UpToDate, online courses, apps) provided quick access to information and support for self-regulation. Promoting factors included intrinsic motivation, self-efficacy, and organizational support, while barriers included lack of time, difficulties with self-assessment, and program rigidity. Overall, self-directed learning is influenced by personal, process, and contextual factors that determine the effectiveness of professional development.

Conclusions. Adapting self-directed learning models from fields such as business, engineering, and technology shows a customization for specific healthcare needs. While other sectors emphasize efficiency and innovation, these models focus on clinical safety, ethical practice, and patient-centered care. In the medical environment, self-directed learning must be aligned with regulations, patient diversity, and interprofessional collaboration.

Keywords. Self-directed learning, pharmacist, professional development.

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10. FTIR ANALYSIS OF CHEMICAL AND PLANT-DERIVED PRODUCTS FROM A COMBINED POWDER

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Introduction. Combined powders containing active substances (AS) of chemical and plant origin are used in pharmaceutical practice due to their different mechanisms of action, which leads to an increase in pharmacological activity. Fourier Transform Infrared Spectrophotometry (FTIR) represents a modern analytical method widely used to identify active substances based on characteristic bands and to detect possible interactions between them through the appearance of additional bands or the disappearance of characteristic ones. This technique allows the evaluation of molecular interactions and provides detailed information about these possible interactions.

Aim of study. FTIR spectral analysis of plant- and chemically derived products in a combined formulation and identification of functional groups responsible for component compatibility and structural properties.

Methods and materials. For FTIR analysis, a Cary 630 FTIR spectrometer (Agilent) was used. Combined powders containing active substances of plant and chemical origin represented the analyzed samples. The samples were properly prepared and analyzed in the spectral range of 4000-400 cm-1 with a resolution of 4 cm-1. The obtained spectra were interpreted based on the characteristic absorption bands of the functional groups present in the analyzed compounds.

Results. The IR spectrum of spironolactone highlights the characteristic bands of the functional groups in the molecule. The ν(C–H) vibrations of the sterolic skeleton appear at 2949–2864 cm^{-1}, while the carbonyl region is represented by absorptions at 1764 cm^{-1} (lactone), 1689 cm^{-1} (thiolactone), and 1672 cm^{-1} (sterolic carbonyl). The bands in the range of 1617–1436 cm^{-1} and 1377–1337 cm^{-1} are attributed to condensed rings and methyl groups. The ν(C–O) vibrations of the lactone appear at 1282–1220 cm^{-1}, while the region 967–657 cm^{-1} corresponds to vibrations of the molecular skeleton. The absence of O–H and N–H bands confirms the specific structure of spironolactone. In the case of the magnesium stearate–spironolactone mixture, the spectrum shows the appearance of additional weak bands and the disappearance of the characteristic spironolactone band at 2949 cm^{-1}, which may indicate weak intermolecular interactions between the components. For the magnesium acid–spironolactone mixture, the C–H bands (2915 and 2848 cm^{-1}) and the carbonyl bands of spironolactone (1766–1686 cm^{-1}) are preserved, with overlaps observed in the 1466–800 cm^{-1} region.

Conclusions. FTIR spectroscopy is an effective method for identifying active substances and possible interactions and it is important for evaluating incompatibilities and quality control of pharmaceutical powders.

Keywords. FTIR spectroscopy, interactions, pharmaceutical analysis, combined powder, chemical substances, functional groups.

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11. QUANTITATIVE DETERMINATION OF IRIDOIDS IN SPECIES OF THE GENUS GALIUM

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Introduction. Iridoids are metabolites belonging to the class of monoterpenoids found in plant products of medical and pharmaceutical importance. They are valuable due to their proven antioxidant and anti-inflammatory properties, as well as their cytotoxic, antiviral, and hepatoprotective effects. Recent research has also confirmed their neuroprotective properties and beneficial effects on immunity and the cardiovascular system.

Aim of study. To determine the iridoid content in plant products of species belonging to the genus Galium.

Methods and materials. Iridoids were determined by the spectrophotometric method based on complex formation with the Trim–Hill reagent at a wavelength of 609 nm. Extracts from plant products of the species G. verum and G. aparine were obtained by extraction in a water bath using 60% ethyl alcohol. The Trim–Hill reagent (10:1:0.5 – glacial acetic acid: copper sulfate pentahydrate: concentrated hydrochloric acid) was added to the extract, which was catalyzed by boiling in a water bath for 5 minutes, with subsequent absorbance reading. The iridoid content was expressed as asperulozide equivalents (mg AE/g of plant products).

Results. The data showed that the concentration of iridoids (mg AE/g) in G. verum is higher than in G. aparine. In both species, the highest concentration of iridoids was found in the flowers (20.93; 12.47), followed by the aerial parts (20.76; 11.9), while the lowest concentration was determined in the leaves (19.97; 11.28).

Conclusions. The quantitative determination of iridoids showed that G. verum is richer in iridoids compared to G. aparine, with the highest concentration found in the flowers compared to other plant products. These results indicate that species of the genus Galium represent a good source of iridoids, which are bioactive compounds with potential applications in the medical and pharmaceutical fields.

Keywords. Iridoids, quantitative determination, Trim-Hill, Galium verum, Galium aparine.

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12. SAFETY OF MUSCLE-BUILDING PRODUCTS

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Introduction. The global rise in the use of products to enhance muscle mass, including dietary supplements, anabolic-androgenic steroids (AAS), and selective androgen receptor modulators (SARMs), raises significant safety concerns, particularly among adolescents and otherwise healthy individuals. Evidence points to acute clinical risks and complex pathophysiological mechanisms associated with their use.

Aim of study. To highlight the clinical, biological, and public health risks of products intended to increase muscle mass (AAS, SARMs, and dietary supplements), emphasizing the need for thorough medical evaluation, toxicological surveillance, and preventive interventions.

Methods and materials. An integrative narrative review of the literature on the safety of muscle-building products, including AAS, SARMs, and dietary supplements from the last 5 years.

Results. AAS, synthetic testosterone derivatives, are used for anabolic and performance-enhancing effects but are linked to cardiovascular, endocrine, metabolic, and hepatic complications. A clinical case reported hemoptysis in a healthy 20-year-old male after oxandrolone use for aesthetic purposes, resolving after discontinuation, illustrating hemorrhagic risks. In vitro studies show that certain AAS (mesterolone, mestanolone, metenolone) disrupt adrenal steroidogenesis indirectly, promoting mineralocorticoid overproduction and increasing hypertension and cardiovascular risk. Clostebol and oxymetholone may alter corticosteroid synthesis, suggesting metabolic and endocrine imbalances. Nonsteroidal SARMs did not significantly affect steroidogenesis, indicating a relatively safer profile pending further clinical validation. At the population level, 12.7% of adolescent males in an Australian sample used muscle-building supplements, associated with weight training and body image concerns, highlighting psychosocial vulnerability and potential progression to AAS use.

Conclusions. Muscle-building products pose hemorrhagic, thrombotic, hepatic, cardiovascular, and endocrine risks, even in young healthy individuals. Complete evaluation of substance use, including non-prescribed products, is essential. Strengthening surveillance, improving analytical detection of undeclared substances, and implementing preventive strategies for vulnerable populations are critical for public health protection.

Keywords. Anabolic-androgenic steroids, dietary supplements, hepatotoxicity, steroidogenesis disruption, public health.

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13. THE ROLE OF THE PHARMACIST IN IDENTIFYING AND MANAGING ADVERSE EFFECTS OF ANTIDEPRESSANT THERAPY

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Introduction. Antidepressants remain a primary therapeutic option for managing depressive disorders and anxiety conditions. Despite their efficacy, side effects frequently occur, often leading to reduced patient compliance and suboptimal clinical results. Pharmacists, highly accessible healthcare providers, are ideally placed to strengthen medication safety through vigilant monitoring, timely identification of adverse events, and personalized patient support.

Aim of study. This review aimed to examine pharmacists' contributions to recognizing and addressing adverse reactions during antidepressant treatment and to highlight pharmaceutical care strategies capable of enhancing adherence and minimizing risks.

Methods and materials. An extensive literature search was conducted across major databases (PubMed, Google Scholar, Cochrane Library). Selected publications focused on antidepressant safety profiles, common and serious adverse effects, pharmacist-led interventions, patient education practices, and adherence improvement initiatives. Emphasis was placed on evidence related to selective serotonin reuptake inhibitors (SSRIs), tricyclic antidepressants, and other frequently prescribed classes, together with studies evaluating pharmacists' impact on therapy supervision and patient outcomes.

Results. Published data consistently report gastrointestinal upset, insomnia or hypersomnia, fatigue, body weight alterations, and sexual dysfunction as prevalent complaints during antidepressant use. Community and hospital pharmacists can improve safety by discussing expected side effects, offering practical symptom-management advice, and screening for clinically significant drug interactions. They also play a key role in early recognition of critical events—such as serotonin syndrome or emerging suicidal thoughts—facilitating prompt medical intervention. Multiple studies confirm that pharmacist-provided counseling, follow-up monitoring, and motivational support substantially increase treatment persistence and reduce premature discontinuation rates.

Conclusions. Pharmacists' active involvement in education, adverse-event detection, and collaborative care promotes safer antidepressant therapy. Expanding structured pharmaceutical services has considerable potential to boost long-term adherence, lessen the burden of side effects, and improve overall treatment success for patients with depression and anxiety disorders.

Keywords. Antidepressants, Adverse effects, Pharmaceutical care, Patient counseling, Medication adherence, Pharmacist's role.

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14. THE ROLE OF PSYCHOSOCIAL FACTORS IN SELF-MEDICATION

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Introduction. Drug safety is a priority for healthcare systems, and self-medication, while reducing the pressure on medical services, is a complex phenomenon influenced by psychosocial factors. Risk perception, social influence, health literacy, and daily stress directly determine self-care decisions. Understanding these determinants is essential to prevent irrational drug use and associated risks, such as severe adverse reactions.

Aim of study. Highlighting the influence of psychosocial factors on self-medication behavior and identifying the mechanisms that motivate the use of medicines without a medical prescription.

Methods and materials. The research consisted of a meta-analysis of 16 studies indexed in international databases (PubMed and Google Scholar), comparing results on the impact of the family environment, social networks, and economic factors on the administration of OTC products.

Results. The synthesis of the 16 studies indicates that psychosocial factors are major determinants in over 70% of self-medication acts, outweighing the severity of physical symptoms. The comparative analysis highlighted 4 critical factors: social circle influence, identified in 12 of the 16 studies, where „word-of-mouth" recommendations increase the probability of using non-prescription products by 45%; cyberchondria, which induces a false sense of competence in 58% of self-diagnosis cases through access to unverified online information; coping mechanisms, where stress and anxiety increase the consumption of analgesics and sedatives without medical advice ; and economic barriers, which force 52% of patients to use the community pharmacy as a substitute for specialized diagnosis. The results show a direct correlation between low health literacy and the underestimation of adverse reaction risks in 65% of the studied samples.

Conclusions. . The analysis of the 16 studies demonstrates that self-medication is not a purely medical act, but a result of psychosocial pressures, where cyberchondria mechanisms and social recommendations dominate the clinical decision. The data confirm that the high incidence of self-treatment in the community pharmacy is directly proportional to anxiety levels and economic barriers, necessitating a re-evaluation of the pharmacist's role in intercepting these patients to reduce the risk of irrational drug use.

Keywords. Mechanisms, self-medication behavior, patients, community pharmacy.

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15. EVALUATION OF MODERN PRACTICES OF INTESTINAL MICROBIOTA TRANSPLANTATION IN THE TREATMENT OF CLOSTRIDIOIDES DIFFICILE INFECTION

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Introduction. *Clostridioides difficile* infection is the cause of antibiotic-associated diarrhea and often results in recurrence, which requires the use of more effective alternative therapies. First-line antimicrobial therapy has limitations in preventing recurrence, which has led to increased interest in fecal microbiota transplantation (FMT), an innovative method of restoring the balance of the intestinal microbiome.

Aim of study. To evaluate modern practices of intestinal microbiota transplantation and analyze the effectiveness of this method in the management of recurrent *Clostridioides difficile* infection.

Methods and materials. A systematic review of the scientific literature was performed using the PubMed, Google Scholar and Cochrane Library databases, using terms such as "fecal microbiota transplantation," "*Clostridioides difficile*," "recurrent infection," "pseudomembranous colitis," "Vancomycin," "Fidaxomicin," "oral FMT," and "gut microbiota." The selected studies were analyzed for efficacy, safety, and modern administration practices.

Results. The literature review highlights that fecal microbiota transplantation (FMT) is an effective therapeutic option for managing recurrent *Clostridioides difficile* infections. Clinical studies have shown a cure rate of 80%–90% after a single administration and over 90% after multiple administrations, regardless of the method of application (oral capsules, endoscopic instillation, or enema). There is also a significant reduction in recurrence compared to standard antimicrobial therapy (Vancomycin or Fidaxomicin). Careful selection of donors and the use of a standardized protocol for FMT determine the therapeutic success and safety of the procedure, with no serious adverse reactions reported.

Conclusions. Fecal microbiota transplantation is a promising and effective therapeutic strategy for recurrent *C. difficile* infections, with significant potential in clinical practice. Nevertheless, further research is necessary to optimize administration protocols and to evaluate the long-term safety of this therapeutic approach.

Keywords. Fecal microbiota transplantation, *Clostridioides difficile* infection, recurrent infection.

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16. THE EFFECTIVENESS OF PHARMACEUTICAL DOSAGE FORMS IN THE TREATMENT OF VAGINAL DISORDERS

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Introduction. Vaginal disorders, particularly bacterial vaginosis (BV), vulvovaginal candidiasis (VVC), and trichomoniasis, account for more than 70% of gynecological visits. These conditions affect the quality of life and reproductive health and are associated with high recurrence rates, requiring careful selection of the pharmaceutical dosage form and active substance to ensure effective treatment.

Aim of study. To evaluate the effectiveness of medicinal products used in the treatment of vaginal disorders by analyzing the pharmaceutical dosage forms and active substances available in the Republic of Moldova.

Methods and materials. A review of scientific literature and the State Nomenclature of Medicines was conducted. More than 70 pharmaceutical products were analyzed, assessing the correlation between the route of administration, bioavailability, and patient compliance.

Results. The analysis of the nomenclature of pharmaceutical dosage forms reveals a strong orientation toward topical treatment, accounting for approximately 85% of the available therapeutic options. Solid intravaginal dosage forms dominate the market due to their precise dosing and stability: ovules represent the largest share (approximately 52%), followed by vaginal tablets (24%) and vaginal capsules (12%). Therapeutic effectiveness is attributed to the use of active substances with either a broad or a specific spectrum of action. In vulvovaginal candidiasis (VVC), the use of medicinal forms containing Clotrimazole or Nystatin in the form of ovules ensures a cure rate of over 80–90%. In the case of bacterial vaginosis (BV), local administration of Metronidazole (gel or ovules) or Clindamycin (vaginal cream) is considered the primary treatment, providing local concentrations up to 20 times higher than those achieved through oral administration, while simultaneously reducing the incidence of gastrointestinal adverse effects. The study also highlights the role of combined dosage forms (e.g., Metronidazole + Miconazole), which allow the treatment of mixed infections, encountered in approximately 20–30% of cases. At the same time, an increased use of vaginal capsules containing probiotics (*Lactobacillus spp.*) has been noticed; these contribute to the restoration of the protective biofilm and reduce recurrence rates by up to 40%.

Conclusions. Local administration via ovules and vaginal tablets remains the first-line therapy due to major advantages: targeted release of the active substance at the mucosal level, avoidance of first-pass hepatic metabolism, and reduction of the required therapeutic dose. The variety of pharmaceutical forms available in the Republic of Moldova allows for personalized treatment; however, long-term therapeutic success depends on restoring the balance of the vaginal microbiota.

Keywords. Vaginal disorders, therapeutic effectiveness, ovules, metronidazole, clotrimazole, local treatment.

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17. THE IMPACT OF DIGITAL TECHNOLOGIES ON THE EFFICACY OF NASAL DRUG DELIVERY SYSTEMS: A BIOPHARMACEUTICAL APPROACH

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Introduction. Intranasal drug administration represents a promising strategy in personalized medicine, offering important pharmacokinetic advantages compared with conventional routes of administration. The development of smart nasal drug delivery devices (SNDDs) transforms traditional topical administration into a digitally controlled therapeutic process, ensuring precise dose release through integrated electronic mechanisms. The effectiveness of this route is supported by the interaction between digital technologies and optimized pharmaceutical formulations. In this context, strict pH control and the incorporation of mucoadhesive polymers contribute to drug stability and prolong retention time at the level of the nasal epithelium.

Aim of study. To evaluate the role of smart nasal technologies in pharmaceutical practice and to highlight how these systems optimize drug delivery and improve therapeutic effectiveness at the individual patient level.

Methods and materials. The study represents a theoretical–applied analysis based on the synthesis of scientific literature retrieved from the PubMed, ScienceDirect, and Google Scholar databases, focusing on pharmaceutical technology and medical devices. Modern intranasal delivery systems were analyzed, including controlled-dose sprays, breath-actuated propulsion systems, and devices with digital feedback. Particular attention was paid to the technological parameters influencing particle deposition and drug absorption through the nasal mucosa.

Results. SNDDs enable precise control of the administered dose and optimization of droplet size distribution, reducing drug loss through pharyngeal drainage or unintended pulmonary inhalation. By directing airflow toward the upper regions of the nasal cavity, these devices decrease interindividual variability in drug absorption. Within the framework of personalized medicine, such systems may allow dose adjustment based on individual biomarkers or genetic profiles, thereby improving therapeutic outcomes and reducing the risk of systemic adverse reactions. In addition, digital monitoring functions facilitate the early detection of incorrect use or potential overdose, contributing to improved therapy safety. The combination of digital delivery technologies with pH-controlled pharmaceutical formulations supports a more stable pharmacokinetic profile.

Conclusions. Smart nasal drug delivery devices integrate advances in biotechnology and digital health, transforming intranasal administration into a monitored and optimized therapeutic process. Their implementation in pharmaceutical practice supports the transition toward precision medicine and proactive therapy management.

Keywords. Smart drug delivery devices, pharmacokinetics, digital health, intranasal administration.

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18. PATIENT, FAMILY AND PHARMACIST: PARTNERSHIP FOR THE SAFETY AND QUALITY OF TREATMENT

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Introduction. One of the main participants in the pharmaceutical market is the community pharmacy, which must fully satisfy the needs of society for medical and pharmaceutical goods and services at a high professional level. The quality of the services provided depends largely on the provider and the circumstances in which they operate - the pharmacist. One of the most important skills that the pharmacist must possess is the ability to communicate with both the patient and their family members, who are directly involved in the administration of treatment, either by providing care related to treatment, especially in conditions where patients are in a vulnerable state, where there are challenges in communicating about medications. For patients who are affected by sedation, orientation or delirium, families can play a supportive role in enabling the achievement of patients' goals, needs, and preferences.

Aim of study. Based on the above, it was proposed to identify the most important aspects in effective communication between the pharmacist, the patient and their family members, and what are the effects of patient and family involvement in activities related to treatment adherence.

Methods and materials. A systematic review was performed by searching library databases, including MEDLINE, CINAHL, PsycINFO, Embase, and the Cochrane Central Register of Controlled Trials.

Results. To meet the proposed purpose, 30 studies were identified, published between 1990 and 2025, but many of the 30 studies showed a lack of specific research on patient and family involvement in activities related to treatment adherence, and pharmacist involvement was identified in only 16 studies. Most studies addressed other aspects of patient care, with medication management being addressed only peripherally. The study showed that patients and their families tended to be involved through practices that involved sharing information with healthcare professionals. There were a few instances where patients and families were involved in partnerships that included active decision-making. At times, patients and families mentioned that they were not valued for their contribution, demonstrated by the lack of opportunity to ask questions about medications and express their opinions. This experience has been described as a symptom of paternalistic thinking.

Conclusions. The studies analyzed showed that patients and their families faced environmental barriers and unwavering opinions about their abilities to be involved in medication management. It was noted that intervention studies focused less on patient and family involvement and as a result demonstrated little impact on medication quality and safety.

Keywords. Patient, family, pharmacist, communication, treatment.

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19. THE ROLE OF EXCIPIENTS IN THE CONTROL OF NITROSAMINE IMPURITIES IN TABLETS AND CAPSULES

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Introduction. Nitrosamine impurities represent an important concern in pharmaceutical quality assurance due to their potential genotoxic and carcinogenic effects. The detection of these compounds in several medicinal products has led to increased regulatory attention and reassessment of manufacturing processes. Although the initial investigations focused mainly on the synthesis of active pharmaceutical ingredients, recent studies indicate that pharmaceutical excipients may also influence the formation or control of nitrosamines in drug products. In solid dosage forms such as tablets and capsules, interactions between excipients, active substances, and environmental factors may affect the risk of nitrosamine contamination.

Aim of study. To evaluate the role of pharmaceutical excipients in the formation and control of nitrosamine impurities in tablets and capsules based on the analysis of current scientific literature and regulatory guidance.

Methods and materials. The study was conducted as a narrative literature focused on nitrosamine impurities in pharmaceutical products. Scientific information was collected from international databases such as PubMed, Scopus, Web of Science and ScienceDirect, as well as from regulatory documents issued by the European Medicines Agency (EMA), the U.S. Food and Drug Administration (FDA), the World Health Organization (WHO), and the International Council for Harmonization (ICH). The analysis focused on mechanisms of nitrosamine formation, their toxicological relevance, and the possible contribution of excipients used in solid pharmaceutical formulations.

Results. The analysis indicates that nitrosamine formation in medicinal products may occur when nitrosating agents interact with amine-containing compounds under favorable conditions. Excipients frequently used in tablets and capsules, including lactose, microcrystalline cellulose, and povidone, may indirectly influence these processes by introducing trace impurities or by affecting formulation parameters such as moisture, pH and storage stability. Environmental factors such as humidity, temperature and manufacturing conditions may further facilitate slow nitrosation reactions during processing or storage. Current regulatory recommendations emphasize systematic risk assessment throughout the product lifecycle, including evaluation of excipient quality, supplier control, compatibility studies, and the use of sensitive analytical methods for nitrosamine detection.

Conclusions. Pharmaceutical excipients may play an important role in both the formation and control of nitrosamine impurities in solid dosage forms. Careful excipient selection, detailed risk assessment, and implementation of appropriate quality control strategies are essential for minimizing nitrosamine contamination and ensuring the safety and quality of medicinal products.

Keywords. Nitrosamines, pharmaceutical excipients, genotoxic impurities.

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20. MECHANISMS OF MAGNESIUM INTERACTIONS AND THEIR CLINICAL IMPACT

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Introduction. Magnesium (Mg) deficiency is considered relatively common in the general population, with epidemiological estimates indicating a prevalence of 10–30%. It is associated with an increased risk of cardiac arrhythmias, arterial hypertension, insulin resistance, and neuromuscular disorders, which explains the growing interest in elucidating its mechanisms of interaction and their clinical implications.

Aim of study. To evaluate the mechanisms of Mg interactions at the molecular and systemic levels and to analyze their clinical impact.

Methods and materials. A structured analysis of the scientific literature published between 2010 and 2024 was conducted using the databases PubMed, Scopus, Web of Science, and Google Scholar. The search strategy included the following terms: Mg interactions, Mg deficiency, Mg-ATP complex, Mg pharmacological interactions. A total of 98 publications were initially identified, of which 52 articles (published in indexed journals and addressing biochemical mechanisms, pharmacological interactions, and the clinical implications of Mg) were included in the analysis. Duplicate studies, publications without full text, and those lacking direct relevance to the research topic were excluded.

Results. Approximately 84% of the analyzed studies confirm the role of Mg as an enzymatic cofactor involved in more than 300 metabolic reactions, including glycolysis, oxidative phosphorylation, and nucleic acid biosynthesis. In 78% of the publications, Mg is described as essential for stabilizing the Mg-ATP complex, the biologically active form involved in cellular energy transfer processes. Furthermore, 71% of the studies highlight the physiological antagonism between Mg and calcium ions, mediated by the inhibition of voltage-dependent Ca^{2+} channels and the reduction of intracellular calcium influx, a mechanism associated with antiarrhythmic and vasodilatory effects. Approximately 58% of the studies emphasize the role of Mg in regulating neuromuscular transmission by reducing presynaptic acetylcholine release. Regarding drug interactions, 49% of the analyzed articles report reduced absorption of tetracyclines and fluoroquinolones due to the formation of insoluble chelate complexes in the gastrointestinal tract. Mg deficiency was associated, in approximately 63% of the reviewed clinical studies, with an increased risk of cardiac arrhythmias, arterial hypertension, insulin resistance, and neuromuscular disorders.

Conclusions. The analyzed evidence highlights the pivotal role of Mg in regulating metabolic, cardiovascular, and neuromuscular processes through complex molecular and ionic interactions. Monitoring Mg status and correcting deficiencies may represent an important strategy for reducing cardiovascular and metabolic risks, as well as for improving the safety and effectiveness of pharmacological therapies.

Keywords. Magnesium, ionic interactions, Mg-ATP complex, hypomagnesemia, drug interactions, clinical impact.

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21. CURRENT REGULATORY FRAMEWORKS FOR BIOEQUIVALENCE STUDIES

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Introduction. In the context of the globalization of the pharmaceutical market, the harmonization of regulatory requirements has become a major priority for international agencies such as the European Medicines Agency (EMA), the Food and Drug Administration (FDA), and the International Council for Harmonisation (ICH). The adoption of the ICH M13A guideline on the bioequivalence of immediate-release solid oral dosage forms and the ICH M9 guideline on biowaivers based on the Biopharmaceutics Classification System (BCS) represents an important step toward the international standardization of scientific and methodological criteria.

Aim of study. This study aims to analyze current regulatory frameworks for bioequivalence studies, with particular emphasis on the general principles established by the EMA, FDA, and ICH (M13A and M9).

Methods and materials. The study is based on the analysis of official guidelines published by the EMA and FDA, as well as the ICH M13A and ICH M9 (Step 5) documents, together with scientific literature indexed in internationally recognized databases (PubMed). The analysis focused on the following parameters: study design, primary pharmacokinetic parameters (AUC, Cmax), statistical criteria (90% confidence interval within the acceptance range of 80–125%), approaches for highly variable drugs (HVDs), and the conditions for granting BCS-based biowaivers.

Results. The analysis of regulatory frameworks highlights a high degree of harmonization between the EMA and FDA, following the implementation of the ICH M13A guideline, which standardizes the design of crossover studies for immediate-release solid oral dosage forms and clarifies the methodology of statistical analysis. Both authorities recognize AUC and Cmax as essential parameters for demonstrating bioequivalence and require logarithmic transformation of pharmacokinetic data. Regarding biowaivers, the ICH M9 guideline establishes clear criteria for substances belonging to BCS classes I and III, including requirements related to solubility, permeability, and similarity of dissolution profiles. For class III drugs, the regulations impose additional restrictions concerning excipient composition. Differences between the EMA and FDA are more evident in the approach to highly variable drugs, where specific bioequivalence models with scaled acceptance limits and defined application conditions are used.

Conclusions. Current regulations governing bioequivalence studies reflect an advanced process of international harmonization, strengthened by the implementation of the ICH M13A and M9 guidelines. The EMA and FDA share fundamental principles regarding study design, statistical analysis, and acceptance criteria, with differences limited mainly to specific situations such as highly variable drugs.

Keywords. Bioequivalence, ICH, EMA, FDA, BCS, biowaiver, regulatory harmonization.

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22. SEMAGLUTIDE- THERAPEUTIC BENEFITS AND IMPLICATIONS OF OFF-LABEL USE

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Introduction. Semaglutide, a glucagon-like peptide-1 receptor agonist used in type 2 diabetes, improves glycemic control and provides cardiovascular and renal benefits. This review highlights its therapeutic benefits and the clinical implications of increasing off-label use.

Aim of study. This study aims to analyze the potential risks and metabolic implications associated with the use of semaglutide for weight loss in individuals without a clear therapeutic indication.

Methods and materials. This review assesses semaglutide's therapeutic and off-label use by synthesizing evidence from systematic searches of medical databases (PubMed), clinical reviews, and regulatory reports, highlighting social media and promotional influences on prescribing patterns.

Results. The literature review highlights an increase in interest in GLP-1 receptor agonists in the context of the increased prevalence of obesity, which are being used more frequently off-label for weight loss. Data show that approximately 80% of patients achieve a reduction of at least 5% of body weight, and 42% achieve a reduction of at least 15%. However, the use of these drugs is associated with reported adverse reactions, predominantly of a gastrointestinal nature, but also with rarer risks, such as pancreatitis and gastroparesis. Although cases of pancreatic cancer and thyroid C-cell neoplasms have been reported, the causal relationship is currently not fully demonstrated. "Pharmacovigilance data for the period 2004–2024 indicate the reporting of 14,370 adverse events associated with drug-induced thyroid cancer". The year 2021 recorded the highest number of reported cases (over 4,000). Most patients were adults aged 18 to 64 years, predominantly female. Of the classified cases, papillary thyroid carcinoma represented 9.1% and medullary thyroid carcinoma 1.5%. Most reports came from the United States (44.85%), following Japan and Germany. Regarding phenotypic analyses associated with rapid weight loss, the literature describes the occurrence of the phenomenon known as "Ozempic face", characterized by loss of facial volume, increased wrinkles (nasolabial folds, marionette lines), skin laxity and changes in facial contour. These changes are attributed to the reduction of subcutaneous adipose tissue and may lead to increased admissibility for aesthetic interventions. Media exposure and promotion on social networks are also associated with increased demand for these drugs. Studies show that 44% of patients who request a promoted drug end up receiving it through a medical prescription, suggesting a significant impact of digital communication on usage trends.

Conclusions. Although its benefits are well documented in approved indications, the expansion of use beyond these raises concerns about the safety and rational use, highlighting the need for evidence-based prescribing.

Keywords. Semaglutide, off-label use, therapeutic safety.

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23. MARKET WITHDRAWAL MANAGEMENT OF NON-COMPLIANT MEDICINES

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Introduction. The withdrawal of medicines that do not meet the requirements of quality, safety, or efficacy is an essential component of the pharmacovigilance system and the protection of public health. Regulatory authorities, such as the U.S. Food and Drug Administration, the European Medicines Agency, and the Medicines and Medical Devices Agency of the Republic of Moldova, constantly monitor the quality of medicines and coordinate withdrawal procedures when non-conformities are identified. The adoption of Law no. 153/2025 on medicines has contributed to updating the national legislative framework and harmonizing it with European regulations.

Aim of study. Evaluation of the management mechanisms of non-compliant medicines in the Republic of Moldova and analysis of the main causes that determine these withdrawals.

Methods and materials. A descriptive-analytical study was carried out based on the analysis of scientific literature published in the PubMed, Scopus, Google Scholar, and UpToDate databases in the period 2020–2025. Forty-five cases of medicine withdrawal officially reported by AMDM in the period 2020–2025 were examined. The cases were evaluated according to the classification used internationally (Classes I, II, and III). In parallel, the provisions of the national legislative framework on post-authorization surveillance were analyzed.

Results. The results indicate that the majority of withdrawals (73%, n=33) were determined by quality defects, including microbiological contamination, chemical impurities, or non-conformities in the manufacturing process. Problems associated with pharmacovigilance, such as serious adverse reactions or re-evaluation of the risk-benefit ratio, accounted for 18% (n=8), and 9% of cases were caused by labeling errors or incorrect information in the package leaflet. The average interval between notification of non-conformity and initiation of the withdrawal procedure was approximately 48–72 hours. Some difficulties were also identified regarding product traceability in the distribution chain and rapid transmission of information to health professionals. The results are comparable with the data reported in other international studies, which highlight the predominant role of quality defects in triggering withdrawal procedures.

Conclusions. Quality defects are the main cause of medicine withdrawal from the market in the Republic of Moldova. Strengthening post-authorization surveillance mechanisms and optimizing traceability in the distribution chain can contribute to increasing the efficiency of the pharmacovigilance system and protecting patients' health.

Keywords. medicine withdrawal, pharmacovigilance, quality defects, patient safety, pharmaceutical regulation.

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24. THE ROLES OF THE PHARMACEUTICAL FORMS OF CLOZAPINE IN THE MANAGEMENT OF PATIENTS WITH SCHIZOPHRENIA

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Introduction. The treatment of schizophrenia represents a major challenge in psychiatry, especially in cases resistant to classical antipsychotic therapies. In this context, clozapine is considered one of the most effective atypical antipsychotics, being used particularly in patients who do not respond to other medications from the same class. Due to its high efficacy, clozapine occupies an important place in modern therapeutic guidelines; however, its use requires careful patient monitoring because of the risk of hematological adverse reactions. In clinical practice, the drug is available in several pharmaceutical forms, which allows treatment to be adapted to the individual needs of patients.

Case presentation. To analyze the main pharmaceutical forms of clozapine used in the treatment of schizophrenia and their advantages regarding administration, therapeutic adherence, and clinical efficacy.

Discussions. A descriptive analysis of specialized literature and data reported in clinical studies regarding the use of clozapine was conducted. Scientific articles, therapeutic guidelines, and clinical reports published in the field of psychiatry were analyzed. The study included information on the main pharmaceutical forms of clozapine, such as oral tablets, orodispersible tablets, and oral suspensions, as well as data regarding their efficacy and tolerability. Approximately 30–40% of patients with schizophrenia present forms resistant to standard antipsychotic treatment, and in these cases, clozapine represents the main therapeutic option. Clinical studies indicate that about 60–70% of patients treated with clozapine show a significant improvement in psychotic symptoms. Regarding pharmaceutical forms, oral tablets are used in more than 80% of cases, representing the most common form of administration. Orodispersible tablets are used in approximately 10–15% of cases, especially in patients with swallowing difficulties. Oral suspension represents 5–10% of the forms used and is preferred in situations where precise dose adjustment is required. At the same time, treatment with clozapine requires careful hematological monitoring, as approximately 0.5–1% of patients may develop agranulocytosis, a severe adverse reaction.

Conclusions. Clozapine represents an essential medication in the treatment of schizophrenia resistant to other antipsychotic therapies. The diversity of available pharmaceutical forms allows treatment individualization and improves patient adherence. While its use is associated with certain risks, careful monitoring and the correct selection of the pharmaceutical form contribute to increasing therapeutic efficacy and improving patients' quality of life.

Keywords. Clozapine, schizophrenia, pharmaceutical forms, treatment.

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25. CLINICAL PHARMACIST INVOLVEMENT IN IMMUNOSUPPRESSIVE THERAPY SAFETY MONITORING IN RHEUMATOID ARTHRITIS: FOCUS ON BIOLOGICAL AGENTS

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Introduction. Rheumatoid arthritis (RA) is a chronic autoimmune disease affecting 0.6-1% of adults worldwide, managed through complex immunosuppressive regimens, including corticosteroids, methotrexate (MTX), and biological agents, each carrying distinct safety profiles. Biological agents, increasingly used in moderate-to-severe RA, represent a particular safety challenge due to their immunosuppressive mechanisms, supporting the integration of clinical pharmacists into multidisciplinary rheumatology teams.

Aim of study. To assess, through a systematic literature review, the role of the clinical pharmacist in monitoring immunosuppressive therapy safety in RA, with particular emphasis on biological agents in monotherapy or combined with MTX.

Methods and materials. A systematic literature review was conducted using PubMed, Google Scholar, and Cochrane Library. Search terms included: rheumatoid arthritis, clinical pharmacist, biological agents, monotherapy, MTX combination therapy, medication safety, and pharmacovigilance. Studies published 2015–2025 in English were evaluated against current European League Against Rheumatism and American College of Rheumatology guidelines.

Results. The reviewed literature identifies distinct safety profiles across all three therapeutic categories. Corticosteroids are associated with osteoporosis, hyperglycemia, and hypertension. Methotrexate carries risks of hepatotoxicity and myelotoxicity, with folic acid supplementation frequently suboptimal. Biological agents present the most complex safety profile. Anti-TNF therapy combined with MTX improves ACR50 response by ~40% versus monotherapy, but increases discontinuation due to adverse events by 17%. Serious infections occur in 3.6% of anti-TNF-treated patients, with mandatory pre-treatment screening for latent TB and hepatitis B required. Safety profiles vary significantly across biologic classes: Tocilizumab requires lipid and hepatic monitoring; Abatacept shows a favorable infection profile; JAK inhibitors carry elevated Herpes Zoster and cardiovascular risk. Clinical pharmacists play a key role in pre-treatment screening, vaccination assessment, adverse event monitoring, and patient education, reducing morbidity and costs.

Conclusions. The clinical pharmacist's role in RA adapts to therapy type and patient contact frequency. In corticosteroid and MTX therapy, the pharmacist ensures continuous monitoring and education. In biological therapy — the most complex and high-risk category — the role is episodic but critical, encompassing pre-treatment screening, infection vigilance, and education. Pharmacist integration into rheumatology teams is an evidence-based strategy to optimize safety, reduce complications, and support rational use of biological agents.

Keywords. Rheumatoid arthritis, clinical pharmacist, biological agents, anti-TNF. **https://doi.org/10.66603/medespera2026.062**

26. MODERN PHARMACEUTICAL FORMULATION APPROACHES IN OVERCOMING BACTERIAL RESISTANCE TO TOPICAL ANTIBIOTICS

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Introduction. Bacterial resistance to antibiotics represents one of the most important challenges of medicine and constitutes a major global public health problem. Topical antibiotics are used in dermatology, ophthalmology, and in the treatment of skin infections or wounds due to their ability to ensure high local concentrations of the active substance with reduced risk of systemic adverse reactions. However, inappropriate use of these medications has favored the emergence and spread of resistant bacterial strains, leading to decreased therapeutic efficacy and persistent infections.

Aim of study. Evaluation and synthesis of current scientific data regarding modern strategies for overcoming bacterial resistance to topical antibiotics, with emphasis on advanced drug delivery systems, combined antimicrobial therapies, and innovative anti-biofilm approaches that can contribute to increasing the effectiveness of topical antimicrobial treatment.

Methods and materials. The paper represents an analysis of the scientific literature using the databases PubMed, ScienceDirect, Scopus, and Google Scholar, using search terms associated with nanotechnology and antimicrobial resistance during the period 2015–2025.

Results. The results of recent studies highlight several promising directions in combating bacterial resistance. The use of advanced drug delivery systems, such as nanoparticles, nanoemulsions, and hydrogels, can increase the efficiency of topical antibiotics by approximately 30–60%, due to better penetration into bacterial biofilms and the controlled release of the active substance at the site of infection. Studies regarding silver nanoparticles or liposomes loaded with antibiotics have demonstrated a reduction in bacterial resistance of up to 70% compared with conventional formulations. Also, combined therapies that include conventional antibiotics associated with antimicrobial peptides, bacteriophages, or natural bioactive compounds can generate synergistic antimicrobial effects and can reduce the probability of resistance occurrence by approximately 25–35%. Another important strategy aims at the inhibition of bacterial biofilms, complex microbial structures that significantly increase bacterial tolerance to antibiotics and are frequently involved in chronic infections.

Conclusions. Modern approaches aimed at overcoming bacterial resistance to topical antibiotics include the development of innovative drug delivery systems, the use of combined therapies, and the application of anti-biofilm strategies. These research directions offer promising perspectives for optimizing topical antimicrobial therapy and for limiting the global impact of bacterial resistance.

Keywords. Antibiotics, antibiotic resistance, nanotechnology, antimicrobial peptides.

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27. INFLUENCE OF PHARMACEUTICAL FORM ON THE ABSORPTION OF HYDROLYZED COLLAGEN

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Introduction. Collagen is the main structural protein of the human body; however, its use in native form is limited due to low oral bioavailability caused by its large molecular weight. Modern pharmaceutical technology has overcome this barrier through enzymatic hydrolysis, resulting in collagen peptides (2–5 kDa) with superior solubility. Nevertheless, therapeutic efficacy depends not only on the degree of hydrolysis but also on the pharmaceutical form in which the active substance is formulated. This determines the dissolution kinetics and the absorption rate through intestinal peptide transporters (PEPT1), directly influencing the time required to reach maximum plasma concentration and consequently the regeneration of connective tissues and cartilage.

Aim of study. To evaluate the impact of different pharmaceutical forms (oral solutions, powders, capsules) on the absorption rate of hydrolyzed collagen.

Methods and materials. The study was conducted through a bibliographic analysis of pharmacokinetic studies from international databases (PubMed, ScienceDirect).

Results. The study highlights a direct correlation between pharmaceutical form and the bioavailability parameters of collagen peptides. Oral solutions and ampoules demonstrate the highest absorption rate (reduced Tmax), as they eliminate the limiting stages of disintegration and gastric dissolution, providing rapid bioavailability. Powders in sachets (e.g., Balkan Pharmaceuticals, Zdrovit) represent the standard for joint regeneration, allowing the administration of high therapeutic doses (5–10 g) necessary to saturate intestinal transporters. Capsules and tablets present the slowest absorption rate due to the disintegration time of the solid dosage form and are frequently associated with therapeutic underdosing. The presence of Vitamin C in 85% of formulations enhances the synthesis of new collagen; however, the speed of the biological response remains dependent on the release kinetics of the chosen pharmaceutical form. Research confirms that low-molecular-weight peptides (below 3 kDa) use active transport via the PEPT1 system, which minimizes gastric degradation and maximizes transepithelial absorption.

Conclusions. The pharmaceutical form is an important determinant of therapeutic success, directly influencing peptide yield in anti-aging medicine and rheumatology. While liquid forms ensure accelerated absorption, powders remain essential for restoring cartilage integrity. The pharmacist's role is crucial in counseling patients on selecting the optimal pharmaceutical form and educating them about administration on an empty stomach, ensuring a minimum compliance period of 3 months required to achieve clinically relevant results.

Keywords. Peptides, collagen, pharmaceutical form, cartilage.

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28. MAGISTRAL FORMS WITH SILVER IN THE TREATMENT OF SKIN WOUNDS

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Introduction. In the current medical context, marked by alarming bacterial resistance to conventional antibiotics, a return to classic silver-based antiseptic solutions represents an effective therapeutic strategy. In the magistral formula, silver is used in the form of colloidal compounds: Protargol and Colargol. These preparations are essential for the topical treatment of wounds, ensuring safety and controlled release at the lesion site.

Aim of study. To analyze the particularities of pharmaceutical formulation, the mechanisms of antimicrobial action, and the benefits of magistral Protargol and Colargol solutions in the management of skin wounds, highlighting the advantages of customizing these treatments.

Methods and materials. The study analyzed the techniques for preparing magistral solutions with Protargol and Colargol, according to FR X and specialized treatises. The preparation of protargol (7-8% colloidal silver) was evaluated using the „per descensum" dissolution method (sprinkling on the surface) and colargol (70-80% colloidal silver) by trituration with small portions of purified water or glycerol. Therapeutic concentrations of 1-5% were analyzed, highlighting the importance of homogeneous dispersion and protection from light to maintain colloidal stability.

Results. Both colloidal forms exhibit a broad-spectrum bactericidal and bacteriostatic effect, being active against Gram-positive (*Staphylococcus aureus*) and Gram-negative (*Pseudomonas aeruginosa*) bacteria, as well as against certain fungi, destroying the bacterial cell wall and blocking microbial DNA replication. Their use in the form of aqueous and glycerolic solutions, in concentrations of 1% to 5%, allows strict adaptation to the severity of the infection. Protargol offers a gentle action, ideal for superficial wounds and mucosae, forming a protective film that soothes pain and aids epithelialization. Colargol, with its higher concentration of colloidal silver, has more intense antiseptic and anti-inflammatory properties and is recommended for infected wounds with secretions. The absence of preservatives in these compounded preparations prevents cytotoxicity on new cells, accelerating healing. Precise concentration adjustment in the pharmacy ensures an optimal balance between disinfection and protection of healthy tissue, without generating bacterial resistance, unlike classic antibiotics.

Conclusions. Protargol and Colargol solutions remain the gold standard in dermatological prescriptions due to their consistent efficacy and good skin tolerance. They allow doctors and pharmacists to tailor therapy to the specific characteristics of each wound, ensuring a rapid and effective healing process and providing a reliable solution for the management of skin wounds.

Keywords. Colloidal silver, wounds, dermatological formula, treatment.

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29. ASSESSMENT OF RISK FACTORS ASSOCIATED WITH THE ADULTERATION OF DIETARY SUPPLEMENTS

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Introduction. The rapid expansion of the dietary supplement market has been accompanied by an increasing number of reported cases of adulteration, involving the addition of undeclared substances, substitution of ingredients, or contamination with potentially toxic compounds. Such practices compromise product authenticity and may pose significant risks to public health, including adverse reactions and drug–supplement interactions.

Aim of study. To identify and evaluate the main risk factors involved in the adulteration of dietary supplements and the analytical methods used for their detection.

Methods and materials. A systematic analysis of the scientific literature was conducted using the databases PubMed, Scopus, ScienceDirect, and Web of Science, complemented by reports from regulatory authorities (FDA, EFSA). A total of 72 publications published between 2015 and 2024 were analyzed. Inclusion criteria comprised original research articles, official reports, and review papers documenting cases of adulteration or methods used for their detection. Articles lacking experimental data, duplicate publications, and studies that did not directly address the composition or authenticity of dietary supplements were excluded.

Results. The literature analysis showed that 58% of the reviewed studies reported adulteration through the addition of undeclared pharmacologically active substances, particularly in supplements marketed for weight loss, sports performance, and sexual enhancement. Thirty-four percent of the sources indicated contamination with heavy metals, pesticides, or microorganisms, while 27% reported substitution of plant raw materials with non-authentic or lower-quality species. The identified risk factors included economic pressure and market competition (42% of studies), lack of traceability of raw materials (38%), insufficient manufacturing control (33%), and unauthorized online marketing (29%). Analytical methods used to detect adulteration included chromatographic techniques (HPLC, GC–MS) reported in 61% of the studies, mass spectrometry (54%), and molecular methods for botanical authentication (DNA barcoding, 23%).

Conclusions. Adulteration of dietary supplements is primarily associated with the introduction of undeclared pharmacologically active substances and with deficiencies in raw material traceability. Chromatographic and spectrometric techniques represent the main analytical tools for detecting these practices. Strengthening quality control systems, improving supply chain monitoring, and developing rapid analytical screening methods are essential measures for reducing risks to consumers.

Keywords. Dietary supplements, adulteration, risk factors, quality control, product safety.

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30. SPECIES OF THE GENUS SOLIDAGO – SOURCES OF PHYTOPREPARATIONS WITH DIURETIC ACTIVITY

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Introduction. The genus Solidago comprises more than 100 species, mainly native to North America and later naturalized in Europe. Among these, S. virgaurea, S. canadensis, and S. gigantea are recognized in the European Pharmacopoeia (Ph. Eur., 12th ed.) as official sources of Solidaginis herba. According to data from PubMed-indexed studies, the diuretic activity of Solidago species is mainly attributed to flavonoids, phenolic acids, and triterpene saponins, which modulate renal tubular permeability and contribute to the regulation of ionic homeostasis.

Aim of study. This study aimed to perform a comparative evaluation of Solidago species from the Republic of Moldova, European countries, and North America as sources of diuretic phytopreparations by analyzing their chemical composition, mechanisms of action, and the pharmaceutical dosage forms used regionally.

Methods and materials. A bibliographic analysis of the pharmaceutical profile of Solidago species was conducted using scientific databases such as PubMed and HINARI, as well as official monographs from the Ph. Eur. The review was complemented with recent scientific literature addressing the phytochemical composition, pharmacological properties, and therapeutic applications of Solidago species.

Results. Several phytopharmaceutical preparations containing extracts of Solidago species with diuretic activity are currently available on the European market, including Cystinol (Germany), Diuronis (Poland), and Urinal Akut (Romania). In Europe, these products are subject to strict pharmacopoeial standardization, whereas in North America, similar preparations are more frequently marketed as dietary supplements. In Europe, including the Republic of Moldova, the most used vegetal product is Solidaginis virgaureae herba, in the form of infusions, tinctures, hydroalcoholic extracts, and film-coated tablets. These preparations are indicated for mild urinary tract infections and renal lithiasis. In North America, S. canadensis and S. gigantea are traditionally used as decoctions or standardized extracts in capsule form.

Conclusions. Solidago species represent valuable sources of diuretic phytopreparations with scientifically validated pharmacological effects and official recognition in the Ph. Eur. Regional differences mainly concern the regulatory classification and dosage forms rather than the pharmacodynamic mechanisms. These findings support the sustainable integration of Solidago species into the European and local pharmaceutical framework while maintaining established standards of quality and safety.

Keywords. Solidago species, phytopreparations, diuretic activity.

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31. THE ROLE OF THE CLINICAL PHARMACIST IN THE EVALUATION AND OPTIMIZATION OF ANTICOAGULANT THERAPY IN THE PERIOPERATIVE DENTAL PATIENT

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Introduction. In modern dentistry, clinicians increasingly face the challenge of appropriately managing anticoagulant therapy during the entire perioperative period. While continuation of anticoagulants may increase the risk of bleeding and local hemorrhagic complications, unjustified interruption can lead to stroke or thromboembolic events. In this context, the clinical pharmacist plays a pivotal role within the multidisciplinary team by evaluating thrombotic and hemorrhagic risks, reviewing comorbidities and concomitant medication.

Aim of study. To assess the role of the clinical pharmacist in optimizing anticoagulant therapy and to formulate practical recommendations aimed at reducing thromboembolic and hemorrhagic complications in perioperative dental patients.

Methods and materials. A narrative synthesis of the literature was conducted, including clinical studies evaluating perioperative management of direct oral anticoagulants (DOACs) and vitamin K antagonists such as warfarin. Data regarding continuation versus temporary interruption strategies, incidence of hemorrhagic and thrombotic events, and the use of clinical decision-support tools, including Lexicomp, were analyzed descriptively.

Results. Anticoagulant therapy in dental patients represents a significant clinical challenge requiring careful risk–benefit assessment. DOACs such as rivaroxaban, apixaban, and edoxaban are currently the most frequently prescribed agents, while warfarin remains the main vitamin K antagonist. Lexicomp was the most commonly used tool for interaction screening and dose adjustment. Most physicians (98%) reported dose reduction of DOACs when clinically indicated. Internal medicine residents and hospital pharmacists demonstrated higher confidence in perioperative DOAC management, particularly regarding dosing, preoperative planning, patient counseling, and interaction assessment, highlighting the pharmacist's contribution to therapeutic optimization. A multicenter study in 27 ICUs in Canada and the US identified barriers to low molecular weight heparin use, including cost, bleeding concerns, and insufficient resident knowledge. Reported bleeding rates ranged from <1% to 27.5%, depending on anticoagulant class and procedural invasiveness, with warfarin and highly invasive surgery associated with a higher risk.

Conclusions. Individualized hemorrhagic and thrombotic risk stratification, evidence-based perioperative planning, and interdisciplinary collaboration are essential in anticoagulated dental patients. The clinical pharmacist plays a decisive role in therapy optimization, interaction management, and patient education, contributing to improved perioperative safety and reduced adverse outcomes.

Keywords. Clinical pharmacist, anticoagulant therapy, anticoagulant therapy, perioperative management, dental patient, hemorrhagic risk.

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32. SAFETY PROFILE OF ANTIRETROVIRAL DRUGS IN THE MANAGEMENT OF HIV/AIDS

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Introduction. Combined antiretroviral therapy (cART) has transformed HIV infection into a manageable chronic condition, significantly reducing morbidity and mortality. Nevertheless, adverse drug reactions (ADRs) associated with antiretroviral (ARV) agents remain a major clinical challenge, affecting treatment adherence, therapeutic continuity, and patients' quality of life. Assessment of the safety profile of ARV regimens is therefore essential for optimizing therapeutic strategies.

Aim of study. This study aimed to evaluate the safety profile of antiretroviral therapy by assessing the types, frequency, and severity of adverse drug reactions reported between 2011 and 2024. Additionally, the study examined the impact of these reactions on treatment adherence, regimen modification, and quality of life, while identifying trends related to the transition to contemporary antiretroviral regimens.

Methods and materials. This descriptive, retrospective, and systematic study included a narrative-analytical component. A total of 75 studies indexed in PubMed, Scopus, Web of Science, EMBASE, and the Cochrane Library were reviewed. The analysis was complemented by a retrospective evaluation of ADRs recorded in patients treated at the Toma Ciorbă Clinical Hospital of Infectious Diseases, Chișinău, Republic of Moldova, between 2010 and 2024. Data were synthesized and analyzed descriptively.

Results. Results indicate that 30–50% of patients experience at least one ADR during the first months of treatment. The most frequently reported reactions were gastrointestinal disturbances, metabolic disorders (dyslipidemia, hyperglycemia), cutaneous reactions, and neurological manifestations. Severe ADRs, including hepatotoxicity, hematological disorders, and hypersensitivity syndromes, were reported in approximately 5% of patients and represented the primary cause of regimen modification. Local data analysis demonstrated a declining trend in reported ADRs, from 25 cases in 2010 to 0–2 cases annually during 2020–2024, suggesting an improved safety profile of contemporary regimens. Dermatological (66%) and hematological (16%) reactions predominated. Although 80% of reported ADRs were classified as severe, 99% were reversible, with restoration of quality of life following appropriate management.

Conclusions. Adverse drug reactions remain a key factor influencing adherence and long-term therapeutic outcomes in people living with HIV. However, the declining trend in reported events and the high reversibility rate of severe reactions indicate an improved safety profile of modern antiretroviral regimens. Continuous pharmacovigilance, individualized treatment strategies, and effective physician–patient communication are essential to sustain adherence and optimize long-term clinical outcomes.

Keywords. HIV/AIDS, combined antiretroviral therapy, adverse drug reactions, safety profile, drug toxicity, quality of life.

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33. EVALUATION OF THE PHYSICOCHEMICAL AND BIOPHARMACEUTICAL PROPERTIES OF INDOCYANINE GREEN

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Introduction. Indocyanine green (ICG) is a tricarbocyanine dye widely used in medical diagnostics and imaging, particularly in angiography and near-infrared (NIR) fluorescence-guided surgical procedures. Its physicochemical properties influence its stability, bioavailability, and in vivo behavior. Characterization of its solubility profile, stability and structural features supports its clinical application and facilitates the expansion of its biopharmaceutical uses.

Aim of study. Evaluation of the fundamental physicochemical properties of indocyanine green and analysis of the biopharmaceutical characteristics relevant to its diagnostic use.

Methods and materials. The solubility of the substance in various solvents, the stability of aqueous solutions depending on pH, the UV-VIS absorption spectrum (Lambda 25, Perkin Elmer, USA), and the FTIR profile (Cary 630, Agilent) were determined. Solubility was evaluated in water, alcohol and dimethyl sulfoxide (DMSO). The biopharmaceutical features were assessed based on relevant bibliographic data.

Results. Indocyanine green exhibited low solubility in water (0,8 mg/ml), while its aqueous solutions showed instability and a tendency to degrade at pH values above 8,0. The substance was readily soluble in alcohol and dimethyl sulfoxide (DMSO), indicating greater compatibility with polar organic solvents. Spectral analysis revealed maximum absorption at 778 nm for the aqueous solution and 781 nm for the methanolic solution, within the near-infrared (NIR) region, confirming the characteristic chromophoric properties of cyanine dyes. The FTIR spectrum displayed absorption bands in the 600-1500 cm^{-1} range, attributed to aromatic C=C stretch, out-of-plane C-H bending, and sulfonate (SO_3) functional groups. Distinct peaks were observed at 1400-1500 cm^{-1} (aromatic C=C), around 1200 cm^{-1} (sulfonate groups) and between 600-1000 cm^{-1} (out-of-plane C-H vibrations). The melting temperature was determined to be 236,1°C, indicating relatively high thermal stability in the solid state. Literature data indicate rapid plasma protein binding, limited extravascular distribution and predominantly hepatic elimination, characteristics relevant to its imaging applications.

Conclusions. Indocyanine green exhibits properties characteristic of tricarbocyanine dyes, including absorption in the near-infrared (NIR) range and pH-dependent stability in aqueous solutions. Its low water solubility and reduced stability under alkaline conditions represent important considerations for formulation development, while its thermal stability and spectral profile confirm the identity and purity of the substance. Its biopharmaceutical features support its established role in medical imaging and suggest potential for the development of optimized controlled delivery systems.

Keywords. Indocyanine green, ICG, UV-VIS spectroscopy, FTIR spectroscopy, solubility, biopharmaceutical properties.

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34. IN VITRO CULTURES OF PROMISING MEDICINAL PLANTS AT THE LABORATORY OF PLANT BIOTECHNOLOGY

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Introduction. Plant biotechnologies provide modern solutions for the rapid multiplication, conservation and valorization of medicinal plants with pharmaceutical importance. In vitro culture ensures the production of uniform planting material, free of pathogens and capable of maintaining a high biosynthetic potential. In the context of increasing interest in phenolic compounds, volatile oils and natural sweeteners, the development of micropropagation protocols for valuable species represents a priority direction in applied research.

Aim of study. Initiation and optimization of in vitro cultures of medicinal plant species belonging to different classes of bioactive compounds and the establishment of efficient conditions for microcloning and rhizogenesis.

Methods and materials. In the laboratory of plant biotechnologies, donor plants were selected from the following species: Aronia melanocarpa, Rubus idaeus, Actinidia deliciosa, Mentha piperita, M. citriodora, Lavandula angustifolia, Origanum vulgare and Stevia rebaudiana. Root meristems, lateral buds and shoot apical meristems were used as explants. Different sterilization variants of the explants and basal nutrient media supplemented with growth regulators were tested for culture initiation, microcloning and rhizogenesis.

Results. Viable aseptic cultures were obtained in all investigated species, showing differentiated morphogenetic responses depending on the explant type and hormonal balance. Meristematic explants demonstrated the highest regeneration capacity, especially in M. piperita, L. angustifolia, A. melanocarpa and S. rebaudiana. Nodal segments showed high efficiency in shoot multiplication in R. idaeus and A. melanocarpa. Adjustment of the auxin/cytokinin ratio directly influenced the intensity of microcloning. Increased cytokinin concentrations stimulated the formation of multiple shoots, while auxin supplementation favored rhizogenesis, particularly in A. deliciosa and O. vulgare. It was observed that the response to growth regulators depends on the species and the nature of the initial tissue. The applied sterilization protocol significantly reduced contamination levels, allowing medium-term culture maintenance without major losses. The results confirm the possibility of developing efficient multiplication schemes for each species. Further research will focus on evaluating the influence of light spectra, photoperiodism and infrared radiation on growth, biomass accumulation and the biosynthetic potential of micro plantlets.

Conclusions. The initiation of in vitro cultures in the studied species demonstrated the feasibility of their micropropagation under controlled conditions. Optimization of nutrient media and hormonal balance represents a determining factor for efficient multiplication and rhizogenesis induction.

Keywords. in vitro cultures, medicinal plants, chemical compounds, microcloning.

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35. IN VITRO MICROPROPAGATION AS POTENTIAL WAY OF ARONIA MELANOCARPA MULTIPLICATION

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Introduction. The growing global reliance on phytomedicines (70–80% of the population) increases the demand for standardized plant raw material rich in bioactive compounds. Aronia melanocarpa is recognized for its high content of polyphenols, hydroxycinnamic acids, flavonoids and anthocyanins, responsible for antihypertensive, antimicrobial, antioxidant and anti-inflammatory effects. Sustainable pharmaceutical exploitation requires uniform, pathogen-free and genetically stable planting material, which can be efficiently produced through controlled in vitro micropropagation systems independent of climatic and seasonal limitations.

Aim of study. To evaluate scientific data regarding the application of in vitro micropropagation techniques for obtaining high-quality A. melanocarpa plant material rich in secondary metabolites and suitable for the establishment of productive plantations.

Methods and materials. About 50 peer-reviewed articles were analyzed according to the following criteria: phenolic profile, pharmacological activity, plantation establishment, explant source, culture media composition, hormonal balance, physical growth conditions and regeneration protocols.

Results. Regeneration efficiency depends primarily on explant type, nutrient medium composition and plant growth regulator balance. Meristematic explants (shoot apices, axillary buds, root apices) show superior morphogenic response, high multiplication rate and reduced somaclonal variation, ensuring clonal fidelity. The Murashige and Skoog (MS, 1962) basal medium is most frequently applied, supplemented with B vitamins (thiamine, nicotinic acid, pyridoxine), myo-inositol, macroelements (N, P, K, Ca, Mg, S) and microelements (Fe, Mn, Zn, Cu, B, Mo). Morphogenesis is strongly influenced by auxin–cytokinin interactions. Callus induction is promoted by higher auxin levels, particularly 2,4-D (0.5–2.0 mg/L) or NAA (0.5–1.5 mg/L). Rhizogenesis is mainly stimulated by IBA (0.5–2.0 mg/L) or NAA (0.2–1.0 mg/L), whereas shoot proliferation is enhanced by cytokinins such as BAP (0.5–2.0 mg/L) or kinetin (0.5–1.5 mg/L), frequently combined with low auxin concentrations. A high auxin/cytokinin ratio favors rooting, while the opposite ratio stimulates shoot multiplication. Optimal physical parameters include a 16 h photoperiod, 22–24°C and light intensity around 3000 lx, ensuring stable in vitro development.

Conclusions. In vitro micropropagation constitutes a sustainable and scalable biotechnological approach for the rapid multiplication of A. melanocarpa genotypes, ensuring standardized and high-quality raw material supply for pharmaceutical applications.

Keywords. in vitro culture, micropropagation, Aronia melanocarpa, secondary metabolites., This study was supported by the research project Cod 080301 - “Elaboration analysis, standardization and quality control of pharmaceutical products and monocomponent and combination of synthetic and natural food supplements”.
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36. SHORT LYSINE-CONTAINING TRIPEPTIDE AS ANALGESIC SUBSTANCE

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Introduction. Various peptide molecules are of great interest in the development of analgesic substances.

Aim of study. This study aims to investigate the effect of the tripeptide Ac-Lys-Lys-Lys- NH2 (Ac-KKK-NH2) on the nociceptive system.

Methods and materials. Conformational analysis was performed to determine the most stable spatial forms of the short peptide molecule and to study its physical and chemical properties. Conformational analysis of the tripeptide Ac-KKK-NH 2 was performed using the TINKER8 software package within the MMFF94 force field. To verify the results of the conformational analysis at the cellular level, experiments were performed using the patch-clamp method in a whole-cell configuration on isolated sensory neurons of the dorsal ganglia of three-day-old Wistar rats. At the systemic level, experiments were performed using the formalin test method.

Results. The results of the conformational analysis indicate that the formation of the ligand-receptor complex of the tripeptide molecule Ac-KKK-NH2 molecule with the activation gate of NaV1.8 channels is due to the presence of positively charged amino groups of lysine residues, which must be at an effective distance of 11 Å from each other. A series of experiments demonstrated a statistically significant decrease in Z eff from 6.5 ± 0.4 (n = 25) in the control to 4.8 ± 0.5 (n = 25) after exposure to the tripeptide Ac-KKK-NH 2 (100 nmol/L). The antinociceptive effect of the tripeptide Ac-KKK-NH2 at a dose of 1.0 mg/kg was studied in vivo using the formalin test. It was found that the analgesic effect of these substances manifests itself at both the spinal and supraspinal levels.

Conclusions. The results of conformational analysis showed that the formation of a ligand-receptor complex of the peptide molecule with the activation gate of NaV1.8 channels is due to the presence of positively charged amino groups of lysine residues located at an effective distance of 11 Å from each other. The patch-clamp method allowed us to establish that the peptides under study at a concentration of 100 nm/l modulate the potential sensitivity of NaV1.8 channels. The formalin test showed that peptides cause an analgesic effect at the spinal and supraspinal levels.

Keywords. sodium channels 1.8, short peptides, nociceptive system.

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37. FLOW CYTOMETRIC EVALUATION OF OXIDATIVE STRESS AND CELLULAR VIABILITY IN SACCHAROMYCES CEREVISIAE

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Introduction. Oxidative stress is a key adaptive mechanism influencing microbial survival under antimicrobial pressure. Accumulation of reactive oxygen species (ROS) disrupts cellular redox homeostasis, activates apoptosis-related pathways, and modulates stress-response signaling. These adaptive responses contribute to microbial persistence and may promote antimicrobial resistance (AMR). Saccharomyces cerevisiae is a well-established eukaryotic model for investigating oxidative stress-mediated cellular responses relevant to the fungal resistance mechanisms.

Aim of study. To evaluate oxidative stress and cellular viability in Saccharomyces cerevisiae using flow cytometry and to explore their association with mechanisms involved in antimicrobial resistance.

Methods and materials. Yeast cultures (0.8 OD) were prepared as single-cell suspensions. Oxidative stress was induced using hydrogen peroxide (H_2O_2). Experimental groups included: control cells, cells treated with H_2O_2, cells treated with H_2O_2 and ascorbic acid, and cells treated with ascorbic acid alone. Cell viability and ROS production were assessed using propidium iodide (PI) for detection of membrane-compromised cells and 2',7'-dichlorofluorescein (DCF) for intracellular ROS quantification. Samples were analyzed on a BD FACSCalibur flow cytometer with acquisition of 10,000 events per sample. Gating strategies were applied to distinguish viable (DCF-positive), non-viable (PI-positive) and stressed subpopulations. Statistical analysis was performed using RStudio and Excel.

Results. Exposure to H_2O_2 increased intracellular ROS levels, demonstrated by elevated DCF fluorescence intensity, and increased the proportion of PI-positive cells, indicating membrane damage and apoptosis. Antioxidant co-treatment with ascorbic acid reduced ROS accumulation and partially restored cell viability, confirming the oxidative nature of the induced injury. Flow cytometric analysis revealed distinct fluorescence shifts between control, stressed and antioxidant-treated groups. Increased ROS generation correlated with decreased viability, supporting the hypothesis that oxidative imbalance contributes to cellular damage and stress adaptation.

Conclusions. Flow cytometry is a sensitive method for quantifying oxidative stress and viability changes in Saccharomyces cerevisiae. Elevated ROS levels are associated with reduced cell survival, highlighting oxidative stress as a determinant of microbial adaptation. As oxidative stress responses activate antioxidant defenses and survival pathways, these mechanisms may promote antimicrobial resistance. Understanding ROS dynamics provides insight into resistance development and supports the identification of new therapeutic strategies.

Keywords. Saccharomyces cerevisiae, oxidative stress, flow cytometry

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38. EXPERIMENTAL BIOSIMILAR PRODUCTION LINE IMPLEMENTATION AT NICOLAE TESTEMIȚANU STATE UNIVERSITY OF MEDICINE AND PHARMACY

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Introduction. Biosimilar medicines are increasingly important in pharmacotherapy because they can expand access to complex biologic treatment and may reduce costs. In many universities, however, biosimilar development is taught mainly theoretically. At Nicolae Testemitanu State University of Medicine and Pharmacy of the Republic of Moldova, no integrated platform previously existed to demonstrate the full experimental workflow of such products.

Aim of study. To implement an experimental biosimilar production line within the university and develop the protocols, SOPs, and training framework needed to simulate end-to-end manufacture of a recombinant model product at small experimental scale, with educational and research relevance.

Methods and materials. A pilot academic platform was organized as a sequential workflow including medium preparation, inoculation/microbiology, fermentation, and purification. Recombinant somatropin was selected as the model product, and Pichia pastoris as the expression system. The workflow covered medium preparation, cultivation, cell bank creation, fermentation, separation, purification, and analytical training elements. The process was adapted from a reference protocol to small-volume production suitable for student participation under controlled conditions, including class D clean area organization, personnel SAS, and HVAC/HEPA-supported infrastructure.

Results. The line was organized and made functional as a complete educational and research platform. Conditions were created for practical training of students and doctoral candidates, who already participate in sequential stages of the process, from medium preparation and conditioning to inoculation, fermentation, and separation. The platform enables small groups of 3–4 trainees to engage directly with each technological stage and supports semester-based product-oriented training. This approach improves understanding of process continuity, traceability, and the relationship between upstream and downstream operations in biopharmaceutical production. Work is also ongoing to adapt a new growth medium because components of the parent protocol have become difficult to source.

Conclusions. This platform demonstrates the feasibility of integrating biosimilar-oriented bioprocess training into pharmaceutical higher education through a complete upstream-downstream experimental workflow. It also creates a foundation for translational research, protocol refinement, and future expansion of academic biopharmaceutical training.

Keywords. biosimilar medicines, experimental manufacturing, biopharmaceutical process development

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39. THE ROLE OF ARTIFICIAL INTELLIGENCE (AI) IN SEMISOLID PHARMACEUTICAL FORMULATION

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Introduction. Artificial intelligence (AI) is increasingly being integrated into pharmaceutical formulation and preformulation processes, including the development of semisolid dosage forms. Conventional formulation development is resource-intensive and requires iterative experimental cycles to optimize critical quality attributes of semisolid systems, such as rheological behavior, drug release characteristics, and stability. Al has emerged as an innovative approach to streamline these processes, enabling reduced development timelines and improved predictive accuracy.

Aim of study. To review the scientific literature regarding the role of artificial intelligence in the formulation and preformulation of semisolid pharmaceutical dosage forms.

Methods and materials. Scientific literature indexed in PubMed, Scopus, MEDLINE, and Embase was analyzed to evaluate the application of AI in the formulation and preformulation of semisolid pharmaceutical systems, including optimization of excipient ratios, prediction of drug-excipient interactions, and modeling of drug release profiles.

Results. AI approaches have been applied to the optimization of topical diclofenac gels, where artificial neural networks were used to predict rheological parameters and drug release profiles, as well as to refine polymer concentrations (e.g., Carbopol, HPMC) and cosolvent composition. In dermatological creams containing corticosteroids (e.g., hydrocortisone), machine learning algorithms enabled the estimation of emulsion stability and transdermal permeability, establishing correlations between formulation composition and biopharmaceutical performance. Furthermore, in the development of nanoemulsions and emulgels containing poorly water-soluble active substances (e.g., curcumin), genetic algorithms and predictive modeling were employed to optimize phase ratios, reduce particle size, and enhance system stability. In mucoadhesive formulations and ophthalmic ointments, AI contributed to the prediction of mucoadhesive strength and residence time, supporting the design of systems with improved therapeutic efficacy.

Conclusions. Artificial intelligence represents a valuable tool in the development of semisolid pharmaceutical dosage forms, facilitating formulation and preformulation through enhanced predictive capability and resource optimization. The integration of AI-driven methodologies into pharmaceutical practice may improve research efficiency and support the development of safer and more effective therapeutic products.

Keywords. Artificial intelligence (AI), semisolid dosage forms, formulation, gels, creams.

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40. THE IMPORTANCE OF LEPTINEMIA IN IDENTIFYING OBESITY AND METABOLIC RISK

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Introduction. Leptin is a peptide hormone encoded by the obesity gene and produced mainly by adipocytes, and represents one of the products of adipocyte endocrine secretion, with a cytokine-like structure. In adults, leptin levels predict the occurrence of metabolic syndrome and its components: obesity, glucose intolerance, insulin resistance, hypertension and in those with metabolic syndrome, its worsening.

Aim of study. Evaluating the importance of leptinemia in identifying obesity and metabolic risk.

Methods and materials. The study was based on a systematic review of scientific literature in electronic databases: PubMed, Google Scholar, Medline. Searches were conducted using the keywords: obesity, BMI, leptin, metabolic syndrome during the period of 2025. 78 bibliographic sources were identified and evaluated.

Results. In all evaluated studies, human subjects were measured: weight, height, abdominal circumference (AC), and blood pressure (BP). Body mass index (BMI) was calculated. Paraclinical parameters including fasting blood glucose, fasting insulin, TTGO, total cholesterol, HDL cholesterol, TG were determined. Only those with common obesity were included in the study; those with obesity of other etiology or with diseases that could have influenced the results of paraclinical examinations were excluded. Leptin correlated with physical activity only in men. Sedentary activities, hours spent watching television or hours of sleep per night did not correlate with leptin. There were significant differences between the mean leptin values in overweight and obese subjects, differences present in men but not in women. Within the overweight and obese subjects, there were no differences in leptinemia between the sexes. Leptin correlated with BMI and AC, both reported at the 50th percentile value. The mean leptin level was significantly higher in obese compared to overweight subjects, there were no significant differences between women and men or between those with and without MS. There were no correlations between leptinemia and age, in neither women nor in men.

Conclusions. Determination of leptinemia plays an important role in identifying obesity and metabolic risk. Leptinemia in those with metabolic risk was higher than in those without metabolic risk, but without statistically significant differences, differences that were also valid within gender groups. Leptin did not correlate with fasting insulinemia, HOMA-IR, TG, HDL cholesterol or LDL cholesterol. There were no statistically significant differences between the mean leptin values in those who presented and those who did not present elements of metabolic risk. Leptinemia did not correlate with the number of elements of metabolic risk present.

Keywords. Obesity, BMI, leptin, metabolic syndrome.

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41. ETHICAL AND LEGAL ASPECTS OF PRESCRIBING "OFF-LABEL" MEDICINES

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Introduction. Off-label use, i.e. prescribing medicines for indications other than those approved by the manufacturer, is a common practice in many health care systems. In the Republic of Moldova, no clear legal framework exists to regulate such a practice, resulting in potential legal ambiguities and ethical problems for medical staff. In other countries, however, the conditions, responsibilities and limits of the off-label use of medicines are regulated by laws, regulations and guidelines, stressing the importance of scientific evidence, informed consent and documentation. In this regard, we consider it necessary to analyze the situation in the Republic of Moldova, comparing it with existing models in other countries, in order to identify potential gaps in legal and ethical aspects, and to indicate the risks of an unjustified off-label use of prescribed medicines.

Aim of study. The aim of the present work is to analyze information on the off-label use of medicines in other countries and in the Republic of Moldova, to evaluate the legal and ethical aspects in countries that regulate such a practice in order to identify potential regulatory directions for the Republic of Moldova.

Methods and materials. The set of the materials for the study represented regulatory documents and specific literature from many countries, related to the specific traits of legal, ethical and practical framework in the field of prescribing off-label medicines. The study in the Republic of Moldova was performed using a questionnaire, which was completed by a group of doctors and pharmacists, to evaluate their attitudes, knowledge and practice in prescribing and dispensing off-label medicines. The methods used were systemic analysis and informative statistical analysis.

Results. The obtained data demonstrate that off-label use of medicines is present in current medical practice, but the degree of knowledge about legal and ethical aspects varies among professionals. A number of respondents stated that they use this practice in cases where there is no other approved therapeutic alternative or when scientific evidence justifies the efficacy and safety of the respective use. The results point out that due to the absence of uniform procedures and clear national recommendations, doctors and pharmacists could be exposed to professional or legal risks, and patients to health risks.

Conclusions. Off-label prescribing is a reality in the Republic of Moldova. The absence of an official regulatory framework exposes it to certain ethical and legal risks. The implementation of clear rules around this matter, based on bioethical and scientific principles and professional guidelines would support improvements in patient safety and could serve to protect doctors and pharmacists.

Keywords. Off-label, medicine, prescription, doctor, pharmacist.

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DENTISTRY SECTION

1. INTERDISCIPLINARY APPROACH TO DENTAL TRAUMA IN CHILDREN

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Introduction. Dental avulsion is a dental emergency that requires prompt and interdisciplinary intervention for the reimplantation and stabilization of the affected tooth. Fixed orthodontic appliances provide a modern and effective method of immobilization, protecting the periodontal tissues and ensuring long-term dental integration.

Case presentation. A clinical case of a 9-year-old patient presenting with avulsion of tooth 21, which was urgently reimplanted and initially stabilized using temporary splinting. Ten days later, a fixed orthodontic appliance was applied to the maxillary arch without activation, serving a passive stabilizing function. The follow-up period lasted three months and included periodic clinical and radiological evaluations, assessing dental mobility, tooth position within the arch, and periodontal status. Post-reimplantation clinical examination revealed mild gingival edema and grade II dental mobility, without changes in tooth position. Periapical radiographic examination showed no evidence of root or alveolar fractures; however, a slightly altered periodontal ligament space was observed, without signs of root resorption. The differential diagnosis included extrusive dental luxation, root fracture of the traumatized tooth, post-traumatic alveolar lesions, and the potential development of dentoalveolar ankylosis during the post-reimplantation period. The final diagnosis was dental avulsion of tooth 21, treated by reimplantation and passive orthodontic stabilization. After three months, the tooth exhibited a stable position within the dental arch, with no pathological mobility or root resorption, healthy gingival tissues, and stable occlusion.

Discussions. The management of dental avulsion in pediatric patients requires prompt intervention and appropriate stabilization in order to reduce the risk of post-traumatic complications. Immediate reimplantation and flexible splinting promote periodontal ligament healing and limit the occurrence of external root resorption or dentoalveolar ankylosis. The passive use of a fixed orthodontic appliance contributed to maintaining physiological micromobility and dental stability, with favorable clinical and radiological outcomes observed throughout the follow-up period.

Conclusions. Immobilization using a fixed orthodontic appliance represents a safe and effective alternative for the stabilization of reimplanted teeth in children. The results confirm the effectiveness of this method and highlight the importance of interdisciplinary collaboration in the management of dental trauma.

Keywords. Dental avulsion, reimplantation, fixed orthodontic appliance.

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2. THE IMPACT OF DIABETES MELLITUS ON THE SEVERITY AND PROGRESSION OF PERIODONTITIS – A MINI-REVIEW

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Introduction. Diabetes mellitus represents a major risk factor in the development and progression of periodontitis. Chronic hyperglycemia alters the immune response and induces a persistent systemic inflammatory state that affects the periodontal tissue environment. These alterations promote bacterial proliferation, local inflammation, and destruction of periodontal tissues, including alveolar bone loss. Consequently, periodontal disease is more frequently observed in severe forms among patients with diabetes.

Aim of study. To analyze the mechanisms through which diabetes mellitus influences the occurrence, severity, and progression of periodontitis, highlighting the importance of glycemic control in the management of periodontal disease.

Methods and materials. A mini-review of the scientific literature was conducted using scientific databases such as PubMed and Google Scholar. Clinical studies, meta-analyses, and review articles addressing the pathogenic mechanisms of the interaction between diabetes mellitus and periodontitis were included.

Results. The analyzed studies indicate that hyperglycemia increases the expression of pro-inflammatory cytokines (TNF-α, IL-1β, IL-6), contributing to periodontal ligament destruction and alveolar bone resorption. Diabetes mellitus also impairs the function of neutrophils, macrophages, and lymphocytes, reducing the host defense against periodontal pathogens and maintaining chronic inflammation. Longitudinal studies demonstrate that patients with diabetes have a significantly higher risk of developing or experiencing faster progression of periodontitis, estimated at approximately 34–86% compared with non-diabetic individuals. Poor glycemic control is associated with deeper periodontal pockets, attachment loss, and increased risk of tooth loss. Moreover, patients with uncontrolled diabetes generally show a reduced response to periodontal therapy.

Conclusions. Diabetes mellitus significantly influences the progression of periodontitis through complex inflammatory and immune mechanisms. Adequate glycemic control and interdisciplinary collaboration between the dentist and the endocrinologist are essential for optimizing the therapeutic management of patients with diabetes and periodontal disease.

Keywords. diabetes mellitus, periodontitis, hyperglycemia, inflammation.

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3. THE IMPACT OF PLATELET RICH FIBRIN (PRF) ON TISSUE REGENERATION FOLLOWING MANDIBULAR THIRD MOLAR EXTRACTION

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Introduction. Surgical management of impacted third molars presents challenges related to the postoperative inflammatory process and tissue regeneration. The application of next generation blood concentrates, such as Platelet Rich Fibrin (PRF), has become a gold standard in contemporary oral surgery. This biological material provides a bioactive matrix that ensures a sustained release dynamic of growth factors over 7-14 days (including PDGF - Platelet-Derived Growth Factor, TGF-β - Transforming Growth Factor beta, and VEGF - Vascular Endothelial Growth Factor), accelerating wound healing and reducing the risk of alveolar osteitis.

Case presentation. A female patient (22 years), undergoing fixed orthodontic treatment, presented with frontal dental crowding, requires arch space through strategic extraction. Clinical and radiographic examination revealed teeth 3.8 and 4.8 in a submucosal impaction state, aggravating the existing dento-alveolar disharmony. The surgical management was preceded by venous blood collection and centrifugation to obtain the PRF membranes required for both sockets. The procedure encompassed a bilateral minimally invasive odontectomy of the submucosally impacted molars. Following alveolar debridement, PRF clots were inserted to ensure hepatoma stability and induce the bone regeneration necessary for orthodontic stability. Suturing was performed to ensure homeostasis and protection of the surgical sites.

Discussions. The integration of PRF functions as a sustained release system for cytokines. In this case, frontal tooth alignment through molar distalization demands a rapid recovery of the posterior regions. PRF reduces bilateral edema, enabling a swift resumption of appliance activation. Compared to conventional methods, epithelialisation time is significantly decreased due to the constant flux of biological mediators during the first two weeks.

Conclusions. The integration of PRF technology into current oral surgery represents a significant advancement for patient comfort. These results demonstrate that leveraging the body's own resources enhances healing and allows for an expedited recovery without the need for aggressive postoperative anti-inflammatory medication.

Keywords. PRF (Platelet Rich Fibrin), oral surgery, third molar, post extraction healing, regeneration.

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4. INFLUENCE OF ORTHODONTIC PREMOLAR EXTRACTIONS ON THE BALANCE OF THE CRANIO-MANDIBULAR SYSTEM. A FUNCTIONAL PERSPECTIVE.

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Introduction. Orthodontic treatment does not involve only the alignment of teeth, but also integrates functional, aesthetic, and neuromuscular concepts. Premolar extractions, which are most commonly used in orthodontic practice, according to the Viennese functional school, may significantly influence the balance of the cranio-mandibular system.

Aim of study. To analyze, from a functional perspective, the implications of premolar extractions on the temporomandibular joint and to highlight the need for a gnathological diagnostic approach and sustainable treatment planning.

Methods and materials. Scientific databases such as PubMed and Google Scholar were consulted during the period January 2016 – December 2026. The search terms included combinations of keywords such as: “premolar extraction”, “cranio-mandibular system”, “functional balance”, “occlusion”, “orthodontics”, and “temporomandibular disorders (TMD)”.

Results. It was found that patients who underwent treatments involving extractions, without a functional approach, frequently presented changes in condylar position, symptoms such as clicking, pain, or limitation of mouth opening. However, recent literature also provides counterarguments. Some studies did not identify significant correlations between extractions and the development of TMD, emphasizing that temporomandibular disorders are multifactorial and may be influenced by stress, bruxism, trauma, or anatomical predisposition. Other studies suggest that extractions may predispose to dysfunction but do not directly cause it in the absence of pre-existing imbalances or defective biomechanics.

Conclusions. Premolar extraction for orthodontic purposes is not contraindicated in itself. Therefore, the myth that extractions inevitably lead to TMD (temporomandibular disorders) is incorrect, however, a real risk may arise when extractions are performed in isolation, without a comprehensive gnathological perspective.

Keywords. extraction, TMJ, premolar, dysfunction, functional.

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5. CBCT EVALUATION AND XENOGENEIC BONE AUGMENTATION FOR IMPLANT PLACEMENT IN MANDIBULAR KENNEDY CLASS II EDENTULISM

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Introduction. Paraclinical studies performed with OPG and CBCT are essential in establishing a correct treatment plan and the conduct towards a bone addition surgery. The method of choice in these cases remains CBCT, as it allows a three-dimensional evaluation of the available bone volume. By measuring the alveolar bone and comparing the results with the requirements for dental implant placement, this method enables an accurate assessment of the need for bone grafting.

Case presentation. Patient R.C. 44 years old, without pathological conditions, non-smoker, presented to the dental clinic complaining of difficulty in mastication and extrusion of the antagonist teeth. Following the clinical and paraclinical examination, the diagnosis of partial edentulism Class II, subclass 1 according to Kennedy in the mandible was established, resulting from dental caries and their complications.

Discussions. After analyzing the clinical case and after performing tomography measurements, it was found that for the insertion of implants in the region of teeth 36, 46 and 47 the bone width is not sufficient, being 5.6, 5 and 4.6 mm. However, the bone height in all cases, measured up to the mandibular canal is over 13 mm, which shows that we have available alveolar bone type B, according to Misch's classification. Although the dimensions of the alveolar bone are favorable, the shape of the alveolar ridge is irregular and atypical, which limits the possibility of correct insertion of the implants, thus, the decision was made to perform a bone addition in both gaps with xenogeneic bovine bone, and fixed with pericardial membrane and titanium screws.

Conclusions. CBCT represents a key reference point in the diagnosis and treatment planning of patients with partial edentulism, when implantation is chosen. Tooth loss occurring several years earlier may prevent implant placement in a single surgical stage due to volumetric changes of the alveolar bone. CBCT analysis allows us to evaluate the dimensions and shape of the residual bone, thus planning future bone addition. Postoperative CBCT assessment after bone grafting is also recommended, as it enables evaluation of the surgical outcome. In the mandible, postoperative imaging is important to verify the position of the fixation screws used to stabilize the pericardium membrane, ensuring that they do not penetrate the bone and reach the mandibular canal, which could lead to postoperative complications.

Keywords. Cone Beam Computed Tomography (CBCT), dental implants, partial edentulism, bone grafting, alveolar ridge augmentation, mandibular canal, xenogeneic bone substitute.

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6. CALCIUM HYDROXIDE AS AN INTRACANAL MEDICATION IN CHRONIC GANGRENOUS PULPITIS

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Introduction. Endodontic infections represent a major cause of pulp necrosis and periapical pathology. In teeth with gangrenous pulp, the elimination of microorganisms from the root canal system is essential for successful treatment. Calcium hydroxide has long been used as an intracanal medicament due to its antimicrobial properties and ability to promote healing of periapical tissues.

Aim of study. The aim of this narrative literature review is to evaluate the antimicrobial properties, biological effects, and clinical effectiveness of calcium hydroxide as an intracanal medication in the management of infected root canals associated with pulpal necrosis.

Methods and materials. A narrative literature review was conducted using scientific publications indexed in international databases, including PubMed, Google Scholar, and ScienceDirect. A total of 18 relevant articles published between 2005 and 2023 were selected based on their relevance to the antimicrobial activity, biological properties, and clinical application of calcium hydroxide in endodontic treatment. The selected studies included review articles, experimental studies, and clinical investigations.

Results. The reviewed studies demonstrate that calcium hydroxide presents significant antimicrobial activity due to its high pH (approximately 12.5), which disrupts bacterial cell membranes, denatures proteins, and inactivates bacterial enzymes. Several studies report that the use of calcium hydroxide as an intracanal medication can reduce bacterial counts within the root canal system by up to 91–98% after one week of application. Clinical studies also indicate that treatment protocols including calcium hydroxide are associated with periapical healing rates ranging between 71.54% and 89.73% in teeth with necrotic pulp and apical periodontitis. Additionally, calcium hydroxide has been shown to neutralize bacterial endotoxins and stimulate mineralized tissue formation, contributing to the repair of periapical tissues. However, certain microorganisms, particularly Enterococcus faecalis, may demonstrate resistance to calcium hydroxide, which represents a limitation in some persistent infections.

Conclusions. Calcium hydroxide remains one of the most effective and widely used intracanal medicaments in endodontic therapy. Its antimicrobial properties, biological compatibility, and ability to promote tissue healing make it a valuable component of root canal treatment. Nevertheless, further research is necessary to improve its effectiveness against resistant microorganisms and optimize clinical protocols.

Keywords. calcium hydroxide, endodontics, intracanal medication, root canal, infection, pulp necrosis, periapical healing.

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7. LATERAL CERVICAL BRANCHIAL CYST: CASE PRESENTATION AND PARTICULARITIES OF SURGICAL TREATMENT

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Introduction. Branchial cysts are congenital anomalies resulting from incomplete obliteration of the first four pharyngeal clefts, with lesions derived from the second pharyngeal cleft representing the most common variant. Although these lesions are congenital and therefore present at birth, they often remain asymptomatic and may become clinically evident or symptomatic only later in life. Optimal surgical timing and approach remain key factors in preventing recurrence and complications.

Case presentation. A 23-year-old female presented with a nodular mass located in the left lateral cervical region, first noticed approximately four months prior to admission. The lesion was relatively mobile and associated with moderate pain. On January 22, 2026, the patient sought medical consultation at a private healthcare institution, where paraclinical investigations- including magnetic resonance imaging (MRI), complete blood count, and blood biochemistry- were performed. Based on these findings, consultation at the Department of Oral and Maxillofacial Surgery, IMSP IMU, was recommended. Subsequently, the patient was evaluated and scheduled for elective surgery in the OMFS Department for specialized treatment. However, due to superinfection of the cystic formation, the patient was urgently admitted with the diagnosis of a superinfected lateral branchial cyst. A decision was made to initiate pharmacological treatment and cyst decompression to improve the clinical condition. Aspiration of the lesion was performed, obtaining approximately 20 ml of typical cystic fluid. Subsequently, elective cystectomy was carried out. The postoperative course was favorable.

Discussions. The differential diagnosis of lateral cervical cystic lesions includes reactive lymphadenopathy, neoplastic processes, and other congenital anomalies. Paraclinical imaging plays a crucial role in establishing the diagnosis and facilitating appropriate surgical planning. Acute inflammation may complicate the surgical strategy; however, careful staging of treatment and appropriately timed surgical intervention can significantly reduce the risk of complications and recurrence.

Conclusions. Optimization of the surgical strategy in lateral branchial cysts requires thorough preoperative evaluation and individualized timing of the intervention. Appropriate treatment ensures favorable outcomes and minimizes recurrence.

Keywords. Branchial cyst; lateral cervical cyst; cystectomy; inflammation.

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8. PAIN EXPRESSION IN PATIENTS WITH TEMPOROMANDIBULAR DISORDERS DEPENDING ON DISEASE SEVERITY

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Introduction. Temporomandibular disorders (TMD) constitute a multifactorial pathology frequently associated with painful symptoms and functional limitations in the stomatognathic system, having a relevant impact on orofacial status and quality of life. In this context, the correlated assessment of pain parameters can provide useful data for characterizing the clinical expression of the disease in relation to its severity.

Aim of study. Evaluation of the expression of subjective and objective pain indices in patients with temporomandibular disorders according to disease severity, age and gender.

Methods and materials. There were enrolled 90 patients (women – 74.4%, n = 67; men – 25.6%, n = 23) with temporomandibular disorders, diagnosed according to DC/TMD, the subjects being homogeneous by age (range – 21-56 years, mean age per group – 30.6±0.8 years, without differences according to gender – p = 0.918). TMD severity was assessed by the Temporomandibular Index (TMI). Pain was measured subjectively by GCPS instrument (current/maximum/average pain, CPI index) and objectively with the Lafayette 01165A algometer (USA) with determination of mechanical pain sensitivity (PPT)/tolerance (PTT)/endurance (PPE) at the level of the masseter/TMJ on the dominant side of the body. Statistical processing was performed by R-Studio.

Results. The examined subjects presented a mean TMI index level of 0.497±0.163 in women/0.517±0.137 in men, which corresponds to a moderate level of TMD severity at the group level. The CPI summary index revealed a moderate mean level of pain intensity in patients (43.731±20.172 – women; 44.928±23.047 – men). Depending on gender, no statistically significant differences were observed for subjective and objective pain indices ($p > 0.05$). However, when performing partial correlations between pain severity (TMI) and pain indices, with adjustment for age, statistical significance was observed for: pain intensity (CPI, $r = 0.335$, $p = 0.001$); sensitivity indices – PPT-masseter ($r = -0.376$, $p < 0.001$), PPT-ATM ($r = -0.445$, < 0.001). However, no significant correlations were observed between TMD severity and indices of tolerance and endurance to mechanical pain.

Conclusions. The results show that temporomandibular disorders were associated, at group level, with a moderate level of TMD severity and pain intensity. Although the distribution of pain indicators did not show significant variations according to sex, the correlational analysis adjusted for age revealed significant associations between TMD severity and subjective pain intensity, as well as with the reduction of the mechanical pain threshold at the level of the masseter and the TMJ. These findings support the usefulness of integrating subjective and algometric pain assessment in TMD diagnosis.

Keywords. temporomandibular disorders, pain measurement, pain threshold, stomatognathic system.

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9. APPROACHES IN THE TREATMENT OF DEEP CARIOUS LESIONS

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Introduction. Dental caries is a post-eruptive bacterial infectious disease characterized by a progressive demineralization process that affects the hard dental tissues. It is considered the most widespread oral disease, affecting 80–98% of the population, and represents the main cause of tooth loss. A deep carious lesion represents the progression of an untreated medium caries, in which, between the pulp chamber and the cavity, beneath a layer of necrotic dentin, there is a thin wall composed of decalcified and softened dentin that remains viable and capable of remineralization.

Aim of study. To present and evaluate modern methods for the treatment of deep caries, with emphasis on minimally invasive techniques, preservation of dental pulp vitality, and the use of biocompatible materials in order to improve long-term clinical prognosis.

Methods and materials. In accordance with the aim and research objectives of the study, 18 patients diagnosed with deep dental caries, aged between 18 and 40 years, were examined.We applied Ultra-Blend-Plus, a light-cured glass ionomer material with fluoride release and calcium hydroxide content, followed by the placement of a universal nanocomposite that ideally combines aesthetic and mechanical properties.At the end of the treatment, using polishing discs and polishers of various grits, the tooth surfaces were finished and smoothed to provide gloss and a uniform appearance.

Results. Treatment efficacy was evaluated at 12 and 24 months post-intervention. According to dynamic morphofunctional criteria, the performed restorations did not show significant changes over time.All dental restorations maintained their aesthetic and functional integrity, preserving their initial gloss and color, without signs of degradation or visible alteration.

Conclusions. The treatment of deep caries requires a careful approach focused on preserving dental vitality. The rigorous application of appropriate techniques and the use of biocompatible materials ensure favorable clinical outcomes and long-term patient comfort.

Keywords. deep carious lesion, nanocomposite, minimally invasive techniques.

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10. A-PRF AS AN ADJUNCT METHOD OF POST-EXTRACTION WOUND HEALING

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Introduction. After odontectomy, the alveolus undergoes a series of physiological processes of remodeling and tissue reconstruction, which may be accompanied by postoperative complications such as pain, edema, infection, or delayed healing. In this context, platelet-rich fibrin is used in regenerative medicine due to its ability to release growth factors and cytokines involved in accelerating tissue healing.

Aim of study. To evaluate the effectiveness of A-PRF in reducing healing time, as well as in diminishing postoperative Celsian signs following the extraction of impacted lower molars.

Methods and materials. The study included 40 patients aged between 18 and 35 years. All participants underwent extraction of impacted lower third molars. They were divided into two groups of 20 patients each: the test group, in which PRF was placed in the post-extraction alveolus, and the control group, in which no PRF clot was applied. Patients were examined on the 1st, 3rd, 7th and 10th postoperative days, during which pain was assessed using Visual Analog Scale (VAS), edema was evaluated according to Laskin's method, and tissue regeneration was measured using the Landry index.

Results. Patients treated with A-PRF had a 4.5 higher probability of favorable post-extraction wound healing, with significantly reduced pain and edema during the early postoperative period, as well as accelerated tissue regeneration as reflected by higher Landry healing index scores.

Conclusions. PRF proved to be effective in promoting post-extraction wound healing after impacted lower molar extractions, reducing edema, pain and accelerating soft tissue regeneration.

Keywords. A-PRF, odontectomy, pain, edema, regeneration.

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11. THE ROLE OF GUIDED SURGERY IN IMPLANT-PROSTHETIC REHABILITATION TREATMENT.

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Introduction. Dental implantology has advanced significantly through the integration of digital diagnostic tools and guided surgical protocols. Implant placement in partially edentulous patients, particularly in the aesthetic anterior region or near critical anatomical structures such as the inferior alveolar nerve and the maxillary sinus, remains a clinical challenge. Precise assessment of anatomical relationships and prosthetically driven implant positioning are essential for achieving predictable functional and aesthetic outcomes.

Aim of study. The aim of this study was to evaluate the role of digital planning and guided implant surgery in the rehabilitation of partially edentulous patients presenting alveolar atrophy following hypodontia or tooth loss, particularly in anatomically complex regions.

Methods and materials. Several cases of partially edentulous patients were analyzed, including anterior aesthetic areas with alveolar ridge atrophy and posterior regions near the inferior alveolar canal and maxillary sinus. Treatment planning used CBCT imaging, digital implant planning software, and surgical guides. A prosthetically driven approach guided implant placement. Static and dynamic guided surgery techniques were considered. Postoperative evaluation compared planned and achieved implant positions.

Results. Digital planning and guided surgery enabled precise implant positioning relative to anatomical structures and the prosthetic axis. Surgical guides improved accuracy even in cases with reduced bone volume. Postoperative evaluation and superimposing showed a strong correlation between planned and achieved implant positions, ensuring stable implant-prosthetic rehabilitation. However, additional training is needed to ensure an uneventful workflow of guided surgery due to technical particularities that may lead to errors in planning and printing as well as as guide usage.

Conclusions. Guided implant surgery represents a reliable and predictable approach for implant placement, especially in complex clinical situations such as alveolar atrophy or hypodontia in the aesthetic anterior region and in areas close to important anatomical structures. The integration of three-dimensional diagnosis, digital planning and guided surgical protocols significantly improves treatment accuracy, reduces surgical risks and enhances the functional and aesthetic outcomes of implant-prosthetic rehabilitation.

Keywords. guided implant surgery, implant-prosthetic rehabilitation, digital planning, CBCT, alveolar atrophy.

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12. THE ROLE OF KAP QUESTIONNAIRES IN ASSESSING KNOWLEDGE, ATTITUDES, AND PRACTICES REGARDING ORAL HEALTH

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Introduction. Oral health is an essential component of overall health, having a significant impact on quality of life, communication, and social integration. Oral diseases, especially dental caries and periodontal disease, continue to be among the most common pathologies worldwide. The development and progression of these diseases are largely influenced by behavioral factors, the level of oral education, and access to oral prophylaxis services. In this context, the assessment of knowledge, attitudes, and practices (KAP) regarding oral health has become an important method used in epidemiological research. KAP questionnaires allow the identification of the population's level of information, perception of the importance of oral health, and behaviors related to daily oral hygiene.

Aim of study. To highlight the role and applicability of KAP questionnaires in assessing knowledge, attitudes, and practices regarding oral health, as well as their usefulness in supporting educational programs and prevention strategies.

Methods and materials. A survey of the literature was conducted on the use of KAP questionnaires in the field of oral health. Studies published in the PubMed, MEDLINE, and Google Scholar databases were analyzed using the keywords: (KAP, oral hygiene, questionnaire). The initial search yielded 280 articles, of which 30 were selected according to the selected criteria.

Results. By analyzing the selected articles, it was determined that KAP questionnaires facilitate the analysis of the relationship between knowledge level and actual behaviors. The literature frequently indicates a discrepancy between theoretical knowledge and daily oral hygiene practices. Thus, although many individuals are aware of the importance of tooth brushing or the role of sugar in the development of caries, this knowledge is not always translated into appropriate preventive behaviors. Another important advantage of KAP questionnaires is the possibility of correlating the results with clinical indicators of oral health, such as the DMFT (Decayed, Missing, Filled Teeth) index, the bacterial plaque index, or the gingival bleeding index (BOP).

Conclusions. KAP questionnaires are valuable tools in oral health research, being widely used to assess the knowledge, attitudes, and practices of the population. They allow the identification of information gaps and risk behaviors, contributing to the development of effective educational and preventive programs. The systematic integration of KAP questionnaires into epidemiological studies and dental practice can facilitate the development of well-founded public health policies focused on education and behavioral change, with the aim of reducing the prevalence of oral diseases.

Keywords. oral hygiene, knowledge, attitudes, practices, psychometrical evaluation, oral health.

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13. DIAGNOSTIC EFFICIENCY OF RETROALVEOLAR AND PANORAMIC RADIOGRAPHY IN DETECTING DENTAL CARIES.

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Introduction. Early and accurate detection of dental caries is a fundamental objective in modern dentistry, as timely diagnosis allows preventive and minimally invasive treatment. Clinical examination alone may not always provide sufficient information for detecting carious lesions, especially in their early stages or in areas with limited visual accessibility, warranting the use of radiological methods as complementary diagnostic tools. Retroalveolar radiography provides high spatial resolution and allows detailed visualization of individual teeth and surrounding structures. In contrast, panoramic radiography offers a comprehensive overview of the entire dentition and maxillofacial region.

Aim of study. To evaluate and compare the diagnostic efficiency of retroalveolar and panoramic radiography in detecting dental caries.

Methods and materials. Twenty patients underwent clinical and radiological examination (retroalveolar and OPG). Images were analysed to identify the presence and localization of carious lesions and confirm the diagnosis in relation to clinical findings. Then, an experienced examiner was given the radiographs in random order to avoid bias. The number of detected lesions was recorded for each method and comparatively analyzed to assess diagnostic performance and compared using the Wilcoxon signed rank test.

Results. Radiographic evaluation revealed a total of 38 carious lesions using retroalveolar radiography and 27 lesions using panoramic radiography ($Z=-2.40$, $p<0.05$), with no significant difference in regard to frontal/lateral teeth and upper/lower arch. Thus, retroalveolar radiography demonstrated a higher detection rate, identifying approximately 40.7% more carious lesions compared with panoramic radiography. The findings indicate that retroalveolar radiography provides greater diagnostic sensitivity in detecting structural changes in dental hard tissues.

Conclusions. Retroalveolar radiography demonstrates greater diagnostic value for detecting caries due to higher resolution and more precise visualization. Panoramic radiography, although less sensitive in detecting carious lesions, remains a valuable complementary method for comprehensive assessment of the dentition and maxillofacial structures. The combined use of both methods may contribute to improved diagnostic accuracy in dental practice.

Keywords. Dental caries, retroalveolar radiography, panoramic radiography.

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14. THE USE OF THE APICALLY POSITIONED FLAP WITH FREE GINGIVAL GRAFT FROM THE PALATE FOR THE MANAGEMENT OF PERI-IMPLANT SOFT TISSUE.

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Introduction. Following implant placement, particularly in the posterior mandible, scenarios with minimal or absent keratinized mucosa and shallow vestibular depth are frequently encountered. These conditions are often associated with coronal muscle insertions and mucosal mobility, which may compromise plaque control and peri-implant tissue stability. Reconstruction of an adequate band of keratinized mucosa and deepening of the vestibular fornix are indicated to enhance long-term soft tissue health. The apically positioned flap combined with a free gingival graft represents an effective approach for increasing the volume of attached keratinized tissue.

Case presentation. A case of a partially edentulous mandibular patient (Kennedy Class I) rehabilitated with six endosseous implants placed in two surgical stages is presented. After first-stage surgery, the keratinized mucosa width ranged between 1–2 mm, with a shallow vestibule and high muscle insertions. A trapezoidal partial-thickness flap was elevated using a deep split-thickness incision, preserving the periosteum while eliminating muscle insertions that could render the graft mobile. The flap was repositioned apically and stabilized with interrupted sutures. A palatal free gingival graft (~1.5–2 mm thick; ~4–5 mm height) was harvested. Graft stabilization was achieved using simple interrupted sutures and compressive figure-of-eight sutures. Hemostasis at the donor site was obtained with a collagen hemostatic sponge secured with figure-of-eight sutures and liquid rubber dam. Evaluated parameters included keratinized mucosa width and thickness (mm), tissue integration at 2 months postoperatively.

Discussions. At 2 months postoperatively, a mean gain in keratinized mucosa width of 5.75 ± 0.96 mm was achieved, resulting in a final mean width of 7.25 ± 0.96 mm. The mean thickness of keratinized mucosa was 4.6 ± 1.14 mm. Healing was uneventful, with complete graft integration and no local complications. Vestibuloplasty combined with a palatal free gingival graft resulted in a significant increase in the volume of initial keratinized mucosa. Preservation of the periosteum ensured adequate vascular supply, promoting rapid graft revascularization and integration. Apical positioning of the flap allowed sufficient vestibular depth, contributing to peri-implant stability and prevention of inflammatory complications. Further, long-term observations suggest that augmented keratinized mucosa tends to remain stable, and in some cases may exhibit coronal migration, known as the creeping phenomenon.

Conclusions. The apically positioned flap combined with a free gingival graft is a predictable technique for reconstructing keratinized mucosa and improving peri-implant soft tissue health in non-esthetic mandibular area.

Keywords. apically positioned flap, free gingival graft, peri-implant soft tissues.

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15. DEVELOPMENTAL DISORDERS OF THE NASAL CAVITY IN CHILDREN WITH COMPLETE UNILATERAL CLEFTS

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Introduction. Unilateral cleft lip and palate are recognized as some of the most severe congenital malformations, affecting not only the facial aesthetics, but also respiratory function. Although primary surgical treatment offers various recovery methods, severe functional disorders may persist, including facial asymmetries, breathing, swallowing, speech and mastication impairments. Structural abnormalities of the nasal cavity are frequently observed in patients with unilateral cleft lip and palate and may significantly affect airway patency.

Case presentation. Six patients aged 14–16 years diagnosed with complete unilateral clefts were examined. Radiographs of the paranasal sinuses in anteroposterior projection were performed. Nasal cavity volume was calculated from photographic images by measuring vertical and horizontal lengths at extreme points, comparing the affected side with the healthy side and a reference group.

Discussions. Horizontal lengths at extreme points in cm, on the affected side were 0.8 cm and 0.3 cm; compared to the healthy side 1.1 cm and 0.9 cm; the vertical line was commonly 3.2 cm. The volume varied on the left side (0.36 cm^2) and right side (2.2 cm^2), totaling 2.72 cm^2. Nasal base asymmetry was observed – 0.7 cm on the affected side and 0.9 cm on the contralateral side. In the reference group, horizontal values were equal at 1.4 cm and 1 cm, with a common vertical line of 3.5 cm. Unilateral nasal cavity volume was 5.3 cm^2; bilateral 10.6 cm^2. The obtained measurements revealed significant asymmetry between the affected and healthy sides of the nasal cavity. Horizontal and vertical dimensions were reduced on the affected side compared to the contralateral side and the reference group. These findings indicate morphological alterations of the nasal cavity associated with unilateral clefts.

Conclusions. The results demonstrate significant morphological changes impacting nasal breathing. Early diagnosis and multidisciplinary treatment are essential to improve functional and morphological outcomes. Frequent functional rehabilitation is recommended, starting from early childhood.

Keywords. unilateral cleft lip and palate, nasal cavity, volume, nasal breathing.

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16. CLINICAL AND THERAPEUTIC ASPECTS OF CHRONIC GANGRENOUS PULPITIS

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Introduction. Oral health is an essential component of general health and plays an important role in maintaining the functional and aesthetic integrity of the stomatognathic system. Diseases affecting the dental pulp are frequently encountered in dental practice. Chronic gangrenous pulpitis represents an advanced stage of pulpal inflammation characterized by necrosis and putrefaction of the pulpal tissue, most commonly resulting from untreated deep dental caries or the progression of acute pulpitis.

Aim of study. The aim of study is to analyze the etiology, pathogenic mechanisms, clinical manifestations, and therapeutic management of chronic gangrenous pulpitis based on data from the scientific literature.

Methods and materials. This study was conducted through the analysis and synthesis of scientific literature related to dental pulp pathology. Various scientific articles, textbooks, and clinical recommendations were reviewed in order to evaluate the main etiological factors, diagnostic methods, and treatment approaches used in the management of chronic gangrenous pulpitis.

Results. The analyzed data indicate that bacterial infection is the primary etiological factor responsible for pulpal necrosis. Clinically, chronic gangrenous pulpitis is characterized by necrotic pulp tissue, unpleasant odor, discoloration of the affected tooth, and possible involvement of periapical tissues. Accurate diagnosis is established through clinical examination, pulp vitality tests, and radiographic evaluation.

Conclusions. Early diagnosis and appropriate endodontic treatment are essential to prevent complications such as apical periodontitis and tooth loss. Modern endodontic techniques allow effective removal of necrotic tissue, proper disinfection of the root canal system, and adequate obturation, contributing to the preservation of the affected tooth.

Keywords. chronic gangrenous pulpitis, dental pulp necrosis, endodontic treatment, pulpal inflammation, dental pathology.

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17. DENTAL CARIES IN TEMPORARY TEETH IN CHILDREN. A CLINICAL STUDY

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Introduction. Dental caries in primary teeth remains one of the most common oral health problems in preschool children worldwide. Early Childhood Caries (ECC) is characterized by rapid progression and may lead to functional disturbances, pain, and complications affecting the development of permanent dentition. The anatomical and structural particularities of primary teeth, including thinner enamel and larger pulp chambers, contribute to the faster progression of carious lesions. Early diagnosis and appropriate management are therefore essential for maintaining the function of primary teeth until physiological exfoliation.

Aim of study. The aim of this study was to analyze the clinical characteristics of dental caries in primary teeth and to evaluate the distribution of carious lesions and treatment approaches in children.

Methods and materials. The study included a group of 17 children aged between 3 and 7 years who presented for dental consultation and treatment. Clinical examination was performed using standard dental instruments, and carious lesions were classified according to their depth and localization. Radiographic examination was used when necessary to evaluate lesion extension and pulpal involvement. The collected data were analyzed using descriptive statistical methods.

Results. A total of 68 carious lesions were identified. The most frequent lesions were medium caries (39.7%), followed by superficial (26.5%) and deep caries (22.1%). The majority of lesions were located on primary molars (73.6%), while incisors and canines were less frequently affected. Most lesions were active (82.4%), indicating a high caries activity in the examined group. Restorative treatment with glass ionomer cement was the most frequently applied therapeutic method.

Conclusions. Dental caries in primary dentition remains a significant problem in children, with a high prevalence of active lesions and predominance in molar teeth. Early diagnosis, preventive strategies, and minimally invasive treatments are essential for maintaining oral health and preventing complications in the developing dentition.

Keywords. dental caries in primary teeth, pediatric dentistry, Caries treatment in children.

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18. ASPECTS OF COMBINED TREATMENT OF PERIAPICAL LESIONS IN THE CONTEXT OF MODERN ENDODONTIC MICROSURGERY.

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Introduction. Chronic periapical lesions represent a frequent complication of persistent endodontic infections and require a conservative therapeutic approach combining endodontic retreatment and endodontic microsurgery techniques, which allow the avoidance of radical methods. Endodontic microsurgery is considered a predictable treatment method for preserving a tooth with periapical lesions that cannot be resolved through non-surgical endodontic treatment.

Case presentation. Patient C.A., 46 years old, was diagnosed with chronic granulomatous periodontitis of tooth 21 following clinical and paraclinical examination (OPG; CBCT). A combined endodontic-surgical treatment plan was established. Orthograde endodontic retreatment was performed with meticulous mechanical and chemical preparation to eradicate the biofilm and secondary intraradicular infection, followed by three-dimensional canal sealing, which prevented the diffusion of microbial agents from the endodontic canal into the periapical space. Surgical treatment included apical resection through removal of the root apex and the periapical pathological tissue, followed by retrograde filling and bone defect augmentation. The treatment was performed under magnification, using a minimally invasive technique to ensure increased precision and maximum preservation of tissues.

Discussions. Follow-up examinations at 6 and 12 months demonstrated clinical and radiographic evidence of periradicular bone tissue regeneration and the absence of periapical pathological processes. The obtained results confirm the effectiveness of the applied treatment, demonstrating a favorable evolution supported by an adequate tissue response and a positive dynamic of the healing processes. The use of a combined endodontic-surgical approach, in association with endodontic microsurgical techniques, allowed a precise and conservative management of the lesion.

Conclusions. Combined endodontic-surgical treatment represents a safe therapeutic approach for patients with periapical lesions, contributing to the preservation of teeth in the arch and avoiding radical methods. Application of this therapeutic protocol enables favorable medium- and long-term outcomes. The integration of modern techniques, such as endodontic microsurgery performed under magnification and a minimally invasive approach, significantly increases the success rate of the treatment. Thus, this method can be considered a treatment of choice in the management of chronic periodical lesions.

Keywords. Chronic periapical lesions; Endodontic retreatment; Endodontic microsurgery; Retrograde filling.

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19. BREAKING THE VICIOUS CYCLE OF DENTAL ANXIETY THROUGH INTRAVENOUS CONSCIOUS SEDATION. CASE REPORT

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Introduction. Dental anxiety is a significant barrier to accessing dental treatment. It is associated with the "vicious cycle of dental anxiety", in which fear leads to treatment avoidance, worsening of oral pathology and the need for more invasive interventions. Intravenous conscious sedation is an effective method for controlling anxiety and pain during dental surgical procedures.

Case presentation. Patient L.E., 39 years old, presented for the second stage of implant-prosthetic rehabilitation in the maxilla. Following the clinical and paraclinical examination, the diagnosis was established: Kennedy class I partial edentulism of the maxilla, post-implant condition. Due to severe dental anxiety (Corah scale=20), but also to the favorable previous experience, the surgical intervention was performed under intravenous conscious sedation associated with loco-regional anesthesia. After obtaining peripheral venous access, dexamethasone 8 mg i.v. was administered, followed by fentanyl 0.1 mg i.v. bolus and propofol 1 mg/kg bolus to induce sedation, with its maintenance by continuous infusion of propofol 50 µg/kg/min with an electric syringe, in association with loco-regional anesthesia with articaine 4% and epinephrine 1:100,000. Preoperatively, the patient presented elevated blood pressure (BP = 158/99 mmHg) and tachycardia (pulse = 100 bpm), associated with an increased level of anxiety. Intraoperatively, stabilization of hemodynamic parameters was observed, with decreased blood pressure (BP = 121/60 mmHg) and pulse (71 bpm) and maintenance of oxygen saturation at 99%. Postoperatively, the values were maintained within physiological limits (BP = 120/66 mmHg, pulse = 69 bpm, SpO_2 = 100%), the patient being conscious and cooperative. Postoperative pain was absent (VAS = 0/10), and the patient reported a high degree of satisfaction with the intervention (10/10). No adverse reactions were recorded and no analgesics were required postoperatively. The patient resumed her usual activities the same day, without sleep or eating disorders.

Discussions. Intravenous conscious sedation controlled dental anxiety and pain by stabilizing vital signs and ensuring optimal patient cooperation. The surgical procedure was perceived positively, with the patient reporting a high degree of satisfaction and no postoperative pain.

Conclusions. Intravenous conscious sedation is an effective method in managing patients with severe dental anxiety. By suppressing pain and reducing dental anxiety, this anesthetic technique can contribute to breaking the vicious cycle of dental anxiety and to future favorable patient experiences during dental treatment.

Keywords. vicious cycle, dental anxiety, intravenous conscious sedation.

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20. CLINICAL STUDY OF THE FITTING ACCURACY OF PARTIAL CROWNS PRODUCED BY DIGITAL AND CONVENTIONAL IMPRESSION TECHNIQUES

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Introduction. Marginal adaptations play a critical role in the longevity of indirect prosthetic restorations. The marginal fit of a prosthetic device has been associated with microleakage, cement failure, and periodontal disease. Conventional impression techniques using elastomeric impression materials have been considered the gold standard for producing prosthetic devices. The use of digital impression techniques has revolutionized the prosthetic procedure. The digital impression technique has been found to be efficient and more accurate than the conventional impression technique.

Aim of study. The purpose of this study is to compare and evaluate the accuracy of prosthetic restorations produced by digital impression technique and the conventional impression technique.

Methods and materials. The study mainly focuses on clinical comparative studies for patients requiring prosthetic reconstruction with partial crown restorations. The Impression techniques have been used to produce prosthetic restorations. The impression techniques used include digital impression techniques using an intraoral digital impression system and the conventional impression technique using elastomeric impression materials. The impression materials have been used to produce prosthetic restorations which include partial crown restorations. The marginal accuracy of the prosthetic restorations has been used to compare the impression techniques.

Results. Both impression techniques were effective in the production of partial crown restorations with acceptable marginal accuracy. The results obtained in the production of partial crown restorations using the digital impression system were characterized by high fitting accuracy and high marginal accuracy. The results obtained in the production of partial crown restorations using the conventional impression system were acceptable, despite slight variations in marginal discrepancy being observed. The result shows that the digital impressions were more accurate, which reduces errors in restoration.

Conclusions. Both the digital impression system and the conventional impression system were effective in the production of partial crown restorations with acceptable marginal accuracy. Yet, the results obtained in the production of partial crown restorations using the digital impression system were more predictable and reduced the chances of inaccuracy resulting from deformation of impression materials in the laboratory. This shows that the integration of digital technology in prosthetic dentistry is useful in the production of more accurate results in prosthetic dentistry.

Keywords. Digital impression, Conventional impression, Marginal accuracy, Partial crown, Prosthetic dentistry.

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21. THE ACCURACY OF OPG VERSUS CBCT IN EVALUATING THE RELATIONSHIP BETWEEN IMPACTED THIRD MOLARS AND THE INFERIOR ALVEOLAR NERVE

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Introduction. The mandibular third molar is characterized by wide variability in its morphology and spatial orientation, potentially predisposing patients to pathological conditions and greatly influencing clinical outcomes. Its relationship to the inferior alveolar nerve is particularly significant, with orthopantomograms (OPG) often used to evaluate it due to their wide availability. However, limitations inherent to 2D imaging render it less precise than 3D techniques such as CBCT, raising questions in regard to their indication in surgical protocols

Aim of study. The aim of the study is to conduct a narrative review of the available data on the efficacy of OPG versus CBCT in assessing the relationship between the lower third molars and the lower alveolar nerve, assessing their strengths, limitations and current trends in improving them.

Methods and materials. A search of scientific publications was conducted on the PubMed, Google Scholar, Medline and ScienceDirect platforms. From an initial total of 59 sources, after applying the filters "last 10 years," "free full text," "human studies," and "English language," 35 publications remained. Following the removal of duplicate publications and studies that did not directly address the topic, 10 relevant articles were selected.

Results. While acknowledging the merit of OPG as a screening tool due to reduced cost and wide availability, a follow-up CBCT provides a detailed three-dimensional image of the relationship between the mandibular third molar and the mandibular canal. One CBCT study investigating 142 impacted teeth revealed that in 88% of cases the mandibular canal was in close contact with the roots, and in nearly 60% of cases the canal was interrupted in the third molar region, a finding that is difficult to visualize on OPG. Specific radiographic predictors of proximity to the alveolar canal were proposed for OPG. Artificial intelligence powered analysis could further improve diagnostic accuracy, however CBCT remains the gold standard in this regard.

Conclusions. The relationship between the roots of the third molar and the mandibular canal is accurately assessed using three-dimensional CBCT, significantly surpassing panoramic radiography. Panoramic radiographic signs are not sufficiently reliable to confirm actual contact. Although OPG remains valuable as a screening method due to its accessibility and low cost, CBCT should be considered as a follow-up diagnostic method in situations where initial signs suggest a suspicious proximity to the mandibular canal.

Keywords. third molars, OPG, CBCT, diagnostic accuracy

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22. CLINICAL EFFECTIVENESS OF CALCIUM HYDROXIDE (DYCAL) IN INDIRECT PULP CAPPING OF DEEP DENTAL CARIES

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Introduction. The treatment of deep dental caries aims to preserve pulp vitality through conservative therapeutic methods. Indirect pulp capping represents a biological treatment method that ensures the sealing of dentinal tubules, protection and isolation of the dental pulp from physical, chemical and bacterial irritants, as well as stimulation of neodentinogenesis. Calcium hydroxide-based materials, such as Dycal, are frequently used due to their high alkaline pH, antibacterial properties and their ability to release calcium and hydroxyl ions. Through these properties, Dycal contributes to limiting pulpal inflammation and to stimulating the formation of tertiary dentin. The aim of this study was to evaluate the clinical effectiveness of calcium hydroxide (Dycal) used as an indirect pulp-capping material in the treatment of deep dental caries.

Case presentation. The study included 30 patients aged between 20 and 35 years diagnosed with deep dental caries in vital permanent teeth. After complete removal of carious tissues and maintenance of a thin layer of hard pigmented dentin in the pulpal area, Dycal was applied selectively in the area closest to the pulp chamber. Subsequently, a protective glass ionomer cement liner was applied, followed by adhesive composite restoration. Clinical evaluation included symptom assessment, pulp vitality testing and radiological examination of periapical tissues at 3, 6 and 12 months. Therapeutic success was recorded in 27 cases (90%), characterized by maintenance of pulp vitality, absence of spontaneous pain and lack of radiological periapical changes. Three cases (10%) subsequently required endodontic treatment. The success rate was higher in cases of chronic deep caries (95.2%) compared with acute forms (77.8%).

Discussions. The results of this study highlight the importance of conservative management in deep dental caries when pulp vitality is still preserved. The difference observed between chronic and acute lesions suggests that the biological response of the pulp is influenced by the progression rate of the carious process. Slowly progressing lesions appear to allow better pulpal adaptation and reparative dentin formation.

Conclusions. The use of calcium hydroxide (Dycal) in indirect pulp capping contributes to protection of the dental pulp, limitation of pulpal inflammation and stimulation of tertiary dentin formation, favoring preservation of pulp vitality in the treatment of deep dental caries.

Keywords. indirect pulp capping, calcium hydroxide (Dycal), deep caries, tertiary dentin.

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23. MANAGEMENT OF SEVERE LATERAL MANDIBULAR ATROPHY THROUGH INFERIOR ALVEOLAR NEUROVASCULAR BUNDLE LATERALIZATION AND IMMEDIATE IMPLANT PLACEMENT. CLINICAL CASE

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Introduction. Rehabilitation of the mandible with severe atrophy in the lateral area represents a challenge due to extreme vertical resorption and proximity to the mandibular canal. Deficient bone volume limits conventional implantation, with the risk of damage to the inferior alveolar neurovascular bundle (IANVB) and insufficient primary stability. While vertical bone augmentation techniques require multiple-stage procedures, with increased morbidity and variable predictability, the method of lateralization of the IANVB with immediate implantation offers an effective solution in a single surgical procedure, without the above mentioned drawbacks.

Case presentation. Patient O. V. 52 years old, presented with functional masticatory difficulties. After clinical and paraclinical examination using OPG and CBCT, a diagnosis of secondary partial edentulism (Kennedy class 2) was established on the left mandible, with C-h type atrophy according to C.E. Misch, as a result of the loss of teeth 3.4, 3.5, 3.6, and 3.7. Given the height of the remaining bone (less than 5 mm), vertical bone augmentation in pre-implant preparation involved a high degree of morbidity and prolonged healing time. The treatment plan considered most favorable and predictable was IANVB lateralization with immediate implant insertion.

Discussions. Under local anesthesia with intravenous sedation, an incision was made, the mucoperiosteal flap was elevated, followed by vestibular cortical osteotomy with a piezotome to expose and lateralize the IANVB. Following canal release and nerve preservation, the implant sites were prepared and 4.0x10.0 mm implants were inserted in the positions of teeth 3.4, 3.6, and 3.7. The bone deficit was filled with autogenous bone chips (collected intraoperatively) and A-PRF membranes. The flap was repositioned and sutured. The postoperative period progressed without complications. The patient experienced transient paresthesia within the nerve's sensory distribution, an anticipated outcome specific to the approach. Clinical monitoring showed a favorable evolution, with complete neurosensory recovery at 4 months postoperatively. At the 6 month follow-up visit, clinical and radiographic parameters confirmed optimal osseointegration, allowing for prosthetic loading.

Conclusions. Lateralization of the IANVB remains an optimal surgical method with predictable long-term results that can be applied in cases of severe atrophy of the mandibular alveolar ridges. This case demonstrates the effectiveness of this technique through the immediate insertion of standard implants, shortening treatment time and avoiding the need for bone grafts.

Keywords. Severe mandibular atrophy, IAB lateralization, Neurosensory recovery.

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24. CURRENT ASPECTS IN THE MODERN TREATMENT OF PATIENTS WITH DENTOMAXILLARY ANOMALIES

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Introduction. Orthognathic surgery is defined as the surgical repositioning of the jaws or their segments to improve the function and aesthetics of the dentofacial system. Malocclusions associated with mild skeletal discrepancies can often be treated orthodontically, while moderate discrepancies usually require combined orthodontic–surgical treatment. In this context, surgical planning is essential for successful outcomes. Traditionally, planning was performed using cephalometric analysis on radiographs, plaster models, and manual simulations. Due to the limitations of these methods, digital planning has gradually been introduced, allowing more precise determination of dento-skeletal movements and prediction of the final result.

Aim of study. To study the evolution of planning methods in orthognathic surgery, highlighting the advantages, efficiency, and contribution of three-dimensional digital planning to the surgical intervention.

Methods and materials. An analysis of the literature was performed using the international databases PubMed, Google Scholar, and the Journal of Oral and Maxillofacial Surgery, combined with the study of clinical cases from the Department of Oral and Maxillofacial Surgery "*Arsenie Gutan*". Inclusion criteria included clinical studies, case reports, and literature reviews, while studies not directly addressing digital planning in orthognathic surgery were excluded. Data was synthesized descriptively.

Results. The analyzed literature indicates that preoperative planning has evolved along with scientific and technological progress. Currently, with the development of three-dimensional planning, several characteristics of the surgical intervention have improved, such as: operative time reduced by 22%, a decrease in errors between planning and outcome (VSP: 0.89 ± 0.34 mm; CSP: 2.42 ± 0.58 mm), and a reduced rate of repeated surgical intervention (CSP: 7.69%, VSP: 3.82%). Higher accuracy was also reported for manipulations on hard and soft tissues, as well as reduced postoperative morbidity. Disadvantages were also identified, such as the high cost of technological equipment and the need for additional operator training, however, in relation to the benefits, these aspects remain predominantly positive.

Conclusions. The evolution of technologies in the field of orthognathic surgery has led to the modernization of planning methods, directing them toward three-dimensional evaluation and digital planning. Currently, these approaches allow a more precise analysis of the dento-skeletal complex and a more accurate prediction of therapeutic outcomes, contributing to increased predictability and efficiency of treatment.

Keywords. virtual surgical planning, three dimensional planning, virtual imaging.

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25. RECONSTRUCTION OF THE CONTACT POINT IN POSTERIOR RESTORATIONS

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Introduction. The interdental contact point represents an essential structural element in maintaining the stability of dental arches and the health of the marginal periodontium. In posterior restorations, the proper reconstruction of the proximal contact is crucial for preventing food impaction and maintaining the functional balance of the dento-maxillary system.

Aim of study. To highlight the importance of the contact point in posterior dental restorations and to analyze its influence on occlusal function and periodontal health.

Methods and materials. The study is based on a narrative review of the scientific literature published between 2015 and 2025, selected from international databases (PubMed and Scopus), as well as the clinical evaluation of a group of 25 patients with Class II proximal carious lesions. The restorations were performed using the centripetal and oblique techniques, with sectional matrix systems and light-cured composite materials.

Results. The performed restorations allowed the reconstruction of the interdental contact point in the majority of cases, contributing to the reduction of food impaction and the maintenance of gingival health. Postoperative evaluation demonstrated satisfactory marginal adaptation and the absence of periodontal complications.

Conclusions. Proper reconstruction of the interdental contact point represents a fundamental requirement for the success of posterior restorations, contributing to the maintenance of occlusal function and the prevention of periodontal disorders.

Keywords. interdental contact point, posterior restorations, marginal periodontium.

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26. MINIMALLY INVASIVE AESTHETIC REHABILITATION - OFFICE BLEACHING AND DIRECT COMPOSITE RESTORATION

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Introduction. Dental fluorosis represents a prevalent non-carious enamel lesion characterized by intrinsic dyschromia from excessive fluoride exposure during amelogenesis. This condition compromises aesthetics without structural loss, prompting minimally invasive interventions like vital bleaching and adhesive restorations to enhance shade while conserving tooth substance.

Case presentation. A 27-year-old male sought treatment for aesthetic dissatisfaction from generalized moderate dental fluorosis (Dean's classification: moderate), presenting with opaque white-brown opacities (baseline VITA Classical A3.5 shade) and a fractured composite restoration on tooth 12 (upper right lateral incisor). History revealed chronic fluoride overexposure via groundwater during childhood; medical, extraoral, pulpal vitality, and periodontal exams were unremarkable. Treatment involved in-office bleaching (35% hydrogen peroxide, 3 × 8-min cycles per arch, LED activation, rubber dam isolation), yielding A1 shade post-two sessions. The fractured restoration on tooth 12 was replaced via total-etch technique: 37% phosphoric acid (15 s etch), universal adhesive, Filtek Supreme Ultra A1 nanohybrid composite layering, and Sof-Lex polishing.

Discussions. Vital bleaching effectively targets fluorosis-induced dyschromia by penetrating enamel to oxidize chromophores, serving as first-line therapy for moderate cases. Adjunctive direct composite restoration addresses localized defects, achieving seamless shade matching ($\Delta E < 3.3$ per NIST standards) and biomechanical integration without sensitivity or vitality loss. This approach aligns with evidence-based conservative dentistry, minimizing iatrogenic risks compared to veneers.

Conclusions. In-office bleaching combined with direct composite restoration offers a predictable, minimally invasive solution for aesthetic rehabilitation of fluorosis-related dyschromia, preserving natural dentition.

Keywords. dental fluorosis, dyschromia, non-carious lesions, in-office bleaching, vital bleaching, composite restoration, aesthetic dentistry.

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27. SURGICAL TREATMENT OF ZYGOMATIC COMPLEX FRACTURES

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Introduction. Fractures of the zygomatic complex are common injuries of the midfacial skeleton and may cause functional disturbances and aesthetic deformities. The surgical treatment of these fractures is based on two fundamental principles: reposition of displaced bone fragments and their immobilization in the correct anatomical position. Access to the fracture site may be performed through intraoral or extraoral surgical approaches, depending on the localization and severity of the fracture. Stabilization of the bone fragments is usually achieved by titanium miniplates and screws, which ensure rigid fixation. In some clinical situations metal wires or resorbable fixation systems may also be used for immobilization of bone fragments.

Aim of study. To evaluate the effectiveness of surgical treatment methods used in the management of zygomatic complex fractures.

Methods and materials. The study included 58 patients with zygomatic complex fractures, representing 3.1% of 1875 patients treated in the Department of Oral and Maxillofacial Surgery of the Institute of Emergency Medicine in Chișinău between January 2024 and January 2025. Patients aged 18–73 years were analyzed, including 44 men and 14 women. The research was based on analysis of hospital archives, including medical records and clinical documentation. Additional data were obtained through patient interviews. Radiological investigations such as X-rays and CT scans were evaluated to determine fracture characteristics. Clinical photographs and video materials were also analyzed. A review of specialized literature and consultations with oral and maxillofacial surgeons were used to support the study.

Results. The analysis of 58 patients with zygomatic complex fractures showed that the most frequently used surgical method was reduction using the Limberg hook. This technique was applied in the majority of cases and allowed reposition of the displaced bone fragments through a small surgical access. In cases with significant displacement or instability of bone fragments, osteosynthesis with titanium miniplates and screws was performed. This method provided stable fixation of the fragments and ensured proper anatomical restoration of the zygomatic complex.

Conclusions. Surgical treatment of zygomatic complex fractures provides reliable restoration of anatomical structures and facial function. Reduction using the Limberg hook proved to be a minimally invasive method that preserves facial aesthetics, while osteosynthesis with titanium miniplates and screws ensured stable fixation in fractures with significant displacement.

Keywords. zygomatic complex fracture, facial trauma, maxillofacial surgery, osteosynthesis, surgical treatment.

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28. ACCURACY OF IMAGING AND CLINICAL METHODS IN THE DIAGNOSIS OF DENTAL CARIES

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Introduction. Dental caries remain one of the most common causes of dental complications. Early diagnosis allows the prevention of orthodontic complications in temporary teeth, aesthetic problems caused by extensive coronal destruction, and functional disorders associated with occlusal imbalance, which may affect both the temporomandibular joint and the remaining teeth in the oral cavity. Delayed diagnosis of dental caries can therefore influence not only the physical condition of the patient but also the psycho-emotional state.

Aim of study. The aim of this study was to analyze comparative statistical data in order to better understand the role of radiological examination in the diagnosis of dental caries and to evaluate the accuracy of the methods used.

Methods and materials. This narrative review included articles published on the ScienceDirect, PubMed, and Google Scholar platforms. The search was performed using the keywords “bitewing radiography sensitivity specificity caries”, “interproximal caries diagnostic comparison bitewing periapical”, and “CBCT caries radiographic detection intraoral”. Eight sources published within the last ten years were selected using the filters “human studies” and “English language”. Studies reporting data on sensitivity, specificity, and diagnostic accuracy were included.

Results. The analyzed studies confirm the importance of clinical examination as the first step in the diagnosis of dental caries. It allows the identification of visible lesions but presents limitations in detecting interproximal caries or lesions beneath restorations. Radiological investigations such as CBCT, Bitewing, and periapical radiography are useful when visual access is limited, especially in class II and III caries according to Black or in recurrent lesions. CBCT may produce artifacts in the presence of metal restorations; however, in selected cases it can show high diagnostic accuracy. Due to its three-dimensional nature, CBCT can also provide a volumetric assessment of the carious lesion. Bitewing and retroalveolar radiography provide clear images of a limited area and are frequently used to evaluate specific regions. Digital techniques such as BW+ may further improve image quality.

Conclusions. Radiological examination increases diagnostic confidence and allows a more accurate evaluation of the extent of carious lesions, supporting a more precise treatment plan. CBCT is useful in selected cases requiring three-dimensional analysis, while Bitewing radiography remains widely used for evaluating interproximal lesions. The choice of imaging method should always be individualized and correlated with the clinical examination to ensure an accurate diagnosis.

Keywords. CBCT, Bitewing, Diagnosis of Dental Caries, interproximal caries.

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29. GUIDED BONE REGENERATION USING DIFFERENT TYPES OF MEMBRANES

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Introduction. In the Republic of Moldova, alveolar bone deficiencies are often found among patients. Nowadays, patients opt for implant-supported dentures, due to evolution of oral surgery. However, in many cases, severe bone loss causes difficulties in implant insertion. Statistically speaking, 65% of patients in need of implants require prior bone augmentation. For this reason, Guided Bone Regeneration (GBR) is a method that can help to achieve sufficient 3D bone volume for implant insertion. The main principle of this method is using a barrier material, like membranes or meshes, that temporarily separates the bone graft material from the surrounding soft tissues, enabling osteogenic cells to migrate and proliferate selectively, promoting bone regeneration. In modern oral surgery, the main two materials used are resorbable and non-resorbable membranes.

Aim of study. To evaluate and compare GBR techniques using both types of barrier materials from scientific literature, reviews of published studies and clinical data.

Methods and materials. The study includes data from publications in PubMed, Google Scholar, Web of science. Selected sources included 10 cases: 5 using titanium mesh and 5 with resorbable membranes. Patients were healthy and both types of membranes were used for vertical bone augmentation. Keywords for searching: GBR, collagen membrane, titanium mesh, barrier membranes.

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Results. Patients were evaluated at 6 months after the augmentation procedure involving both types of membranes. As a result, both groups of patients showed vertical volume of bone growth, however, the cases treated with titanium mesh showed less bone value loss compared to resorbable membranes. However, both methods provided enough bone volume for implant placement. Another aspect of these surgeries is that titanium meshes have a higher risk of membrane exposure during the healing period, compared to resorbable membranes, such as collagen.

Conclusions. Both methods have their strong and weak points, however, the right technique and appropriate following of the clinical characteristics of the case, gives perspective for good results in bone volume gain with using either type of materials. Titanium mesh GBR has a better predictability of the outcome, but a greater risk of exposure compared to collagen membranes. From another perspective, collagen membranes, being softer and less capable of supporting soft tissue pressures, provide a lower bone height than predicted during the procedure.

Keywords. Guided bone regeneration, Titanium Mesh, Collagen Membrane, Bone atrophy.

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30. THE BIOMECHANICAL AND NEUROLOGICAL CONNECTION BETWEEN MANDIBULAR POSITION AND GLOBAL BODY POSTURE: A LITERATURE REVIEW

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Introduction. The stomatognathic system is crucial for global postural control. Evidence in neuromuscular dentistry and posturology suggests the temporomandibular joint (TMJ), dental occlusion, and mandibular resting position are neurologically and biomechanically linked to the cervical spine and kinetic chain. Spatial mandibular alterations disrupt descending sensory inputs, leading to compensatory structural adaptations. Chronic mouth breathing and atypical swallowing also heavily influence these dynamics.

Aim of study. This review evaluates evidence regarding the influence of mandibular position, tongue posture, and dental malocclusions on global body biomechanics. It highlights the neurophysiological mechanisms governing this relationship, promoting an integrative diagnostic approach in modern orthodontics.

Methods and materials. A comprehensive literature analysis focused on the stomatognathic system and human posture. Search keywords included "TMJ disorders", "dental occlusion", and "trigeminal nerve". Studies correlating dental malocclusions—encompassing sagittal (Angle Classes I, II, III), transversal (crossbites, skeletal asymmetries), and vertical (open or deep bites) anomalies—with TMJ dysfunctions and objective postural parameters (cervical alignment, stabilometric balance) were systematically selected and synthesized.

Results. Literature demonstrates a significant correlation between mandibular position and structural posture. Malocclusions and TMJ dysfunctions provoke altered proprioceptive signals via the trigeminal nerve to the brainstem and vestibular system. These neuro-mechanical dysfunctions trigger descending compensatory mechanisms, causing forward head posture, shoulder misalignment, and altered plantar pressure. Furthermore, mouth breathing and low tongue posture cause sympathetic nervous system overload, decreasing overall postural stability. Establishing physiological jaw positioning through functional orthodontic appliances improves gaze stabilization, reduces cervical tension, and enhances balance.

Conclusions. The TMJ acts as a vital sensory organ for human stability. Mandibular misalignments and multidimensional malocclusions contribute significantly to descending musculoskeletal disorders. A multidisciplinary approach integrating orthodontic treatment, neuromuscular dentistry, and posturology is essential for diagnosing and resolving chronic postural imbalances originating from the stomatognathic system.

Keywords. temporomandibular joint, body posture, stomatognathic system, dental occlusion, proprioception.

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31. THE INFLUENCE OF ANKYLOGLOSSIA ON THE TRANSVERSE DEVELOPMENT OF THE UPPER JAW: INTERDISCIPLINARY MANAGEMENT AND THE ROLE OF MYORELAXATION

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Introduction. Current orthodontic practice emphasizes the interdependence between dental arch morphology and orofacial neuromuscular dynamics. The development of the dento-maxillary complex is conditioned by the balance of forces exerted by the tongue, cheeks, and lips. The tongue acts as a direct mechanical stimulus on the mid-palatal suture during rest and physiological deglutition. Ankyloglossia, defined by restricted lingual mobility due to a short frenum, impedes this stimulus. When the tongue adopts a low position in the floor of the mouth, it ceases the lateral pressure necessary for transverse expansion, resulting in maxillary hypoplasia, narrow arches, and a high palatal vault. Isolated approaches, whether strictly orthodontic or surgical, often fail without functional re-education.

Aim of study. To evaluate the etiological impact of ankyloglossia on maxillary hypoplasia. To determine the efficiency of the interdisciplinary protocol (orthodontist, surgeon, and speech therapist) in restoring muscular balance and ensuring post-therapeutic stability.

Methods and materials. A systematic literature review (2021–2026) was conducted using databases such as PubMed, Cochrane Library, and Google Scholar. The selection targeted studies correlating tongue position with clinical measurements, such as Pont's Index, and the impact of frenectomy on maxillary biomechanics.

Results. Studies indicate a significant correlation between ankyloglossia and transverse maxillary deficiency. The absence of palatal lingual pressure allows the dominance of centripetal forces from the buccinator muscles, leading to arch collapse. Mechanical expansion shows a relapse rate of up to 40% in the absence of a frenectomy. Surgical release ensures superior long-term stability. Post-operative therapy accelerates bone adaptation and reduces tension in the craniofacial sutures. Analysis confirms that success depends on sequentiality: the orthodontist corrects the structure, the surgeon removes the anatomical barrier, and the myofunctional therapist retrains muscular memory. An innovative aspect is the link between ankyloglossia and head posture; releasing the frenum promotes myorelaxation of the masticatory muscles, potentially preventing bruxism and TMJ disorders.

Conclusions. Ankyloglossia is a major etiological factor in maxillary hypoplasia, as the low position of the tongue deprives the mid-palatal suture of the mechanical stimulus required for physiological expansion. The interdisciplinary protocol is the only effective treatment method, where frenectomy and myofunctional therapy transform the tongue into a natural space maintainer, guaranteeing orthodontic stability and myorelaxation of the stomatognathic system.

Keywords. Ankyloglossia, maxillary development, interdisciplinary approach, myofunctional therapy, orofacial myorelaxation.

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32. BUFFERED LOCAL ANESTHESIA IN DENTISTRY: A PILOT CLINICAL STUDY

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Introduction. The concept of buffered anesthesia consists of adjusting the pH of the anesthetic solution by adding a basic solution (sodium bicarbonate) to achieve values closer to physiological levels. This modification facilitates a more rapid onset of action and may reduce the discomfort perceived during injection. Furthermore, buffering has been associated with an increased duration of anesthesia, thereby contributing to the improvement of therapeutic quality and overall patient experience.

Aim of study. To comparatively evaluate, in a clinical setting, the intensity of pain perceived by the patient during injection and the duration of the anesthetic effect in buffered anesthesia versus conventional anesthesia.

Methods and materials. This clinical study used a 4% articaine anesthetic solution (40 mg) with epinephrine 1:100,000 (0.01 mg/ml), administered either with or without the addition of 4% sodium bicarbonate solution. Atraumatic 30G (0.3 × 21 mm) needles and surveys with Visual Analog Scale (VAS) were used. The study included 30 patients, divided into two groups: the buffered anesthesia group ($n_1 = 15$) and the non-buffered anesthesia group ($n_2 = 15$). Pain at injection and duration of anesthetic effect were evaluated in patients undergoing dental treatment, using standardized surveys.

Results. Injection pain, assessed using the VAS scale (0–10), demonstrated higher values in the non-alkalinized anesthesia group (4.07 ± 1.28) compared to the alkalinized anesthesia group (2.27 ± 1.96). The duration of anesthesia with 4% articaine and epinephrine 1:100,000 was significantly longer in the buffered anesthetic group (298 ± 31.9 minutes) compared to the non-buffered group (190 ± 37.6 minutes). The differences observed between groups were statistically significant, highlighting a favorable effect of buffering on both injection comfort and anesthetic effect.

Conclusions. Buffering 4% articaine with epinephrine 1:100,000 significantly reduced injection pain intensity and prolonged the duration of local anesthesia compared to the non-buffered solution, demonstrating a favorable effect on patient comfort and anesthetic efficiency.

Keywords. buffered anesthesia, local anesthesia, alkalinization, articaine, pain.

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33. CLINICAL CHARACTERISTICS AND SURGICAL MANAGEMENT OF PEDIATRIC ORO-MAXILLOFACIAL DERMOID CYSTS. COMPARISON BETWEEN LITERATURE DATA AND CLINICAL EXPERIENCE

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Introduction. Dermoid cysts of the oro-maxillofacial region are uncommon congenital lesions that may produce functional and esthetic disturbances depending on their localization and size. Although, first symptoms may be associated with swallowing, speech, or breathing disorders, in case of their oral localization.

Aim of study. The objective of the study was to evaluate the clinical manifestations and surgical treatment of pediatric dermoid cysts through a comparative analysis of data reported in the literature and clinical cases treated in an oro-maxillofacial surgery department.

Methods and materials. Forty published studies describing pediatric dermoid cysts were analyzed, using the electronic data base such as PubMed (MEDLINE), Embase (Ovid), Europe PMC, and Google Scholar, in order to identify the most common clinical manifestation, complications, and treatment approaches. These data were compared with three-year retrospective analysis of pediatric patients diagnosed with dermoid cysts in Oro-Maxillofacial Surgery Department "*Ion Lupan*".

Results. According to the literature, dermoid cysts usually present as slow growing, painless masses and frequently discovered incidentally. In some cases, complications such as bone erosion or intraoperative rupture were reported. Clinical observations from the analyzed department showed similar presentations; however, lesions located in the floor of the mouth (1.30%) were associated with functional symptoms, including swallowing difficulties, speech disturbances and tongue displacement. In both literature reports and clinical cases, complete surgical excision (cystectomy) was the treatment of choice and was associated with favorable postoperative outcomes. Although, it is also described a method of incision the wall of the cyst and draining its contents, that is called cystotomy. This technique is rarely employed and it is usually indicated for sublingual cysts localization, in emergency situations (suprainfection).

Conclusions. Dermoid cysts in pediatric patients present similar clinical features across literature reports and clinical practice. However, lesions of the oral cavity may produce more pronounced functional disturbances. Early diagnosis and complete surgical removal remain essential for a successful treatment.

Keywords. Dermoid cyst, pediatric surgery, oral cavity, surgical treatment, pediatric patients.

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34. THE USAGE OF BIPHASIC CEMENT AND PORCINE GRAFT FOR CONTOUR AUGMENTATION AROUND IMPLANTS – CASE STUDY

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Introduction. Minor lateral bone deficiencies are a common obstacle in achieving a favorable three-dimensional position of dental implants. In case of mild alveolar atrophy, bone grafting procedures allow rehabilitation in reduced terms due to the possibility of simultaneous implant insertion. Although, long-term predictability of clinical outcomes depends on the quality of regenerated bone substrate, volumetric stability over the time and a proper biomaterial integration. Despite the widespread use of bone augmentation techniques there are controversies regarding the barrier membrane requirement, type of graft, and optimal surgical approach. In the context of contemporary trends oriented towards minimally invasive surgeries and reduced patient morbidity, the usage of a xenogen porcine-derived graft materials associated with biphasic cement may represent a biologically reliable alternative with simplified technique of conventional protocols. To minimize the dimensions of the flaps as well as the time of surgery, a combination between porcine graft and biphasic cement could be an alternative to avoid membrane usage.

Aim of study. To evaluate the clinical efficiency and volumetric stability of the bone contouring around implants using xenogeneic porcine biomaterial covered with biphasic cement.

Methods and materials. The clinical case series included four patients with horizontal bone atrophy in the lateral segments, eligible for implant-prosthetic rehabilitation. The surgical protocol consisted of simultaneous dental implant insertion and contour augmentation using a porcine xenograft applied to the vestibular bone defect and stabilized with a biphasic cement acting as a barrier instead of collagen membrane. The newly formed bone as well as volume stability was evaluated clinically and paraclinical at the end of healing period.

Results. The outcomes presented favorable clinical evolution, with no postoperative complications. Due to a stable shape of the graft during hardening of the biphasic cement there was no necessity of pins or screw application and the time of surgery decreased. Biphasic cement demonstrated the capacity to protect and stabilize the graft during the critical phase of osteogenesis, facilitating the integration of it. At the end of the healing period, a sufficient amount of bone was present buccally around implants.

Conclusions. Contour augmentation performed with porcine xenograft covered with biphasic cement may constitute a viable minimally invasive to conventional membrane techniques, providing volumetric stability and favorable implant integration in the rehabilitation of minor lateral atrophies.

Keywords. Bone contouring, biphasic cement, porcine xenograft, lateral atrophies, implants.

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35. PSYCHO-EMOTIONAL ASPECTS IN PATIENTS WITH DENTO-MAXILLARY ANOMALIES DURING ORTHODONTIC TREATMENT

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Introduction. Dento-maxillary anomalies represent a significant oral health problem that can affect both the functional and aesthetic components of the stomatognathic system. Malocclusions may influence facial appearance, oral function, and social interactions, often leading to psycho-emotional disturbances such as reduced self-esteem, anxiety, and social discomfort. Orthodontic treatment aims not only to correct occlusal and dentofacial abnormalities but also to improve patients' psychological well-being and quality of life. Understanding the psycho-emotional aspects associated with dento-maxillary anomalies and their evolution during orthodontic treatment is essential for improving patient compliance and treatment outcomes.

Aim of study. The aim of this study was to evaluate the psycho-emotional status of patients with dentomaxillary anomalies during orthodontic treatment and to determine its impact on their psychological well-being and self-confidence.

Methods and materials. A comprehensive review of the scientific literature was undertaken to examine the psychological impact of dentomaxillary anomalies and orthodontic therapy on patients. Relevant publications from orthodontic and dental research were analyzed, with particular attention given to studies assessing patients' emotional status, perceptions of dental aesthetics, and quality of life during orthodontic treatment. The selected sources were evaluated using comparative and descriptive analytical approaches in order to identify the principal psycho-emotional factors associated with dentomaxillary anomalies and the course of orthodontic treatment.

Results. The reviewed studies show that patients with dentomaxillary anomalies often experience psychological discomfort related to dental appearance, including reduced self-confidence and social anxiety. Orthodontic treatment significantly improves self-image, emotional well-being, and social interactions, with many patients reporting greater satisfaction with facial appearance and improved quality of life. Patient motivation and cooperation are also closely linked to their psychological perception of treatment progress.

Conclusions. Dentomaxillary anomalies can negatively affect patients' psycho-emotional status and social well-being. Orthodontic treatment plays an important role in correcting dental and skeletal malpositions, while also contributing to improvements in psychological health and self-esteem. A comprehensive orthodontic approach that takes into account both functional and psycho-emotional factors contributes to increased treatment success and greater patient satisfaction.

Keywords. Dentomaxillary anomalies, orthodontic treatment, quality of life, dental aesthetics.

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36. THE USE OF THE PIEZOTOME IN BONE AUGMENTATION USING THE MODIFIED KHOURY TECHNIQUE. A CLINICAL CASE REPORT

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Introduction. Alveolar ridge reconstruction represents an essential stage in the implant–prosthetic rehabilitation of patients presenting significant bone atrophy. The Khoury technique, based on the use of autogenous cortical bone laminae, is considered an effective method for the three-dimensional augmentation of alveolar ridges. In the classical approach, harvesting of the laminae is performed using rotary burs or discs, methods associated with an increased risk of bone trauma, soft tissue injury, and limited control over the osteotomy. The use of a piezotome introduces a minimally invasive approach, allowing precise osteotomies while preserving adjacent anatomical structures and providing superior control during lamina harvesting.

Case presentation. Patient P.L., male, 70 years old, presented with secondary partial edentulism, Kennedy Class II, at the mandibular level as a result of periodontal disease, associated with C-w type bone atrophy according to the Misch classification. In order to create an adequate bone volume for dental implant placement, augmentation using a modified Khoury technique was performed, employing a piezotome for harvesting cortical laminae. The following parameters were analyzed: osteotomy precision, the degree of bone and soft tissue trauma, intraoperative bleeding and visibility, operative time, and postoperative evolution.

Discussions. The use of a piezotome in the modified Khoury technique allowed the achievement of superior intra- and postoperative outcomes compared with the conventional method. The intervention was characterized by a precise and controlled osteotomy, with the possibility of adjusting the thickness of the cortical laminae during harvesting. The increased maneuverability of the instrument contributed to reducing the duration of the procedure, minimizing bone and thermal trauma, and protecting the soft tissues, thereby decreasing the risk of exposure or injury to the contents of the mandibular canal. The variety of inserts improved operative comfort and intraoperative visibility. The postoperative course was favorable, with minimal bleeding, reduced morbidity, and uncomplicated healing.

Conclusions. The use of a piezotome in the modified Khoury technique offers new perspectives in three-dimensional bone reconstruction, facilitating the adaptation of the surgical procedure to current standards of precision, safety, and minimally invasive surgery.

Keywords. bone reconstruction, osteotomy, piezotome, cortical lamina.

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37. PARTICULARITIES IN THE DIAGNOSIS OD DENTAL ERUPTION DISORDERS

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Introduction. Dental eruption is the process by which a tooth migrates from within the bone along the alveolar process into the oral cavity until it reaches occlusal contact with its antagonist. Failure of eruption of a permanent tooth represents an important orthodontic problem. Local causes include deviation from the normal eruption trajectory, leading to dental impaction, most frequently associated with maxillary canines, or local trauma that may result in ankylosis, often affecting maxillary incisors. Involvement of multiple teeth may indicate a disturbance in the general eruption mechanism or severe space deficiency within the dental arch.

Case presentation. A 12-year-old female patient presented with the absence of several teeth in the oral cavity, the main concern being the absence of a frontal tooth with significant aesthetic and psychological impact. Clinical examination revealed the absence of tooth 21 on the dental arch, with no history of extraction or trauma. CBCT examination confirmed primary anodontia of tooth 21, indicating the absence of the dental germ. In addition, impaction of several permanent teeth: 13, 23, 15, and 25 was identified. These teeth were located intraosseously and presented ectopic positions with deviation from the normal eruption pathway. Three-dimensional CBCT analysis allowed assessment of the position, orientation, and anatomical relationships of the impacted teeth with adjacent structures. The Penn analysis revealed a transverse discrepancy of 10.53 mm.

Discussions. Penn analysis indicated the need to create adequate space for the eruption of the impacted teeth, requiring maxillary expansion. Initially, the patient wore a palatal plate for preliminary expansion in order to initiate widening of the dental arch and prepare the tissues for subsequent orthodontic treatment. Currently, the patient is undergoing treatment with a fixed maxillary expander to increase the transverse dimension of the upper jaw. Subsequently, fixed orthodontic appliances will be applied to guide the impacted teeth onto the dental arch and achieve proper intermaxillary relationships.

Conclusions. Delayed dental eruption requires a comprehensive orthodontic evaluation, including clinical and paraclinical examinations, with radiological assessment playing a crucial role in establishing the diagnosis and treatment plan. Early diagnosis may prevent complications, while removal of the etiological factor may allow spontaneous eruption of teeth with eruptive potential; in other cases, orthodontic intervention is required to create favorable conditions for eruption.

Keywords. Delayed eruption; maxillary expansion; dental impaction; diagnosis; planning.

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38. REDUCTION OF PERIODONTAL INFLAMMATION USING ER,CR:YSGG LASER-ASSISTED THERAPY

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Introduction. Periodontitis is a chronic inflammatory condition characterized by the progressive destruction of the tooth-supporting tissues. In modern dentistry, the use of laser technologies represents a promising adjunctive method in periodontal therapy due to their antibacterial, anti-inflammatory, and biostimulatory properties, which may contribute to improved control of periodontal inflammation.

Aim of study. To evaluate the influence of Er,Cr:YSGG laser-assisted therapy on the reduction of periodontal inflammation by analyzing the evolution of bleeding on probing in patients diagnosed with periodontitis.

Methods and materials. The prospective clinical study included 20 patients aged between 30 and 65 years diagnosed with stage II periodontitis (14 patients, 70%) and stage III periodontitis (6 patients, 30%). The therapeutic protocol of non-surgical periodontal therapy incorporated the use of the Er,Cr:YSGG laser. Periodontal inflammatory activity was monitored using the bleeding on probing index (BOP), recorded preoperatively and reevaluated at 3 and 12 months after treatment.

Results. At the initial evaluation, the mean bleeding on probing rate was approximately 70%, indicating the presence of severe gingival inflammation. Following the application of laser-assisted therapy, a progressive reduction in this parameter was observed, with values stabilizing at approximately 19.8% at the 12-month reevaluation. The overall reduction in inflammation was approximately 50.5%, suggesting a significant improvement in periodontal inflammatory status.

Conclusions. The integration of the Er,Cr:YSGG laser into periodontal therapy may significantly contribute to the reduction of gingival inflammation and the stabilization of the periodontal environment. Monitoring bleeding on probing represents a useful clinical tool for evaluating inflammatory activity and therapeutic outcomes in the management of periodontitis.

Keywords. periodontitis, Er,Cr:YSGG laser, periodontal inflammation, bleeding on probing, periodontal therapy.

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39. APPLICATION OF ARTIFICIAL INTELLIGENCE FOR EARLY DETECTION OF DENTAL CARIES.

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Introduction. Dental caries remain one of the most common oral diseases worldwide. According to WHO, untreated caries in permanent teeth affects approximately 2.3 billion people, representing the most prevalent health condition globally. Early detection allows clinicians to prevent disease progression such as pulpitis, periapical infection, and tooth loss. Nevertheless, conventional diagnostic methods, including visual examination and radiographs, may not identify early enamel lesions, especially on proximal surfaces. Artificial Intelligence (AI), especially deep learning algorithms, has been increasingly investigated as a tool to assist clinicians in analyzing dental images and detecting early pathological changes.

Aim of study. To analyse recent scientific literature and to determine the effectiveness of Artificial Intelligence in the early detection of dental caries.

Methods and materials. A literature review was performed using PubMed, Google Scholar and Scopus. Articles published between 2018 and 2025 were searched using keywords such as «artificial intelligence»,«dental radiographs», and «caries detection». After screening, 20 relevant peer-reviewed articles were selected and evaluated for diagnostic accuracy, specificity and clinical relevance of AI-assisted caries detection, focusing on radiographic analysis of permanent teeth, early enamel lesions and proximal caries.

Results. AI-assisted diagnostic systems (convolutional neural networks) demonstrate high accuracy in identifying early carious lesions on radiographic images. A study by Jae-Hong Lee (2018) reported diagnostic accuracy for caries detection using deep learning algorithms of 89.0% (80.4-93.3) - premolar, 88.0% (79.2-93.1) - molar, 82.0% (75.5-87.1) - both premolar and molar. Another study by Jing-Wen Zhang (2024) demonstrated the overall accuracy of the caries detection with an intraoral camera (AI model) of 93.40%. The sensitivity was 81.31%, specificity - 95.65%. The positive predictive value- 77.68%, the negative predictive value- 96.49%. In addition, studies have shown that AI-supported analysis can reduce inter-observer variability among clinicians by approximately 20–30%, improving consistency.

Conclusions. Artificial intelligence represents a promising tool for supporting early detection of dental caries, since AI-assisted diagnostic systems may enhance preventive strategies, reduce progression of caries and contribute to better preservation of dental tissues.

Keywords. Artificial Intelligence, dental caries, digital dentistry, radiographic analysis.

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40. MAXILLARY SINUS SEPTA: AN ANATOMICAL STUDY

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Introduction. Anatomy serves as the foundation of surgical practice, providing essential knowledge required for precision and predictable outcomes. The maxillary sinuses perform vital functions, such as air humidification, resonance and NO production. Due to their location, they are of major interest to several specialties, particularly ENTs, OMFs and dentists. Maxillary sinus septa are anatomical variations of crucial clinical importance. First described by Underwood in 1909, these structures remain insufficiently assessed in the literature. Multiple classifications based on different criteria have been proposed, but no consensus has been reached yet. Septa are recognised as the leading cause of Schneiderian membrane perforation during sinus lifting procedures. Moreover, they have been associated with variations in sinus mucosal thickness and residual bone height, thus requiring individualized surgical approaches. Beyond their implications in oral surgery, septa may contribute to dysfunction of the maxillary sinus drainage system by altering physiological aeration and mucus clearance, predisposing patients to chronic sinusitis and other pathologies. Despite their prevalence and clinical significance, maxillary sinus septa remain underrepresented in anatomical and surgical literature.

Aim of study. To evaluate the prevalence and anatomical characteristics of maxillary sinus septa.

Methods and materials. The following research was conducted as a retrospective observational cross-sectional study on 100 patients who underwent maxillary sinus imaging for various reasons. CT/CBCT scans were analyzed to identify the presence, height, orientation, location and morphology of maxillary sinus septa. Statistical analysis was performed using R statistical software.

Results. A prevalence of 50% per patient and a total of 70 maxillary sinus septa were documented. Analysis at the patient level showed a single septum being present in 35 patients (70%). Multiple septa were spotted in 15 patients (30%), with 2 septa in 10 patients (20%) and 3 septa in 5 patients (10%). Bilateral septa were present in 11 patients (22%). Based on morphological classification, 40 septa (57.1%) were complete, while 30 septa (42.9%) were incomplete. Location-wise, the middle segment housed most of the septa, accounting for 32 (45.7%). Regarding septal orientation, the most predominant pattern was oblique (n=31, 44.3%). The mean septal height was 9.71 ± 5.13 mm, ranging from 2.44 mm to 27.7 mm.. Out of the patients with septa, 34 (68%) were female and 16 (32%) were male.

Conclusions. The prevalence and anatomical variability of maxillary sinus septa highlight the importance of detailed preoperative imaging assessment to ensure surgical predictability and reduce intraoperative complications.

Keywords. Maxillary sinus septa; CBCT; oral surgery; anatomy.

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41. MODERN STRATEGIES FOR THE PREVENTION OF SECONDARY CARIES IN DIRECT DENTAL RESTORATIONS

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Introduction. Secondary caries represent one of the main causes of restoration failure and the need for retreatment. It is defined as a carious lesion occurring on the crown of a restored tooth, at the contact area between the cavity margin and the pre-existing restoration, clinically associated with marginal adaptation deficiencies.It should be distinguished from residual caries, which results from incomplete removal of altered dental tissues during the initial treatment. Secondary caries is a major challenge in modern dentistry, making the understanding of its etiology essential for prevention and management.

Aim of study. To synthesize current evidence on contemporary clinical protocol-based preventive strategies and the effectiveness of restorative materials in reducing the risk of secondary caries in direct restorations, through the selection of clinically relevant measures reported in the recent literature.

Methods and materials. This study is a narrative review of the relevant literature. The search was performed in PubMed, Scopus and local bibliographic sources. A total of 9 review articles and clinical studies were analyzed addressing the etiology of secondary caries, risk factors, caries management, and the performance of contemporary ion-releasing and bioactive restorative materials, as well as resin-based composites.

Results. The analysis of recent literature indicates that, clinically, bioactive composite materials do not consistently show superior efficacy compared to conventional composites in preventing secondary caries or improving restoration longevity. Across 9 randomized studies, no significant differences were reported. However, glass ionomer cements and resin-modified GIC may perform better under unfavorable conditions due to long-term fluoride release and adhesive properties. In a separate meta-analysis comparing GIC with resin-based composite, failures due to secondary caries were 15 (GIC) vs. 16 composite, with no significant difference. Beyond material choice, the occurrence of secondary caries is largely determined by the patient's caries risk, biofilm control, and the quality of the clinical protocol, including proper isolation, strict adherence to adhesive protocols, optimal marginal adaptation, proper finishing and polishing.

Conclusions. The occurrence of secondary caries following direct dental restorations is largely independent on the nature of the material used, but rather on the same risk factors involved in the etiology of primary carious lesions. Treatment success is primarily conditioned by adherence to cavity preparation protocols, correct isolation of the operative field, and the use of appropriate adhesive systems.

Keywords. secondary caries; recurrent caries; direct dental restorations; glass ionomer cement (GIC); bioactive materials; adhesive protocol;.

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42. THE ROLE OF CLINICAL AND CBCT ASSESSMENT IN THE SURGICAL MANAGEMENT OF SUPERNUMERARY TEETH: A CLINICAL CASE

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Introduction. Supernumerary teeth are developmental anomalies that may remain asymptomatic or lead to delayed eruption, malposition, occlusal disturbance, and difficult surgical access. Their clinical importance is defined less by the additional tooth itself and more by its position, depth, and relationship to neighboring teeth and anatomical structures.

Case presentation. A male patient in fixed orthodontic treatment was referred after routine panoramic monitoring revealed bilateral impacted mandibular supplemental premolars. Intraoral examination showed no erupted supernumerary teeth and no acute complaints. OPG served as the screening tool. CBCT was then used to determine 3D position, depth, and proximity to adjacent roots, the mandibular canal, and the mental foramen. A staged vestibular approach was planned, one side per visit.

Discussions. CBCT confirmed two impacted supplemental premolars located below the apices in both hemimandibles, without direct contact with the mandibular canal. Both teeth showed incomplete root formation and no CBCT signs of significant root resorption of adjacent teeth or extensive cystic lesions. Removal was indicated to prevent future resorption, cystic change, and interference with orthodontic movement. Each session included local anesthesia, vestibular incision, full-thickness flap elevation, conservative osteotomy under irrigation, crown exposure, odontosection when required, extraction, curettage, hemostasis, and suturing. Postoperative instructions included compression, cold packs, soft diet, and careful hygiene around brackets; sutures were removed at 7–10 days. Follow-up OPG confirmed complete removal and early bone remodeling; orthodontic treatment continued normally.

Conclusions. Deeply impacted mandibular supernumerary premolars may be clinically silent, so imaging guides diagnosis and risk assessment. OPG detects the anomaly, while CBCT is decisive for safe access planning near neurovascular structures. Staged vestibular extraction with controlled osteotomy is predictable and supports ongoing orthodontic therapy. Close surgeon–orthodontist coordination was essential.

Keywords. supernumerary teeth; distomolar; supplemental premolars; CBCT; oral surgery; orthodontic treatment.

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43. SURGICAL MANAGEMENT OF SOFT TISSUE DEFICIENCY IN IMPLANT-PROSTHETIC REHABILITATION. CASE REPORT

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Introduction. In implant-prosthetic rehabilitation, the quality and quantity of soft tissues influence the stability and functionality of the prosthetic construction. The autogenous palatal epithelial-connective tissue graft is a biological support widely used in current techniques, with a positive impact on implant-prosthetic success.

Case presentation. Patient L.E., 65 years old, presented for the second stage of implant therapy. Clinical examination revealed a lateral edentulous space due to the absence of teeth 36 and 37, associated with deficient keratinized gingiva and a shallow buccal vestibule. The mobile mucosa was attached to the crest of the alveolar ridge. The width of the keratinized gingiva was 3 mm and the supracrestal gingival thickness-1.5 mm. The treatment included vestibuloplasty using the apically positioned flap technique and palatal autogenous graft transplant.

Discussions. According to the standard surgical protocol, the steps performed were: preparation of the surgical field, anesthesia, incision, partial flap elevation, and apical fixation to the periosteum with sutures. This was followed by harvesting a free gingival graft from the palatal vault. The dimensions of the graft were calculated according to the recipient site. The graft was harvested by dissection parallel to the plane of the palatal mucosa. After that, the graft was divided into two equal fragments. The first fragment was adapted and sutured on the vestibular slope after performing vestibuloplasty. The second fragment was adapted to the peri-implant tissues, around the gingival formers, and fixed with sutures, ensuring intimate contact with the recipient site and optimal conditions for tissue integration. Postoperatively, 12 days after surgery, the peri-implant soft tissues were evaluated. A buccal vestibular depth of 11 mm was obtained at the position of tooth 36 and 7 mm at the position of tooth 37. The width of the keratinized gingiva increased by 5 mm, reaching 8 mm, and the supracrestal gingival thickness reached 5 mm. Healing of the donor and recipient sites occurred through secondary epithelialization. The evolution was favorable, without complications and with complete tissue integration.

Conclusions. Correction of peri-implant soft tissue deficiencies is essential for implant-prosthetic rehabilitation success. The palatal epithelial-connective tissue graft proved effective, providing a stable biological barrier and improving aesthetics and function. In addition, increased width and thickness of keratinized gingiva support peri-implant health, facilitate oral hygiene, and reduce the risk of inflammatory complications.

Keywords. soft tissues, shallow vestibule, vestibuloplasty, free gingival graft.

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44. CBCT AND DIGITAL SUPERIMPOSITION EVALUATION OF CHANGES IN THE PALATAL SUTURE IN PATIENTS WITH MAXILLARY TRANSVERSE DEFICIENCY TREATED WITH SKELETAL ANCHORAGE

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Introduction. Maxillary transverse deficiency is a common skeletal discrepancy often associated with unilateral or bilateral posterior crossbite (Lin L., 2015). MARPE was introduced as a skeletal anchorage technique that transmits expansion forces directly to the maxilla, reducing dentoalveolar side effects of the rapid palatal expansion and enhancing the orthopedic efficacy (Satapathy & Agarwal, 2025). Advances in three-dimensional imaging, particularly CBCT, allow accurate evaluation of skeletal and sutural changes through digital 3D superimpositions, including modifications of the midpalatal and circummaxillary sutures (Cantarella et al., 2017). Studies show that MARPE can achieve effective midpalatal suture separation and true skeletal expansion with measurable craniofacial changes (Chun et al., 2022; Cantarella et al., 2018).

Aim of study. The aim of this study was to evaluate three-dimensionally the opening of the midpalatal suture in patients with advanced skeletal maturity treated with MARPE, using CBCT imaging and digital superimpositions performed before and after expansion.

Methods and materials. Patients diagnosed with maxillary transverse deficiency and treated with MARPE were included in the study. CBCT scans were obtained for each patient before treatment and after expansion. Volumetric reconstructions and digital superimpositions were performed based on stable craniofacial landmarks. The analyzed parameters included the opening of the midpalatal suture at the level of the anterior nasal spine and posterior nasal spine, as well as changes in circummaxillary sutures.

Results. Results showed a significant separation of the midpalatal suture following MARPE treatment both anteriorly and posteriorly, confirming a predominantly skeletal expansion pattern. The literature reports an average separation of approximately 4.8 mm at the ANS level and 4.3 mm at the PNS level, suggesting a nearly parallel opening in the sagittal plane (Cantarella et al,2017). The skeletal component represented approximately 60–70% of the total expansion, with minimal lateral tipping of the alveolar processes and an increase in nasal cavity volume.

Conclusions. MARPE produces significant three-dimensional changes in the midpalatal suture and circummaxillary structures, resulting in effective skeletal maxillary expansion. The combination of CBCT imaging and digital superimpositions allows precise evaluation of these changes and supports the use of MARPE as a predictable and minimally invasive treatment option for late adolescents and young adults.

Keywords. MARPE, maxillary transverse deficiency, CBCT.

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45. CLINICAL ASPECTS OF THE DIAGNOSIS AND TREATMENT OF DEEP ODONTAL LESIONS.

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Introduction. Deep carious lesions represent an advanced stage of the carious process, characterized by extensive destruction of enamel and dentin, resulting in significantly reduced residual dentin thickness and an increased risk of pulpal involvement. Their management poses a considerable diagnostic and therapeutic challenge, as the decision between conservative and endodontic treatment depends on the precise assessment of pulp status. Contemporary minimally invasive dentistry promotes selective removal of infected dentin and the use of bioactive materials capable of stimulating reparative dentinogenesis while preserving pulp vitality.

Case presentation. A 28-year-old patient presented for a routine dental examination, complaining of sensitivity to thermal and mechanical stimuli in quadrant one. Clinical examination revealed a deep carious lesion with food retention. Radiographic evaluation confirmed the proximity of the lesion to the pulp chamber, without signs of periapical pathology. Selective caries removal was performed, preserving the affected dentin near the pulp. A bioactive liner was applied to stimulate dentin formation and protect the pulp, followed by definitive tooth restoration. The patient was scheduled for periodic follow-up visits to monitor pulp vitality and the integrity of the restoration.

Discussions. The management of deep carious lesions requires careful evaluation of the pulp status and the extent of dentin destruction. Selective removal of carious tissue is currently recommended in order to reduce the risk of pulp exposure and to maintain pulp vitality. Bioactive materials, such as calcium hydroxide–based liners (for example, Ultra-Blend), stimulate reparative dentin formation and create a protective barrier between the restoration and the pulp tissue. Accurate diagnosis, conservative therapeutic approaches, and regular follow-up significantly improve the long-term prognosis of teeth affected by deep carious lesions.

Conclusions. Accurate differential diagnosis and minimally invasive therapeutic approaches significantly contribute to the preservation of pulp vitality and to improved clinical outcomes in the management of deep dental lesions. The use of bioactive materials and selective caries removal techniques allows effective treatment while maintaining pulp vitality and tooth structure.

Keywords. Deep dental caries, pulp vitality preservation, selective caries removal, calcium hydroxide liner, conservative restorative treatment.

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46. THE ROLE OF ORTHODONTIC TRAINERS IN MIXED DENTITION

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Introduction. Mixed dentition represents a critical stage in the development of the dento-maxillary apparatus, characterized by the transition from primary to permanent dentition and an increased susceptibility to functional and occlusal imbalances. Orthodontic trainers play an important interceptive role by correcting muscular dysfunctions, guiding tooth eruption, and favorably influencing maxillary growth. Epidemiological studies indicate that approximately 35–40% of children in mixed dentition require interceptive treatment to prevent severe malocclusions.

Aim of study. To synthesize the literature regarding the effectiveness of orthodontic trainers in the early correction of malocclusions and muscular imbalances in children with mixed dentition.

Methods and materials. A narrative review of literature published between 2000 and 2024 was conducted using PubMed, MEDLINE, Google Scholar, and the National Scientific Library. Of 62 identified articles, 18 met the inclusion criteria: prospective clinical studies, observational studies, and randomized controlled trials including patients aged 7–11 years in mixed dentition treated with an orthodontic trainer. Dentoalveolar and functional parameters were analyzed, including overjet, overbite, intercanine distance, and perioral muscle activity.

Results. Analysis of the included studies demonstrated that the use of orthodontic trainers in mixed dentition induces significant dentoalveolar and functional changes. A notable reduction in overjet of −2.5 to −3.8 mm was observed, primarily due to proclination of the lower incisors and retroclination of the upper incisors. Overbite decreased by −1.5 to −2.0 mm, associated with vertical adjustments of the incisors, while intercanine distance increased by 1–2 mm, reflecting moderate arch expansion facilitated by perioral muscle stimulation and controlled tooth movement. Skeletal changes were moderate, with no major alterations in maxillary position or craniofacial relationships, indicating that the trainer's action predominantly affects dentoalveolar components. Functional assessments showed improvement in perioral muscle tone, correction of atypical swallowing, and favorable tongue positioning in the palatal vault. The most significant effects were observed within 4–12 months, and long-term follow-up studies emphasize the importance of continuous monitoring and active retention to maintain results.

Conclusions. Interceptive treatment with orthodontic trainers in mixed dentition contributes to improved dentoalveolar relationships and orofacial muscular function, reducing the risk of severe malocclusion development. Treatment efficacy depends on appropriate patient selection, timing of intervention, and patient compliance.

Keywords. trainer, mixed dentition, interceptive treatment.

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47. COMPARATIVE EVALUATION OF PROSTHETIC RESTORATIONS IN THE REHABILITATION OF CORONAL TOOTH LESIONS

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Introduction. Coronal lesions of anterior and posterior teeth are frequently encountered in dental practice and may significantly compromise dental function, esthetics, and occlusal stability. Effective prosthetic rehabilitation is essential to restore both function and appearance, ensuring long-term oral health and patient satisfaction.

Aim of study. To evaluate and compare the effectiveness of various prosthetic restorations used in the rehabilitation of coronal tooth lesions, with a focus on durability and medium-term aesthetic outcomes.

Methods and materials. A retrospective analysis was conducted on 50 clinical cases treated between 2022 and 2024 at the *Ilarion Postolachi* Department of Orthopaedic Stomatology. Restoration type was selected according to the extent of coronal destruction and individual clinical requirements. Zirconia crowns, hybrid composite inlays/onlays, and pinlays with additional anchorage were utilized.

Results. Zirconia crowns demonstrated a success rate of 88% at 12 months due to superior mechanical strength and favorable marginal adaptation. Inlay/onlay restorations achieved a success rate of 72%. Pinlays proved effective in 90% of cases with thin residual tooth walls, reducing the risk of subsequent fractures.

Conclusions. Successful rehabilitation of coronal tooth lesions requires an individualized prosthetic approach. Zirconia crowns are recommended for extensive lesions, whereas pinlays provide a conservative and reliable solution for structurally compromised teeth. This approach enhances dental function, esthetics, and overall patient satisfaction.

Keywords. coronal tooth lesions, prosthetic restorations, zirconia crowns, inlay/onlay, pinlay.

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48. GENIOPLASTY: INDICATIONS, SURGICAL TECHNIQUES AND THE FUNCTIONAL AND AESTHETIC IMPACT ON PATIENTS

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Introduction. Genioplasty is an essential procedure that is widely used in oral and maxillofacial surgery to correct both aesthetic and functional chin deformities. It is performed frequently combined with an orthognathic surgery to enhance facial symmetry and balanced contour of the chin. Genioplasty can be performed through two ways: The first is augmentation genioplasty, which is a technique that utilizes alloplastic materials such as silicone or PEEK chin implants in order to increase chin projection and size. The second is sliding genioplasty, which involves repositioning and reshaping chin bone, allowing for more significant modifications in projection and shape. It has an effective track record for both restoring function and appearance. Studies have shown that more than 90% of patients are satisfied with the results.

Aim of study. The aim of this review is to offer a comprehensive analysis of the main indications for genioplasty, determine the optimal surgical technique based on the condition of the patient, and evaluate the aesthetic and functional outcomes of this surgical procedure.

Methods and materials. The literature review has been conducted based on different scientific databases such as PubMed, ResearchGate, Google Scholar, NCBI, and Science Direct databases during the last 5 - 10 years. Articles published between 2016 and 2025 were investigated to determine the primary indications, surgical techniques, and postoperative considerations of genioplasty.

Results. The patients were examined based on clinical and para-clinical evaluations involving analysis of facial profile. Both forms of genioplasty promote balanced chin and face outlines although distinct consequences were documented. Multiple complications were addressed in articles (54%), while 46% did not include any of them. Chin implants were related with increased rates of wound dehiscence and infections (17%). While sliding genioplasty is connected largely with neurosensory abnormalities due to mental nerve involvement. Genioplasty demonstrated stable results and low rates of recurrence when suitable fixing methods are employed.

Conclusions. Genioplasty provides substantial medical benefits beyond aesthetic and functional improvements. The selection of the surgical procedure should be determined according to the severity and type of the deformity as well as the expectations of the patient. Proper diagnosis and treatment planning are necessary to obtain the optimal functional and aesthetic outcomes.

Keywords. Genioplasty, Chin surgery, Facial aesthetics, Chin deformities.

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49. APICOECTOMY, SURGICAL TREATMENT OF PERIAPICAL PATHOLOGY

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Introduction. The management of periapical pathology is considered a cornerstone of endodontic practice; however, in many cases, the periapical lesions are not resolved despite the application of technically successful endodontic treatments. These lesions are often associated with complicated root canal anatomy or extra-radicular microbial deposits and may result in continuous bone destruction and potential systemic consequences if not properly managed. Even though nonsurgical retreatment is considered the first approach in the management of these lesions, the need for surgical intervention is mandatory when nonsurgical procedures are not successful. Apicoectomy is a successful approach for the preservation of the affected tooth by providing access to the infected area, followed by the excision of the infected area of the root and the application of a bacteria-tight seal. Microsurgical techniques and the application of biocompatible materials have made the apicoectomy procedure a reliable and predictable approach for the management of periapical lesions, replacing the former approach of using this technique as a last resort for the management of these lesions.

Aim of study. To evaluate the clinical effectiveness of the apicoectomy approach in the management of periapical lesions.

Methods and materials. Scientific literature from the electronic databases PubMed, Medescape and relevant dental journals. The search was limited to articles published in English between 2015 and 2025.

Results. The available evidence clearly indicates that apicoectomy is an effective treatment for the management of periapical pathology, with success rates of between 90% and 91.3%. An important finding that was established from the literature was the discrepancy that exists between radiographic and histological findings. Although the majority of the lesions, that is, approximately 68.4%, were radiographically consistent with cystic lesions, the histopathological findings established that only 15.8% of the lesions represented true radicular cysts, whereas the majority, that is, 84.2%,represented periapical granulomas. The introduction of the use of the microsurgical preparation techniques coupled with the use of bioceramic materials such as Mineral Trioxide Aggregate (MTA) has significantly enhanced the healing of periapical lesions.

Conclusions. Apicoectomy can be considered an effective modality for periapical pathology when conventional endodontics fails. Its success is closely related to modern microsurgical techniques, materials and imaging. Histopathology is the gold standard for definitive diagnosis. Apicoectomy is the most important factor for a long-term success of apical periodontitis.

Keywords. Apicoectomy,Periapical pathology,Endodontic surgery, Mineral Trioxide Aggregate (MTA).

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50. MAXILLARY SINUS COMPLICATIONS AFTER DENTAL IMPLANT SURGERY

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Introduction. After extraction of the posterior upper teeth and not replacing them immediately will be high risk to alveolar bone resorption and this major indication to sinus lifting surgery, the sinus lifting procedure has 2 main techniques (open technique and close technique). Both of these techniques are effective in good way however intra-operative and post operative complications may appear and obstruct the integrate of the graft and survival of the implant

Aim of study. The aim of this study is to evaluate the incidence, types, and contributing factors of maxillary sinus complications that occur following dental implant surgery, and to analyze their impact on implant success.

Methods and materials. This study is a narrative literature review, the relevant scientific literature published between 2016-2025 obtained from PubMed, Google Scholar, MDPI, Journal of oral implantology and other scientific sources.

Results. The most common intraoperative complication reported in the literature for sinus augmentation surgery was the perforation of the Schneidarian membrane, which was reported in 10–50% of lateral window procedures and 0–25% of transcrestal approaches. Other intraoperative complications reported in the literature include sinus floor fracture, posterior superior alveolar artery injury, implant/graft displacement and tooth trauma. In addition to the intraoperative complications reported in the literature and analyzed in this review, the post-surgical complications that may affect the success of sinus augmentation surgery include acute and chronic sinusitis, wound dehiscence, graft infection, early and late implant failure. The integrity of the membrane was an important factor affecting the graft survival; graft failure was 11.3% when the membrane was perforated and 3.4% when the membrane was not perforated. The risk factors that affected graft survival included the following: residual height of less than 4 mm, the presence of sinus septa, an abnormal membrane thickness, smoker, uncontrolled diabetes, and poor surgical technique.

Conclusions. Maxillary sinus complications can be related to various factors such as anatomical, medical and surgical. A precise CBCT analysis, associated with a correct case selection based on evidence-based surgical techniques, allows to avoid or at least minimize the risk of morbidities and to ensure the highest probability of clinical success. Surgeons' education is fundamental to prevent sinus augmentation complications.

Keywords. Maxillary sinus lift complications, implants failure, schneiderian membrane perforation, close sinus lifting surgery, open sinus lifting.

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51. PERIODONTAL TISSUES IN ESTHETIC REGION OF FRONTAL TEETH: GUIDED ESTHETIC CROWN LENGTHENING IN THE MANAGEMENT OF ALTERED PASSIVE ERUPTION

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Introduction. The esthetic outcomes of the anterior region depends on the harmony between teeth and the surrounding periodontal tissues. Altered passive eruption may result in excessive gingival coverage and reduced clinical crown height, which leads to compromised smile esthetics. Periodontal crown lengthening presents a predictable surgical approach for treating these discrepancies and restoring the gingival symmetry.

Case presentation. A 34-year old female patient came to the clinic with complaints about the appearance of her maxillary anterior teeth, that they look short due to an excessive gingival coverage. Clinical examination revealed asymmetry of the gingival margins, while periodontal probing depths were within the physiological limits (2-3mm) and no bleeding on probing was observed. CBCT evaluation confirmed the close location of the alveolar crest to the cemento-enamel junction. Based on these findings, the diagnosis of Altered Passive Eruption (type I, Subtype B) was established. The treatment consisted of esthetic crown lengthening using a digitally planned surgical guide. The procedure included gingivoplasty, full thickness flap elevation, and osseous reshaping in order to re-establish the supracrestal tissue attachment and to obtain symmetrical gingival margins.

Discussions. Usually altered passive eruption is the cause of excessive gingival display and reduced clinical crown height in the anterior region. Successful management requires careful diagnosis and to respect the periodontal biological principles. In the presented case, the use of a surgical guide provided accurate transfer of the planned gingival contour during surgery, improving symmetry and gingival zenith positioning. The combination of both soft tissue and osseous therapy helped establish a stable distance between the gingival margin and the alveolar crest, contributing to predictable healing and long-term stability.

Conclusions. Guided esthetic crown lengthening is a reliable therapeutic approach for the treatment of altered passive eruption. Accurate diagnosis, proper surgical planning, and preservation of supracrestal tissue attachment are essential factors for achieving stable periodontal conditions and improved esthetic outcomes in the anterior region.

Keywords. crown lengthening, periodontal esthetics, altered passive eruption.

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52. MODERN METHODS OF ORAL HEALTH EDUCATION FOR CHILDREN

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Introduction. Poor oral hygiene is a frequent problem among children, as compliance with tooth brushing is reduced. With the development of technology, mobile applications are increasingly used as a support tool to motivate children to maintain proper oral hygiene. At the same time, specialists' opinions regarding the use of mobile applications in oral health education are contradictory.

Aim of study. The purpose of the study is to analyze the scientific literature regarding the impact of mobile applications on oral health education and the motivation of health-promoting behaviors in children.

Methods and materials. To achieve the aim of the study, scientific publications were searched in PubMed and in the databases MEDLINE, Scopus, and Web of Science, using the keywords: "health education", "oral hygiene", "prevention", "mobile applications", and "children". From the total number of 157 articles published in the last five years, 135 articles were excluded due to the irrelevant sample size, or because the age of the subjects was over 18 years. As a result, 22 articles were selected and analyzed.

Results. From the total number of analyzed articles, 12 (55%) reported that the use of applications among children to improve health education and oral hygiene compliance is effective, significantly reducing the oral hygiene index, the accumulation of mature dental biofilm and dental calculus, as well as the rate of gingival bleeding. Another 7 studies (32%) reported that the use of applications is promising. Besides the role of motivating regular tooth brushing, these applications can also provide educational content, contributing to learning effective brushing techniques. At the same time, through integrated functions, the duration of brushing can be monitored, thus ensuring more effective and correctly performed oral hygiene. In contrast, 3 studies (13%) reported that although these applications show potential, additional research is needed to assess their long-term effectiveness.

Conclusions. The analysis of the scientific literature highlights the effectiveness of mobile health education applications and their positive influence on children, improving oral health and the quality of oral hygiene. However, some scientific publications emphasize the need for long-term research and the improvement of certain aspects that could lead to better outcomes.

Keywords. mobile applications, health education, oral hygiene, prevention, children.

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53. THE ROLE OF THE ORAL MICROBIOTA IN THE PATHOGENESIS OF PERIODONTAL DISEASE: CORRELATIONS BETWEEN DYSBIOSIS AND TISSUE DAMAGE MECHANISMS

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Introduction. Periodontal disease is a chronic multifactorial inflammatory condition associated with dysbiosis of the oral microbiota and an altered host immune response. The transition from a symbiotic microbial community to a dysbiotic biofilm dominated by Gram-negative anaerobic bacteria such as Porphyromonas gingivalis, Tannerella forsythia, and Treponema denticola promotes persistent inflammation and contributes to the development and progression of periodontal lesions.

Aim of study. To evaluate the role of dysbiotic oral microbiota in periodontal disease pathogenesis in accordance with contemporary concepts of microbial dysbiosis.

Methods and materials. This study integrates data from scientific publications (2015–2025) retrieved from PubMed, ScienceDirect, and Google Scholar databases regarding the role of oral microbiota in periodontal disease. Clinical and experimental studies, narrative and systematic reviews, and relevant meta-analyses addressing microbial dysbiosis, host immune response, and periodontal tissue damage were included. Studies with incomplete data, unclear methodology, or limited relevance to the research objectives were excluded.

Results. The analyzed literature indicates that oral microbiota dysbiosis is influenced by genetic factors (polymorphisms of IL-1 and TLR genes), epigenetic and behavioral factors (poor oral hygiene, smoking, diets rich in refined carbohydrates), as well as systemic diseases such as diabetes mellitus, obesity, and hormonal imbalances. These factors promote activation of innate and adaptive immune responses with increased production of pro-inflammatory mediators including IL-1β, TNF-α, and IL-6, together with activation of NF-κB signaling pathways and the complement system. Bacterial lipopolysaccharides and proteolytic enzymes such as gingipains, hemolysins, collagenases, and trypsin-like proteases compromise the gingival epithelial barrier, increase tissue permeability, and sustain chronic inflammation. Dysbiosis also induces RANKL/OPG imbalance, stimulating osteoclastogenesis and alveolar bone resorption. Furthermore, activation of Th17 lymphocytes and IL-17 secretion enhances neutrophil recruitment and their activation, leading to the release of lysosomal enzymes, reactive oxygen species, and formation of neutrophil extracellular traps which are involved in extracellular matrix degradation and amplification of periodontal tissue damage.

Conclusions. Oral microbiota dysbiosis maintains a pathogenic cycle of inflammation and tissue destruction that plays a central role in the progression of periodontal disease. Understanding these mechanisms may contribute to the development of modern therapeutic strategies targeting both biofilm control and modulation of the host immune response.

Keywords. Oral microbiome, dysbiosis, periodontitis, biofilm, pathogenesis.

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54. FUNCTIONAL DISORDERS IN CHILDREN WITH CLEFT LIP AND PALATE AND THEIR IMPACT ON DENTO-MAXILLARY DEVELOPMENT

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Introduction. Cleft lip and palate are the most common congenital malformations treated surgically and orthodontically. There are numerous surgical protocols, and in the Republic of Moldova, the latest was proposed by Professor I. Lupan, according to which primary upper lip plasty is performed at 3-6 months of age, primary soft palate plasty at 6-12 months, and hard palate plasty at 16-20 months. The results are favorable in terms of dento-cranio-facial development but follow-up examinations have shown disorders in the development of the dento-maxillary system. The sequelae of these pathologies are evident in the postoperative morphology of the palate and in the presence of dental anomalies associated with clefts, including maxillary retrusion, low efficiency of occlusal contacts, dental anomalies in position and number, which together destabilize the functions of the stomatognathic system.

Aim of study. Comparative analysis of dental positions in children with and without unilateral cleft lip and palate.

Methods and materials. A total of 8 dental casts were analyzed, including 4 from healthy children and 4 from children with cleft lip and palate, aged 7-9 years. In total, 182 teeth were analyzed in the 3 planes: sagittal, vertical and horizontal.

Results. In children with cleft lip and palate, 87 teeth were examined of which 19 teeth (22%) from were dystopic: 12 teeth (14%) were rotated in the axis, 6 teeth (7%) were in lingual/palatal displacement and 1 tooth (1%) was ectopic. It was established that 13 teeth were dystopic in the maxilla and 6 teeth in the mandible. In healthy children, 95 teeth were examined of which 16 teeth (16%) were dystopic: 7 teeth (7%) were rotated in the axis, 6 teeth (6%) were in lingual/palatal displacement and 3 teeth (3%) were ectopic. It was noticed that 4 teeth were dystopic in the maxilla and 12 teeth in the mandible.

Conclusions. In children with cleft lip and palate, dental positional anomalies were more prevalent in the upper jaw (13 teeth) than in the lower jaw (6 teeth), while in healthy children a higher prevalence was observed in the lower jaw (12 teeth) compared to the upper jaw (4 teeth). The difference in the number of teeth between the two patient groups, despite being of the same age, can be explained by the delayed, yet physiologically normal dental eruption in children with cleft lip and palate.

Keywords. cleft, dystopia, teeth, plasty.

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55. ANALYSIS OF LEADING INDICATIONS FOR PRIMARY TOOTH EXTRACTION IN PEDIATRIC DENTISTRY

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Introduction. The extraction of deciduous teeth constitutes a common procedure in the scope of pediatric dental practice. Such interventions are primarily indicated to guide the proper eruption of the permanent dentition or to avert complications associated with the underlying pathology that prompted the extraction. In this context, the importance of extracting primary teeth is essential for the maintenance of the child's oral health. Accordingly, a thorough understanding of the factors underlying these procedures is essential, as it aids not only in accurate diagnosis and the effective management or prevention of complications but also in minimizing the necessity for future extractions.

Aim of study. The following study aims to identify the leading indications for primary tooth extraction in pediatric dentistry and to determine the most prevalent indication among them.

Methods and materials. With the objective of addressing the research aim, a literature review was conducted using platforms such as PubMed, Google Scholar, and ResearchGate, analyzing their databases over a period of 10 years. The publications were filtered using the following keywords: "primary teeth," "extraction," and "reasons," and the filter "free full text" was selected. From 279 articles, 11 were selected based on their relevance to this study.

Results. A total of 11 studies were included in this analysis, yielding a combined frequency of 22 reported indications for primary tooth extraction. The most frequently cited causes were dental caries and physiological root resorption, each accounting for 10 mentions, representing 45.5% of the total indications. Trauma was reported less frequently, with one mention, corresponding to 4.5% of the total. A slight difference in the prevalence of the primary indication was observed across the different geographical locations where the studies were conducted. Nonetheless, despite this regional variability, the most frequent reason for extraction of primary teeth remained dental caries, followed closely by physiological root resorption.

Conclusions. This review systematically achieved its aim by identifying that dental caries and physiological root resorption are the predominant indications for the extraction of primary teeth. The fact that caries accounts for nearly half of all reported reasons highlights its central role in dictating extraction outcomes in pediatric dentistry. Ultimately, dental caries remain the most frequent indication guiding the decision to perform primary tooth extractions.

Keywords. Primary teeth, extraction, reasons.

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56. LOCO-REGIONAL ANESTHESIA AS A KEY COMPONENT OF MULTIMODAL ANALGESIA IN ORTHOGNATHIC SURGERY

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Introduction. Orthognathic surgery remains the gold standard for the correction of severe dentofacial deformities and involves extensive osteotomies associated with intense nociceptive stimulation. Despite advances in surgical techniques, perioperative pain continues to represent a major clinical challenge. Persistent activation of peripheral nociceptors may trigger central sensitization, hemodynamic instability and prolonged postoperative discomfort, such as edema and hyperalgesia. Inadequate control of acute postoperative pain has been associated with the development of chronic pain, reported in up to 21% of patients one year after the surgery. Consequently, the integration of loco-regional anesthesia into multimodal analgesic protocols has emerged as a key strategy to optimize perioperative outcomes and enhance postoperative recovery.

Aim of study. To analyze the pharmacological parameters and clinical benefits of loco-regional anesthetics and perineural adjuvants used in multimodal analgesia during orthognathic surgery.

Methods and materials. A structured literature search identified 43 publications from the last decade in PubMed, HINARI, Google Scholar and the Cochrane Library using the keywords “orthognathic surgery”, “loco-regional anesthesia” and “multimodal analgesia”. Titles and abstracts were screened, followed by full-text assessment based on predefined criteria. 27 studies evaluating pharmacological characteristics and clinical analgesic outcomes were included in the final synthesis.

Results. Evidence consistently demonstrates that multimodal analgesic strategies combining general anesthesia with loco-regional anesthesia significantly improve perioperative pain control and reduce postoperative opioid requirements. Long-acting local anesthetics bupivacaine and ropivacaine, and intermediate-acting local anesthetic mepivacaine provide sustained postoperative analgesia when administered via infiltration at the surgical site or trigeminal nerve branch blocks. Pharmacodynamic parameters (pKa, lipid solubility, plasma protein binding) strongly influence the onset and duration of anesthetic action. The addition of perineural adjuvants further enhances analgesic efficacy. Adrenaline prolongs analgesia by approximately 66 minutes through vasoconstriction and delayed systemic absorption. Dexamethasone produces an extension of sensory block duration by 233–488 minutes, prolongs motor block by up to 286 minutes and reduces cumulative opioid consumption by approximately 19 mg during the first 24 hours postoperatively.

Conclusions. Loco-regional anesthesia represents a pivotal component of multimodal analgesia in orthognathic surgery. The rational selection of local anesthetics and adjuvant agents significantly enhances analgesic duration, decreases opioid consumption and contributes to accelerated postoperative recovery.

Keywords. orthognathic surgery, loco-regional anesthesia, multimodal analgesia.

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57. THE IMPACT OF ORTHODONTIC TREATMENT IN PATIENTS WITH UPPER RESPIRATORY TRACT DISORDERS

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Introduction. Orthodontic treatment can significantly influence the structure and function of the upper airway, particularly in patients with conditions such as chronic nasal obstruction, adenoidal hypertrophy, enlarged tonsils, allergic rhinitis, or obstructive sleep apnea. Specific orthodontic interventions, including rapid maxillary expansion and mandibular advancement, may increase airway dimensions and improve airflow. These effects are more pronounced in children, in whom orthodontic modifications support harmonious craniofacial development and the maintenance of airway patency, thereby contributing to the reduction of anatomical obstructions and the optimization of overall ventilatory function.

Aim of study. The aim of this study was to analyze the impact of orthodontic treatment on upper airway structures in patients with respiratory disorders by integrating findings from contemporary literature and clinical observations.

Methods and materials. The study included a review of specialized literature from the last five years along with the clinical evaluation of patients undergoing orthodontic treatment. Clinical assessment consisted of intraoral and extraoral examinations, radiological investigations, and cephalometric analyses to evaluate craniofacial relationships and airway dimensions, comparing measurements before and after treatment.

Results. The analyzed studies indicate that rapid maxillary expansion, skeletal expanders such as MARPE or MSE, and mandibular advancement appliances including Twin Block and Herbst are commonly used to improve airway function. Rapid maxillary expansion increases the width of the maxilla and nasal cavity, reducing airflow resistance and improving nasal breathing. Mandibular advancement appliances enlarge the oropharyngeal airway space by repositioning the mandible forward, which may reduce the apnea–hypopnea index and improve oxygen saturation. These therapeutic effects are more pronounced when treatment is performed during the growth period and when orthodontic therapy is individualized according to the patient's skeletal and functional characteristics.

Conclusions. Orthodontic treatment plays a key role in managing patients with upper airway disorders. Beyond correcting malocclusions, it can improve airway patency, respiratory function, and craniofacial balance. Procedures like rapid maxillary expansion and mandibular advancement, when applied during growth and tailored to the individual, may help prevent airway obstruction and support long-term functional and aesthetic outcomes.

Keywords. upper airway, rapid maxillary expansion, mandibular advancement, obstructive sleep apnea.

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58. MORPHOFUNCTIONAL RESTORATION OF LATERAL TEETH USING COMPOSITE MATERIALS

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Introduction. The morpho-functional restoration of the lateral group of teeth, including premolars and molars affected by carious lesions or dental wear, is essential for restoring anatomical form, masticatory function, and aesthetics of dental hard tissues. Modern composite resin materials have become increasingly popular as conservative restorative options, offering both aesthetic and functional outcomes while respecting minimally invasive principles and ensuring good integration with dental structures.

Aim of study. To restore occlusal and proximal contacts of the lateral group of teeth using composite materials, ensuring proper masticatory function and protection of the remaining healthy dental tissues.

Material and methods. The study was conducted at the Department of Dentistry and Periodontology "*Sofia Sîrbu*" of the *Nicolae Testemitanu* State University of Medicine and Pharmacy and included 20 patients (13 females and 7 males) aged between 25 and 40 years, presenting coronal dental lesions. All patients underwent clinical and paraclinical examination, followed by treatment using composite materials, in accordance with the principles of dental hard tissue preparation and standard restorative protocols.

Results. Of the 20 patients, 90% reported satisfaction with the final aesthetic outcome. The composite material used (Estelite Universal) demonstrated good adhesion to dental hard tissues, stability in the oral environment, adequate compressive strength, moderate elasticity, translucency similar to dental enamel, and color matching natural teeth.

Conclusions. Composite restorations performed according to clinical protocols allow the restoration of morphology and function of lateral teeth, maintaining proper occlusion and preventing dental complications.

Keywords: composite materials, dental restoration, lateral teeth, masticatory function

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59. THE IMPACT OF SCAN BODIES CHARACTERISTICS ON THE ACCURACY OF DIGITAL IMPLANT IMPRESSIONS

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Introduction. The evolution of digital technologies in prosthodontics has changed the way of impression taking. In the field of implant dentistry, the transfer of the implant position to the software can be done by the use of scan bodies. These are temporary connections to the implants that are used as reference points to identify the position and angulation of implants. The accuracy of the digital impression in case of implants can be affected by different factors, such as the design of the scan bodies, materials used, height of the scan bodies, their orientation, as well as the intraoral scanner.

Aim of study. To determine the effect of scanbodies characteristics on the accuracy and reliability of digital impression of the arches with implants.

Methods and materials. The analysis and comparison of scientific articles from PubMed, ResearchGate, Medline, and ScienceDirect, published between 2015 and 2026.

Results. The characteristics of scan bodies have an effect on the accuracy of intraoral scanning for dental implants. The geometry and design of the scanbody are important in improving the recognition of the reference surfaces by the software, thus improving the accuracy of the digital model by reducing deviations. In full-arch implant rehabilitation when it is used a scanner without the photogrammetry function and simple scan bodies can appear cumulative errors because of the loss of reference points. The material, which is scanbody made of, plays an important role. Scan bodies made of polymer (PEEK) are more accurate in comparison with titan because of their matte surface that reduces optical reflection of light therefore improves their capture by the scanner. In scanning of edentulous arch with implants the best results and high accuracy have shown scanners with the technology of photogrammetry. There are specialized scan bodies used which have white dots - markers on their surface which are captured by scanner's cameras to determine their exact spatial position.

Conclusions. Scan bodies are a key component of the intraoral scanning in cases with implants. The design of scanbody and the materials which it is made of significantly contribute to the accuracy of the transfer of implant position. The introduction of the photogrammetry technology with special scan bodies in intraoral scanning improved the way of digital impression taking in case of full-arch rehabilitations.

Keywords. Scanbody, Photogrammetry, Implants, Digital impression, Accuracy.

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60. PERCEPTION OF DENTOFACIAL ESTHETICS THROUGH SMILE EVALUATION

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Introduction. In modern orthodontics, treatment objectives are not limited to achieving functional occlusion but also include improving dentofacial esthetics. The smile is one of the most important facial expressions and strongly influences social perception and facial attractiveness. Dentofacial esthetics result from the harmonious relationship between teeth, gingiva, lips, and facial structures. Smile evaluation allows the orthodontist to analyze this relationship and identify factors that may influence esthetic balance. Commonly analyzed parameters include dental alignment, color, proportions and shape of the anterior teeth, lip position, and the level of gingival display during smiling. Today, smile analysis is considered an important part of orthodontic diagnosis because it provides essential information for treatment planning and achieving harmonious esthetic outcomes.

Aim of study. This study aims to highlight the role of smile evaluation in the assessment of dentofacial esthetics and its importance in orthodontic treatment planning.

Methods and materials. For this study, literature from textbooks and scientific databases such as PubMed, NCBI, NIH Gov, and ScienceDirect was analyzed. The keywords used in the search were: dentofacial esthetics, smile analysis, smile esthetics, orthodontic photography, and orthodontic diagnosis.

Results. The analysis of studies from the scientific literature shows that the perception of dentofacial esthetics is influenced by several smile parameters, including the alignment and proportions of anterior teeth, dental symmetry, and the relationship between teeth and lips. An important factor is the smile arc, which describes the relationship between the incisal edge of maxillary incisors and the curvature of the lower lip. A consonant smile arc is often associated with a smile perceived as harmonious and esthetic. Gingival display while smiling also influences esthetic perception. Moderate gingival display is considered normal, whereas excessive exposure may affect the esthetic balance of the smile. Standardized clinical photography plays an important role in evaluating these parameters, allowing analysis of facial proportions, lip position, and dental exposure. Photographs are also useful for case documentation and assessing the results of orthodontic treatment.

Conclusions. Smile evaluation is an essential step in the analysis of dentofacial esthetics. Its integration into orthodontic diagnosis allows the development of more precise and individualized treatment plans. Thus, orthodontic treatment contributes not only to the correction of functional problems but also to improved facial harmony and smile esthetics.

Keywords. Orthodontics, dentofacial esthetics, smile analysis, orthodontic photography, esthetic perception.

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61. ODONTOMA – CLINICAL, IMAGING AND HISTOPATHOLOGICAL CORRELATIONS AND THERAPEUTIC IMPLICATIONS.

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Introduction. The most common mixed odontogenic tumor is the odontoma. It is described as a benign tumor that occurs in children, most frequently in the maxilla, resulting from the abnormal proliferation of epithelial and connective tissue elements involved in odontogenesis. There are two types of odontoma: complex and compound. The complex odontoma is located in the mandible, at the level of the premolars and molars, and consists of masses of dentin, enamel, and cementum arranged in a disorganized manner within connective tissue. The compound odontoma occurs more frequently in the maxilla, in the incisor-canine region, and is composed of mature dental structures organized as small teeth or dental fragments separated by connective tissue, with the number ranging from 3–4 to several hundred. Odontomas grow slowly but can cause jaw deformation, disruption of dentition, and dental impactions.

Case presentation. A 15-year-old female patient presented to the SRL "OMNI DENT" clinic with complaints of the presence of a painless intraoral swelling in the right mandibular region, associated with delayed eruption of the permanent tooth 44. Following clinical and paraclinical examinations, as well as radiological investigations using OPG and CBCT, the diagnosis of complex odontoma in the right mandible with impaction of tooth 44 was established. Topographic changes of the vestibular cortical plate caused by the chronic mechanical pressure exerted by the benign odontogenic formation were identified, characterized by local bone expansion and thinning of the vestibular cortex.

Discussions. The complex mandibular odontoma on the right side, associated with impaction of tooth 44, caused local topographic changes and displacement of adjacent structures. Treatment consisted of complete excision of the odontoma and odontectomy of tooth 44, preventing complications such as cyst formation, infection, or damage to neighboring teeth. The bone defect was reconstructed using the synthetic biomaterial "Colapol KP-3 LM", promoting osteoconduction and bone regeneration, allowing the subsequent continuation of orthodontic, prosthetic, or implantological treatment.

Conclusions. Mandibular complex odontoma may cause dental impactions and local topographic changes, requiring surgical treatment. Complete excision of the lesion, associated with odontectomy and reconstruction of the bone defect using a synthetic biomaterial, ensures a favorable postoperative outcome and good bone regeneration.

Keywords. Odontoma, Complex Odontoma, Compound Odontoma, Mandible, Maxilla, Tooth Eruption.

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62. EVALUATION OF SELF-REPORTED BRUXISM IN PATIENTS WITH TEMPOROMANDIBULAR DYSFUNCTION

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Introduction. Bruxism is a parafunctional activity often discussed in relation to temporomandibular disorders because of its potential role in painful and dysfunctional symptoms. In this context, self-report instruments are useful for screening and initial characterization of patients with suspected TMD, offering relevant data on bruxism-related symptoms in subjects with and without temporomandibular pathology.

Aim of study. Investigating the frequency of symptoms associated with bruxism in patients with temporomandibular disorders.

Methods and materials. There were investigated 30 consecutive dental patients (age range – 21-53 years, mean age – 28.3±8.52 years), of which 11 were men (26.5±2.42) and 19 were women (29.4±10.5), with no statistically significant differences by age ($p = 0.260$). To determine the presence of TMD, the TMD-Pain Screener instrument was applied. For self-reporting of bruxism symptoms, the dedicated questionnaire proposed by Gulzar et al. (2024) was applied, consisting of 6 items, which dichotomously assess the presence/absence of symptoms associated with bruxism. The statistical evaluation was performed in R-Studio.

Results. Of the total number of patients, 15 subjects had TMD according to the TMD-Pain Screener, and 15 did not meet the TMD screening criteria. The presence of the pathology was subsequently confirmed by applying the DC/TMD protocol. In addition, after applying the self-report instrument for bruxism, the following frequencies were observed at group level for the Gulzar questionnaire: Item 6 ”Awake clenching awareness” (46.66%, n = 14) > Item 5 ”Awake grinding awareness” (40%, n = 12) > Item 2 ”Jaw fatigue on awakening” (36.66%, n = 11) > Item 1 ”Grinding during night” (23.33%, n = 7) > Item 4 ”Temporal headaches on awakening” and Item 3 ”Sore teeth/gum on awakening” (20% each, n = 6). In the group of patients without suspected TMD, the frequency of symptoms was lower for all items, with statistical significance ($p < 0.05$). An association was observed between the categories of patients according to the Gulzar questionnaire (bruxers/non-bruxers) and the TMD-Pain Screener results (patients with/without suspected TMD) ($p < 0.001$).

Conclusions. Self-reported symptoms of bruxism were significantly more frequent in patients with a positive TMD screening, with daytime manifestations of awake clenching and awake grinding predominating. The significant association between the Gulzar questionnaire and the TMD-Pain Screener supports the utility of standardized assessment of self-reported bruxism in the initial assessment of patients with temporomandibular disorder symptoms.

Keywords. temporomandibular disorders, bruxism, screening, stomatognathic system.

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63. THE IMPORTANCE OF RADIOLOGY IN THE DIAGNOSIS OF DEVELOPMENTAL DENTAL ANOMALIES

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Introduction. Dental anomalies are a current issue of huge relevance since there seems to be an increase in the percentage of population diagnosed with such medical conditions over the past decades. An accurate diagnosis cannot be made based solely on a clinical exam as it doesn't offer the required information that allows further medical involvement. Therefore, radiological examination becomes compulsory both in the process of making a precise diagnosis and while planning the following treatment. Using contemporary radiological techniques enables clinicians to observe aspects unseen by the naked eye. Such anomalies as impacted teeth, dental ankylosis, dens in dente, roots' concrescences or dilacerations serve as a few examples from the substantial range of possible abnormalities that can only be assessed using medical imaging techniques.

Aim of study. Highlighting the importance of radiology when it comes to identifying developmental dental anomalies in their early stages and correctly evaluating them in order to establish an appropriate treatment plan.

Methods and materials. The study involved analysis of relevant scientific articles found on medical websites, including PubMed and MedlinePlus, as well as evaluation of multiple panoramic, periapical, bite-wing radiographies and CBCT exams of various patients.

Results. Each method has its own advantages and particularities, but it remains undeniable that all are crucial when it comes to detecting dental anomalies. It is frequently reported that panoramic radiography is the first-line imaging modality preferred by clinicians. The simple explanation is that it allows the simultaneous examination of both jaws, along with the evaluation of any radiographic landmarks that might be relevant to a particular case. When it comes to local details that need to be studied in high resolution, usually related to the morphology of the root, as in the case of fusion and dilaceration – the periapical imaging serves as the method of choice. CBCT is rarely used but is of uttermost importance when the usual bidimensional radiographies are not presenting enough detail. This tomographic technique becomes a lifesaver when in need of complex 3D images. It is used when dealing with instances where the exact position of a tooth in relation to the mandibular canal or maxillary sinus must be determined as it may complicate interventions and cause undesirable outcomes if ignored.

Conclusions. Imaging techniques in dentistry constitute key-elements in managing dental anomalies, making the diagnosis more precise and helping doctors detect abnormalities at an early stage, allowing them to plan optimal treatment steps.

Keywords. Dental Anomalies, Radiology, Imaging Techniques.

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64. INTEGRATION OF ARTIFICIAL INTELLIGENCE IN ORTHODONTICS: CURRENT RESULTS AND PERSPECTIVES

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Introduction. Over the last decade, artificial intelligence (AI) has developed increasingly, with its use spreading to the medical field, including dentistry. Currently, there are even AI and machine learning–enabled medical devices that have been approved by the FDA. In orthodontics, an accurate diagnosis and an individualized treatment plan are essential. Therefore, AI provides the necessary tools that assist the specialists.

Aim of study. To analyze and highlight the contribution of AI in orthodontics through an evaluation of its clinical advantages, methodological approaches and reported outcomes presented in the specialized literature.

Methods and materials. To carry out this review, 17 articles were selected through scientific databases: PubMed, Research Gate, Science Direct, and subsequently analyzed.

Results. Current evidence indicates that AI can increase the accuracy of orthodontic diagnosis and reduce the time required for traditional analyses. Deep learning models have demonstrated comparable, sometimes superior, accuracy to experts in identifying cephalometric landmarks. Moreover, based on clinical and paraclinical examination data, AI can indicate the need for certain interventions, such as tooth extractions or orthognathic surgery. Additionally, AI-based software can simulate tooth movement, facial and skeletal changes, and treatment outcomes. This enables clinicians to adjust the treatment plan to each patient's needs and supports more effective communication with the patient. As a result, the patient's level of motivation and adherence to the treatment increase. Despite its potential, the applicability of AI in the medical field is limited by factors such as: lack of data standardization, algorithmic bias, difficulty in explaining how the algorithm reaches a result alongside ethical, safety and privacy concerns.

Conclusions. AI represents a promising direction for orthodontics, bringing benefits in terms of efficiency, accuracy and personalization of the treatment plan. However, widespread use requires algorithm enhancement, standardization, additional clinical validation and training specialists on how to interpret the results. It is also important to note that AI is just a tool that aids medical specialists, it is not intended to replace them. In conclusion, the integration of artificial intelligence into medicine is a complex process that comes with many opportunities, but also many challenges. Taking all these into consideration, this topic remains open for debate and further research.

Keywords. Artificial intelligence, orthodontics, digital diagnosis.

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65. ERRORS IN RADIOLOGICAL DIAGNOSIS OF DENTAL CARIES

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Introduction. Radiological examination represents one of the fundamental sources in the diagnosis of dental caries, including proximal, occlusal and secondary lesions, complementing clinical examination by detecting lesions that are difficult to access. With technological progress, bitewing and periapical imaging analysis has also advanced, however, it still presents a high probability of false-positive or false-negative errors, especially in the early stages of dental caries. Image clarity and quality, exposure characteristics, projection geometry, anatomical structures, and the clinician's experience are all correlated with establishing a correct and reliable diagnosis.

Aim of study. For the investigation of the most frequent radiological errors in the diagnosis of dental caries and to assess their impact on the final diagnosis and treatment plan.

Methods and materials. A descriptive review of peer-reviewed scientific papers, systematic reviews, and professional guidelines was performed using the PubMed and Cochrane Library databases. Studies focusing on diagnostic performance, imaging artifacts, and inter-observer variability were identified and critically appraised in terms of methodological soundness and clinical relevance.

Results. False-negative errors include small proximal lesions, superimposition of anatomical structures, and caries beneath existing restorations. Common false-positive interpretations include cervical burnout, the Mach band effect, overlapping proximal contacts, and restoration margins that can mimic various defects. Incorrect angulation, inadequate exposure, motion artifacts, and low contrast significantly impair the visibility of lesions. The examiner's experience, calibration, and fatigue also contribute to variability and inconsistent reporting among clinicians and across institutions.

Conclusions. Radiographic assessment remains essential but should always be integrated with a comprehensive clinical examination and carries risk evaluation. Standardized imaging protocols, recognition of artifacts, and ongoing professional training help minimize diagnostic mistakes. When doubt persists, short-term follow-up, alternative imaging techniques or supplementary diagnostic methods are recommended to enhance treatment planning and patient outcomes.

Keywords. Dental caries, Radiological diagnosis, Radiographic errors, False-positive results, False-negative results.

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66. CLINICAL EVALUATION OF POSTERIOR COMPOSITE RESTORATIONS USING INCREMENTAL LAYERING AND BULK-FILL TECHNIQUES

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Introduction. Direct composite restorations in posterior teeth are widely used in restorative dentistry to restore the functional and morphological integrity of dental tissues affected by various lesions. Continuous improvements in adhesive systems and composite materials have significantly enhanced the durability, aesthetics and clinical performance of direct restorations. However, polymerization shrinkage and marginal adaptation remain important challenges in restorative procedures. The incremental layering technique has traditionally been recommended because it allows better control of polymerization stress and more accurate anatomical reconstruction. In contrast, bulk-fill composite materials were developed to simplify the restorative protocol, allowing placement in thicker increments and reducing clinical working time.

Aim of study. To compare the clinical performance of direct posterior restorations placed using incremental layering and bulk-fill techniques according to FDI clinical evaluation criteria.

Methods and materials. A prospective clinical study was conducted on 30 patients aged 21–35 years presenting medium and deep chronic carious lesions in premolars and molars. Thirty restorations were placed and divided into two groups: Group A (n=15) – restorations placed using the incremental layering technique with nanohybrid composite; Group B (n=15) – restorations placed using bulk-fill composite materials. Clinical evaluation was performed according to FDI criteria, assessing marginal adaptation, anatomical form, proximal contact and postoperative sensitivity.

Results. Most restorations (n=28) in both groups achieved FDI scores of 1 or 2, indicating very good clinical performance and satisfactory functional integration of the restorations. Restorations placed using the incremental layering technique demonstrated better marginal adaptation and more accurate anatomical morphology. Bulk-fill restorations showed comparable clinical outcomes overall, with minor variations observed in marginal adaptation in a limited number of cases. No cases of secondary caries or persistent postoperative sensitivity were recorded during the evaluation period.

Conclusions. Both restorative techniques demonstrated favorable short-term clinical outcomes. The incremental layering technique provides improved control of anatomical reconstruction and marginal integrity, whereas bulk-fill composite materials reduce operative time and simplify the clinical procedure without significantly compromising restorative performance.

Keywords. direct composite restorations, bulk-fill composite, incremental layering technique, posterior teeth, FDI criteria.

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67. COMPLETE DENTURE STABILITY IN SEVERE ALVEOLAR RIDGE ATROPHY - A CLINICO-TECHNICAL APPROACH FOR FUNCTIONAL REHABILITATION

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Introduction. Severe residual ridge atrophy is one of the most challenging conditions in complete denture prosthodontics because loss of supporting tissues reduces retention and stability and increases dependence on muscular balance and precise clinico-technical execution. In these patients, therapeutic success depends not only on the denture-bearing area, but also on the integration of impression, neutral-zone, and occlusal concepts.

Case presentation. The submitted clinical material illustrates the rehabilitation of a completely edentulous patient with advanced ridge atrophy, particularly in the mandible, associated with limited prosthetic support and a high risk of denture instability. The treatment protocol combined functional impression procedures with careful registration of maxillomandibular relations and contouring of the denture within a functional neutral zone. The prostheses were designed to compensate for reduced anatomical support by optimizing flange extension, polished-surface morphology, and tooth arrangement in harmony with the action of the tongue, lips, and cheeks. A bilateral balanced occlusal scheme was established to reduce destabilizing contacts during function. The final clinical result showed satisfactory prosthesis integration, improved stability and retention, and favorable esthetic rehabilitation.

Discussions. This case highlights that, in severe atrophy, denture stability cannot rely exclusively on the residual ridge. The clinical sequence underlines the importance of accurate functional impressions and of shaping the polished surfaces so that muscular forces act as stabilizing rather than displacing factors. The laboratory phase is equally decisive, because faithful transfer of the functional impression and correct tooth arrangement preserve the therapeutic design. The case supports the value of combining classical complete denture principles with individualized clinico-technical adjustments in anatomically compromised patients.

Conclusions. Functional rehabilitation with complete dentures remains feasible in severe ridge atrophy when treatment follows a coordinated clinico-technical protocol. Functional impressions, neutral-zone guided denture design, and bilateral balanced occlusion are key elements for improving stability. The final outcome depends on patient adaptation, technical accuracy, and the clinician's ability to integrate anatomical, physical, and physiological principles into treatment.

Keywords. complete denture, severe ridge atrophy, denture stability, neutral zone, functional impression.

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68. PSYCHO-EMOTIONAL DISTRESS ACROSS CLINICAL SUBTYPES OF MASTICATORY MUSCLE DISORDERS

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Introduction. Masticatory muscle disorders is a multifactorial condition in which biomechanical disturbances interact with psycho-emotional determinants. Beyond pain localization and functional impairment, patients may present different psychological profiles that influence symptom persistence, clinical expression, and stress adaptation. Identifying these particularities across disease subtypes may improve diagnostic stratification and help conduct a more individualized therapeutic approach.

Aim of study. Evaluation of the relationships between psycho-emotional parameters and clinical subtypes of masticatory muscle disorders, defined according to pain extent, disease phase, and clinical form.

Methods and materials. Fifty-five patients were examined using the Diagnostic Criteria for Temporomandibular Disorders (DC/TMD). Clinical characterization was performed according to Axis I, while psycho-emotional assessment included Axis II instruments for depression (PHQ-9) and anxiety (GAD-7), complemented by Trauma History Screen (THS) and Kessler-K10 questionnaires. Operational stress was experimentally modeled. Statistical analysis included Pearson correlation, Welch's t test, and Fisher's exact test for subgroup distributions.

Results. Higher anxiety and depression scores were identified in patients with pain extending to extra-stomatognathic sites compared with those with more limited pain distribution ($p<0.001$). Patients in the chronic phase also showed significantly higher Axis II values than those in the acute phase ($p=0.020$), indicating a greater psycho-emotional burden in prolonged forms of the disorder. In contrast, no statistically significant differences were observed for indices of previous stressful events or for the intensity of experimentally modeled operational stress ($p>0.05$). The mean stress-tolerance value was significantly higher in the acute group than in the chronic group ($p=0.01$). Across clinical forms, differences did not reach statistical significance ($p>0.05$), although distinct distribution tendencies were observed for low and high anxiety/depression levels in non-fibromyalgia versus fibromyalginess, acute versus chronic, and myogenous versus myogenous-arthrogenous subgroups.

Conclusions. Clinical subtypes of masticatory muscle disorders are associated with distinct psycho-emotional profiles, particularly regarding anxiety, depression, and stress tolerance. Even where statistical significance was not reached across all clinical subtypes, the observed trends support the relevance of psycho-emotional assessment in the expression of this disorder. Integrating such evaluation into routine diagnostic work-up may improve patient stratification and contribute to more comprehensive management.

Keywords. masticatory muscle disorders, temporomandibular disorders, psycho-emotional distress, anxiety, depression.

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69. DIAGNOSIS AND ORTHODONTIC MANAGEMENT OF IMPACTED MAXILLARY CANINES

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Introduction. Maxillary canines are the most frequently impacted teeth after third molars, making early diagnosis and preventative measures highly important. The impaction of canines is a common clinical challenge that often requires a multidisciplinary approach for successful treatment. Accurate diagnosis and treatment planning should be performed through a thorough clinical examination and radiographic imaging. This abstract presents a clinical case demonstrating the diagnosis and treatment planning for a patient with impacted canines.

Case presentation. A 13-year-old female patient presented with Class II/1 Angle malocclusion associated with primary anodontia of maxillary central incisor (21) and bilateral palatal impaction of maxillary canines (13, 23). In addition to the clinical examination, paraclinical investigations were conducted, namely CBCT analysis, cephalometry, anthropometric model analysis and analysis of photographic records. Differential diagnosis excluded syndromic conditions. Paraclinical investigation revealed transversal maxillary constriction with 7 mm, that indicates deficit of space and need of maxillary expansion. Cephalometric analysis indicates SNA angle of 82°, SNB - 79°.

Discussions. Based on the clinical and paraclinical findings, a multi-stage treatment plan was developed. The first stage involved maxillary expansion with a Hyrax fixed appliance to obtain necessary space. The second stage consisted of bonding a fixed orthodontic bracket system to align the dental arches and strategically manage the space required for the missing incisor and the impacted canines. The third stage included the surgical exposure of teeth 13 and 23, followed by orthodontic traction and successful alignment into the dental arch. During the orthodontic treatment it will be necessary to maintain space for future implant insertion in the region of 21 when the patient comes of age. Orthodontic treatment will follow double retention using both fixed and removable retainers simultaneously to maximize stability and prevent relapse.

Conclusions. The management of bilateral impacted canines requires structured treatment protocol. This approach underscores the necessity of personalized multidisciplinary planning to overcome the challenges of severe dental anomalies. The clinical case demonstrates that a comprehensive treatment plan, guided by 3D imaging and detailed anthropometric analysis, is essential for achieving functional alignment and aesthetic stability in patients with complex tooth impactions and congenital missing teeth.

Keywords. Orthodontic treatment, Canine impaction, Primary anodontia.

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70. SURGICAL EXPOSURE OF PALATALLY IMPACTED CANINES. CASE REPORT.

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Introduction. Maxillary canine impaction is a frequently encountered clinical challenge, ranking second in prevalence to third molars, and affecting approximately 2-3% of the population. This eruption disturbance shows a clear female predominance, with a 2:1 female to male ratio and a predilection for unilateral occurrence. Etiology is considered multifactorial, such as arch length deficiencies, prolonged retention of primary canines, and genetic susceptibility. Due to the canine's essential role in dental arch integrity, occlusion and esthetics, its preservation through a combined surgical-orthodontic approach is the main objective. Surgical exposure constitutes the cornerstone in the management of palatally impacted maxillary canines, establishing the necessary conditions for guided eruption. Successful management aims not only for functional alignment, but also for the long-term preservation of the surrounding tissues, while minimizing operative morbidity.

Case presentation. A 25 year-old female patient presented to the oral and maxillofacial surgery Department, Dental Clinic No. 2, Chisinau, with complaints of delayed eruption of the maxillary canine and associated esthetic concerns. No significant medical history was reported. Extra-oral examination showed a mild facial asymmetry on the right side, without signs of swelling or lymphadenopathy. Intra-oral examination revealed the absence of teeth 1.2 and 1.3 and a bony prominence in the projection of the lateral incisor root. Radiographic assessment confirmed a palatally impacted canine. Surgical exposure of the impacted canine was performed via a palatal approach using a semilunar mucoperiosteal incision under local infiltrative anesthesia. Orthodontic traction was initiated. The postoperative period was uneventful, and periodic follow-up was scheduled to monitor eruption progress and periodontal healing.

Discussions. This case underscores surgical necessity for palatally impacted canines, with literature confirming a 6-8 month reduction in overall orthodontic treatment following early intervention. An interdisciplinary approach facilitates controlled eruption and proper tooth adjustment, reducing the risk of complications reported in up to 12% of untreated cases.

Conclusions. Surgical exposure of palatally impacted canines, combined with coordinated orthodontic care and close follow-up, allows for predictable eruption and ensures future functional and esthetic alignment.

Keywords. Impacted canine; surgical exposure; palatal impaction; interdisciplinary approach.

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71. DETECTION OF ORAL POTENTIALLY MALIGNANT DISORDERS USING TOLUIDINE BLUE STAINING

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Introduction. Oral cancer represents one of the most important public health challenges worldwide. According to WHO in 2020 there were 377000 new cases of oral and oropharyngeal cancers, out of which 177000 patients died of such diagnoses. The prognosis of these cases depends on the stage of detection, the rate of survival after 5 years in stages III-IV represents 50-60%, whereas in early stages I-II, the rate rises to 80-90%. Oral potentially malignant disorders (OPMD) are a group of clinical conditions with a high risk of transformation to oral squamous cell carcinoma. Given that most cases of oral cancer don't appear spontaneously but evolve from oral potentially malignant disorders, early detection of such entities opens an essential window of opportunity for early intervention and a decrease in the mortality of the disease. In recent years, research shows a development of adjuvant methods of diagnosis which can contribute to early detection of OPMD, such as toluidine blue staining. These methods help guide oral surgeons for selecting the optimal site for biopsy and excision of the lesion.

Aim of study. To analyze international literature and resources from *Arsenie Gutan* Department of OMF Surgery to determine the reliability of toluidine blue staining in early detection of OPMD.

Methods and materials. The following search engines were used for this study: PubMed, Web of Science, Google Scholar, as well as documented clinical cases of the *Arsenie Gutan* Department of OMF Surgery. The keywords entered were oral potentially malignant disorders, toluidine blue, oral cancer. Out of the 997 articles shown and the 25 documented local cases, 10 clinical cases were chosen for this study, cases that included full presentation, diagnoses classified according to WHO classification of OPMD as well as histopathological examination results. The study included 10 patients (7 male and 3 female), ages 18-73 years old, who had presented with suspect oral lesions.

Results. The diagnosis of these patients was made by using toluidine blue staining, followed by excision biopsy and histopathological analysis. Following histopathological results, 2 cases showed inflammatory hyperplasia and 8 cases revealed either low-grade or high-grade dysplasia.

Conclusions. Following a thorough analysis of the literature and clinical cases, it was revealed that adjuvant methods of diagnosis, such as toluidine blue staining, have a tremendous use in clinical practice in helping surgeons delimitate the areas of interest in suspicious lesions of the mouth, providing guidance for biopsy and preventive diagnosis. However, the ultimate say in diagnosis is reserved for histopathological analysis, as it remains the gold standard in diagnosis of OPMD and oral cancer respectively.

Keywords. Toluidine blue, Oral potentially malignant disorders, Oral cancer.

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72. EVALUATION OF SAGITTAL CONDYLAR POSITION IN PATIENTS WITH TEMPOROMANDIBULAR DISORDERS

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Introduction. Temporomandibular disorders (TMDs) are the main cause of non-dental orofacial pain and have major clinical relevance due to pain, dysfunction, and joint noises that reduce quality of life. Their high prevalence, especially in women, makes them an important public health issue. Although DC/TMD has standardized diagnosis, TMD etiology remains complex and requires integrated evaluation. Helkimo indices, correlated with CBCT analysis of joint spaces, may help clarify the clinical significance of sagittal condylar position and its relation to symptoms.

Aim of study. Evaluation of the sagittal position of the mandibular condyle in patients with temporomandibular disorders depending on TMD clinical severity and TMD subtype.

Methods and materials. In our study, 50 consecutive patients diagnosed with TMD were clinically evaluated according to the DC/TMD protocol, being classified into myogenous-arthrogenous (MA) and degenerative (DEG) forms. Clinical severity was quantified by Helkimo indices, with calculation of Mandibular Mobility index (MMI) and Di (severity). Condylar position was assessed by CBCT imaging, measuring the anterior (AJS), superior (SJS) and posterior (PJS) joint spaces. The sagittal position index (SCP) was calculated by the Pullinger–Hollender formula: SCP = (PJS - AJS) / (PJS + AJS) × 100, defining the centric (±12%), posterior (< -12%) or anterior (> +12%) positions. Statistical processing was conducted in R-Studio.

Results. In the group of 50 patients with TMD, women (72%) and young adults (21–30 years) predominated, with no significant age differences between the sexes. The degenerative and myogenous-arthrogenous forms were evenly distributed (50% each), with a female predominance in both subgroups. Mandibular mobility assessment (MMI) revealed the most frequent impairment at mouth opening, while laterotrusion and protrusion were less compromised. The Helkimo index showed severe clinical dysfunction, dominated by muscle and joint pain. Imaging analysis of the sagittal position of the condyle revealed the predominance of the anterior position bilaterally: 52% right, 46% left; followed by the concentric position at 34% right, 38% left, and lastly, the posterior position at 14% on right and 16% on the left. The results suggest a tendency of association of the anteriorization of the right condyle with increased severity of TMD. Differences between genders and between clinical forms were minimal and statistically insignificant.

Conclusions. In patients examined with temporomandibular disorders, several potential associations were found between clinical severity and sagittal condyle position. Application of the Pullinger–Hollender index on CBCT allowed the objectification of sagittal positions, providing a solid basis for accurate diagnosis and integrated treatment planning.

Keywords. temporomandibular disorders, CBCT, mandibular condyle, sagittal condyle position. **https://doi.org/10.66603/medespera2026.150**

73. EVALUATION OF MASTICATORY PERFORMANCE IN ADULTS WITH TOOTH WEAR

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Introduction. Tooth wear is an increasingly common clinical problem (estimated to affect 2/3 of adults), with implications not only structural and aesthetic, but also functional. Over time, multiple evaluation methods for masticatory performance have been proposed, but these have demonstrated contradictory results and limited clinical applicability. At the same time, protocols that allow the simultaneous assessment of subjective and objective aspects of mastication are not sufficiently developed. Recently, a rapid clinical test based on the ability to mix two different colored chewing gum specimens has been proposed, which has been evaluated in patients with edentulism and temporomandibular dysfunction, but has not been sufficiently studied in the context of tooth wear.

Aim of study. Evaluation of subjective and objective aspects in assessing masticatory efficiency in patients with tooth wear.

Methods and materials. 60 patients (mean age 30.83±7.92 years) were enrolled, who consecutively addressed the university clinic "Fala Dental" with dental wear. The evaluation of masticatory performance was performed by the colorimetric technique based on 2 bicolor specimens (two-color chewing gum test) for 20 chewing cycles, the result being interpreted based on the clinical scale on 5 levels of masticatory efficiency. The patient self-assessed his masticatory efficiency on a VAS scale (0-10 mm) and completed the JFLS-8 (Jaw Functional Limitation Scale) questionnaire. Statistical processing was performed in SPSS v. 27.

Results. Depending on the score on the SA scale, the following levels of masticatory efficiency were observed: average - SA3 (48.3%, n = 29) > good - SA4 (46.7%, n = 28) > poor (5%, n = 3). The mean total JFLS-8 score at group level (1.50±1.71), with the highest functional limitation score observed in the SA2 group – 3.12±0.13). The self-assessment of masticatory efficiency on the VAS scale revealed a mean score at group level of 6.62±1.60 points, with the lowest mean score in the SA2 group – 5.0. A weak but statistically significant correlation was observed between the SA clinical score and the patient's self-assessment of masticatory efficiency on the VAS ($r = 0.314$, $p = 0.015$). No statistically significant correlations were observed between the JFLS-8 score and SA/VAS ($r = -0.102$, $p = 0.437$; respectively $r = 0.012$, $p = 0.930$).

Conclusions. The study reveals that the use of the colorimetric technique is clinically useful, allowing rapid sorting of patients into different masticatory efficiency groups. The test correlates with the patient's self-assessment of his masticatory function. The lack of correlations with the JFLS-8 would indicate that the process of awareness and installation of functional limitations is complex, with slow evolution and it is not fully understood how the adaptation mechanisms influence this process.

Keywords. dental wear, masticatory performance, functional limitation.
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74. THE PROGNOSIS OF DENTAL CARIES IN CHILDREN WITH RHEUMATIC DISEASES

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Introduction. Dental caries (DC) represents a persistent source of local inflammation and transient bacteremia, which contribute to the activation and amplification of the systemic immune response involved in the progression of rheumatic diseases (RD) in children. In this context, early detection and prognosis of DC are essential for preventing complications and improving children's quality of life.

Aim of study. Assessment of caries risk (CR) and prognosis of DC in children with RD.

Methods and materials. A case-control study was conducted on a sample of 82 children with a mean age 12.73 ± 2.14 years, divided into 2 comparable groups. The research group (L1) consisted of 41 children with RD. The control group (L0) included 41 healthy children. The DC prevalence index (PI) and caries experience (DMFT) were assessed based on the results of the clinical examination and analyzed using Cariogram Software. The study followed ethical principles, and informed consent was obtained from the parents of the participating children. The statistical analysis was performed using Epi Info 7.0.

Results. The analysis of the study results showed that in children with RD (L1), PI was significantly higher compared to the control group L0 (85.37% vs. 60.98%; p=0.013), with an absolute difference of 24.39%. A relative risk of 1.40 and an odds ratio of approximately 3.1 were estimated, indicating a significantly increased probability of PI in the L1. The mean DMFT score was significantly higher in L1 compared to L0 (4.51 ±1.22 vs. 2.26 ±1.22; p<0.001). The mean difference between groups was 2.25 (95% CI:1.71–2.79), with a very large effect size (Cohen's d=1.84), indicating that the difference in DMFT values between children with RD and healthy children is statistically and clinically relevant. The complex and personalized prognosis of DC revealed a higher CR in children with RD, with a 52.08% chance of avoiding new carious lesions compared to healthy children (71.14%, indicating low CR), with statistically significant differences between groups L1 and L0 (p=0.044). In children with RD, CR is determined by the interaction of a complex set of factors: chronic systemic inflammation, salivary changes, dental biofilm dysbiosis with elevated Streptococcus mutans, as well as functional and socio-behavioral factors.

Conclusions. The prognosis of DC is essential for developing integrated preventive and therapeutic strategies that include monitoring and control of oral health in the multidisciplinary management of children with RD.

Keywords. dental caries, rheumatic diseases, caries risk, prognosis.

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75. ASSOCIATION BETWEEN SELF-PERCEIVED AND CLINICAL GINGIVAL BLEEDING WITH SOCIO-DEMOGRAPHIC FACTORS IN PERIODONTAL PATIENTS

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Introduction. Periodontal conditions are a prevalent oral health problem, with gingival bleeding as a key early symptom - a possible factor that motivates the patients' care-seeking behavior. At the same time, due to a slow progression of the condition, its severity is often underestimated by the patients. Currently, it's unclear how the self-perceived and clinical indices correlate, as well as the impact of socio-demographic factors.

Aim of study. To assess the relationship between self- and clinically perceived gingival bleeding in periodontal patients, depending on socio-demographic factors and smoking status.

Methods and materials. A total of 30 consecutive periodontal patients (17 F, 13 M), ages 23 to 61 (mean age 40.37±11.625 years, no differences based on sex – $p = 0.787$) were enrolled. The subjects were administered a questionnaire containing socio-demographic data (sex, age, education level), smoker status, and a dichotomous question on self-perceived oral bleeding. The clinical examination followed a standardized periodontal screening protocol, from which the CPI and BOP indexes were derived.

Results. Subjects within the group presented higher education in 60% of cases (F – 58.82%, B – 61.53%, $\chi2 = 0.23$; $p = 0.880$), smokers – 33.33% of the group (F – 41.17%, M – 61.53%, $\chi2 = 7.873$, $p = 0.020$). At the group level, 66.66% declared that they had self-perceived oral bleeding (F – 70.58%; M – 61.54%, $\chi2 = 0.271$; $p = 0.602$). At the group level, the average BOP score was 28.17±15.37 and CPI – 2.17±0.99, without significant differences according to gender ($p = 0.443$, respectively $p = 0.503$). The following interrelationships were observed (socio-demographic indicators vs. clinical indicators CPI/BOP, ANOVA test): age – BOP ($p = 0.033$)/CPI ($p = 0.092$); education – BOP (0.483)/CPI ($p = 0.712$); smoking – BOP ($p = 0.387$)/CPI ($p = 0.811$). A strong correlation was identified between the clinical indicators BOP and CPI ($r = 0.785$, $p < 0.001$), but not with self-perception of bleeding ($r = 0.130$, $p = 0.495$, respectively $r = 0.122$, $p = 0.522$).

Conclusions. In the examined group, periodontal status revealed a relevant level of gingival inflammation and periodontal damage, reflected by the mean values of the BOP and CPI indices. Although smoking showed significant differences between sexes, the severity of periodontal clinical markers did not vary significantly by sex. Age was significantly associated with the BOP index, suggesting its influence on periodontal inflammatory manifestations. The strong correlation between BOP and CPI confirms the concordance between bleeding on probing and the severity of periodontal damage, while the lack of association with self-perception of oral bleeding shows that subjective symptomatology is not a reliable indicator of periodontal clinical status.

Keywords. gingival bleeding, periodontitis, socio-demographic factors.

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76. THE ROLE OF MAGNETIC RESONANCE IMAGING IN THE EVALUATION OF TEMPOROMANDIBULAR DISORDERS

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Introduction. The temporomandibular joint (TMJ) is one of the most complex joints of the human body, characterized by a particular anatomical structure and the simultaneous performance of rotational and translational movements. Due to this morpho-functional complexity, the TMJ is prone to the development of various functional disorders. Temporomandibular joint dysfunctions are frequently encountered in dental practice and are manifested by preauricular pain, limitation of mandibular movements, and the presence of joint sounds. Magnetic resonance imaging (MRI) allows detailed evaluation of the soft tissues of the TMJ, being considered the method of choice for investigating the pathology of this joint.

Aim of study. To evaluate the role of magnetic resonance imaging in the diagnosis of temporomandibular joint dysfunctions.

Methods and materials. The study included 20 patients with symptoms suggestive of temporomandibular joint dysfunction, including 10 females and 10 males, aged between 18 and 45 years. The patients presented with pain in the preauricular region, limitation of mouth opening, and joint sounds. The evaluation included clinical examination and magnetic resonance imaging. The investigations were performed using the MRI system Magnetom Avanto 1.5 Tesla (Siemens), with acquisitions in sagittal and coronal planes, in both closed-mouth and open-mouth positions.

Results. Within the study, 40 temporomandibular joints corresponding to the 20 patients included in the research group were evaluated by imaging. MRI analysis revealed structural changes in 15 joints (37.5%), while 25 joints (62.5%) showed no significant imaging abnormalities. At the patient level, structural changes were identified in 12 patients, whereas 8 patients showed no structural alterations. The most frequent findings were anterior displacement of the articular disc with reduction and without reduction, and in some cases degenerative changes of the mandibular condyle were observed. The condition was more frequent in female patients, with an approximate 3:1 ratio.

Conclusions. Magnetic resonance imaging represents the method of choice in the evaluation of temporomandibular joint dysfunctions due to its ability to accurately visualize soft tissues and condyle-disc relationships. The possibility of visualizing the joint in sagittal, coronal, and axial planes allows a detailed morphological and functional analysis, contributing to establishing an accurate diagnosis and guiding the appropriate therapeutic approach.

Keywords. TMJ, magnetic resonance imaging, temporomandibular disorders, articular disc, diagnostic imaging.

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77. ASSESSMENT OF PROSTHETIC TREATMENT NEEDS IN PATIENTS WITH TOOTH WEAR

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Introduction. Oral health is now seen as part of a broader perspective on human health, integrating the concept of quality of life (QoL) in everyday clinical practice. One of the main concerns in patients with tooth wear is the implications for esthetics and functional performance. The assessment of perceived treatment needs is a topic of current interest in dental research, as it allows the study of how the burden of dental conditions are perceived by the individual and therefore are translated in care-seeking behavior and self-motivation for treatment.

Aim of study. Assessment of patient perception of treatment needs in adults with tooth wear, depending on the severity of loss of tooth integrity.

Methods and materials. The study enrolled 25 consecutive patients diagnosed with dental wear, with a mean age of 52.1±6.9 years and a relatively balanced gender distribution (52% men, 48% women). The PPTN (Perceived Prosthodontic Treatment Needs) questionnaire was administered to assess prosthetic treatment needs. The questionnaire consists of 15 items, on a Likert scale, covering 3 domains - psychosocial impact, aesthetic concern and function. The severity of dental wear was assessed by clinical examination and application of the TWES 2.0 (Tooth Wear Evaluation System) index, with the determination of the maximum score and the total wear score. Statistical analysis included descriptive statistics and Pearson correlation analysis to assess the relationship between the severity of dental wear and the perceived need for treatment.

Results. At the group level, the mean total tooth wear score (TWES) was 11.9±7.3, corresponding to a moderate level of wear, and the maximum wear score had a mean of 2,68, indicating lesions located between grades 2 and 3. No statistically significant differences were identified between women and men in terms of the total TWES score ($p=0.828$). The assessment using the PPTN questionnaire revealed mean scores of 12.8±5.0 for the psychosocial domain, 8.3±3.4 for the aesthetic concern domain and 4.4±2.4 for the function domain, with a mean total score of 27.4±10.4. Women presented significantly higher scores for the aesthetic concern domain compared to men ($p=0.024$). Correlational analysis revealed strong correlations between the severity of tooth wear and the perceived need for treatment (TWES total score – PPTN total score, $r=0.915$; $p<0.001$), as well as with its subdomains (aesthetic, psychosocial and function concerns).

Conclusions. In the examined patients, a strong correlation was observed between the clinical level of tooth wear and the patient's perception of the need for treatment. Individual case analysis revealed that these links were more pronounced in patients with severe wear, especially in the frontal region, with an impact on perceived aesthetic discomfort.

Keywords. dental wear, OHRQoL, restorative treatment.

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78. ORTHODONTIC TRACTION OF IMPACTED MAXILLARY CANINES DURING MARPE-ASSISTED MAXILLARY

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Introduction. Skeletal maxillary constriction is one of the most common orthodontic problems affecting the transverse and vertical dimensions of the midface. This condition is frequently associated with dental crowding and/or impaction of permanent teeth due to insufficient space within the dental arch. Mostly these problems are addressed separately and at different stages of orthodontic treatment, which inevitably prolongs the overall treatment duration. However, advances in digital planning and the ability to design orthodontic appliances now make it possible to combine different treatment modalities. This approach enables the simultaneous implementation of multiple therapeutic stages, thereby reducing the overall treatment time.

Case presentation. Patient X presented with complaints related to compromised smile aesthetics and the absence of several permanent teeth in the dental arch. Extraoral examination revealed retrusion of the upper lip, chin protrusion, increased lower facial height, concave facial profile. Intraoral examination demonstrated an anterior crossbite, negative overjet, persistence of tooth 53, and the absence of teeth 16, 26, and 36. Canine and molar relationships corresponded to a full Class III malocclusion. Paraclinical investigations revealed transverse maxillary constriction of 10 mm. Cephalometric analysis showed an SNA=80° and an SNB=84.3°. The patient was treated using a modified MARPE appliance supported by 4 miniscrews, each 12 mm in length. The modification included additional bands on the second maxillary molars and both premolars, an auxiliary hook on the connecting bar between the MARPE base and the first molar. On the vestibular surfaces of teeth 14, 24, 16 and 26, molar tubes and brackets were bonded, along with two hooks for the placement of a Delaire facemask. During miniscrew insertion and MARPE appliance fixation, surgical exposure of the impacted canine was performed simultaneously. Immediate orthodontic traction was initiated using a ballista spring. The active phase of maxillary expansion lasted 3 weeks, during which 28 turns of the expansion screw were performed. In parallel, orthodontic traction was applied to the impacted canine. By the end of the active expansion phase, traction had been activated twice, resulting in exposure of approximately 1/3 of the impacted canine crown from the alveolar bone.

Discussions. The combined use of a modified MARPE appliance enabled simultaneous maxillary expansion and orthodontic traction of the impacted canine. This approach reduced overall treatment time by 9 months compared with conventional protocols and created favorable conditions for eruption and alignment of the impacted tooth.

Conclusions. The results suggest that combining skeletal expansion with orthodontic traction may be an effective strategy in managing complex orthodontic cases involving maxillary constriction and impacted teeth.

Keywords. MARPE, impacted canine.

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79. CLINICAL APPLICATION OF MINIMALLY INVASIVE SURGICAL AND MINISCREW-ASSISTED RAPID PALATAL EXPANSION (MISMARPE) IN ADULT PATIENTS

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Introduction. Maxillary transverse deficiency, one of the most common occlusal anomalies, affects all stages of dental development. In young patients, the first-line treatment is an orthopedic approach through rapid maxillary expansion. Currently, in adult patients, the main treatment options have been surgically assisted rapid palatal expansion (SARPE) and segmental Le Fort I osteotomy. With the introduction of skeletal anchorage devices, known as MARPE, it has become possible to achieve transverse expansion through the use of bicortical microimplants placed in the palate, which provide stability to the expansion appliance. This innovation has led to the development of a less invasive technique, called minimally invasive surgical and miniscrew-assisted rapid palatal expansion (MISMARPE).

Case presentation. The MISMARPE method with tooth–bone hybrid anchorage was used to treat a 37-year-old female patient diagnosed with transverse maxillary deficiency. Preoperative evaluation included clinical examination and CBCT analysis to assess the maturation of the midpalatal suture and the thickness of the palatal bone. Before the procedure, the oral cavity was antiseptically prepared using 0.05% chlorhexidine solution, followed by the administration of local anesthesia using Septanest 1:100 000. The surgical stage involved a mucoperiosteal incision in the interincisal region, extending from the anterior nasal spine to approximately 3 mm above the mucogingival junction, with a depth of approximately 1 mm. Following flap elevation, 4 osteotomies were performed: a subspinal osteotomy, a vertical osteotomy and 2 bilateral osteotomies —using a piezoelectric surgical device to a depth of approximately 7 mm ; subsequently, perforations were performed at the level of the median palatine suture using a contra-angle handpiece and a Lindemann bur. The hybrid expander device was positioned in the paramedian region of the palate and stabilized with bands cemented to the upper first molars and skeletal anchorage was achieved by inserting four bicortical miniscrews, 10 mm in length, in a parasutural arrangement. The device remained inactive for a period of 7 days.

Discussions. MISMARPE exhibits comparable effectiveness to conventional methods, while maintaining a lower degree of invasiveness and eliminating the need for general anesthesia, extensive osteotomy, and patient hospitalization.

Conclusions. This case report demonstrates that the MISMARPE technique can be effective in treating transverse maxillary deficiency in adult patients, achieving the skeletal expansion necessary for subsequent orthodontic treatment.

Keywords. Orthognathic surgery, Minimally invasive surgery, Maxillary expansion.

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80. CHANGES IN THE MORPHOLOGY OF MANDIBULAR CONDYLES IN PATIENTS WITH TEMPOROMANDIBULAR DISORDERS: A CBCT STUDY

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Introduction. Temporomandibular disorders are among the most common conditions of the stomatognathic system, affecting the temporomandibular joint (TMJ), masticatory muscles and associated structures. During their progression, morphological changes of the mandibular condyles may occur, affecting the functionality of the system. However, the frequency and characteristics of these changes in patients with temporomandibular disorders, as well as the impact of other factors remains insufficiently studied.

Aim of study. To investigate the variants of sagittal and coronal morphology of the mandibular condyles in patients with temporomandibular disorders depending on sex and laterality (right/left TMJ).

Methods and materials. The study included 69 consecutive patients (62 women, 7 men) diagnosed with temporomandibular disorders based on the DC/TMD protocol. The group was homogeneous by age (men – 31.3±7.6 yrs, women – 35.0±8.9 yrs, $p = 0.287$). Calibrated images obtained by cone-beam computed tomography were analyzed, with sagittal and coronal sections at the condylar level used to determine morphological subvariants according to the Koyama classification (sagittal aspect) and the Yale classification (coronal aspect). The data were processed using R-Studio software.

Results. In the sagittal view, the following morphological variants were observed in the entire group of TMD patients: flattening (60.87%, n = 84) > normal (34.78%, n = 48) > erosion (13.76%, n = 19) > osteophyte/subchondral cyst (10.86%, n = 15) > sclerosis (8.69%, n = 12). The observed tendency shows that in women compared to men there was a predominance of flattening (62.90% versus 42.85%) and erosion (14.51% versus 7.14%), while in men cases of sclerosis were more frequently identified (35.71% versus 5.64%). In the coronal plane, the following frequencies were observed at the group level: convex/flat variant (35.50%, n = 49) > round (20.28%, n = 28) > angled (7.97%, n = 19). In women, the convex variant predominated (36.29%, n = 45), followed by the flat one (32.25%, n = 40), whereas in men the flat variant was most frequent (64.28%, n = 9), followed by the convex variant (28.67%, n = 4). However, the small male sample size may represent a bias regarding the incidence of different sagittal and coronal morphological variants of the condyle. Overall, no distinct patterns were observed regarding the influence of laterality (right/left) on condylar morphology.

Conclusions. There was observed a high heterogeneity of condylar morphology in patients with temporomandibular disorders, with a tendency toward predominance of bone-remodeled variants. These results indicate the need for studies on larger samples to clarify the influence of sex and laterality on condylar morphology, due to the low incidence of this condition in men.

Keywords. temporomandibular disorders, mandibular condyle, CBCT, stomatognathic system.

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81. PAIN SENSITIVITY IN PATIENTS WITH MYOGENOUS TEMPOROMANDIBULAR DISORDERS

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Introduction. Temporomandibular disorders (TMD) are found in approximately 6–15% of the population, and according to the most recent epidemiological data, their incidence has doubled in the last decade. In this context, the evaluation of pain expression becomes essential both for establishing the diagnosis and for monitoring the evolution of disease.

Aim of study. Assessment of the pain sensitivity expression in the structures of the stomatognathic system in patients diagnosed with temporomandibular disorders.

Methods and materials. The research included 30 consecutive patients (27 women, 3 men, mean age – 35.4±11.0 years, no statistical differences based on age, $p = 0.183$), that were referred consecutively at the university clinical base "Fala Dental". The patients were diagnosed with myogenous temporomandibular disorders based on the DC/TMD protocol, The severity of the dysfunction was assessed using the Helkimo index. The intensity of pain was evaluated by CPI (Characteristic Pain Intensity) index. To objectify the pain phenomenon, the FDIX algometer (Wagner, USA) was applied to determine the pain pressure threshold (PPT) for TMJ/masseter muscle.

Results. The majority of patients (93.3%) presented severe forms of TMD (based on Helkimo index values). 60% of the patients reported a low intensity of the pain (CPI < 50%). The mean values obtained in algometry were: PPT at the level of the masseter muscle – 1.13 ± 0.56 kgf, and at the level of the temporomandibular joint – 1.38 ± 0.67 kgf. The statistical analysis revealed the existence of significant correlations between the severity of the dysfunction and the thresholds of pain sensitivity, both at the level of the masseter ($r = –0.388$; $p = 0.034$), and at the level of the TMJ ($r = –0.476$; $p = 0.008$). In contrast, no significant correlations were found between subjective pain intensity (CPI) and objective pain thresholds (PPT-masseter: -0.330, $p = 0.075$; PPT_TMJ: -0.343, $p = 0.064$) . Nevertheless, a strong positive correlation was found between pain sensitivity at the TMJ and masseter muscle ($r = 0.847$; $p < 0.001$).

Conclusions. Patients diagnosed with temporomandibular disorders present a varied spectrum of pain intensity and of the degree of functional impairment. However, data analysis revealed close correlations between pain sensitivity and severity of dysfunction, as well as interrelationships between the structures involved (temporomandibular joint and the masseter muscle). These results suggest that pain expression is not isolated, but has close ties to the level of functional impairment. Although the subjective pain perception and the objective pain sensitivity seem to be independent, the structures of the stomatognathic system (TMJ/masseter muscle) have close relationships regarding pain expression.

Keywords. temporomandibular disorders, pain sensitivity, pain pressure threshold, stomatognathic system.

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82. INSTRUMENTS FOR PERIODONTAL DISEASES SCREENING IN GENERAL CLINICAL PRACTICE

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Introduction. Periodontitis is one of the most common chronic inflammatory diseases globally (20-50% of the adult population, in 2021 – 790 million people), with a doubling of incidence in the last 3 decades. Early detection of pathological changes in periodontal tissues would be useful in preventing the onset and progression of periodontal disease, given that conventional diagnosis, based exclusively on clinical parameters, presents significant limitations (late addressability, difficulties in detecting incipient forms, the need for clinical standardization, the time required for diagnosis, etc.), thus currently a greater focus is on the development and implementation of effective tests for periodontal screening.

Aim of study. Evaluation and summary of current evidence regarding the applicability of screening tests in periodontal clinical practice.

Methods and materials. The PubMed, MEDLINE and Google Scholar databases were used, using keywords (MeSH terms): ("gingivitis" OR "periodontitis" AND ("screening" OR "mass screening")). Studies were included if they tested human subjects (adults) and were written in English. An initial search for studies using the key terms generated 214 articles (published between 2015-2024). After independent evaluation of the content, 20 articles were included for the literature review.

Results. Based on the review of the literature, three major categories of periodontal screening instruments have been identified: (1) rapid standardized clinical methods (e.g.: BPE protocol); (2) digital imaging techniques; (3) salivary biomolecular diagnostics. The first 2 categories either use the summary of extensive clinical data collected or require X-ray irradiation. Of a particular utility seem to be the salivary biomolecular tests, which allow non-invasive determination of the presence/absence of the disease and assessment of certain characteristics of its evolution (bacterial activity level – e.g. trypsin-like peptidase level; tissue destruction activity - active MMP-8 level; identification of potential pathogens – PCR or BANA test kits). Also, some of these instruments stand out through multiple clinical validation tests, achieving high diagnostic performance values (sensitivity/specificity >80-90%) compared to classic clinical tests (bleeding on probing, clinical attachment loss, periodontal indices) or laboratory tests (Real-Time PCR).

Conclusions. Currently, there are multiple screening instruments developed to identify periodontal conditions and their consequences, however, the diagnostic performance depends on the disease severity and its phase of evolution. Among the identified methods, rapid biomolecular tests based on the identification of saliva periodontal markers stand out, which demonstrate high diagnostic performance values for application in clinical general practice.

Keywords. periodontitis, screening, periodontal biomarkers, point-of-care diagnostics.

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83. ADVANCED PROLIFERATIVE VERRUCOUS LEUKOPLAKIA. CASE REPORT

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Introduction. Proliferative verrucous leukoplakia (PVL) is an uncommon yet aggressive form of oral leukoplakia presenting as a multifocal lesion of the oral mucosa. It begins as a distinct white patch of hyperkeratosis that gradually evolves into a diffuse lesion with continuous growth and resistance to treatment. This characteristic makes it susceptible to malignant transformation, most commonly into verrucous carcinoma (VC) and squamous cell carcinoma (SCC). No definite etiologic cause suggests a multifactorial origin ranging from tobacco use to HPV, EBV, Candida, genetic and immunological influence. PVL affects all racial groups and occurs more frequently in women with a 4:1 female to male ratio, usually diagnosed at around 70 years old. Due to its highly aggressive nature, early detection represents the hallmark of PVL management. Doctors should perform meticulous examinations and patients must be informed about the importance of regular screenings.

Case presentation. A 65-year-old male presented to the oral and maxillofacial surgery Department, Dental Clinic Nr. 2, USMF "N.Testemitanu", Chisinau, with chief-complaints of a rough mucosa with no associated pain. The patient suffers from stage 2 hypertension. Extra-oral examination revealed crusted lesions in the submental region, with palpable submental lymph nodes. Intra-oral inspection showed a well-defined hyperkeratotic exophytic growth on the alveolar crest, from the right posterior molar region to the left canine region. Palpation identified that the growth is firm in consistency, rough in texture, non-scrapable and non-fluctuant. The complete hemogram reports leukocytosis. An incisional biopsy was performed and sent to histopathological analysis. The analysis showed the presence of oral verrucous hyperplasia with signs of verrucous carcinoma. Guided by the clinical appearance and histopathological analysis, PVL was given as the diagnosis. The patient was referred to the Oncology hospital for treatment.

Discussions. Although PVL has a higher prevalence in women, this report highlights that diagnosis should not be excluded based on gender. Histopathology confirmed the high potential for malignancy linked with PVL, warranting immediate oncological referral and extended follow-ups.

Conclusions. Accurate diagnosis requires careful evaluation as PVL is one of the most invasive lesions that need special attention, early detection and a prompt treatment being pivotal to minimizing damage and improving the chances of a favorable outcome.

Keywords. Proliferative Verrucous Leukoplakia; Oral Potentially Malignant Disorders.

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84. INTEGRATION OF CAD/CAM TECHNOLOGY AND INTRAORAL SCANNERS IN CURRENT DENTAL PRACTICE

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Introduction. Digital dentistry has revolutionized clinical practice through the integration of modern technologies such as CAD/CAM and intraoral scanners, contributing to the optimization of prosthetic treatments and increased patient satisfaction. This transition is increasingly evident in dental clinics in both the Republic of Moldova and Italy.

Aim of study. To assess the applicability of digital CAD/CAM technologies and intraoral scanners in current dental practice based on a comparative observation in two healthcare systems.

Methods and materials. The study was based on direct clinical observation of the use of intraoral scanners (Trios 3Shape, Medit i700, Planmeca Emerald S) and CAD/CAM systems in university and private dental clinics in Moldova and Italy. Work protocols, processing time, collaboration with the dental lab, and the level of technology acceptance among medical staff were analyzed.

Results. In both countries, intraoral scanners significantly reduced the impression-taking time, with an estimated average of 5–7 minutes per arch. CAD/CAM systems enabled same-day prosthetic restorations, increasing clinical efficiency. A more advanced integration of these technologies was observed in Italy, including frequent involvement of digital dental technicians and computer-assisted planning. In Moldova, digital adoption is increasing, with significant potential for expansion.

Conclusions. The integration of digital technologies in dentistry improves treatment efficiency, reduces clinical time, and enhances the precision of restorations. Comparative experience suggests a need to further expand these tools in emerging systems such as that of the Republic of Moldova.

Keywords. Digital dentistry, CAD/CAM, intraoral scanner, technology, prosthetics.

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85. IMPACT OF DENTO-MAXILLARY ANOMALIES ON PATIENTS' QUALITY OF LIFE

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Introduction. Dento-maxillary anomalies influence not only the functioning of the oro-facial system, but also the way patients perceive themselves and interact socially. Dentofacial changes may affect self-confidence, social comfort and quality of life, which makes the evaluation of their impact important in a patient-centered orthodontic approach.

Aim of study. To determine and analyze the influence of dento-maxillary anomalies on the quality of life of adolescents and young individuals by evaluating functional, aesthetic and psychosocial components.

Methods and materials. This paper represents a review-type study based on the analysis of orthodontic literature regarding the impact of dento-maxillary anomalies on quality of life. The data were analyzed descriptively, with emphasis on the functional, aesthetic, and psychosocial consequences of malocclusion.

Results. Epidemiological data highlight a high prevalence of dento-maxillary anomalies among children and adolescents. According to a study conducted in the Republic of Moldova by Trifan V. and Godoroja P., on a sample of 1,710 schoolchildren aged 6–18 years, the prevalence of dento-maxillary anomalies was 79.1%. The most frequent malocclusion was Class I (38.6%), followed by Class II (27.9%) and Class III (6.9%). Other occlusal disorders were also identified, such as deep bite (41%), open bite (43.2%) and laterognathia (56.2%). These anomalies affected various daily activities, influencing social interaction (43.5%), speech (38.4%), alimentation (36.6%) and smiling (35.8%). Another study conducted in the Republic of Moldova on 151 adolescents (Trifan V. et al., 2019) highlighted the psychological impact of dento-maxillary anomalies: 90.7% of respondents reported concern about dental problems, while psychological discomfort (80.1%), emotional tension (64.2%) and feelings of unhappiness (58.9%) were frequently mentioned. Additionally, 45.7% reported difficulties in concentration and 29.8% difficulties in performing daily activities. Similar results are reported in the international literature. A meta-analysis conducted by Göranson et al. (2023) demonstrated that malocclusion is associated with a significant impairment of oral health-related quality of life (OHRQoL), with a prevalence ratio of 1.15 (95% CI: 1.12–1.18).

Conclusions. Dento-maxillary anomalies can significantly influence patients' quality of life, affecting both oral functions and aesthetic and psychosocial dimensions. Assessing their impact allows a more comprehensive orthodontic approach aimed at improving the patient's overall well-being.

Keywords. dento-maxillary anomalies; malocclusion; quality of life; orthodontics.

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86. STATISTICAL ANALYSIS OF ETIOLOGICAL AND CLINICAL PARTICULARITIES OF OSTEOMYELITIS OF THE JAWS OF ODONTOGENIC AND POSTTRAUMATIC ORIGIN

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Introduction. Osteomyelitis of the jaws represents a severe infectious condition characterized by inflammatory and necrotic changes in bone tissue, frequently associated with odontogenic infections and maxillofacial trauma. Despite advances in antimicrobial therapy and surgical techniques, osteomyelitis remains an important clinical problem due to its destructive potential, prolonged evolution, and therapeutic complexity.

Aim of study. The aim of this study is to evaluate the etiological, clinical, and therapeutic particularities of osteomyelitis of the jaws of odontogenic and traumatic origin based on a retrospective clinical data analysis.

Methods and materials. The retrospective study included 41 patients diagnosed with osteomyelitis of the jaws, treated between 2023 and 2025. The patients' age ranged between 22 and 74 years, including 36 males and 5 females. The following parameters were analyzed: patients' age, sex, etiology, localization, clinical forms, complications and applied treatment. Data were obtained from medical records and analyzed using descriptive statistical methods.

Results. Males predominated with 36 cases (88%), while females accounted for 5 cases (12%). The highest incidence was observed in the 30–39 years age group (26.8%), followed by the 20-29 and 40-49 years groups (19.5% each). Posttraumatic etiology was the most frequent, recorded in 25 patients (61%), while odontogenic osteomyelitis was identified in 12 patients (29%). Toxic etiology and osteoradionecrosis were observed in 2 patients each (5%). The pathological process was predominantly localized in the mandible in 39 patients (95.1%), while maxillary involvement was identified in 2 patients (4.9%). The chronic form predominated (70.7%), followed by the acute form (19.5%) and chronic exacerbated form (9.8%). Complications were present in 10 patients (24.4%), most frequently fistula (14.6%), followed by abscess (7.3%) and phlegmon (2.4%). Sequestrectomy was the most common surgical treatment (64%), followed by incision and drainage (20%), fracture reduction and fixation of fragments by osteosynthesis (9%) and extraction of the causal tooth (7%).

Conclusions. Posttraumatic etiology and chronic clinical forms predominated among patients. The disease was most frequently localized in the mandible, while maxillary involvement was rare. Surgical management was the main therapeutic approach, sequestrectomy being the most commonly performed procedure, followed by incision and drainage.

Keywords. Osteomyelitis of the jaws, posttraumatic osteomyelitis, odontogenic infection, mandibular osteomyelitis.

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87. ERRORS AND COMPLICATIONS IN CARIES TREATMENT OF ANTERIOR TEETH

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Introduction. Caries of anterior teeth is a common dental pathology that significantly affects aesthetics, speech and patients' psychological comfort. Due to high visibility of the frontal region, even minor treatment errors may lead to noticeable aesthetic defects and functional disorders. Since an individual's image can be a major concern in many situations, this easily impacts personal life and even career for public people such as professors, diplomats, journalists, media influencers and all those who interact with some kind of audience. Inadequate diagnosis, incorrect treatment planning and technical mistakes during restorative procedures often result in complications that worsen long-term outcomes. Therefore, analysis of typical errors and related complications is essential for improving the quality of dental care.

Aim of study. The aim of this study is to analyze the most common errors and complications occurring during the treatment of caries of anterior teeth and to identify effective preventive measures.

Methods and materials. In this study, 14 patients aging 18-55 years, including 8 female and 6 male, were examined. Fresh or old direct restorations of the anterior group of teeth were the main criteria of entering the study group. Each patient was consulted using the following methods: clinical and paraclinical examination. Clinical included subjects (main complaints and anamnesis) and objective extraoral and intraoral examination. Paraclinical data, including results of X-rays, intraoral photography and pulp vitality tests, determined the final diagnosis. Also, caries indicator (Red Detector by Cerkamed) was used to identify secondary or recurrent caries among patients.

Results. The most frequent errors included insufficient diagnosis, inadequate isolation of the operative field, improper cavity preparation, breach of adhesive protocols and incorrect selection of restorative materials. These mistakes commonly resulted in postoperative hypersensitivity, secondary caries, pulpitis, marginal discoloration, fractures of restorations and aesthetic defects. Inaccurate anatomical modeling caused plaque retention, gingival inflammation and increased risk of recurrent caries.

Conclusions. Errors and complications in the treatment of caries of anterior teeth remain a significant clinical problem. Strict adherence to diagnostic and restorative protocols, careful treatment planning, proper isolation techniques and the use of modern materials significantly reduce complication rates and improve functional and aesthetic outcomes.

Keywords. Anterior teeth, dental caries, errors, complications, aesthetic.

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88. PREOPERATIVE DIGITAL PLANNING IN ORO-DENTAL IMPLANTOLOGY: AN INDISPENSABLE TOOL OR AN ADJUNCTIVE OPTION

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Introduction. The improvement in implant design and the increasing trend toward minimally invasive surgical approaches have enhanced patient safety, leading to a growing preference for implant-supported restorations over conventional fixed partial dentures. The evolution of specialized software for detailed case analysis and surgical planning has gained significant importance, as contemporary clinicians are now able to identify and anticipate most potential obstacles prior to the actual intervention.

Aim of study. To highlight the strengths of digital analysis and preoperative planning using dedicated software for the design of surgical guides in various types of implant-supported interventions (tooth-supported, mucosa-tooth-supported, mucosa-bone-supported, and bone-supported).

Methods and materials. Articles published between 2021-2026 in JScholar, BMC Oral Health, and PubMed databases focusing on digital implantology were analyzed.

Results. Given the increasing patient demand for the restoration of facial aesthetics, functionality, and phonation through implant-supported crowns rather than conventional dental bridges, dental practitioners are required to analyze an extensive dataset collected from each patient. Digital planning software such as R2Gate (MegaGen) and NemoStudio, Nemotec (Spain), in addition to evaluating alveolar ridge dimensions and bone density, allow the design of surgical guides (subsequently 3D-printed using DLP resin technology). These guides enable precise osteotomy preparation and implant insertion at predetermined depth and angulation, in accordance with established implant positioning criteria. Recent updates to Implant Studio software have introduced artificial intelligence–based features that automatically approximate the future prosthetic crown position and virtually align implants within the center of the planned restoration. The clinician performs minor adjustments, selects the implant system, and benefits from preset sleeve positioning, ensuring adequate space for guided surgery drills provided by the manufacturer. This optimization reduces planning time and minimizes surgical trauma during trans-mucosal or envelope flap procedures.

Conclusions. Clinical outcomes associated with the use of surgical guides demonstrate a reduction in operative time to approximately 10–15 minutes per implant placement. Additionally, postoperative pain and trauma-related complications are decreased, contributing to enhanced psychological comfort for both patient and clinician.

Keywords. Implant Planning, Guided Implantation, Digital Planning Surgery.

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89. THE IMPACT OF IMPLANT PLACEMENT TIMING ON SOFT TISSUES IN IMPLANT-PROSTHETIC REHABILITATION

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Introduction. In recent decades, oral implantology has evolved from focusing on osseointegration to prioritizing soft tissue dimensional stability and the long-term integrity of the stomatognathic system. Increased patient expectations regarding both aesthetic outcomes and treatment timelines have driven the development of advanced surgical and prosthetic protocols. In this context, the relationship between the implant and peri-implant soft tissues is critical, as surgical execution and prosthetic design directly influence tissue architecture, health, and restoration longevity. Evaluating how different implantation timings affect these tissues is essential for ensuring clinical predictability and a reliable biological seal. Consequently, precise soft tissue management—often dictated by the timing and method of implant insertion—is vital for maintaining a stable peri-implant profile amidst anatomical constraints.

Aim of study. The comparative evaluation of the peri-implant gingival margin in implant-prosthetic rehabilitations relative to the timing of implant placement (immediate post-extraction, delayed, and late implantation).

Methods and materials. In the present study, three individual cases were analyzed involving the insertion of endosseous dental implants using a two-stage protocol, with each implant being placed at a different timing. The patients were monitored throughout the entire implant-prosthetic rehabilitation period (2024–2025). Recorded parameters included: pre-existing mucosa condition, keratinized gingiva width, bone tissue status, condition of teeth scheduled for extraction, oral hygiene levels, and peri-implant tissue status immediately post-implantation, at 3 months, and during the final pre-prosthetic stage.

Results. A mean final pre-prosthetic, peri-implant gingival level of 3.33 mm was observed. The baseline keratinized gingiva at the planned site was 3.8 mm, with satisfactory hygiene and no acute inflammation. Over time, a slight physiological decrease in the axial projection from the implant collar margin occurred. Key factors in maintaining this level were the depth of implant placement relative to the bone crest and the use of a provisional prosthetic restoration.

Conclusions. Peri-implant gingival margins may undergo changes over time. Placement timing is a secondary factor influencing tissue quality and quantity, with maintenance being most favorable in immediate post-extraction cases associated with temporary prosthetic restorations.

Keywords. Dental implantation; implant placement timing; gingival margin.

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90. MODERN APPROACHES IN COMPLEX PERIODONTAL TREATMENT: THE USE OF PLATELET-RICH PLASMA

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Introduction. Periodontal disease is a chronic inflammatory condition affecting the supporting tissues of the teeth and, in advanced stages, may lead to progressive tissue destruction and tooth loss. According to the Global Burden of Disease 2021 report, approximately 950 million people worldwide are affected. Conventional periodontal therapy aims to remove the bacterial biofilm and to reduce inflammation, but it does not always result in the regeneration of the damaged periodontal tissues. Therefore, approaches such as platelet-rich plasma have been introduced to improve healing and clinical outcomes.

Aim of study. This study evaluates the clinical effectiveness of platelet-rich plasma as an adjunct to conventional periodontal therapy in patients with chronic marginal periodontitis by comparing the changes in periodontal clinical parameters.

Methods and materials. This prospective clinical study included 30 patients aged 20-60 years diagnosed with periodontal disease, divided into two groups of 15. Group I received conventional periodontal therapy, while Group II received complex periodontal treatment including adjunctive regenerative methods. In two patients from Group II, platelet-rich plasma (PRP) was additionally applied. PRP was obtained from autologous venous blood collected in sterile tubes with anticoagulant and centrifuged to separate the platelet-rich plasma fraction. The prepared PRP was locally injected into the affected periodontal tissues in areas presenting periodontal pockets (0.5–1.0 mL per treated site). Clinical evaluation included probing pocket depth (PPD), bleeding on probing (BOP), PMA index, and oral hygiene index (OHI-S). Parameters were measured before treatment and after 4 weeks.

Results. After 4 weeks, both groups showed improvement in periodontal parameters. Patients who underwent complex periodontal therapy presented greater clinical improvement compared to conventional treatment, including a larger reduction in probing pocket depth (0.3 mm difference), lower bleeding on probing values (6–14% difference), and lower PMA index values (15–20% difference). In the two cases where PRP was applied, improved soft-tissue condition and reduced inflammatory signs were observed. Dental mobility remained relatively unchanged in both groups.

Conclusions. Complex periodontal therapy resulted in better clinical outcomes than conventional treatment. In the two cases where PRP was applied, a greater reduction in inflammatory signs and more favorable tissue response were observed. These findings suggest that PRP may contribute to improved clinical response when used as an adjunct in periodontal therapy.

Keywords. periodontal disease, PRP, regenerative therapy, complex treatment.

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91. RADIOVISIOGRAPHIC DIFFERENTIAL DIAGNOSIS OF DESTRUCTIVE FORMS OF APICAL PERIODONTITIS: A DESCRIPTIVE ANALYSIS OF 15 CASES

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Introduction. Apical periodontitis represents an inflammatory response of periapical tissues to infection within the root canal system. Radiographic evaluation plays a fundamental role in the diagnosis and differential assessment of destructive periapical lesions. However, differentiation between granuloma, radicular cyst and periapical abscess based solely on radiographic criteria remains challenging.

Aim of study. To evaluate the radiovisiographic characteristics of destructive periapical lesions and to identify imaging criteria useful in their differential diagnosis.

Methods and materials. An observational descriptive study was conducted on a sample of 15 patients presenting radiographically evident periapical radiolucencies associated with permanent teeth. Digital intraoral periapical radiographs (RVG) were analyzed. The following radiographic criteria were assessed: maximum lesion diameter (mm), lesion contour (well-defined, poorly defined, diffuse), lamina dura integrity, presence of peripheral radiopaque border, and periodontal ligament space widening. Lesions were classified as probable chronic apical periodontitis (granuloma), probable radicular cyst, or periapical abscess (acute or chronic), based on imaging features only. Statistical analysis was limited to descriptive methods.

Results. Among the 15 cases, 6 (40%) were classified as probable granulomas, 4 (26.7%) as probable radicular cysts, and 5 (33.3%) as periapical abscesses (2 acute, 3 chronic). Chronic lesions predominated (66.7%). Granulomas presented diameters between 5–11 mm, mostly with poorly defined contours. Lesions suggestive of radicular cysts measured 15–18 mm and showed well-defined margins. Acute abscesses often demonstrated minimal or diffuse radiographic changes. Lesion size and contour proved to be useful orientation criteria in differential diagnosis.

Conclusions. Radiovisiography allows identification of destructive periapical lesions and provides valuable orientation criteria for differential diagnosis. However, definitive distinction between granuloma and radicular cyst cannot be established without histopathological confirmation. Correlation of radiographic and clinical findings remains essential for appropriate therapeutic decision-making.

Keywords. Apical periodontitis; Radiovisiography; Granuloma; Radicular cyst; Periapical abscess.

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92. THE IMPORTANCE OF EARLY DIAGNOSIS OF TEMPOROMANDIBULAR JOINT DISORDERS IN DENTAL PRACTICE

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Introduction. Temporomandibular joint disorders (TMD) represent a group of conditions with multifactorial etiology involving the articular, muscular, and neuromuscular structures of the stomatognathic system. Modern diagnostic criteria emphasize the need for standardized clinical evaluation in order to identify early forms of dysfunction. Early manifestations such as joint sounds, muscular discomfort, or slight limitation of mandibular movements are frequently underestimated, which favors progression toward chronic pain and functional impairment.

Aim of study. The aim of the study is to demonstrate the importance of early diagnosis of temporomandibular joint disorders in dental practice and its impact on treatment efficiency and patients' quality of life.

Methods and materials. The study was conducted as a narrative review of the specialized literature. Scientific articles identified in the PubMed, Hinari, Google Scholar, and Cochrane Library databases, as well as other relevant academic sources in the field of dentistry, were used. The literature analysis involved identifying, selecting, and synthesizing relevant and up-to-date publications, followed by organizing and comparing the available data in order to formulate a current perspective on the addressed topic. Data regarding etiological factors involved in the initiation and progression of TMD were examined, including bruxism and psychosocial stress, to highlight the importance of early diagnosis in dental practice.

Results. According to a meta-analysis, 31% of adults and 11% of adolescents present TMD, highlighting the high prevalence of these conditions across different age groups. In adults (26%) and children (8%), disc displacement with reduction is one of the most frequent manifestations, while 42% present malocclusions. Parafunctional factors such as sleep bruxism affect 17% of patients and awake bruxism 63%, while psychosocial stress is involved in 35% of cases. Approximately 73% of the analyzed studies demonstrated that early diagnosis of TMJ disorders reduces pain and slows the progression of dysfunction, and 68% reported a significant improvement in quality of life when treatment is instituted early.

Conclusions. In the context of contemporary dental practice, integrating systematic TMJ examination into routine consultations becomes essential for preventing long-term complications. Early diagnosis of TMD is crucial for preventing chronic dysfunction, protecting joint structures, and maintaining functionality and patients' quality of life.

Keywords. Temporomandibular joint; temporomandibular disorders; early diagnosis; bruxism; quality of life.

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93. PERIODONTAL CHANGES ASSOCIATED WITH FIXED ORTHODONTIC APPLIANCES: A THREE-STAGE CLINICAL CASE REPORT

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Introduction. Fixed orthodontic appliances are known to increase plaque accumulation and may negatively affect periodontal health if oral hygiene is insufficient. Plaque-induced gingivitis is commonly observed during orthodontic treatment; however, its progression is largely influenced by oral hygiene practices and periodontal care rather than the presence of the appliance itself.

Case presentation. A case report documenting the use of bimaxillary fixed metal orthodontic appliances for a 20-year-old healthy male is reported below. Three separate clinical assessments were made at three time points. Baseline (T0) with appliances in place showed a mean Plaque Index (PI) of 1.9, a mean Gingival Index (GI) of 1.8, and a bleeding on probing (BOP) of 68%. All measurements indicated the presence of generalized plaque-induced gingivitis. After completion of non-surgical periodontal therapy, along with reinforcement of patient oral hygiene (T1), all measurements demonstrated significant reduction; PI = 0.8, GI = 0.7, BOP = 22%. Substantial improvements in all measurements were also seen at T2, when fixed appliances were removed and orthodontic treatment was completed; PI = 0.4, GI = 0.3, BOP = 8%. Measurements taken at T2 were indicative of restored periodontal health and no evidence of active gingivitis.

Discussions. All three time points were representative of a relationship between the development of gingival inflammation and the accumulation of dental plaque. High PI at T0 correlated with elevated GI and BOP, indicating generalized gingivitis at the start of orthodontic therapy. The large decrease in all indices from T0 to T1, despite the presence of appliances, indicated the significant effect of patient compliance and professional treatment. The additional decrease in all indices observed at T2, following the removal of appliances further supports that the presence of fixed appliances creates an environment that allows for greater plaque retention; however, the primary driver of gingival inflammation is the accumulation of plaque and this inflammation is reversible.

Conclusions. The results from this case demonstrate that plaque-induced gingivitis associated with fixed orthodontic appliances can be reversed. The reductions in the baseline levels were greater than 75% for both PI and GI, as well as nearly 90% for BOP. These findings support the concept that with proper oral hygiene, routine periodontal examination and prompt intervention, patients undergoing orthodontic treatment will not suffer permanent periodontal injury as a result of their treatment, and full recovery of the periodontium will occur subsequent to appliance removal.

Keywords. fixed orthodontic appliances; plaque-induced gingivitis; oral hygiene.

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94. ISOLATION OF THE OPERATIVE FIELD – MODERN APPROACHES IN DENTISTRY

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Introduction. Isolation of the operative field is essential for achieving a dry and controlled environment during dental procedures. Contamination with saliva, blood, or gingival crevicular fluid can compromise the adhesion of restorative materials and reduce the durability of treatment. It also contributes to increased visibility, safety, and operator control.

Aim of study. To analyze modern isolation methods and highlight their role in increasing the efficiency and safety of the therapeutic procedure.

Methods and materials. The paper has a descriptive character and is based on the analysis of specialized literature and databases, such as PubMed, Cambridge, and Hinari.

Results. The gold standard of isolation remains the rubber dam, an absolute isolation method that ensures sealing of the operative field and effective contamination control. It is frequently used in adhesive restorations and in procedures where moisture control is essential for therapeutic success. To optimize application and improve patient comfort, modern systems have been developed. OptraDam Plus combines the rubber dam with an anatomical lip and cheek retractor, facilitating placement and reducing clinical time. DryShield is a relative isolation system that integrates high-volume suction and tissue retraction, providing efficient fluid control. OptraGate functions as a flexible circular lip and cheek retractor, improving access and visibility, and is used as a complementary method of relative isolation. Adjuvant methods include light-cured gingival barrier and liquid rubber dam, a material applied at the gingival level to create a selective protective shield, indicated in procedures such as dental bleaching or microabrasion.

Conclusions. Isolation of the operative field directly influences the quality of restorations and patient safety. The rubber dam remains the reference method, and the integration of modern systems allows adaptation of the technique to different clinical situations, optimizing the efficiency of the therapeutic act.

Keywords. Operative field isolation, moisture control, bacterial contamination, modern isolation techniques, patient safety.

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95. MANAGEMENT OF POST-EXTRACTION WOUNDS FOLLOWING COMPLICATED DENTAL EXTRACTIONS

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Introduction. Dental extraction is one of the most frequently performed surgical procedures in dental practice. Although it is considered a routine intervention, complicated dental extractions are associated with an increased risk of post-extraction complications such as alveolar osteitis, secondary hemorrhage, soft tissue infections, oro-sinusal communication, and delayed alveolar healing. Proper management of the post-extraction wound plays an essential role in preventing these complications and ensuring optimal tissue regeneration.

Aim of study. To systematize management strategies for post-extraction wounds following complicated dental extractions in order to prevent complications and optimize the healing process.

Methods and materials. The study represents a narrative review of the specialized literature. The bibliographic research was conducted by consulting PubMed, Google Scholar, NCBI, and the National Bibliometric Instrument, including publications from the period 2015-2025. A total of 153 relevant sources were selected, including clinical studies, observational studies, meta-analyses, systematic reviews, and oral surgery manuals. The analysis focused on indications and contraindications of dental extraction, conventional and minimally invasive surgical techniques, risk factors, physiological healing mechanisms, and modern methods for the prevention and treatment of complications.

Results. The occurrence of post-extraction complications is influenced by local factors (surgical trauma, improper technique, pre-existing infections) and systemic factors (diabetes mellitus, anticoagulant therapy, immunosuppression, radiotherapy). The most frequent complications identified are post-extraction hemorrhage and alveolar osteitis. Effective management includes the use of atraumatic techniques, strict adherence to aseptic principles, rigorous hemostatic control, adequate postoperative care, and the application of modern therapies such as platelet-rich fibrin (PRF) and piezosurgery.

Conclusions. Proper management of post-extraction wounds following complicated dental extractions significantly reduces the risk of complications and promotes predictable healing. Individualized therapeutic planning and adherence to evidence-based protocols contribute to improving the quality of medical care and patient comfort.

Keywords. complicated dental extraction, post-extraction wound, alveolar osteitis, post-extraction hemorrhage, alveolar healing.

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96. A COMPARATIVE PRECLINICAL STUDY OF ROOT CANAL MORPHOLOGY AND CONFIGURATION IN ENDODONTICALLY COMPROMISED TEETH

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Introduction. Root canal morphology significantly affects the outcome of endodontic treatment. Accurate anatomical documentation is essential because variations in canal anatomy can lead to inadequate cleaning, shaping, or diagnostic errors.

Aim of study. This study aimed to assess whether conventional root canal obturation aligns with clinical morphology through preclinical evaluation.

Methods and materials. Nine extracted anterior single-rooted teeth underwent standard endodontic procedures, including mechanical instrumentation using manual and motor-driven Reciproc instruments, irrigation, disinfection, and obturation. Intermediate and final radiographs were obtained. Micro-computed tomography and histological analyses were performed to assess canal morphology and the volume of dentinal tubules not instrumented during therapy.

Results. Micro-CT and histology differentiated enamel, dentin, and pulp chamber structures. The cumulative volume of dentinal tubules was at least three times the instrumented root canal space. Dentinal tubule density decreased with distance from the pulp chamber and increased near enamel. Although radiographic evaluation indicated adequate obturation, microscopic analysis revealed residual tubular spaces potentially allowing bacterial persistence. Organic remnants within dentinal tubules remained after mechanical instrumentation, irrigation, disinfection, and obturation.

Conclusions. Despite radiographically adequate root canal filling, histological and micro-CT analyses showed persistent affected dentin and organic tissue in all specimens. Complete disinfection of the root canal system is essential; however, conventional obturation materials may lack the biological and chemical activity required to fully seal complex root canal morphology.

Keywords. Dental pulp, Root canal morphology, Root canal treatment.

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97. CLINICAL MARKERS OF NECROTIZING FASCIITIS IN DEEP NECK INFECTION

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Introduction. Necrotizing fasciitis is a rare yet life-threatening soft tissue infection characterized by fulminant progression and widespread necrosis of the fascia and subcutaneous compartments, with relative early preservation of muscle tissue and in some cases, the overlying skin. Its aggressive course is driven by rapid microbial dissemination along fascial planes, microvascular thrombosis, and subsequent ischemic tissue destruction. Timely recognition is critical, as any delay in initiating prompt surgical debridement and broad-spectrum antimicrobial therapy significantly increases morbidity and mortality. Notably, the early clinical presentation is frequently nonspecific, and the absence of pathognomonic findings may obscure diagnosis, as a clinical tool for differentiating necrotizing fasciitis. A special tool score -the LRINEC (Laboratory Risk Indicator for Necrotizing Fasciitis) score has been introduced as a valuable adjunctive instrument for differentiating necrotizing fasciitis from other soft tissue infections.

Aim of study. To analyze clinical markers in the diagnosis and management of facial necrotizing fasciitis in order to improve decision-making in the treatment of deep neck infections.

Methods and materials. A retrospective cohort design was employed to evaluate patients admitted to the Department of Oral and Maxillofacial Surgery at the Emergency Medicine Institute between January 1, 2022, and January 1, 2026. Eligible cases included individuals diagnosed, according to ICD-10 classification (M72.5), with cervicofacial necrotizing soft tissue fasciitis. Data collection encompassed demographic characteristics, laboratory findings, length of hospital stay, occurrence of complications, and associated comorbid conditions. Using these collected clinical and laboratory parameters, the LRINEC score was subsequently calculated for each patient to assess disease severity and risk stratification.

Results. Necrotizing fasciitis was identified in 23 patients among the total admissions. The mortality rate represented 65.21% of all patients diagnosed with diffuse inflammatory processes. Notably, in 12 patients (52.17%), the disease was complicated by septic descending necrotizing mediastinitis. Furthermore, the LRINEC score was calculated for all included patients to support risk stratification and severity assessment.

Conclusions. Cervicofacial necrotizing fasciitis represents a highly aggressive infectious pathology associated with substantial mortality, particularly when accompanied by septic complications such as descending necrotizing mediastinitis.The integration of objective laboratory-based tools, such as the LRINEC score, into the clinical evaluation process may enhance early risk stratification and support timely surgical decision-making.

Keywords. Necrotising fasciitis,deep neck infection, laboratory risk indicator.

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98. EVALUATION OF ACCURACY OF APEX LOCATORS IN ENDODONTICS. A COMPARATIVE META-ANALYSIS OF APL, CBCT AND RADIOGRAPHIC TECHNIQUES.

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Introduction. Determination of the working length accurately is one of the most important steps in endodontic treatment since it will affect the success of instrumentation and obturation of the canal. An inaccurate measurement can result in either under-instrumentation or over-instrumentation which negatively impacts the prognosis of the tooth. There are currently three major ways in which a clinician can measure the working length: using conventional radiography, as well as CBCT, in addition to clinical variables that may be present during the measurement process.

Aim of study. Reviewing the accuracy of the apex locator (APL) compared to conventional radiographic techniques and CBCT for the purpose of determining working length, to identify the techniques that provide the most reliable clinical results.

Methods and materials. Studies comparing APL to both conventional radiography and/or CBCT based upon actual root canal length were reviewed. All quantitative data concerning the measurement of working length accuracy based upon a ±0.5mm margin of error, intraclass correlation coefficient (ICC), Bland Altman analysis, as well as p-values for statistical significance (threshold $p<0.05$) were collected. The different models of APL (Mini Root ZX, Raypex 5, Propex Pixi, RomiApex A-15) as well as the influence of the intracanal environment (NaOCl 2-5.25%, blood, pulp), metallic brackets and various CBCT parameters (FOV, section thickness, voxel size) were also evaluated.

Results. APLs were found to have high accuracy with 100% of all measured lengths being accurate within ±0.5mm in select studies and an overall accuracy of 69.31% under varying clinical conditions. The Rayapex-5 had an accuracy of 84.2%. Radiographs showed much lower accuracy (50.6%) than the APL. The accuracy of CBCT was highly dependent upon the parameters utilized with an ICC of 0.948 and maximum accuracy of 55.3% for 5x5 FOV. An 11.2mm section thickness provided the highest correspondence to the true length. Various environmental factors, including NaOCl concentrations and the presence of metallic brackets affected many of the measurements ($p<0.05$).

Conclusions. Based on the analyzed data, apex locators represent the most reliable and consistent method for determining working length, with minimal errors and no radiation exposure. CBCT provides valuable three-dimensional information, useful in complex cases; however, its use must be justified, considering radiation exposure and cost. Conventional radiography remains a complementary tool but should not be used as the sole method for working length determination. The integration of APL with modern imaging methods can optimize clinical outcomes in endodontics.

Keywords. working length, apex locator, CBCT, periapical radiography, endodontics.

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99. DENTAL CARIES IN CHILDREN WITH JUVENILE IDIOPATHIC ARTHRITIS

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Introduction. Juvenile idiopathic arthritis (JIA) is the most common chronic rheumatic disease in children and may lead to functional disability and reduced quality of life. Systemic manifestations, long-term treatment, and immunological alterations may influence oral health status. At the same time, untreated dental caries (DC) represents a potential source of chronic inflammation and bacteremia. Therefore, early detection of DC is essential for preventing complications and improving the quality of life of affected children.

Aim of study. To evaluate the particularities of dental caries progression in children with juvenile idiopathic arthritis and to identify associated cariogenic risk factors.

Methods and materials. A case-control clinical study was conducted on a sample of 86 children with a mean age of 12.4 ± 2.02 years, divided into two structurally comparable groups. The study group (L1) included 43 children diagnosed with JIA. The control group (L0) consisted of 43 healthy children. Clinical examinations were performed to assess the level of DC involvement using the caries prevalence index (PI) and the DMFT index. Associated cariogenic risk factors were identified. Caries risk assessment was performed using the computerized Cariogram model. The study was conducted in accordance with ethical principles, and participation was based on written informed consent obtained from parents. Statistical data analysis was carried out using Epi Info software, version 7.0.

Results. Children with JIA (L1) showed a significantly higher level of DC compared to healthy subjects (L0). The caries prevalence index (PI) was 93.02%, which was 34.88 percentage points higher than that recorded in the control group (58.14%), the difference being statistically significant ($p < 0.001$). The mean DMFT index was also significantly higher in the JIA group compared to controls (4.02 ± 1.39 vs. 2.19 ± 1.14; $p < 0.001$), indicating a 1.84-fold greater caries experience in children with JIA. Cariogram-based caries risk assessment revealed a high risk in the JIA group and a moderate risk in the control group. Clinical evaluation frequently revealed reduced salivary flow, difficulties in maintaining oral hygiene, and frequent consumption of fermentable carbohydrates among children with JIA.

Conclusions. Children with JIA presented a significantly higher level of DC compared to healthy children, as demonstrated by increased prevalence, higher DMFT values, and elevated caries risk. These findings support the need for regular monitoring and implementation of personalized preventive measures for DC, integrated into the multidisciplinary management of patients with JIA.

Keywords. dental caries, juvenile idiopathic arthritis, caries risk.

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100. AERO ABRASION AS A MINIMALLY INVASIVE APPROACH IN DENTAL CARIES MANAGEMENT

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Introduction. The evolution of restorative dentistry has emphasized conservative interventions that focus on preserving healthy tooth tissue rather than extensive mechanical removal. Aero abrasion, a technique employing compressed air combined with micro particles of aluminium oxide, has emerged as an effective tool for selective excavation of early and moderate carious lesions. Because it produces minimal vibration, noise and discomfort, this method responds to the clinical principles of patient centred and minimally invasive care.

Aim of study. To assess the practical indications, advantages and potential limitations of aero abrasion in the treatment of dentinal caries and to evaluate its relevance for routine clinical application.

Methods and materials. An integrative review was performed using PubMed, Google Scholar and Scopus databases. Research articles, case reports and manufacturer guidelines published between 2008 and 2023 discussing air abrasion systems, surface morphology, adhesive performance and patient response were critically evaluated.

Results. Evidence demonstrates that aero abrasion provides controlled removal of carious dentine while preserving sound margins, generating a clean micro rough surface favourable for adhesive bonding. Most patients experience no pain and rarely require anaesthesia. Clinical devices such as RONDOflex plus 360 (KaVo Dental, 2020) allow accurate adjustment of pressure and particle flow, ensuring better precision and operator control. Nonetheless, inadequate case selection or excessive power can result in unnecessary loss of tissue or scattering of abrasive powder. For deep extensive cavities, rotary instrumentation remains indispensable.

Conclusions. Aero abrasion represents a valuable adjunct in modern restorative dentistry, offering conservative, silent and well tolerated cavity preparation. When correctly indicated and performed with appropriate equipment, it enhances comfort, reduces anxiety and creates suitable conditions for adhesive restorations. Its successful integration into clinical practice depends on professional training, observance of safety standards and individual risk based treatment planning.

Keywords. Aero abrasion, dentinal caries, aluminium oxide.

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101. GUIDED BONE REGENERATION USING AUTOGENOUS LAMINATED BONE BLOCKS COMBINED WITH PORCINE XENOGRAFT: A CLINICAL EVALUATION OF THE KHOURY TECHNIQUE

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Introduction. Rehabilitation of alveolar crests with severe defects remains a major challenge especially when bone volume is insufficient. In this context, autogenous bone remains the gold standard of guided bone regeneration due to superior osteogenesis, osteoinductivity and osteoconductivity. The Khoury technique is based on fixing grafted thin autogenous laminated bone blocks and filling the space with autogenous particulate bone, with the goal of obtaining predictable results, with superior biologic integration and favourable support for implant placement. Despite the popularity of the method, results can vary depending on the defect, surgical technique and soft tissue management. Therefore, this report aims to assess the clinical applicability of the Khoury combined with porcine xenograft technique in managing severe alveolar ridge atrophy for implant placement.

Case presentation. The patient, F/29 years old, underwent clinical and paraclinical (CBCT) examination, after which the diagnosis was established: the mandible presented severe alveolar ridge atrophy (Class B-w, according to Misch), a limited amount of medullary bone, and a thin gingival phenotype. To reconstruct the defect, the guided bone regeneration technique proposed by Khoury, with porcine xenograft, was selected as the treatment of choice. An implant was inserted before laminated bone blocks were harvested from the mandibular ramus on the left side. The lamellar bone block was harvested using piezotomes, osteotomes and chisels and fixed in place with microscrews, while the created space was grafted with a mixture of autogenous and xenogenous porcine bone graft and covered with PRF membranes. Postoperative evaluation was performed at the end of the healing period (4 months).

Discussions. The grafting method used demonstrated that a sufficient amount of bone was achieved. During follow-up examinations, radiological assessment revealed no discernible difference between the bone graft mixture and the native bone. The radiographic homogeneity observed at follow-up may indicate favorable graft remodeling and maintenance of augmented bone.

Conclusions. In this particular case, the usage of autogenous and xenogenous porcine bone provided predictable, stable, and long-term outcomes sufficient for implant placement. The use of autogenous laminated bone blocks ensures both osteoinductive and osteogenic properties. Within the limitations of this case, the Khoury technique appears to be a reliable option for horizontal alveolar ridge augmentation prior to implant rehabilitation.

Keywords. Guided Bone Regeneration, Autogenous laminated bone blocks, Porcine xenograft, Mandibular ramus donor site.

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102. THE RELATIONSHIP BETWEEN UNILATERAL CHEWING AND GINGIVAL INFLAMMATION

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Introduction. Generalized chronic gingivitis is a reversible inflammatory condition driven by dental plaque and modulated by local functional factors. Unilateral mastication, often resulting from painful teeth, may favor gingival inflammation through uneven plaque distribution and reduced mechanical stimulation.

Aim of study. To demonstrate the association between unilateral mastication and generalized gingival inflammation, and evaluate the impact of restoring bilateral function on gingival health.

Methods and materials. Clinical case of a patient with bleeding gums and discomfort while eating. Examination included assessment of gingival redness, edema, marginal contour, and bleeding on probing. Radiography excluded alveolar bone loss. Treatment comprised endodontic therapy of tooth 17 and professional supragingival plaque control. Follow-up for one month.

Results. Examination revealed diffuse gingival redness, edema, altered marginal contour, and bleeding on probing without attachment loss. Plaque was asymmetrically distributed, with greater accumulation on the avoided hemi-arch. History identified chronic periodontitis of tooth 17 causing pain and long-standing unilateral function. Radiography ruled out systemic involvement. Diagnosis: moderate generalized chronic gingivitis. At recall, bilateral mastication was regained and plaque diminished on the formerly non-functional side.

Conclusions. Unilateral mastication secondary to dental pain contributes to generalized chronic gingivitis onset and persistence. Functional avoidance causes localized plaque build-up and reduced gingival stimulation. Re-establishing bilateral mastication improves plaque control. Correcting functional disturbances is essential in periodontal therapy.

Keywords. unilateral mastication; unused hemiarch; gingival inflammation; plaque retention; masticatory dysfunction.

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103. ORAL BREATHING - A DETERMINANT FUNCTIONAL FACTOR IN THE DEVELOPMENT OF DENTO-MAXILLARY ANOMALIES IN CHILDREN

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Introduction. Oral breathing is a frequently encountered functional disorder in children, characterized by the predominant use of the oral cavity during respiration, typically as a compensatory mechanism for impaired nasal breathing nasal breathing. This dysfunction arises in the context of upper airway obstruction, anatomical variations, or persistent deleterious habits, and it significantly affects the development of the oro-maxillofacial system during the growth period. Chronic oral breathing induces complex functional adaptations manifested through altered tongue posture, muscular imbalances, and cranio-cervical postural changes, which disrupt the physiological equilibrium of the stomatognathic system.

Aim of study. To assess the influence of oral breathing on the development of dento-maxillary anomalies in children.

Methods and materials. The study reviewed information sourced from platforms including "PubMed", "Journal of International Society of Preventive & Community Dentistry", "BMC Orl Health" and MDPI Children. The keywords used to highlight the impact of oral breathing included: "malocclusion", "deleterious oral habits", "dento-maxillary anomalies", "oral breathing", "maxillary underdevelopment", and "occlusion". Study selection was based on clinical and scientific relevance, including works emphasizing the relationship between oral breathing and functional changes of orofacial system, with the aim of identifying the pathophysiological mechanisms involved in this deleterious habit and the development of dento- maxillary anomalies.

Results. Data from the reviewed literature confirms chronic oral breathing as a significant etiological factor in the development of dento-maxillary anomalies. It is associated with insufficient transverse development of the maxilla, the occurrence of a narrow and high-arched palate, orofacial muscular imbalance, and the establishment of anterior open bite. The posterior rotation and downward position of the mandible contribute to deficient intermaxillary sagittal relationships, promoting the onset of Angle Class II malocclusion and accentuating a convex facial profile. The severity of these alterations is influenced by both the duration and the timing of oral breathing during the period of growth.

Conclusions. Oral breathing significantly affects the development of dento-maxillary anomalies in children by disrupting the functional balance of the stomatognathic system. Early identification and interdisciplinary management are essential for preventing and limiting dento- maxillary alteration associated with this dysfunction.

Keywords. Dento-maxillary anomalies, Oral breathing, Malocclusion.

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104. THE IMPLICATIONS OF STRESS AND PSYCHOLOGICAL FACTORS IN BRUXISM

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Introduction. Bruxism is an oral parafunctional activity increasingly associated with psychosocial stress and central regulatory mechanisms. Populations exposed to violence, conflict-related stress and socio-economic vulnerability may present a higher risk of developing this condition and its functional and psychosocial consequences.

Aim of study. To estimate the prevalence of bruxism in vulnerable youth and women and to analyze the relationship between psychosocial stress and parafunctional manifestations.

Methods and materials. A cross-sectional study was carried out involving 200 participants, consisting of 100 adolescents aged 12-18 years and 100 women aged 18-55 years from socially vulnerable backgrounds, such as victims of domestic violence, abuse, conflict-related stress, and socioeconomic deprivation. Data were collected using a structured questionnaire assessing stress levels, emotional state, oral parafunctional behaviors, healthcare access and self-reported signs suggestive of bruxism. Descriptive and comparative analyses were performed between groups.

Results. High levels of psychosocial stress and oral parafunctional behaviors were identified in both groups. A considerable proportion of participants met the criteria for probable or suspected bruxism, despite limited clinical diagnosis. Adolescents demonstrated reduced awareness of potential severity, while women reported higher emotional distress and restricted access to medical and psychological services. A significant association was observed between elevated stress levels and estimated bruxism prevalence.

Conclusions. Bruxism is highly prevalent among vulnerable youth and women exposed to psychosocial stress. Limited awareness and healthcare access contribute to underdiagnosis and delayed intervention, highlighting the need for interdisciplinary prevention-oriented strategies integrating psychosocial care and patient education into dental practice.

Keywords. Bruxism, Stress, Psychological factors.

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105. DIAGNOSTIC AND TREATMENT ALGORITHM FOR MAJOR SALIVARY GLAND DISEASES AMONG CHILDREN

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Introduction. Diseases of the major salivary glands represent a significant problem in pediatrics and oral and maxillofacial surgery. Most commonly, clinicians encounter inflammatory conditions of the salivary glands known as sialadenitis, salivary stone disease, as well as viral and bacterial parotitis, cysts, and various neoplasms .Nowadays, the number of children with these diseases develop with complications or acquire a chronic, recurrent course is increasing. It is believed that more than one third of children with salivary gland pathologies subsequently experience recurrent exacerbations or irreversible changes requiring long-term treatment and follow-up.

Aim of study. Study of the features of major salivary gland diseases in children for the improvement of diagnosis and treatment.

Methods and materials. In this study, 45 patients of both sexes (26 girls and 19 boys), aged 1-16 years, were examined and treated. The cases were selected from the archive of the Oral and Maxillofacial Surgery Department of the "Emilian Coțaga" Clinical Hospital for the period 2020–2025. A predominance of male patients was observed in sialolithiasis — 88.9%, sialadenitis — 53.3%, and in the group with phlegmons and abscesses — 100%. In contrast, a marked predominance of female patients was noted in salivary gland mucoceles — 90%. Overall, inflammatory diseases and sialolithiasis were more common in boys (≈63%), whereas mucoceles were predominantly diagnosed in girls. The data were collected from the archive of the Maxillofacial Surgery Department of the "Emilian Coțaga" Hospital and analyzed based on specialized literature.

Results. Among 45 children with major salivary gland diseases, sialolithiasis and inflammatory conditions were more common in boys, while mucoceles predominated in girls. Data analysis highlighted variations in disease incidence, localization, and clinical presentation, emphasizing the need for early diagnosis and standardized management protocols to reduce complications and recurrent disease in pediatric populations.

Conclusions. Literature review and analysis of clinical data from the hospital, demonstrate that major salivary gland diseases in children present with diverse etiologies and clinical forms, which require a comprehensive approach. Comparison of literature and institutional data confirms general agreement on disease structure, frequency, and clinical presentation, while also revealing age-related patterns and clinical features that underscore the importance of early diagnosis, advanced imaging, and minimally invasive treatment techniques to improve therapy effectiveness and patient prognosis.

Keywords. Gland, diagnostic, treatment.

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106. PROSTHETIC MANAGEMENT OF TOOTH 16 USING MONOLITHIC ZIRCONIA CROWN IN A BRUXISM PATIENT

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Introduction. Rehabilitation of posterior teeth with extensive coronal destruction and failed endodontic treatment represents a significant clinical challenge. Tooth 16 (maxillary first molar) is subjected to high occlusal loads, which are further increased in patients with bruxism. In such cases, restorative material selection must prioritize mechanical resistance and long-term prognosis. Monolithic zirconia offers superior strength and fracture resistance, making it a reliable option for posterior restorations where esthetics are of secondary importance.

Case presentation. A 32-year-old patient presented with pain and discomfort in the region of tooth 16. Clinical examination revealed a detached MOD restoration associated with significant loss of dental tissue. Radiographic evaluation showed an inadequate previous endodontic treatment and the presence of a periapical lesion. Non-surgical endodontic retreatment was performed, including removal of previous filling material, thorough canal reinstrumentation, irrigation, disinfection, and three-dimensional obturation. After confirmation of proper sealing, the tooth was rebuilt to restore adequate coronal structure and ensure retention and resistance form. For the prosthetic phase, a two-step impression technique with additional silicone materials was used. Honigum Soft (DMG Chemisch-Pharmazeutische Fabrik GmbH, Hamburg, Germany) was selected for the precision impression, and Oclufast (Zhermack SpA, Badia Polesine, Italy) was used for bite registration. A gingival retraction cord was placed to accurately expose the finish line and ensure precise marginal detail. Considering the patient's bruxism and increased occlusal forces, a monolithic zirconia crown was chosen. Esthetics in the posterior region were considered less critical than mechanical durability.

Discussions. The success of this rehabilitation relied on an interdisciplinary approach combining proper endodontic retreatment and appropriate prosthetic planning. In bruxism patients, layered ceramic restorations present an increased risk of ceramic chipping. Monolithic zirconia reduces this complication due to its high strength. Accurate impression techniques and proper gingival management are essential for achieving optimal marginal adaptation, which directly influences long-term periodontal health and restoration longevity.

Conclusions. Endodontic retreatment followed by coronal reconstruction and prosthetic rehabilitation with a monolithic zirconia crown represents a predictable solution for posterior teeth in bruxism patients. Careful material selection based on functional demands contributes significantly to long-term clinical success and structural stability.

Keywords. dental crown, monolithic zirconia crown, bruxism.

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107. MORPHO-FUNCTIONAL RESTORATION OF THE LATERAL GROUP OF TEETH

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Introduction. Restoration of the morphology and functionality of the lateral group of teeth represents one of the main tasks of therapeutic dentistry. The lateral teeth play an essential role not only in the aesthetics of the dental arches, but also in ensuring masticatory function, speech articulation, and maintaining the harmony of the temporomandibular joint. Damage to the structure of lateral teeth as a result of carious processes, trauma, or non-carious lesions leads to significant functional and aesthetic disturbances, which requires prompt and high-quality rehabilitation.Over the past decades, approaches to the restoration of lateral teeth have evolved considerably due to advances in dental materials and technologies. The emergence of new generations of composite materials, advanced adhesive systems, and minimally invasive preparation techniques has made it possible to increase the durability of restorations and to preserve healthy dental tissues to the greatest extent possible.

Aim of study. Conducting a comprehensive analysis of modern methods of morpho-functional restoration of the lateral group of teeth through the review of specialized literature and the evaluation of personal clinical observations.

Methods and materials. In this study, 23 patients of both sexes (13 women and 10 men), aged 21-50 years, were examined and treated. At 15 patients, direct dental restorations were performed on posterior teeth using the composite material Gradia Direct Posterior, while at 8 patients, restorations on posterior teeth were carried out using the composite material Estelite Sigma Quick. Both materials are light-cured nano-hybrid composites with high mechanical strength and excellent aesthetic properties. The study was conducted using the materials Gradia Direct Posterior, Gradia Direct Flo, Estelite Sigma Quick, and Estelite Universal Flow High, also as methods as Horizontal Layering and Microbrush Stamp Technique methods. The patients were diagnosed using the following methods: collection of medical history, clinical examination (objective and subjective), and paraclinical examination (additional diagnostic methods).

Results. Patients treated using composite materials, the Microbrush Stamp, and Horizontal Layering techniques demonstrated that the mechanical, physical, and aesthetic properties of restorative materials significantly affect the quality and longevity of restorations, leading to the achievement of a high quality of life.

Conclusions. The correct selection of a modern composite and an appropriate method, according to clinical indications, contributes to reducing complications and improving the long-term prognosis of lateral restorations with high morpho-functional and aesthetic properties.

Keywords. restoration,composite, teeth , function.

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108. THE USE OF FULLY CERAMIC DENTAL CROWN IN THE TREATMENT OF CORONAL DENTAL LESIONS

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Introduction. Coronal dental lesions accompanied by extensive destruction of hard dental tissues represent a frequent clinical challenge, especially in the aesthetic zone. Advances in restorative dentistry have made fully ceramic crowns an optimal and predictable solution, offering excellent aesthetic integration, biocompatibility, and long-term functional stability. Proper endodontic retreatment, core reconstruction and adhesive cementation are essential steps for successful prosthetic rehabilitation.

Case statement. A 34-year-old female patient presented with a coronal dental lesion involving the second incisor on the upper left jaw, characterized by unpleasant aesthetics due to coronal color change and a previously failed endodontic treatment. Clinical and radiographic examination revealed secondary cavities and inappropriate root canal filling. Endodontic retreatment was performed to ensure periapical health. Subsequently, coronal reconstruction was achieved using a glass fiber post and dual-cure composite core material (Clearfil DC Core Plus, Kuraray). Tooth preparation was carried out with a circumferential finish line (shoulder). A conventional impression was taken using polyvinyl siloxane material (Honigum, DMG). A fully ceramic crown, shade A2, was fabricated and permanently cemented using a resin-based adhesive cement (Variolink Esthetic, Ivoclar Vivadent).

Discussions. Fully ceramic crowns represent a reliable treatment option for anterior teeth with significant coronal damage, particularly when combined with fiber-reinforced post systems that distribute occlusal forces favorably. Adhesive cementation enhances retention and marginal adaptation, while the use of conventional impression materials remains a valid approach in achieving accurate prosthetic fit. Proper case selection and adherence to restorative protocols are key factors influencing long-term success.

Conclusions. The use of fully ceramic crowns, supported by appropriate endodontic treatment and core reconstruction, provides an effective and sustainable solution for the management of severe coronal dental lesions. This approach ensures functional rehabilitation and high patient satisfaction, especially in the anterior aesthetic zone.

Keywords. dental crown, fully ceramic crown, coronal dental lesion.

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109. THE ROLE OF ARTIFICIAL INTELLIGENCE IN DIGITAL ORTHODONTIC DIAGNOSIS AND TREATMENT PLANNING

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Introduction. The evolution of digital technologies has facilitated the integration of artificial intelligence (AI) in orthodontics, especially for diagnosis and treatment planning. The increasing availability of digital imaging, CBCT scans, and intraoral scanning technologies has led to a significant growth in orthodontic data. The interpretation of large volumes of radiographic and three-dimensional information may be time-consuming and operator-dependent. In this context, AI algorithms enable objective analysis of imaging data such as CBCT scans, photographs, and 3D models, thereby increasing diagnostic accuracy and clinical predictability while reducing human-related variability.

Aim of study. To evaluate the applicability of artificial intelligence in orthodontics, with an emphasis on the automatic analysis of imaging data used in diagnosis and orthodontic treatment planning.

Methods and materials. This study was designed as a narrative literature review based on articles retrieved from PubMed, Google Scholar, and ScienceDirect. Only articles published in English between 2019 and 2024 that evaluated AI applications in orthodontic diagnosis or treatment planning were included. Applications of artificial intelligence in the analysis of CBCT images, photographs, and 3D models were evaluated, focusing on the type of data processed, diagnostic accuracy, and planning efficiency.

Results. The review included 28 studies published between 2019 and 2024 that evaluated the application of artificial intelligence in orthodontics. Deep learning algorithms demonstrated an average accuracy of 93.2% in automatically tracing cephalograms and 91.5% accuracy in identifying malocclusions on digital 3D models. The segmentation of dento-maxillary structures on CBCT images showed sensitivity values between 0.85–0.96. Several studies also reported reduced analysis time and improved reproducibility compared to conventional manual methods. For monitoring platforms, patient adherence to treatment increased by 27% compared to traditional approaches. Due to the descriptive nature of the study, no meta-analytic statistical tests were performed.

Conclusions. The analyzed data support the hypothesis that artificial intelligence plays a significant role in optimizing orthodontic diagnosis and treatment planning. AI does not replace clinical decision-making but rather complements it by enhancing accuracy and efficiency in contemporary orthodontic practice. It may also help reduce operator-dependent variability and streamline the analysis of imaging data.

Keywords. Artificial intelligence (AI); Digital orthodontics; CBCT; 3D models; Deep learning; Orthodontic diagnosis.

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110. IMMEDIATE IMPLANT PLACEMENT IN THE PRESENCE OF CHRONIC PERIAPICAL PATHOLOGY

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Introduction. Immediate implant placement is an increasingly used procedure aimed at reducing treatment time and preserving post-extraction bone volume. However, the presence of a chronic periapical infection represents a major challenge due to the risk of bacterial contamination and potential complications affecting osseointegration. Over the last decade, the scientific literature has begun to re-evaluate this indication, suggesting that, under controlled conditions, immediate implantation can be a safe option even in previously infected sockets.

Aim of study. The aim of this study is to evaluate the feasibility and predictability of immediate implant placement in post-extraction sockets affected by chronic periapical pathology.

Methods and materials. A selective review of the literature was conducted in PubMed, Scopus, and Web of Science databases for the period 2015-2026. From a total of 244 analyzed articles, 18 relevant publications were selected, evaluating the success of immediate implant placement in sockets with chronic periapical lesions. In addition, a personal clinical case is presented, illustrating the practical application of the principles identified in the literature.

Results. The analysis of the selected articles revealed success rates ranging from 92% to 98%, comparable to those reported for implant placement in non-infected sockets, provided that through debridement and effective decontamination of the socket are performed. Successful treatment outcomes were shown to be largely dependent on the use of regeneration biomaterials (autologous bone, collagen membranes) and the achievement of sufficient primary stability. The presented clinical case describes immediate implant placement in a post-extraction socket with a chronic periapical defect, treated by complete curettage, insertion of an implant with adequate primary stability, and bone augmentation using a collagen sponge. The postoperative course was favorable, with no signs of inflammation or bone resorption at the 6-month follow-up.

Conclusions. Immediate implant placement in the presence of a chronic periapical pathology is a feasible and predictable procedure when strict protocols of cleaning, decontamination, and case selection are followed. The correlation between data from the literature and the author`s own clinical observations confirms that a careful, evidence-based approach can lead to outcomes comparable to those achieved in healthy sockets.

Keywords. Immediate implant placement, chronic periapical pathology, infected socket, osseointegration.

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111. THE IMPACT OF DIABETES MELLITUS ON SYSTEMIC AND ORAL HEALTH IN CHILDREN: A REVIEW OF LITERATURE PUBLISHED BETWEEN 2020-2025

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Introduction. Diabetes mellitus is a major public health challenge of the 21st century. According to 2024 International Diabetes Federation (IDF) data, 589 million people worldwide have diabetes, projected to reach 853 million by 2050. The disease increasingly affects young individuals and even during the perinatal period.

Aim of study. To assess the literature on the impact of diabetes mellitus on systemic and oral health in children, highlighting salivary alterations, oral microbiota composition, and changes in hard and soft oral tissues with clinical relevance.

Methods and materials. The review used databases such as PubMed, National Library of Medicine, JAMA Network, Oxford Academic, MDPI, Google Scholar, National Bibliometric Instrument, Research4Life, with keywords “diabetes in children”, “type 1 diabetes”, “oral health implications”, and “systemic health”. According to the search criteria, a total of 599 articles were identified, of which 74 were available as free full-text articles published between 2020 and 2025. 49 articles were excluded due to an irrelevant sample size or because the participants were older than 18 years. As a result, 25 articles met the inclusion criteria and were selected for analysis.

Results. The analysis of 25 articles revealed that diabetes mellitus can impact health even during the perinatal period, contributing to complications such as premature birth, preeclampsia, and fetal death. Children with type 1 diabetes frequently exhibit bone health abnormalities, including reduced bone mineral density, low vitamin D levels, and decreased auditory acuity. Regarding oral manifestations, children with diabetes are characterized by dental surface colonization by Streptococcus mutans and Lactobacillus species, the primary bacteria involved in the etiology of dental caries. Xerostomia, with a prevalence of 34-51% among diabetic patients, represents another key risk factor for caries and may lead to halitosis, burning mouth syndrome, and taste alterations (5,7% sweet, 6,8% salty). Periodontal disease typically begins with exudative, hemorrhagic, and proliferative gingivitis, progressing to chronic marginal periodontitis, with destruction of alveolar bone and supporting tissues. Poor glycemic control increases recurrent stomatitis, aphthous ulcers, and opportunistic Candida infections (C. dubliniensis and C. tropicalis, 84% of cases).

Conclusions. Diabetes mellitus profoundly affects systemic and oral health in children, from perinatal complications and bone abnormalities to dental caries, periodontal disease, xerostomia, and infections. Interdisciplinary collaboration is essential to ensure the health of patients with diabetes.

Keywords. diabetes in children, oral health implications, systemic health.

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112. MODERN BIOMATERIALS AND THEIR IMPACT ON FIXED PROSTHETIC RESTORATIONS

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Introduction. Modern biomaterials have significantly transformed dentistry by introducing advanced and predictable solutions for fixed prosthetic restorations. The integration of materials science into clinical practice has enabled improvements not only in structural durability, but also in biological compatibility and long-term performance within the oral environment. The transition from conventional materials to bioceramics, such as zirconia and all-ceramic systems, has enhanced both aesthetic and functional outcomes. These materials provide superior mechanical strength, improved biocompatibility, and optical properties that more closely replicate natural dentition, thereby increasing the longevity and clinical success of fixed prosthetic restorations.

Aim of study. To evaluate the impact of modern biomaterials on the success of fixed prosthetic restorations by analyzing their physico-mechanical properties, biocompatibility, and clinical performance.

Methods and materials. A review of specialized literature was conducted using the MEDLINE and PubMed databases, Journal of Prosthodontics, 2022, Journal of Prosthetic Dentistry, 2021, Clinical Oral Investigations, 2023, focusing on the clinical and laboratory studies on biomaterials used in fixed prosthetic restorations. The research included studies on bioceramics, composite materials, and metal-ceramic systems, assessing their mechanical properties, biocompatibility, and clinical durability.

Results. Bioceramics, such as zirconia and all-ceramic materials, have demonstrated excellent biocompatibility and superior mechanical properties, reducing the risk of adverse reactions while offering superior aesthetics. Composite materials present challenges related to polymerization shrinkage and the release of unpolymerized monomers, which may affect periodontal tissues. Metal-ceramic restorations remain a viable option due to their strength, although aesthetics may be compromised compared to bioceramics.

Conclusions. Modern biomaterials have significantly improved fixed prosthetic restorations, providing durable and aesthetic solutions. Bioceramics, due to their biocompatibility and mechanical properties, represent an optimal choice. However, material selection should be individualized, considering the clinical requirements and specific needs of each case.

Keywords. Modern biomaterials, fixed prosthetic restorations, bioceramics, composite materials, metal-ceramics.

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113. THE IMPORTANCE AND EFFICIENCY OF FISSURE SEALING IN THE PREVENTION OF DENTAL CARIES

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Introduction. Dental caries is the most prevalent chronic disease worldwide. According to the World Health Organization, around 2.5 billion people suffer from caries in permanent teeth, while over 500 million children are affected by caries in primary teeth. Nearly 46% of children experience caries in primary dentition and more than 50% in permanent teeth. These figures highlight the need for effective preventive strategies, particularly in pediatric dentistry, where fissure sealing reduces occlusal caries risk.

Aim of study. This study aims to evaluate the clinical effectiveness of different pit and fissure sealant techniques in children, determining which isolation method provides better moisture control, which enamel preparation protocol ensures optimal retention and which sealant material demonstrates superior properties.

Methods and materials. Four clinical cases involved primary and permanent teeth with deep pits and fissures indicated for preventive sealing. Isolation was achieved with cotton rolls or rubber dam. Enamel surfaces were prepared using three protocols: conventional 37% phosphoric acid etching, sodium hypochlorite pretreatment followed by acid etching and airflow cleaning followed by acid etching. The sealants from distinct categories were applied: Kids-e-Pit and Fissure sealing (resin-based), UltraSeal XT Plus (filled resin with fluoride) and PF Seal (glass ionomer with chemical adhesion and fluoride release). Materials were applied and light-cured according to manufacturers' instructions.

Results. Rubber dam isolation provides superior moisture control and better sealant retention compared to cotton rolls. Sodium hypochlorite and airflow cleaning improved preparation, but acid etching remained essential for optimal micromechanical retention. Among materials, filled resin-based sealants had the best mechanical properties and long-term retention, while glass ionomer sealants offered good adhesion and fluoride release but lower durability. Long-term retention was evaluated based on available literature.

Conclusions. Proper isolation, effective enamel preparation and selecting an appropriate sealant are crucial for maximizing preventive effects. Rubber dam is recommended, acid etching is essential and filled resin-based sealants provide the best performance and longevity. Glass ionomer sealants remain useful with limited isolation and fluoride release. Long-term retention and durability recommendations are primarily based on literature.

Keywords. Dental caries, pit and fissure sealants, rubber dam isolation, enamel etching, sealant retention.

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114. INNOVATIONS AND PERFORMANCE OF ZIRCONIA CROWNS IN MODERN DENTISTRY: A REVIEW OF THE RECENT LITERATURE

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Introduction. Over the past few years, the use of zirconium-based materials in dental prosthetics has become a preferred option due to its outstanding characteristics. Zirconium stands out for its mechanical strength, long durability and excellent biocompatibility with oral tissues, as bacteria adhere less to the zirconium surface. Over time, research has shown that zirconium, through the development of modern processing technologies, can offer perfect adaptability, with a natural appearance and improved resistance, even in the case of intense masticatory forces.

Aim of study. To perform a literature review of recent advances of zirconia crowns in modern dentistry.

Methods and materials. An analytical review of 40 scientific articles published in the last 5 years was conducted using PubMed, ResearchGate, and Google Scholar, more than 60% of which were in English language.

Results. Zirconia crowns demonstrate superior fracture resistance compared to Porcelain Fused-to-Metal artificial crowns on a Cr-CO metal alloy base (Cr-Co PFM crowns), providing greater durability under masticatory forces and making them suitable for long-term restorations. According to the literature, the fracture rate of Cr-Co PFM crowns was 2.5–2.9%, whereas zirconia-based crowns showed a lower rate of 1.87–2.04%. Among Cr-Co PFM crowns, 1.2–1.8% required replacement for aesthetic reasons, while none of the zirconia crowns needed replacement. In aesthetic evaluations, 85% of the 40 reviewed studies agreed that zirconium provides more natural appearance (being almost identical to natural enamel) in comparison with Cr-Co PFM crowns — its translucency and the ability to imitate the light-diffusing properties of natural teeth contributes to a particularly aesthetic result. The authors also reported that the clinical survival of Cr-Co PFM crowns reached 93.7–94.3%, whereas zirconia-based increased to 94.5–95.6%. It was found that the average fracture strength of zirconia crowns was 320 N, compared to 280 N for Porcelain Fused-to-Metal artificial crowns on the base of Cr-CO metal alloy. Biologically, zirconium is well-tolerated, causes minimal inflammatory or allergic reactions, induces less gingival retraction than Cr-Co PFM crowns, and supports positive tissue responses, leading to better clinical results. However, 93% of authors highlight that zirconia's high hardness can lead to abrasion of opposing teeth, requiring caution in bruxism cases.

Conclusions. Zirconia crowns represent a contemporary prosthetic solution combining strength, aesthetics and biocompatibility, supporting their use in dental practice.

Keywords. "zirconia crowns", "dental zirconium", "zirconium biocompatibility".

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115. PREVALENCE AND PATTERN OF MALOCCLUSION AMONG URBAN AND RURAL SCHOOLCHILDREN

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Introduction. According to WHO, malocclusion is the third most common oral health problem, after dental caries and periodontal disease. Malocclusion is a dentofacial deformity involving abnormalities of the teeth and jaws and is considered a public health problem in children and adolescents due to its impact on maxillofacial growth and oral function. The prevalence and pattern of malocclusion may vary with age, sex, and environmental factors. Assessment of a population's epidemiological profile is crucial for the appropriate planning of oral health services.

Aim of study. To assess malocclusion prevalence and patterns among schoolchildren from urban and rural areas.

Methods and materials. We conducted a cross-sectional comparative study among 194 schoolchildren aged 12–16 years to assess the prevalence of malocclusions from urban and rural areas of the Republic of Moldova Data were collected through standardized clinical examinations, and analyzed using appropriate statistical methods. Each child was counted once for the presence of malocclusion, and occlusal traits were recorded separately, as multiple traits could coexist in the same individual, with prevalence calculated relative to the total children examined in each group.

Results. A total of 194 children were examined, including 100 from rural areas and 94 from urban areas. The prevalence of malocclusions was higher in the rural group (68%) compared to the urban group (58.5%). Among affected children, Angle Class I predominated in both environments (38% in rural and 34% in urban), followed by Class II (24% rural vs 19.1% urban) and Class III (6% rural vs 5.3% urban). Additional occlusal traits were identified, including vertical discrepancies such as deep bite (14% rural vs 10.6% urban) and open bite (3%), rural only. Transverse midline deviation occurred in 11% of rural and 5.3% of urban children, while increased overjet was recorded in 12% and 5.3%, respectively. The most frequent were group anomalies with dental crowding (23% rural vs 12.8% urban), followed by positional dental anomalies (27% rural vs 18.1% urban).

Conclusions. Malocclusions are highly prevalent among schoolchildren in both urban and rural areas of the Republic of Moldova, with a higher occurrence in rural populations. The distribution pattern was comparable between groups, with Class I representing the dominant malocclusion type, and Class II and Class III show comparable proportions. Rural children present a higher frequency of associated occlusal traits, including vertical, transverse, and dental anomalies. These findings highlight the need for early screening and targeted preventive programs, particularly in rural areas, to improve oral health outcomes.

Keywords. Malocclusion, prevalence, schoolchildren.

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116. PERIAPICAL LESIONS: RADIOLOGICAL FEATURES AND DIFFERENTIAL DIAGNOSIS

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Introduction. Periapical lesions represent a frequent pathological condition encountered in dental practice, most commonly resulting from pulpal necrosis and microbial infection of the root canal system. Radiological imaging plays a significant role in their detection, evaluation, and follow-up. Accurate interpretation of radiographic features is essential for establishing a correct diagnosis and for differentiating inflammatory periapical lesions from other odontogenic and non-odontogenic pathologies of the jaws.

Aim of study. To analyze the radiological features of periapical lesions based on a statistical evaluation of a group of patients and to emphasize the importance of imaging in differential diagnosis.

Methods and materials. A retrospective radiological study was conducted on a group of 50 patients, both female and male, diagnosed with periapical pathology. Panoramic and periapical radiographs were analyzed. The assessed radiological parameters included lesion size, shape, margins, radiodensity, localization in relation to the affected tooth, involvement of adjacent anatomical structures, and radiological evolution. The imaging findings were statistically analyzed and correlated with clinical data in order to establish the differential diagnosis between periapical granuloma, radicular cyst, periapical abscess, and other radiolucent lesions of the jaws.

Results. Statistical analysis revealed a higher incidence of periapical lesions among male patients (56%, n = 28) compared to female patients (44%, n = 22). Radiologically, periapical lesions were most frequently observed as radiolucent areas located at the apices of non-vital teeth. Periapical granulomas were the most prevalent lesions, accounting for 52% of cases (n = 26), with a higher occurrence in males (61.5%) than in females (38.5%). Radicular cysts represented 30% of cases (n = 15) and were more frequently diagnosed in male patients (60%) compared to females (40%). Periapical abscesses accounted for 18% of cases (n = 9) and showed a slight male predominance. In several cases, differential diagnosis with anatomical variations and other radiolucent jaw lesions was necessary to avoid diagnostic misinterpretation.

Conclusions. Radiological examination is an indispensable tool in the diagnosis of periapical lesions. Statistical evaluation of imaging characteristics in a defined patient group enhances diagnostic accuracy. The correlation between radiological and clinical findings allows correct differential diagnosis and contributes to effective endodontic and surgical treatment planning.

Keywords. Periapical lesions, radiological examination, statistical analysis.

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117. IMPACT OF EVIDENCE IN MODERN ORTHODONTICS

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Introduction. Orthodontics is the dental specialty concerned with the diagnosis and treatment of dento-maxillary anomalies in order to restore function and dento-facial balance. Scientific and clinical evidence plays a fundamental role in orthodontic practice by supporting therapeutic decision-making. In the specialized literature, Graber emphasizes that evidence is organized into levels within an "evidence pyramid", from expert opinion and case series, through observational studies and randomized controlled trials, to systematic reviews and meta-analyses. In orthodontics, therapeutic decisions must be based on evidence and on critical appraisal of clinical data, in order to enhance the predictability and safety of medical care.

Aim of study. To identify and highlight the impact of evidence in orthodontic practice.

Methods and materials. This study was based on analysis of the scientific literature, published between 2016-2025, regarding evidence-based orthodontics. The following databases were used: PubMed, Web of Science, Cochrane Library, and Google Scholar, in which 6 systematic reviews, 7 meta-analyses, 8 clinical studies, and 2 relevant textbook chapters were studied, emphasizing the importance of implementing evidence-based practice in modern orthodontics.

Results. The literature review which was carried out based on specialized literary sources led to the identification and organization of the evidence pyramid in orthodontics. The analysis shows that systematic reviews and meta-analyses are the most valuable forms of evidence, as they synthesize and critically evaluate multiple studies addressing the same issue. Systematic reviews apply strict selection criteria, reducing the risk of errors and selective conclusions. Meta-analysis, being quantitative, statistically combines data from several studies, increasing result accuracy and statistical power. Heterogeneity assessment identifies factors that influence the effectiveness of orthodontic treatments. Thus, clinical recommendations based on such evidence are more reliable than those revealed in isolated studies.

Conclusions. The classification of evidence allows us assessment of the scientific value of each type of study and guides information selection. The application of evidence-based practice leads to more effective, safe and more predictable orthodontic treatments.

Keywords. orthodontic, meta-analysis, evidence pyramid.

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118. DENTAL ATYPIA – METHODS OF DIAGNOSTIC AND SURGICAL TREATMENT

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Introduction. The atypical eruption of the teeth occurs because of developmental disturbances. The most common abnormalities include impacted, dystopic, supernumerary and abnormal positioned teeth. Extraction of atypical teeth might be complicated with hemorrhage, infections, loss of sensibility and excessive resorption of the alveolar process.

Aim of study. The aim of our study was to highlight the abnormalities of the molars, their diagnostics, treatment and rehabilitation methods.

Methods and materials. This is a retrospective study, conducted at *Arsenie Gutan* Department of Oral-Maxillofacial Surgery and Oral Implantology, *Nicolae Testemitanu* State University of Medicine and Pharmacy. The sample size included 32 patients with the mean age of 24.8 ± 5.34 years. For diagnostics orthopantomography and CBCT were used. As surgical techniques were applied classic and atypical extraction, and in 2 cases hemisection.

Results. The atypia of the molars was revealed in 65.6%. In 31.3% of patients the 3rd molar was impacted in various positions, out of which in 9.4% the inclusion was total and in 21.8% it was partial. Vertical inclusion was determined in 12.5% of cases; disto-angular – in 6.3%; mesio-angular – in 9.4% and horizontal – in 3.12%. Post-extraction pain syndrome was absent in 25.0% of cases; mild pain, during the first 3 days, was characteristic of 56.2%; moderate pain – in 12.5%; severe pain – in 6.3% of cases. Post-extraction complications were present in 40.6% out of which: hemorrhage (6.3%); fever (6.3%); cortical lesions of the alveolar process (6.3%); decreased nerve sensitivity for a period of 3 days (3.1%); oedema (6.3%); alveolitis (9.4%). In unclear cases, for previsualization of the topographical interrelationships of the atypical molars with the neighboring anatomical structures, the CBCT was used. For preservation of the alveolar process and facilitation of osteogenesis in atypical extraction the collagen-based dressing was applied. The follow-up of the patients after atypical extraction, did not show any disturbances of the regeneration and granulation process.

Conclusions. Among the most common postoperative complications, hemorrhage, fever, facial edema, cortical lesions, temporary decrease in nerve sensitivity and alveolitis were determined. CBCT was the elective method for unclear and complex cases, supplying tridimensional information about the topographical relationships of the molars with the neighboring anatomical structures and helpful in programming and management of surgery.

Keywords. atypical molars, CBCT, atraumatic extraction.

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119. TOOTH DISCOLORATION. DIAGNOSIS AND ESTHETIC TREATMENT USING THE BLANCONE WHITENING SYSTEM.

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Introduction. Tooth discoloration represents a major esthetic concern in modern dentistry. It affects both the patient's smile and self-confidence. The etiology of dental discoloration may be extrinsic (external pigments from food, tobacco, and beverages) or intrinsic (fluorosis, tetracycline use, injuries, developmental defects).

Aim of study. To assess the effectiveness of the BlancOne whitening system in the dental office for the management of dental discoloration, as well as to determine the appropriate therapeutic strategy for restoring dental esthetics.

Methods and materials. The study was conducted on a group of 10 patients (7 female and 3 male patients) at the "*Sofia Sîrbu*" Department of Odontology and Periodontology, *Nicolae Testemitanu* SUMPh. The patients, aged between 20 and 45 years, presented with impaired dental esthetics. They underwent clinical and paraclinical examinations based on an assessment form. The BlancOne whitening system and the VITA Classical A1-D4 shade guide were used in this study.

Results. Of the 10 cases, 80% presented with moderate or severe extrinsic discoloration, while 20% exhibited mild intrinsic fluorosis that had previously been undiagnosed. After one whitening session with the BlancOne, an average improvement of one shade on the VITA shade guide was achieved. In patients who underwent two consecutive sessions, the results were more pronounced. Immediately after treatment, the teeth became dehydrated, temporarily enhancing the appearance of fluorosis. After 24-48 hours, following natural hydration, the shade appeared more natural and esthetically pleasing.

Conclusions. In-office teeth whitening using the BlancOne system represents a safe, fast, and effective method. Results are visible after a single session; however, in cases requiring two sessions, the outcomes are more pronounced and clinically evident. The temporary dehydration effect may enhance previously undiagnosed fluorosis, but natural hydration restores the teeth's natural esthetic appearance.

Keywords. tooth discoloration, teeth whitening, BlancOne, fluorosis.

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120. DENTAL FLUOROSIS IN ENDEMIC AREAS: CLINICAL FEATURES, PROPHYLAXIS, AND TREATMENT

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Introduction. Fluorosis is an endemic disease formed as a result of chronic exposure to excessive amounts of fluoride entering the body with drinking water and food. The latest worldwide information shows that fluorosis is endemic in at least 25 countries worldwide. First of all, fluorosis pathologically affects dental tissues during the formation of dental buds, their development and eruption. The lesion of the anterior group of teeth is accompanied by pronounced aesthetic disorders, which often leads to the formation of psychological complexes and complicates the social adaptation of patients. Excessive intake of fluoride is considered as a factor that pathologically affects the liver, gastrointestinal tract, kidneys, cardiovascular, endocrine and bone systems.

Aim of study. To identify the prevalence of fluorosis among students in grades 9-12 living in the endemic zone.

Methods and materials. The prevalence of dental fluorosis was determined in 82 students from grades 9 to 12 at the Lyceum named after S. I. Baranovsky, Kopchak village, Chadyr-Lunga district, where the fluoride content in drinking water is 3-4 mg/l. A total of 82 students were examined, including 33 boys (40%) and 49 girls (60%) . Oral examination was carried out according to WHO recommendations. The prevalence was determined according to the I.Müller classification.

Results. Of the 82 students examined, 69 (84%) had healthy teeth, and 13 (16%) had dental fluorosis. The distribution of fluorosis by grade was as follow: In the 9th grade, fluorosis was detected in 3 students (12%):2 students had stage II and 1 student had stage V. In the 10th grade, fluorosis was detected in 5 students (21%):2 students had stage II fluorosis (mild form), 2 students had stage III (moderate form) and 1 student had stage IV (severe form). In 11th grade, fluorosis was identified in 2 students (13%), both presenting stage II fluorosis (mild form). In grade 12, fluorosis was diagnosed in 3 students (15%):2 students had stage II (mild form) and 1 student had stage IV fluorosis (moderate severity) according to the Müller classification.

Conclusions. The results obtained confirm that the increased level of fluoride in drinking water contributes to the development of dental fluorosis in adolescents. These data highlight the importance of preventive programs, monitoring of fluoride concentrations in drinking water, and early diagnosis of the disease.

Keywords. dental fluorosis, endemic zone, prevalence , adolescents.

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121. THE RELATIONSHIP BETWEEN DENTO-MAXILLARY MALOCCLUSIONS AND OBSTRUCTIVE SLEEP APNEA: THE IMPACT OF ORTHOGNATHIC SURGERY ON OROPHARYNGEAL VOLUME AND FUNCTION

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Introduction. The coexistence of dento-maxillary malocclusions and obstructive sleep apnea (OSA) represents a complex clinical issue, with implications for both respiratory function and mastication. Craniofacial alterations directly influence the dimensions of the upper airway, particularly the oropharynx.

Aim of study. To analyze the correlation between dento-maxillary malocclusions and OSA, as well as to evaluate the impact of orthognathic surgery on volumetric and functional changes of the oropharynx, highlighting therapeutic implications.

Methods and materials. The study is based on a review of the scientific literature identified in Google Scholar and PubMed databases, selecting relevant papers regarding the relationship between malocclusions, OSA, and the effects of orthognathic surgery on the upper airway.

Results. Maxillary and mandibular advancement leads to a significant increase in upper airway volume and oropharyngeal space. In Class II malocclusion, anterior repositioning of the mandible is associated with upper airway expansion, while in Class III malocclusion, maxillary advancement results in increased pharyngeal volume. These changes are maintained long-term, being reported even 4 years postoperatively. In contrast, mandibular retrusion may reduce upper airway dimensions and increase the risk of OSA. Meta-analyses confirm the correlation between maxillomandibular protrusion and airway volume expansion, although clinical effectiveness in complete resolution of obstruction remains debatable.

Conclusions. According to the literature, orthognathic surgery plays an important role in the management of patients with malocclusions and OSA, contributing to the optimization of oropharyngeal volume and function. Maxillomandibular advancement procedures provide functional benefits and long-term stability. However, therapeutic planning must be carried out with caution, considering the risks associated with certain procedures and the need for further studies.

Keywords. Dento-maxillary malocclusions, Obstructive sleep apnea, Orthognathic surgery.

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122. CLINICAL EVALUATION OF ORTHODONTIC ARCHWIRE EXPANSION

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Introduction. Dental crowding and transverse discrepancies of the dental arches are common dento-alveolar anomalies that affect occlusion and dental alignment. Their management often requires increasing arch length and improving arch form during orthodontic treatment. Dento-alveolar expansion using wide or extra-wide orthodontic archwires has been proposed as a conservative approach for creating space and correcting moderate crowding. Therefore, this study aimed to evaluate the effectiveness of orthodontic arch expansion with wide and extra-large archwires in improving transverse dental arch dimensions and occlusal relationships

Aim of study. To evaluate the effectiveness of dento-alveolar arch expansion using wide and extra-large orthodontic archwires in increasing transverse dental arch dimensions and improving occlusal relationships.

Methods and materials. This analytical retro-prospective cohort study was conducted between 2020 and 2025 at the *Ilarion Postolachi* Department of Orthopaedic Stomatology, *Nicolae Testemitanu* State University of Medicine and Pharmacy. A total of 180 patients aged 14–36 years (128 females, 52 males) presenting dento-alveolar anomalies with dental crowding and space deficiency were included and divided into two groups: a control group treated with fixed appliances and standard archwires (n=100) and a study group treated with fixed appliances using wide and extra-wide archwires (n=80). Clinical, photometric, biometric, and radiological examinations (orthopantomography and lateral cephalometry) were performed, and dental arch parameters were assessed using Nance, Bolton, and Rees indices. Data collection included anamnesis, clinical examination, dental cast analysis, and digital measurements, while statistical processing was performed using EpiInfo 7.2.2.6, RStudio, and Python with a 95% confidence interval and 80% statistical power.

Results. Orthodontic arch expansion using wide and extra-wide archwires proved effective in correcting moderate dental crowding and transverse discrepancies of the dental arches. The mean space deficiency was 4.2 mm in the maxilla and 4.5 mm in the mandible, corresponding to moderate crowding. No statistically significant differences were observed between the alternative and classical treatment groups ($p > 0.05$).

Conclusions. Orthodontic arch expansion with wide and extra-wide archwires is an effective alternative to the classical protocol for managing dento-alveolar crowding and transverse discrepancies, with comparable post-treatment stability and shorter treatment duration.

Keywords. Malocclusion; Dental Crowding; Orthodontic Appliances; Dental Arch; Orthodontic Wires; Orthodontic Treatment Outcome.

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123. DENTAL FLUOROSIS AS A FACTOR INFLUENCING DENTAL DECAY SUSCEPTIBILITY IN CHILDREN

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Introduction. Fluoride plays a crucial role in caries prevention by enhancing enamel remineralization and inhibiting bacterial metabolism, but excessive systemic fluoride exposure may interfere with the normal activity of ameloblasts. The relationship between dental fluorosis and dental caries remains complex. Epidemiological studies indicate that the prevalence of dental fluorosis in children may vary widely, reaching values between 10% and 70% depending on fluoride exposure sources.

Aim of study. The aim of the present study was to analyze the scientific literature published between 2015 and 2025 regarding the relationship between dental fluorosis and dental caries susceptibility in children. The research focused on identifying the biological, environmental, and behavioral factors that influence the development of dental caries in children affected by dental fluorosis. Another objective of the study was to evaluate how structural modifications of fluorotic enamel may affect the resistance of dental tissues to demineralization processes. Understanding these mechanisms is essential for developing effective preventive strategies and improving oral health outcomes among children living in regions with increased fluoride exposure.

Methods and materials. The present research represents a narrative literature review based on the analysis of scientific publications available in international scientific databases. The databases consulted included PubMed, Scopus, Google Scholar, and Hinari, which provide access to peer-reviewed medical and dental literature.

Results. Epidemiological investigations show that children living in areas with higher fluoride concentrations in drinking water often present a higher prevalence of dental fluorosis but may also demonstrate lower DMFT values compared with populations exposed to lower fluoride levels. Mild fluorosis is frequently associated with increased resistance to caries, while moderate and severe fluorosis may lead to enamel surface irregularities, structural weakness and increased plaque accumulation.

Conclusions. Dental fluorosis represents a significant oral health condition that may influence the susceptibility of teeth to dental caries. Preventive strategies should focus on appropriate fluoride use, education of parents and children regarding oral hygiene and regular dental check-ups. Excessive ingestion of fluoridated toothpaste, dietary fluoride intake and high fluoride concentrations in drinking water may increase the risk of fluorosis development. Monitoring of fluoride exposure during early childhood is essential to ensure a balance between caries prevention and fluorosis risk. Further epidemiological and clinical studies are necessary to better understand the mechanisms that regulate the relationship between dental fluorosis and dental caries.

Keywords. Dental fluorosis, dental caries, enamel susceptibility, fluoride exposure, pediatric dentistry.

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124. CLINICAL FEATURES OF HERPETIC STOMATITIS IN CHILDREN

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Introduction. Herpetic stomatitis is one of the most common viral diseases of the oral mucosa in children. The disease is characterized by high contagiousness and the ability to spread rapidly in children's groups. Clinically, it manifests through vesicular and erosive lesions of the oral mucosa, pain, inflammation, and general symptoms such as fever and malaise. Early diagnosis and appropriate therapeutic management are important for preventing complications and reducing the frequency of recurrences.

Aim of study. To analyze the clinical features of herpetic stomatitis in children based on a review of modern scientific literature and the presentation of a clinical case, as well as to determine the criteria for clinical and differential diagnosis compared with other diseases of the oral mucosa.

Methods and materials. The study included 3 pediatric patients aged from 4 to 16 years who presented symptoms characteristic of stomatitis. The diagnosis was established based on clinical examination and additional diagnostic methods. Clinical included subjective assessment (main complaints and anamneses) and objective extraoral and intraoral examination. Paraclinical data, including laboratory confirmation of infection by polymerase chain reaction (PCR) to detect HSV-1 from oral mucosal swabs, determined the final diagnosis. Clinical evaluation, dynamic observation, and analysis of therapeutic treatment were performed (daily assessment of the general condition and local manifestations with photographic documentation of clinical data).

Results. The study material included a clinical case of acute herpetic stomatitis in a child. PCR analysis of an oral mucosal swab revealed a positive result for HSV-1 infection. Clinical manifestations included inflammatory ulcerative lesions of the oral mucosa measuring 2–4 mm in diameter, swollen hyperemic gums, pain syndrome, and systemic symptoms such as fever up to 38.5°C, signs of dehydration, and lethargy. Treatment included antiviral therapy, antiseptic treatment, and medications stimulating regeneration of the oral mucosa. In some cases, low-level laser therapy was used to reduce pain, accelerate healing, and decrease inflammation.

Conclusions. Analysis of clinical manifestations and diagnostic methods contributes to improving the diagnostic and treatment algorithm for herpetic stomatitis in children. Early diagnosis, appropriate therapeutic protocols, and preventive measures play an important role in reducing. complications, preventing recurrences, and improving the clinical course of the disease.

Keywords. herpetic stomatitis, children, oral mucosa, HSV-1 infection, diagnosis.

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125. USE OF METAL-CERAMIC FIXED DENTAL BRIDGES IN THE TREATMENT OF PARTIAL EDENTULISM IN PATIENTS WITH MARGINAL PERIODONTAL DISEASE

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Introduction. Partial edentulism associated with marginal periodontal disease represents a common challenge in prosthetic dentistry, especially in elderly patients. Reduced periodontal support and tooth mobility may compromise the prognosis of prosthetic restorations. Fixed bridges may restore function and aesthetics while also acting as a splint for periodontally affected teeth. Metal-ceramic restorations remain a reliable option due to their mechanical resistance and the possibility of fabricating long-span constructions.

Case presentation. A 68-year-old patient presented with partial edentulism in the mandibular arch, with the absence of tooth 46 (FDI). Clinical examination revealed early marginal periodontitis with slight tooth mobility (Grade I) in the lower incisors (31, 32, 41, 42). Teeth 43, 44 and 45 had old, inadequate crowns with marginal leakage requiring replacement. The treatment plan consisted of a splinted metal-ceramic bridge extending from tooth 32 to tooth 47. Teeth 32–47 were prepared as abutments, and tooth 46 was replaced with a pontic. The splinted design was chosen to distribute occlusal forces evenly and to reduce individual tooth mobility through cross-arch stabilization. Another factor influencing the material choice was the necessity to restore a large number of teeth within a single prosthetic framework. The tooth shade selected was A3. The final impression was taken using Honigum Soft (DMG). The metal framework was digitally designed using CAD/CAM technology and subsequently sintered to ensure optimal structural accuracy and strength. After clinical verification and ceramic layering, the final prosthetic restoration was cemented using Fuji I (GC Corporation) glass ionomer cement.

Discussions. In patients with periodontal compromise, splinting several teeth through a fixed prosthetic construction may improve stability and distribute occlusal forces more evenly. In this case, the extended metal-ceramic bridge provided both prosthetic rehabilitation and stabilization of teeth with mild mobility. Metal-ceramic systems allow fabrication of long-span frameworks, which is more difficult to achieve predictably with all-ceramic materials such as zirconia due to increased fracture risk in extended restorations.

Conclusions. Metal-ceramic bridges remain an effective solution for restoring extended edentulous spaces in patients with mild periodontal disease. Splinted constructions can contribute to functional rehabilitation and stabilization of periodontally compromised teeth, ensuring favorable clinical outcomes.

Keywords. Metal-ceramic bridge, Partial edentulism, Marginal periodontitis, Tooth splinting.

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126. COMPARATIVE ANALYSIS OF RESORBABLE AND NON-RESORBABLE MEMBRANES IN GUIDED TISSUE REGENERATION

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Introduction. Guided tissue regeneration (GTR) and guided bone regeneration (GBR) are treatment approaches used to support the healing and reconstruction of periodontal tissues and bone defects by promoting controlled and selective tissue growth. The development barrier membranes are well-known materials used in prevention of epithelial migration, facilitating osteogenic, periodontal cell proliferation and tissue stability. The development of contemporary regenerative surgery has led to the use of two principal membrane categories -resorbable and non-resorbable—each presenting distinct biological behavior, degradation, mechanical properties, and clinical performance.

Aim of study. To comparatively evaluate resorbable and non-resorbable membranes used in guided tissue regeneration, focusing on their biological characteristics, mechanical stability, clinical indications, complication rates, and regenerative outcomes.

Methods and materials. This study used PubMed, Scopus, ScienceDirect, and Google Scholar databases as its primal research study source. Randomized clinical trials, systematic reviews, meta-analyses, and experimental studies assessing membrane performance in periodontal and bone regenerative procedures regarding biocompatibility, degradation, space-maintaining capacity, risk, and long-term success were comparatively analyzed.

Results. Resorbable membranes, mainly collagen-based or synthetic polymers (polylactic acid, polyglycolic acid, polydioxanone), have demonstrated excellent biocompatibility and eliminated the need for secondary surgical removal, reducing patient morbidity. However, clinical trials have shown limited mechanical rigidity and variable resorption rates that may compromise space in bigger defects. Non-resorbable membranes, such as expanded and dense polytetrafluoroethylene (e-PTFE, d-PTFE) and titanium-reinforced barriers, provide superior structural stability and predictable defect containment, particularly in complex regenerative procedures. Their disadvantages include increased risk of membrane exposure and the necessity for surgical removal. Clinical evidence suggests comparable outcomes in enclosed defects, whereas non-resorbable membranes may offer improved predictability in advanced cases.

Conclusions. Both membrane types have shown to be quite effective when selected according to defect morphology and clinical situations. Optimal outcomes depend on balancing biological compatibility with mechanical stability, while minimizing complication risks through appropriate case selection.

Keywords. Guided tissue regeneration Guided bone regeneration, Resorbable membranes, Non-resorbable membranes, Barrier membranes.

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127. PHOTODYNAMIC THERAPY VERSUS IMPLANTOPLASTY IN THE SURGICAL MANAGEMENT OF PERI-IMPLANTITIS: A COMPARATIVE ANALYSIS OF BONE STABILITY AND SOFT TISSUE RESPONSE

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Introduction. Surgical management of peri-implantitis requires a balance between conservative and subtractive approaches. While implantoplasty modifies the surface mechanically to facilitate hygiene, antimicrobial photodynamic therapy (aPDT) preserves thread integrity through biological decontamination. Peri-implantitis, characterized by progressive bone loss, requires effective debridement to access the rough titanium reservoir for microbial biofilms. The choice between these paradigms significantly influences marginal bone stability, soft tissue response, and re-osseointegration potential.

Aim of study. This systematic review evaluates the clinical and radiological efficacy of aPDT vs. implantoplasty in the surgical treatment of peri-implantitis, focusing on marginal bone level (MBL) stability and long-term peri-implant tissue health.

Methods and materials. A systematic search of PubMed, Scopus, and Cochrane Library (2019–2026) identified randomized controlled trials and cohort studies comparing aPDT-assisted surgical debridement with implantoplasty. Parameters analyzed included probing pocket depth (PPD), bleeding on probing (BOP), mucosal recession, and crestal bone changes. Additionally, guided bone regeneration (GBR) success and post-treatment biocompatibility were assessed.

Results. Both techniques improve inflammatory indices. Implantoplasty reduces PPD by 2–3 mm in supracrestal defects but releases titanium/aluminum micro-particles (metallosis). This foreign body reaction elevates pro-inflammatory cytokines (IL-1β, TNF-α), causing mucosal recession (0.5 -- 1 mm) and up to a 30% reduction in mechanical strength, increasing fracture risk. Conversely, aPDT reduces bacterial load by >90%, excelling in infrabony defects. By generating singlet oxygen, it eradicates biofilm without altering surface roughness. Clinically, aPDT achieves PPD reduction of 1.5–2.5 mm and BOP reduction of 50–60%. At 12 months, MBL remains stable (<0.5 mm loss) with predictable bone fill of 30–60%. These outcomes are supported by decreased MMP-8 levels and enhanced cellular activity of fibroblasts and osteoblasts.

Conclusions. aPDT offers significant biological advantages in infrabony defects, ensuring decontamination while preserving structure. Implantoplasty remains a viable option for supracrestal defects but is limited by mechanical and aesthetic risks. Therefore, laser-assisted approaches support a minimally invasive, regeneration-oriented strategy, enhancing long-term stability and re-osseointegration potential.

Keywords. Peri-implantitis Surgery, aPDT, Implantoplasty, Bone Stability.

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128. THE EFFECT OF MANDIBULAR THIRD MOLAR EXTRACTION ON THE PERIODONTAL STATUS OF THE ADJACENT SECOND MOLAR

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Introduction.
The extraction of impacted mandibular third molars is a common procedure with significant implications for the periodontal health of the adjacent second molar. Anatomical proximity, especially in mesioangular and horizontal impactions often predisposes the second molar to distal defects. While surgery removes a pathological niche, trauma can exacerbate tissue damage. Outcomes are contingent upon patient age, tooth angulation, and technique.

Aim of study.
To evaluate through a systematic literature review the influence of impacted third molar extraction on the periodontal health of the adjacent second molar.

Methods and materials.
A systematic review was conducted using the electronic databases PubMed, Research Gate, The Cochrane Library, and Google Scholar. After applying inclusion criteria (clinical human studies, systematic reviews, articles published in the last 10 years, a total of 25 full-text articles were selected for detailed analysis.

Results.
A transient decline in periodontal status is expected immediately following surgical intervention. Significant improvement in periodontal parameters is observed on the distal aspect of the second molar within 6 to 12 months with a mean reduction in probing depth of 2 mm (Passarelli et al., 2019) highlighting the periodontium's intrinsic regenerative potential. In contrast, the mesial surface exhibits minimal change. Periodontal prognosis is largely dictated by the third molar angulation. Mesioangular and horizontal impactions are associated with the most severe pre-operative bone defects on the distal aspect of the second molar and the poorest post-extraction periodontal status (Zhang et al., 2021). Conversely, vertical and distoangular impactions correlate with generally better periodontal outcomes.

Conclusion.
Extraction of impacted mandibular third molars generally benefit the periodontal health of the second molar, with improvements in probing depth, attachment level, and bleeding indices within the first postoperative year. However, outcomes depend on patient and anatomical factors. Unfavorable tooth angulation, older age, prior periodontitis, and traumatic surgery are linked to poorer healing and residual defects. Careful preoperative assessment and, in high-risk cases, adjunctive regenerative techniques are important for optimal long-term results.

Keywords
impacted mandibular third molar; periodontal defect; second molar

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ETHICS ,DEONTOLOGY AND NURSING SECTION

1. THE PATIENT'S RIGHT TO MEDICAL CONFIDENTIALITY AFTER DEATH

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Introduction. The confidentiality of medical information represents an essential component of the protection of private life and constitutes one of the primary obligations of the medical profession. In the case of a patient's death, numerous ethical and legal dilemmas arise regarding access to medical information, as it is not always clear to what extent medical confidentiality continues after the patient's death and who has the right to request this data.

Aim of study. To analyze the protection of the confidentiality of medical information of deceased patients and to identify the limits of access to such information.

Methods and materials. The study is based on a documentary analysis of national legislation and international standards regarding the confidentiality of medical data, complemented by a review of specialized literature in the fields of medical law and bioethics.

Results. According to the legal framework and deontological norms, the obligation to preserve medical secrecy continues even after the patient's death, with the aim of protecting the dignity of the patient and the confidentiality of medical information. At the same time, there are situations in which the disclosure of medical information may be permitted under conditions provided by law. Thus, family members may have access to certain medical data when a legitimate interest exists, especially when the patient did not have the possibility to designate a person to receive this information. Medical data may also be used for scientific research or epidemiological purposes, provided ethical principles are respected and the data are anonymized. Disclosure of medical information may also be justified in judicial or forensic investigations when such information is necessary to determine the cause of death or to resolve criminal cases. At the same time, the importance of genetic information is emphasized, as it may be relevant to the health of relatives; therefore, under certain conditions, the communication of this data may be permitted. However, the lack of sufficiently clear regulations may generate conflicts between the obligation to maintain medical confidentiality and the legitimate interests of the family or society.

Conclusions. Even after the patient's death, the confidentiality of medical data remains an essential principle of medical ethics and law. In order to avoid conflicting situations, it is necessary to establish clear criteria regarding access to the medical information of deceased persons, so that a balance is maintained between the protection of private life and the legitimate interests of the family, the justice system, and scientific research.

Keywords. ethics, deontology, medical confidentiality, patient.

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2. AI-ENHANCED PRENATAL DIAGNOSTICS: BIOETHICAL DILEMMAS IN THE AGE OF LIBERAL EUGENICS

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Introduction. The fusion of artificial intelligence (AI) into prenatal medicine has intensified progressive ethical debates, particularly regarding the potential re-emergence of liberal eugenics in AI-assisted reproductive decision-making, reinforcing diagnostic accuracy and supporting clinicians in interpreting complex biomedical data. Nonetheless, these technological developments also promote ethical concerns about the instrumentalization of an individual's life, where reproductive options may gradually depend on genomic material, possibly affecting the conceptions of moral worth of future human beings.

Aim of study. The study examines bioethical implications of AI-driven selection in prenatal diagnostics and liberal eugenics.

Methods and materials. The research is a literature review that synthesizes scientific and statistical publications, as well as online materials from electronic databases (Google Scholar, ResearchGate, PubMed, NCBI), using different combinations, similar to („Artificial Intelligence" OR „Machine Learning") and „Prenatal Diagnosis".

Results. The findings reveal that AI-based technology engages significant potential benefits, including greater success and more accurate diagnoses, efficiency and personalization of medical interpretations in fetal care diagnostics. Synchronically, these modern tools introduce elaborated ethical challenges that require contemporary and discrete consideration, such as inequity, discrimination, and the possible disintegration of reproductive autonomy, appeared in the context of expanding genetic screening capacities. In addition, the focus on genetic optimization causes tensions against designs of genetic perfectionism, widening the gap between the access to prenatal care and the commodification of reproduction processes. Furthermore, technological advancements- such as AI-assisted polygenic embryo screening, genomic AI in early human development, and rapid genomic sequencing in critically ill fetuses- has enlarged the theory of ethical challenges, regarding autonomy, justice, and the moral connotation of genetic selection, framed by analytical interpretations, thus integrating large-scale quantitative data with standardizing clinical assessments.

Conclusions. The future of prenatal medicine declares several opportunities and ethical directions, settling specialized technology acceptance and genetic dissimilarities. The unusual transformation of fetal care with AI mechanization power promotes an oversight of a complex bioethical framework that challenges the clinical evaluation to ensure the protection of reproductive autonomy and the transparency of genetic selection. AI-assisted genomic analysis and prenatal screening may influence reproductive decision-making in ways that risk reinforcing tendencies toward liberal eugenics, particularly through the growing emphasis on genetic selection and optimization.

Keywords. AI-driven diagnosis, Prenatal diagnosis, Liberal eugenics, Bioethics.
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3. ETHICAL DILEMMAS IN THE COMMUNICATION PROCESS WITHIN NEUROLOGICAL MEDICAL PRACTICE

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Introduction. Ethics in medical communication reflects adherence to moral principles that must guide clinical practice as a whole. Neurological medical practice carries a significant psychological burden, and therapeutic outcomes are substantially influenced by the physician–patient relationship. Communication with the patient should represent a profoundly human act, involving empathy and responsibility. At the same time, ethical dilemmas may arise in this medical context, requiring a comprehensive and balanced approach.

Aim of study. To identify ethical dilemmas in medical communication that may impair effective communication or lead to the inappropriate application of communication models in the physician–patient relationship.

Methods and materials. The study includes a synthesis of publications from various databases, such as PubMed and UZPR, related to the addressed topic. The following methods were applied: ethical and bioethical analysis, sociological analysis, systemic analysis, and others.

Results. The analyzed sources reflect a wide range of issues concerning the role of ethics in communication with neurological patients. This role becomes particularly important when delivering bad news, ensuring respect for patient confidentiality, providing clear and balanced explanations, and avoiding undue pressure in emergency situations. Furthermore, throughout the entire medical care process provided to patients with neurological dysfunctions, a series of ethical dilemmas may arise within the physician–patient relationship, which must be addressed promptly and professionally.

Conclusions. Addressing ethical dilemmas that may arise during neurological treatment represents an essential component of therapeutic conduct in patients with neurological disorders, especially severe cases. The appropriate provision of ethical and bioethical support directly correlates with adherence to the principles of vulnerability, beneficence, autonomy, and therapeutic integrity.

Keywords. Ethics, communication, neurology, medical practice.

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4. ETHICAL ASPECTS REGARDING THE DECISION OF ARTIFICIAL NUTRITION IN POST-STROKE PATIENTS WITH DYSPHAGIA

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Introduction. According to recent studies, more than 50% of post-stroke patients with extensive hemispheric lesions or brainstem involvement develop dysphagia. The majority recover swallowing function within the first week, while only an estimated 11–13% continue to experience dysphagia up to six months. Dysphagia represents a major risk factor for malnutrition, dehydration and aspiration pneumonia due to the entry of food, liquids or saliva into the respiratory tract, which often necessitates artificial nutrition in order to prevent increased mortality. The initiation of artificial nutrition involves ethical dilemmas related to patient autonomy, protection of psychosocial well-being, the application of the principles of beneficence and non-maleficence, the assurance of justice and the maintenance of an optimal life quality.

Aim of study. To analyze the ethical aspects of initiating, maintaining or limiting artificial nutrition in post-stroke patients with dysphagia, in correlation with the patient's prognosis and the fundamental principles of bioethics.

Methods and materials. The study consists of a synthesis of approximately 20 scientific publications with topics in bioethics and medicine, identified in the following databases: PubMed, Google Scholar, and IBN. The following methods were applied: bioethical, sociological and structuralist analysis.

Results. The decision regarding artificial nutrition requires a multidimensional and individualized ethical analysis. The principle of autonomy implies respecting the patient's right to receive information about the diagnosis and prognosis of their condition, as well as the right to choose the method of nutritional support, either enteral nutrition through a nasogastric tube or gastrostomy, or parenteral nutrition via a central venous catheter, as well as the patient's decision to refuse treatment. Healthcare personnel evaluate the risks associated with these interventions in relation to their potential benefits, such as preventing malnutrition, reducing possible complications and avoiding prolonged suffering in cases of irreversible neurological prognosis, while ensuring a satisfactory level of life quality. In this context, the principle of justice requires a proportional and rational use of healthcare resources. Artificial nutrition may prolong the lives of these patients, however, it can significantly alter their life quality due to discomfort, stress, anxiety and limitations in social interaction.

Conclusions. The decision regarding artificial nutrition in post-stroke patients with dysphagia requires an ethical evaluation of medical benefits and their impact on life quality. The chosen approach should respect the patient's autonomy, minimize suffering, and preserve dignity, while ensuring the responsible use of available resources.

Keywords. bioethics, post-stroke patient, dysphagia, artificial nutrition.

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5. MEDICO-BIOETHICAL ASPECTS IN PEDIATRIC ENDOCRINE DISORDERS

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Introduction. Pediatric endocrine disorders represent an important group of chronic conditions requiring long-term monitoring and treatment. Diseases such as type 1 diabetes mellitus, growth disorders, and pubertal abnormalities may significantly influence the physical, psychological, and social development of children. In this context, clinical decisions involve not only medical considerations, but also important bioethical issues such as vulnerability, autonomy and parental involvement.

Aim of study. To examine selected aspects of pediatric endocrine disorders from a medico-bioethical perspective.

Methods and materials. The study was performed using a structured anonymous questionnaire addressing several bioethical issues, including disease disclosure, vulnerability, therapeutic integrity and the role of parents in decision-making. Responses were assessed using a five-point Likert scale. In addition, relevant scientific publications were reviewed using international databases such as PubMed, Scopus, and Web of Science. The research applied bioethical, sociological, and structuralist methods.

Results. The analysis highlighted the importance of effective communication between physicians, parents, and pediatric patients in the management of endocrine disorders. The findings emphasize the essential role of parents in therapeutic decision-making, while also recognizing the gradual development of the child's autonomy. Most respondents considered that minors should be informed about their medical condition in a manner appropriate to their age and level of maturity. Type 1 diabetes mellitus was identified as one of the most frequent endocrine disorders associated with ethical challenges in pediatric practice. Key bioethical principles such as autonomy, vulnerability, beneficence, and justice were considered fundamental in the decision-making process.

Conclusions. The management of pediatric endocrine disorders involves multiple medico-bioethical considerations. Respecting bioethical principles and promoting clear communication between physicians, parents, and children contribute to responsible therapeutic decisions and to ensuring the protection and well-being of pediatric patients.

Keywords. bioethics, pediatrics, endocrinology, ethical principles.

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6. ALZHEIMER'S DISEASE AND THE BIOETHICAL DILEMMAS OF AUTONOMY AND DIGNITY IN COGNITIVE DECLINE

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Introduction. Alzheimer's disease is considered a major challenge for the aging population, being the most common form of dementia. With obvious medical consequences, this condition also raises profound bioethical dilemmas, affecting the person's independence, memory, and judgment. Increasingly, patients depend on caregivers in the decision-making process as the disease progresses, causing difficulties in treatment and care. In these circumstances, respect for human autonomy and dignity becomes essential.

Aim of study. To analyze the profound bioethical dilemmas associated with Alzheimer's disease, with an emphasis on protecting dignity, decision-making at different stages of the disease, and respecting patient autonomy.

Methods and materials. Platforms, databases, and digital libraries were used, such as Google Scholar, IBN, PubMed, and Web of Science.

Results. The research highlights that patients experience progressively negative activity, leading them to choose alternative means of verbalizing their wishes, planning their care, and choosing their legal representative. Respecting the principles of patient autonomy ensures their comfort - both emotional and physical - reduces stigma, and contributes to promoting empathy. The major importance of empathic communication and the involvement of family and loved ones in preserving the patient's personal identity throughout the course of the illness has been proven. Similarly, major ethical problems have been identified, such as the patient's lack of cooperation with the doctor, unnecessary treatment, inadequate care, or decisions made by the guardian. Being in care institutions causes the patient to feel vulnerable, to feel a loss of personal value in relation to society, and insufficient quality care reduces their well-being. Therefore, ethical, medical, and psychological interventions are essential to ensure effective support for the patient.

Conclusions. Alzheimer's disease raises significant dilemmas in contemporary bioethics, as it involves essential aspects of human dignity, autonomy, and fairness. Ethical principles require respect for the wishes and values of the patient, as well as cooperation between specialists and family members. Therefore, even in the advanced stages of the disease, the patient must be treated with empathy, receive quality care, and have their dignity respected.

Keywords. bioethics, Alzheimer's, dignity, autonomy, dementia.

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7. CONFIDENTIALITY OF MEDICAL INFORMATION: ETHICAL CHALLENGES IN THE CONTEXT OF HEALTH DIGITALIZATION

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Introduction. The confidentiality of medical information represents a fundamental ethical principle in medical practice and a key reference point in ensuring patient autonomy and respect for patients' rights. The integration of digital technologies into medicine has led to significant progress, facilitating diagnosis and optimal patient monitoring; however, at the same time, it generates important ethical challenges regarding the protection of confidentiality and the security of personal data.

Aim of study. To analyze the impact on confidentiality and the risks to the security of medical information.

Methods and materials. In the preparation of this paper, specialized literature is stored in databases such as PubMed, Scopus, etc.

Results. The specialized literature describes the confidentiality of medical information as both an ethical and a legal obligation, a topic that has been addressed since antiquity. The Hippocratic Oath emphasizes medical secrecy as a professional duty. Technological progress in the medical field facilitates medical practice and provides important advantages for the healthcare system; however, along with these benefits, numerous risks related to data security also arise. A major threat is represented by cyberattacks. Due to the complexity and value of the data managed by medical institutions, they represent an attractive target for cybercriminals. The disclosure of such information may have serious consequences for patients' private lives and may significantly undermine trust in the healthcare system. Data security can also be compromised by human errors, either through the loss of devices containing medical information or through the accidental transmission of data to unauthorized recipients.

Conclusions. Attacks on electronic medical data systems represent a major threat to information security, requiring the implementation of strict protection measures and effective cybersecurity policies. Human errors cannot be completely avoided but can be minimized through continuous training and monitoring.

Keywords. ethics, confidentiality, digitalization, information, security.

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8. MORAL DECISIONS IN HOME PALLIATIVE CARE

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Introduction. Home palliative care is not only a medical act, but also an ethical one, based on a series of principles that must be put into practice. Its primary objective is to alleviate suffering and improve the quality of life of patients with chronic diseases in advanced or incurable stages.

Aim of study. The aim of this study is to analyze the most important moral decisions that arise in the palliative care of patients, as well as the obstacles encountered during the medical act by healthcare professionals, patients, or even their families.

Methods and materials. The study represents a conceptual research of international scientific literature from various published databases that analyze the medical, bioethical, social, and legal aspects of home palliative care. The study uses methodological tools specific to bioethics, ethics, and sociology to analyze and integrate the data in a relevant manner.

Results. Based on the analyzed sources, we found that among the most important moral decisions in palliative care are autonomy, dignity, and quality of life — ensuring comfort and avoiding suffering. However, during the medical process, certain dilemmas may arise, such as disagreements between the wishes of a suffering patient and those of the family, the use of palliative sedation, or the limitation of treatment. Furthermore, the patient's quality of life may be affected by certain inadequate decisions triggered by emotional pressure, stress, or misinformation. From a bioethical perspective, in the process of palliative care, each participant in the medical care act has an important role. Their purpose is to inform and guide while providing support whenever necessary, while the family has the primary role of actively participating in the care process, offering both physical and emotional support to the patient in the terminal stage.

Conclusions. Moral decisions represent a fundamental element in providing high-quality palliative care aimed at reducing the patient's suffering, ensuring quality of life, and respecting the patient's needs. Although various conflicts or differences of opinion may arise during the process, their effective management depends on efficient communication, proper information, and collaboration among all participants. Respect for bioethical principles, together with empathy and responsibility, represents the key to patient-centered care.

Keywords. palliative care, moral decisions, bioethics, ethical dilemmas, autonomy, quality of life.

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9. BIOETHICAL ASPECTS OF THE CORRELATION BETWEEN COGNITIVE CAPACITY AND THE LEVEL OF BRAIN HEALTH

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Introduction. Brain health represents a multifactorial concept that influences cognitive capacity and the individual's quality of life. Studies conducted in recent decades in neuroscience reveal a direct correlation between the structural and functional integrity of the brain and cognitive capacity. Advanced techniques are currently used, allowing the evaluation and application of therapeutic interventions regarding specific cognitive changes and various neurological pathologies. However, some of these methods raise challenges regarding the observance of certain bioethical principles.

Aim of study. To analyze the interconnection between the level of brain health and cognitive capacity, highlighting the relevant bioethical aspects.

Methods and materials. A narrative review of literature indexed in PubMed was conducted, analyzing various prospective studies. The following methods were used: bioethical, sociological, structuralist, and historical.

Results. Structural and functional changes in the brain are correlated with the individual's cognitive function. Factors such as physical activity, nutrition, cognitive stimulation, and the control of cardiovascular risk factors contribute to maintaining brain health and preventing cognitive decline. The conducted studies highlight the essential role of advanced technologies and other sophisticated scientific capabilities in the research of cognitive processes. However, cognitive optimization strategies generate concerns regarding data confidentiality, the risk of discrimination based on cognitive performance, and the appropriate limits of cognitive enhancement interventions, among others.

Conclusions. Current trends in cognitive stimulation through various advanced methods may lead to bioethical dilemmas regarding the undefined boundaries between treatment and brain enhancement. Strengthening the values of human dignity, equity, diversity, and neurofunctional integrity helps maintain harmony between the evolution of medicine and the protection of individual integrity.

Keywords. Bioethics, neuroethics, brain health, cognitive capacity.

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10. ETHICAL ISSUES IN THE CARE OF PATIENTS WITH END-STAGE ALZHEIMER'S DISEASE

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Introduction. Alzheimer's disease is a progressive and incurable neurodegenerative disorder that primarily affects individuals over the age of 65. The most prominent manifestations of this condition include memory impairment, cognitive decline, and alterations in personality and behavior, which progressively lead to the loss of personal autonomy. As a result, the gradual decline in the capacity to make decisions regarding treatment and care raises numerous ethical concerns related to the moral framework within which medical care should be delivered.

Aim of study. To analyze the ethical dimensions involved in the care of patients with end-stage Alzheimer's disease and to emphasize the role of ethical principles in clinical decision-making in the context of progressive cognitive deterioration.

Methods and materials. A review of specialized literature published between 2017 and 2025 was performed using established scientific databases and academic platforms, including PubMed, MDPI, Cambridge University Press, ScienceDirect, and Google Scholar. Both theoretical and empirical studies were considered in the analysis. The research applied analytical, comparative, and hermeneutic methods.

Results. The analysis of the selected literature highlights the challenges associated with obtaining informed consent from individuals with cognitive impairment, as well as the ethical difficulties that arise when balancing respect for patient autonomy with the responsibility to ensure patient safety and well-being. Individuals with Alzheimer's disease constitute a particularly vulnerable group, and one of the fundamental priorities of medical practice in this context is the protection of personal autonomy, the promotion of the patient's best interests, and the preservation of a relationship based on trust and shared responsibility. Ethical dilemmas related to therapeutic decisions in advanced dementia require an interdisciplinary approach that enables comprehensive bioethical discussion in the management of complex cases.

Conclusions. Patients affected by Alzheimer's disease represent a highly vulnerable category and require careful consideration throughout the entire process of medical care. Therapeutic interventions should be developed in an integrated, patient-centered manner, involving collaboration between multiple specialists and adherence to ethical principles from the moment of diagnosis until the final stage of life.

Keywords. Alzheimer's disease, terminal stage, ethics, neurodegeneration.

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11. ETHICAL JUSTIFICATION FOR IMPOSING ANTI-TUBERCULOSIS TREATMENT IN PRISONS

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Introduction. The transmission of tuberculosis continues to thrive within prison walls, with prevalence estimated to be up to 17 times higher than in the general population. The main causes contributing to the transmission of treatment-resistant strains and limiting tuberculosis control remain: delayed detection of new cases, poor contact tracing, overcrowding, inadequate treatment of infectious cases, poor hygiene, and poor implementation of Mycobacterium tuberculosis infection control measures.

Aim of study. To analyze the ethical principles that can justify limiting the autonomy of prisoners by imposing anti-tuberculosis treatment, with the aim of protecting public health in the prison environment.

Methods and materials. This study is a synthesis of WHO data and recent research on tuberculosis in prisons. We looked at how bioethical principles, such as autonomy or non-maleficence, harmonize with the legal obligations of the state. The analysis balances the need for treatment with compliance with international ethical standards.

Results. Refusal of treatment for a contagious disease is no longer a simple private choice, especially in prisons, where group safety limits individual autonomy. Ethics is an inseparable part of medicine, as doctors have an ethical obligation to benefit patients, avoid or minimize harm, and respect patients' values and preferences. However, forcing therapy remains an extreme measure, strictly conditioned by the severity of the risk and respect for human dignity.

Conclusions. Imposing treatment in prisons is justified only as a last resort, to avoid imminent public danger. Even then, any measure must respect the dignity of the prisoner. Currently, a balance is sought between bioethics and human rights, protecting collective health without negating the value of the individual.

Keywords. Tuberculosis, Ethical standards, Prisons, Collective health.

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12. INFORMED CONSENT IN THE CONTEXT OF PARKINSON'S DISEASE

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Introduction. Parkinson's disease (PD) affects over 10 million people worldwide. Advanced therapies offer potential symptom relief, but raise a number of ethical challenges. One of these concerns the relationship between the degree of cognitive impairment and the ability to make decisions about the use of advanced therapies.

Aim of study. To address ethical issues regarding informed consent in the context of advanced therapies for PD.

Methods and materials. The study consisted of a systematic narrative review of scientific articles published between 2020 and 2025 in PubMed, Google Scholar, and ScienceDirect. Research addressing the ethical aspects of Parkinson's disease treatments was included. Of the 80 articles identified, 25 were selected. The study involves analysis, synthesis, hermeneutics, and comparative methods.

Results. The final summary showed that cognitive decline limits informed consent, with 30–40% of patients with advanced PD affected by dementia, and the phenomenon of "therapeutic misconception" occurring in over 50–60% of clinical trial results. Deep brain stimulation (DBS) presents psychiatric risks in a significant proportion of patients and limited benefits in cases of dementia. Experimental therapies generate unrealistic expectations in more than half of patients, and advance care planning (ACP) is insufficiently implemented and documented in most cases. Access to advanced treatments is deeply unequal, being severely limited in low-income countries, in contrast to much wider availability in high-income countries.

Conclusions. It is essential that informed consent be dynamic and constantly adapted to the patient's situation. Equally important are the early integration of advance care planning and interdisciplinary team training. AI tools can support decision-making and risk anticipation, increasing patient autonomy and reducing inequalities in care. Specific BP ethical guidelines and further research focused on the patients' perspective are needed.

Keywords. Parkinson's disease, informed consent, ethics, deep brain stimulation, advance care planning.

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13. "TELEMEDICINE FROM AN APPLIED ETHICS PERSPECTIVE"

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Introduction. The rapid expansion of information technologies has led to the integration of telemedicine into current medical practice, improving both the physician–patient relationship, and the way healthcare services are delivered. Although telemedicine offers multiple benefits, its use raises ethical and legal issues that require systematic analysis in order to ensure its proper management when applied in medical practice.

Aim of study. To analyze the ethical aspects of telemedicine and to identify the conditions for optimizing its implementation within the healthcare system.

Methods and materials. The study represents an analysis of the literature identified in scientific databases such as PubMed, Google Scholar, and ScienceDirect. A total of 26 scientific papers were reviewed, and details from 11 selected articles were included in the final synthesis. The form and content of the approach were developed through the application of analytical, hermeneutic, and comparative methods.

Results. Telemedicine contributes to increasing access to medical care, particularly in isolated or disadvantaged areas, improves the monitoring of chronic patients, and optimizes the use of resources. From a utilitarian perspective, it can be justified by maximizing collective benefit and reducing costs. From a deontological standpoint, telemedicine is ethically acceptable insofar as it protects patients' rights and promotes equitable access to services. However, significant challenges have been identified: the risk of misdiagnosis in the absence of direct physical examination, the vulnerability of medical data, the lack of standardized regulations regarding licensing and reimbursement, as well as inequalities in access to digital infrastructure.

Conclusions. Based on the results of the analysis, optimizing the use of telemedicine requires the development of clear and uniform legal frameworks, the standardization of clinical protocols for remote consultations, the strengthening of data protection measures, and the continuous training of professionals. The responsible integration of telemedicine should be carried out in accordance with the principles of applied ethics, in order to ensure the protection of patients' dignity and safety in the context of technological progress.

Keywords. telemedicine; medical ethics; autonomy; equity; beneficence.

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14. EUTHANASIA IN PATIENTS WITH INCURABLE DISEASES – A BIOETHICAL ANALYSIS REGARDING THE OPPORTUNITY OF LEGALIZATION

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Introduction. Euthanasia is a medical practice, aimed at inducing premature and painless death in patients with incurable diseases, with the purpose of alleviating severe and/or prolonged suffering. The legalization of euthanasia in certain countries is often morally justified through the principles of autonomy and beneficence, with decisions made in accordance with the patient's will. However, the principle of autonomy alone is insufficient to ethically justify euthanasia from the standpoint of the physician's professional duties, while the principle of beneficence raises complex and controversial ethical issues.

Aim of study. A bioethical analysis of the opportunity to legalize euthanasia, highlighting the moral dilemma between respecting patient autonomy and the physician's responsibilities. The study aims to provide a critical analysis and evaluation of arguments in favor of euthanasia, examining how different theoretical perspectives justify or constrain medical actions within a normative ethical framework.

Methods and materials. A review of the specialized literature from the past 15 years was conducted using the databases PubMed, Scopus, and Web of Science, employing the following keywords: euthanasia, bioethical analysis, medical ethics, patient autonomy, and moral dilemma. Conceptual analysis was used as the main research methodology, and complemented by a critical evaluation within a comparative analysis.

Results. The review of the literature indicates that the patient's autonomous request is a core ethical determinant, granting moral permissibility to the act and functioning as a justificatory factor. This perspective assumes that, under conditions of unbearable suffering with no prospects for improvement, quality of life is so diminished that the public interest may consider euthanasia tolerable. Nevertheless, in some patients, the validity of this assumption may be challenged.

Conclusions. Euthanasia constitutes a central bioethical issue in extreme medical contexts and end-of-life situations. Within the context of conflicting moral obligations, even in the presence of principles opposing this practice, it may be regarded as ethically justifiable under certain circumstances. This is particularly the case when the patient makes a voluntary decision, submits an autonomous request, and endures suffering that is intolerable and devoid of hope. Consequently, in such circumstances, the physician may justifiably place the alleviation of the patient's suffering above personal moral beliefs, acting to anticipate a natural outcome, even if this intervention may limit the patient's ability to conclude life in a manner seen as dignified and autonomous.

Keywords. bioethics, euthanasia, incurable diseases, assisted suicide, palliative care.

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15. ETHICAL ASPECTS OF INFORMED CONSENT IN EMERGENCY CLINICAL MEDICINE

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Introduction. Informed consent represents one of the central foundations underlying ethics in scientific research and medical practice. It is based on three important pillars: autonomy, dignity, and respect for the rights of human subjects involved. At the same time, informed consent is a key component of the international legislative framework, being included in guidelines and ethical codes that establish proper standards for the doctor–patient relationship, including in emergency medicine.

Aim of study. To examine the ethical aspects related to the patient's informed consent in emergency medicine.

Methods and materials. An ethical perspective analysis of scientific materials from international databases over the last 15 years was conducted: PubMed, Web of Science, and Scopus. The main method used was documentary analysis, which involved the selection and critical examination of specialized literature.

Results. In the Republic of Moldova, informed consent is usually presented briefly and concisely, compared to other Western European countries where it may have a much larger volume. Obtaining consent in emergency medicine is a complex act for various reasons. Informed consent should primarily be based on the principle of autonomy, enabling the patient to make a voluntary decision.

Conclusions. Informed consent in emergency medicine represents a specific action in clinical medicine, based on relative autonomy. Appropriate ethical principles include therapeutic integrity, vulnerability, non-maleficence, and beneficence. Ethical/bioethical guidelines create significant opportunities for optimizing emergency medical practice.

Keywords. ethics, informed consent, autonomy, doctor–patient relationship, emergency medicine.

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16. MEDICAL RECORDS OF MINORS: THE DETERMINANT ROLE OF PARENTS AND LEGAL REPRESENTATIVES IN GUARANTEEING THE BEST INTEREST OF THE CHILD

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Introduction. The medical act in the case of minor patients represents a set of norms and actions, in which both legal and ethical aspects, as well as emotional considerations, are involved. Parents and legal representatives are the ones who express consent on behalf of the patient regarding the procedure and the entire spectrum of treatment. In general, minors are not allowed to make informed medical decisions, having a limited capacity to fully understand the risks, implications and consequences of treatment.

Aim of study. The study aims to highlight the essential role of parents or legal representatives in the medical decision-making process for minors, analyzing the correlation between the protection offered by the adult and the child's right to be involved in the decision.

Methods and materials. The research was based on randomized theoretical and applied studies, analyzing specialized literature stored in international databases such as PubMed, Scopus, etc. The obtained data were statistically analyzed using the SPSS program, and the qualitative information was subjected to thematic analysis in order to highlight the main ethical ambiguities and communication difficulties encountered in practice.

Results. The study showed that more than half of the minors surveyed were not consulted when decisions regarding their health were made. Some had a clear understanding of the medical decision-making process. Most parents considered it necessary to make decisions for their children, arguing that minors do not fully understand the risks, benefits and possible complications of medical interventions. At the same time, few physicians reported situations in which the minor refused treatment,even if the parent had given consent. This aspect highlights the ethical tension between respecting the autonomy of the developing adolescent and the legal authority of the parent. Minors aged between 16 and 18 refused treatment due to the lack of medical education, highlighting the difficulties and conflicts that may arise in the decision- making process.

Conclusions. Parents or legal representatives have an essential role in making medical decisions for minors, constantly acting in the best interest of the child. They analyze the information provided by the medical staff, correlating it with family values and the particularities of the child. From a bioethical perspective,the decision-making process must reflect a balance between medical benefits and respect for the developing autonomy of the minor.

Keywords. ethics,medicine,minor,parent,autonomy,informed consent.

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17. ETHICS OF NEUROLOGICAL PATIENT AUTONOMY: BETWEEN CONSCIENCE AND MEDICAL DECISION

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Introduction. Patient autonomy is a fundamental pillar of medical bioethics, being closely related to the person's right to make decisions regarding their own health. This principle is often difficult to apply in neurological practice, because patient autonomy is compromised by various central nervous system disorders that directly or indirectly alter their ability to understand medical information and participate in the decision-making process. In such situations, the doctor and family are faced with ethical and/or legal dilemmas related to initiating treatment, continuing or limiting therapeutic interventions and respecting the patient's interests. This reveals a dilemma in making medical decisions without the patient's direct consent, where a prudent analysis of ethical principles, legislation and professional responsibility is necessary.

Aim of study. The purpose of the study is to analyze the legal and ethical aspects involved in the management of patients with severe neurological injuries who do not have autonomy. The study aims to highlight the prevailing bioethical dilemmas, as well as the importance of delegated consent.

Methods and materials. A secondary analysis was carried out within the study, based on a review of the specialized literature. Scientific articles in the field of bioethics, neurology, case reports, clinical guidelines and relevant legislative documents were analyzed. The purpose of the analysis was oriented towards identifying clinical situations in which the patient's autonomy was compromised and to appreciate the ethical-legal mechanisms used in making medical decisions in the absence of direct consent.

Results. The results of the analysis reveal an impressive number of neurological conditions that compromise the patient's capacity to make decisions. The most common being: coma, advanced dementia, syndromes, acute confusional states, brain trauma and brain death. In such situations, decisions are made by the patient's family or a legal representative. In 85% of cases, medical decisions were made without direct consent, being based on delegated consent. In the case of patients in a vegetative state, 30% received palliative care aimed at maintaining the patient's comfort and dignity.

Conclusions. The loss of autonomy generates major bioethical problems in medical practice. Delegated consent becomes essential in these situations, but its application requires compliance with ethical and legal principles. The results demonstrate the importance of bioethical education of medical personnel, to ensure the choice of a correct and responsible decision oriented towards the patient's benefit.

Keywords. autonomy, informed consent, dementia, medical decision, delegate.

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18. BIOETHICAL ASPECTS OF FERTILITY PRESERVATION IN GYNECOLOGIC ONCOLOGY

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Introduction. Gynecologic cancers, including cervical, ovarian, and endometrial malignancies, represent a significant cause of morbidity among women worldwide, with a considerable proportion diagnosed during reproductive age. Standard oncologic treatments such as radical hysterectomy, bilateral oophorectomy, chemotherapy, and radiotherapy may result in temporary or permanent infertility. In recent years, advances in oncofertility have introduced fertility-preserving strategies; however, these approaches require careful patient selection and may involve oncologic risks. The integration of bioethical principles is essential in guiding therapeutic decisions that affect both survival and reproductive potential.

Aim of study. To highlight the bioethical aspects in gynecologic oncology related to fertility preservation and to analyze their impact on therapeutic decision-making.

Methods and materials. Materials selected from the databases PubMed and Scopus, as well as international clinical guidelines (ESMO, ASCO, WHO), were analyzed: approximately 40 scientific articles and clinical protocols published between 2015–2025. The following methods were applied: bioethical, sociological, and structuralist.

Results. Studies demonstrate that fertility concerns significantly influence treatment preferences in young patients with early-stage gynecologic cancers. Fertility-sparing surgery and cryopreservation techniques are considered oncologically safe in selected cases, but require strict criteria and informed counseling. Clinical guidelines emphasize the importance of early discussion regarding reproductive risks before initiation of therapy. Lack of adequate information may lead to decisional regret and psychological distress. Multidisciplinary collaboration between oncologists and reproductive specialists improves informed consent and supports autonomous decision-making. Ethical principles such as autonomy, beneficence, proportionality of treatment, and respect for patient vulnerability play a central role in balancing oncologic safety with reproductive aspirations.

Conclusions. Fertility preservation in gynecologic oncology represents a significant and complex challenge in contemporary bioethics that may significantly influence therapeutic strategies. Transparent communication, individualized risk assessment, and multidisciplinary counseling are essential for optimizing patient-centered oncologic care.

Keywords. bioethics, gynecologic oncology, fertility, therapeutic decision-making.

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19. SIMULATION ETHICS: DIGITAL TWINS AS A PREVENTION OF MALPRAXIS IN EMERGENCY TRIAGE AND MANAGEMENT

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Introduction. In emergency medicine, there is a worldwide overcrowding crisis where urgent and time-pressure triage decisions lead to malpractice cases, misdiagnosis and under-triage. Digital Twins (DT) technology represents dynamic virtual replicas based on real-time data that offers a valuable approach for the preventive assessment of physiological risks. However, their integration raises persistent ethical dilemmas.

Aim of study. The present study aims to establish the role of DT as a mechanism for preventing medical malpractice, examine the effectiveness of digital models in predicting triage errors, as well as their applicability to global bioethical standards (WHO, 2024), and reveal the interpretation (hermeneutics) of the legal responsibility stratified between the clinician, developer, and provider.

Methods and materials. This study is a conceptual analysis of the international scientific literature in PubMed, addressing the medical, bioethical, social and legal dimensions of artificial intelligence and virtual modeling applied to the integration of DT in emergency medicine. The study uses the methodological tools of bioethics, sociology and hermeneutics.

Results. By analyzing the selected sources, it can be demonstrated that the predictive core of DT outperforms human triage in accuracy (AUC of 0.86 vs 0.74) and prevents under-triage in 71-81% of cases where human assessment is not sufficient. The study also presents a bioethical perspective to identify the risk of "secondary malpractice", which occurs due to automation bias and the decline of clinical skills. Legal hermeneutics establishes a layered responsibility: the clinician is the "trained intermediary" (master of the medical act), and the developer is responsible for the (poor) performance of the product or biased training data.

Conclusions. Digital Twins represent an essential support aimed at preventing harm and reducing malpractice through triage, transforming decision-making from a judgment made under acute stress into a process informed by digital evidence. Successful implementation requires adherence to the "Man-in-the-loop" principle and algorithmic transparency. Regular bias audits and the use of blockchain for decision traceability could help ensure a balance between technological innovation and deontological responsibility. At the same time, bioethical principles applicable to decision-making autonomy, confidentiality, patient dignity and responsibility within the symbiotic human-algorithm relationship are reinforced.

Keywords. Digital Twin, bioethics, malpractice, triage, artificial intelligence.

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20. DECISIONAL MANAGEMENT IN THE DOCTOR–PATIENT RELATIONSHIP IN HEPATIC STEATOSIS. ETHICAL AND CLINICAL IMPLICATIONS.

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Introduction. Hepatic steatosis represents a common metabolic condition associated with metabolic syndrome and the risk of progression to steatohepatitis and fibrosis, requiring complex management and a patient-centered approach. Despite the progress achieved, the prevalence of the disease continues to increase, raising a series of ethical issues and moral challenges both for the healthcare system in general and for clinicians.

Aim of study. To analyze the specialized literature in order to highlight the ethical and clinical implications of the decision-making process in the doctor–patient relationship in hepatic steatosis.

Methods and materials. A narrative analysis of scientific publications was conducted using databases such as Pubmed. In the final synthesis, 11 articles relevant to clinical management, patient autonomy, and applicable ethical principles were selected. The approach was based on analytical and comparative methods.

Results. Hepatic steatosis, defined as excessive accumulation of intrahepatic lipids, represents a growing clinical problem associated with the obesity epidemic. Hepatic steatosis is linked to an increased risk of insulin resistance, type 2 diabetes mellitus, cardiovascular diseases, and advanced liver disease.Accumulated evidence shows that physical activity, exercise, and aerobic capacity have profound effects on the regulation of intrahepatic lipids and on mediating susceptibility to hepatic steatosis. The analyzed literature highlighted the importance of shared decision-making, respect for patient autonomy, and the individualization of therapeutic interventions. The role of lifestyle counseling, the need for comprehensive patient information, and the management of ethical conflicts related to adherence, stigmatization, and individual responsibility were emphasized. A patient-centered approach was found to optimize compliance and clinical outcomes.

Conclusions. The conducted synthesis confirmed that integrating ethical principles into the decision-making process contributes to improving the clinical management of hepatic steatosis and strengthening the therapeutic doctor–patient relationship. It is the moral duty of the physician not to treat only the “test results,” but the person within their social context, recognizing that obesity and steatosis are often the result of social determinants of health rather than solely a lack of willpower.

Keywords. hepatic steatosis, medical ethics, obesity, doctor–patient relationship.

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21. THE EXPERIENCE OF NURSES IN MANAGING ADULTS WITH MULTIMORBIDITY

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Introduction. Multimorbidity, defined as the coexistence of two or more chronic, long-term health conditions, represents a major challenge for modern health systems, being associated with the increasing prevalence of chronic conditions and population aging. Patients with multiple conditions require integrated and coordinated care, and nurses play a key role in this process. In the context of hospitals in the Republic of Moldova, data regarding nurses' experiences are limited, highlighting the need to assess the difficulties encountered and the solutions for optimizing patient care.

Aim of study. Evaluation of nurses' experiences in managing adults with multimorbidity in inpatient settings to identify barriers and ways to improve the care provided to these patients.

Methods and materials. A qualitative exploratory study was conducted in public healthcare institutions in Chișinău. Data were collected using a structured questionnaire, supported by a review of scientific medical articles, and analyzed descriptively using Excel, in accordance with ethical principles.

Results. The study results were based on a sample of 100 nurses (mean age 34.06 ± 10.28 years; 85% female and 15% males) with a mean age of 34.06 ± 10.28 years. Most nurses had over 10 years of professional experience (39%), followed by those with 4–10 years (25%), indicating a workforce with predominantly extensive professional experience. The majority of respondents (91%) reported that they routinely care for patients with multimorbidity, and 60% of nurses rated this care as highly or very highly complex. The main difficulties reported were staff shortages (19.77%), limited time for individualized care (17.44%), lack of equipment (12.79%), treatment complexity and polypharmacy (10.85%), and absence of clear protocols (8.91%). Only 44% of nurses confirmed the existence of a dedicated institutional plan, while access to clinical guidelines and care protocols remains limited. Nurses emphasized the need for increased staffing, optimization of work schedules, reduction of administrative workload, strengthening of interdisciplinary collaboration, and development of continuing education. Thus, the adaptation of nursing to the complexity of multimorbidity is emphasized.

Conclusions. Multimorbidity is frequently encountered in the daily activity of hospital nurses and is perceived as complex and demanding care. The main barriers are related to insufficient human resources, limited time, and coordination difficulties. Improving institutional support, interdisciplinary collaboration, and continuing education programs may enhance the nurse's role and the quality of care.

Keywords. multimorbidity, nursing, multiple chronic conditions, person-centered care.

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22. VOLUNTARY ABORTION AMONG MINORS: BIOETHICAL VIEW

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Introduction. Abortion constitutes a controversial topic, as it is one of the most intensely debated issues due to the existence of strong religious, spiritual and cultural beliefs. Nowadays, abortion has extended among female minors which further complicates an already provocative matter. An advantageous support concerning the subject may represent bioethics.

Aim of study. To explore the bioethical context of voluntary abortion among minors through medical, social, and spiritual perspectives.

Methods and materials. The current study reveals the analysis and synthesis of articles published in the following databases: PubMed, ScienceDirect, ResearchGate, Google Scholar, highlighting abortion through its ethical/bioethical and cultural connections.

Results. Two types of arguments describe humanity's attitude towards abortion: the pro-life one, which respects the rights of the fetus and the pro-choice concept – following the ability to decide for oneself, with full responsibility for the personal body. On the other hand, monotheistic religions express that women are not the creator of life, thus they lack the autonomy to decide on the life of the fetus. Similar views are shared by distinct ancient and medieval philosophical postulates, including the publications of the pioneers in scientific protomedicine. In the contemporary world, the abortion dilemma is amplified by the existence of multiple personal and libertine opinions. Family education, based on firm moral and spiritual criteria, becomes a crucial reinforcement. Certain bioethical subjects, which may be applied in the arisen situations that provoke juvenile abortion, are present in the analysis of sources.

Conclusions. The topic of voluntary abortion emphasizes a pressing matter for bioethics, placed between justifying and condemning it. The eventual legal and moral rights of the fetus are part of the debate, which enhance the existent conflicts and entangle the age-related issues. The following bioethical subjects take the leading role: life, health, autonomy, vulnerability.

Keywords. abortion, bioethics, autonomy, vulnerability, minors.

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23. SOCIAL POLARIZATION AND ITS IMPACT ON THE DOCTOR-PATIENT RELATIONSHIP

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Introduction. In recent years, social polarization has intensified globally, extending beyond political and cultural spheres into the healthcare system. This phenomenon is characterized by the fragmentation of public opinion into opposing and often irreconcilable positions, frequently reinforced by digital media and the rapid dissemination of medical misinformation. In healthcare, polarization undermines trust in scientific authority and challenges the traditional foundations of the doctor–patient relationship, which relies on effective communication, mutual respect and shared decision-making.

Aim of study. The aim of this study is to analyze the influence of social polarization on the doctor–patient relationship and to assess its impact on medical communication, patient adherence to treatment and overall quality of care.

Methods and materials. This paper is based on an analytical review of scientific literature from the fields of medical sociology, bioethics and health communication. Relevant publications from peer-reviewed journals, as well as reports issued by the World Health Organization, were examined. In addition, observational analysis of clinical communication scenarios influenced by polarized beliefs was conducted in order to identify recurring patterns affecting physician–patient interactions.

Results. The analysis demonstrates that polarized attitudes significantly reduce patients' trust in healthcare professionals and in evidence-based medical recommendations. Exposure to polarized and misleading information, particularly through social media platforms, increases the likelihood that patients will question medical diagnoses, refuse recommended treatments or pursue alternative therapies lacking scientific validation. These behaviors contribute to decreased treatment adherence and may compromise clinical outcomes. Furthermore, physicians facing polarized interactions experience increased emotional strain and ethical challenges, which can negatively affect professional well-being and the quality of care provided.

Conclusions. Social polarization represents a substantial challenge for contemporary healthcare, with direct consequences for the doctor–patient relationship. The findings emphasize that effective communication, empathy and ethical awareness are essential in managing polarized beliefs and restoring trust in medical practice. Moreover, the integration of structured training in communication skills, bioethics and misinformation management into medical education is necessary to equip future physicians with the competencies required to address the social complexities of modern healthcare and to strengthen patient-centered care.

Keywords. social polarization, doctor–patient relationship, medical communication, trust, bioethics.

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24. BIOETHICAL ASPECTS OF ALZHEIMER'S DISEASE MANIFESTATION

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Introduction. Alzheimer's disease is a neurodegenerative condition with an unfavorable prognosis, accounting for approximately 80% of dementia cases. It is associated with persistent and progressive memory loss, cognitive impairments and personality changes. As the most common cause of dementia, Alzheimer's disease represents a growing global health issue with major implications for both the individual and society. Since the diagnosed individual can no longer assume full responsibilities, the family must take on the role of decision-maker, encouraging the patient's achievements and minimizing the impact.

Aim of study. The purpose of this paper is to present specific bioethical aspects within the framework of Alzheimer's disease manifestation. Simultaneously, it aims to highlight the clinical applicability of bioethical solutions to meet the specific needs of individuals in moderate to severe stages of cognitive impairment.

Methods and materials. 37 scientific sources were analyzed, selected from international databases such as PubMed, Google Scholar, MEDLINE, etc., as well as from the "Nicolae Testemițanu" Medical Scientific Library, which focused on bioethics and neurodegenerative diseases involving profound cognitive decline.

Results. The analysis revealed that beyond the ethical issues directly related to autonomy and human dignity, there is a heightened dimension of vulnerability generated by Alzheimer's disease. This is manifested through total dependence on specialized care, including palliative care. The moral perspective of bioethics offers morally and spiritually sensitive approaches for managing individual and social vulnerabilities. The study emphasizes that Alzheimer's disease has been reconceptualized as a slow pathological process that begins decades before the first clinical symptoms appear. The degree of vulnerability is extremely high compared to other conditions. Patients require empathy and support, as they often face feelings of shame and insecurity regarding their social and physiological decline. Their care requires respect for autonomy while simultaneously recognizing the progressive diminution of decision-making capacity and adhering to the principles of beneficence, justice, non-maleficence, etc.

Conclusions. Following the analysis of relevant scientific literature, fundamental bioethical benchmarks suitable for the therapeutic management of Alzheimer's disease were identified. Major importance is placed on the involvement of the principles of vulnerability, beneficence, and therapeutic integrity. These are essential for an ethical decision-making process based on a model of solidarity and compassion toward individuals with impaired cognitive functions.

Keywords. Bioethics, Alzheimer's disease, vulnerability, beneficence, therapeutic integrity.

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25. TRIAGE OF PATIENTS WITH DIABETES MELLITUS IN THE CITY OF TELENEȘTI

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Introduction. Diabetes mellitus is one of the most common diseases among the population of the Republic of Moldova. For this reason, it is important to intervene at the level of primary health care in order to provide quality counseling and long-term monitoring, which can help prevent or delay the development of complications in the future. According to the World Health Organization (WHO), the PEN1 and PEN2 protocols are key tools used for risk assessment and diagnosis to the monitoring of this disease.

Aim of study. To monitor the correctness of the application of the PEN1 and PEN2 protocols in the triage process of patients with diabetes mellitus, and subsequently to analyze the theoretical and practical competencies of medical staff in accordance with these standardized guidelines.

Methods and materials. Within the medical institution in the city of Telenești, an observational and descriptive study was conducted on a group of 66 patients who consecutively presented to the Health Center and were eligible for diabetes screening. The study was carried out based on a questionnaire developed by the author, derived from the content of the PEN1 and PEN2 protocols.

Results. The research revealed a partial implementation of the PEN protocols. The FINDRISC test was applied to only 57.3% (n=38) of patients. The FINDRISC score was calculated in 58% (n=22) of patients, while in 42% (n=16) of patients this score was not calculated. According to the obtained results, patients were grouped into three risk levels: low and moderate risk, high risk, and very high risk. Low and moderate risk were defined as a score of 0–14 points and were identified in 36.8% (n=14) of patients. High risk corresponded to a score of 15–20 points and was identified in 15.8% (n=6) of patients. A score of 21–30 points, corresponding to a very high risk of diabetes mellitus, was identified in 5.3% (n=2) of patients. Among the 22 patients for whom the FINDRISC score was calculated, 21 patients (95%) received recommendations for lifestyle modification targeting risk factors, 22 patients (100%) were recommended to perform fasting blood glucose testing, 19 patients (86%) were recommended to undergo the Oral Glucose Tolerance Test (OGTT), and 15 patients (68%) were advised to undergo risk reassessment once every five years.

Conclusions. FINDRISC screening was insufficiently used, thus limiting the capacity for early identification of patients with high and very high risk of diabetes mellitus. The application of the PEN1 and PEN2 protocols was partially complete; although most patients were evaluated for multiple criteria, no patient had all criteria fully completed, indicating the need to strengthen the standardized implementation of these protocols.

Keywords. diabetes mellitus, screening, FINDRISC, PEN protocol, risk factors.

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26. CLINICAL DECISION-MAKING AND ETHICAL RESPONSIBILITY IN THE TREATMENT OF CRITICALLY ILL PATIENTS IN NEUROLOGY.

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Introduction. Neurology is a field of clinical medicine in which numerous acute pathologies—such as cerebrovascular accidents, traumatic brain injuries, or states of coma—can rapidly progress to critical conditions requiring immediate therapeutic interventions. In such contexts, the neurologist is confronted not only with complex clinical decisions based on paraclinical data, therapeutic protocols, and the evaluation of neurological prognosis, but also with major ethical responsibilities regarding respect for patient autonomy, proportionality of treatment, and the limits of medical interventions. Clinical decision-making in critical neurology often involves collaboration within an interdisciplinary team and a careful assessment of therapeutic benefits and risks, especially when the patient is unable to express consent. In this context, the integration of bioethical principles—autonomy, beneficence, non-maleficence, and justice—becomes essential to ensure responsible medical conduct and to protect the patient's dignity. The study of this topic aims to analyze how clinical decisions and ethical responsibility influence the management of critically ill patients in neurology.

Aim of the study. The aim of this study is to analyze the process of clinical decision-making in the treatment of critically ill patients in neurology, by relating these decisions to the ethical and bioethical principles of medical practice. The research also aims to highlight the physician's responsibility and the role of interdisciplinary collaboration in ensuring correct, safe, and ethical therapeutic management for the critically ill neurological patient. Furthermore, the study seeks to emphasize the importance of balancing clinical judgment, patient autonomy, and ethical responsibility in complex neurological situations where rapid and well-founded medical decisions are required.

Methods and materials. The study was conducted through the analysis of specialized literature and the evaluation of relevant data from the fields of clinical neurology and medical bioethics, using descriptive, comparative, and statistical analysis methods for the interpretation of the results.

Results. The results show that clinical decisions in critical neurology are influenced by the severity of the patient's condition, prognosis, and respect for ethical principles, and are facilitated by interdisciplinary collaboration.

Conclusions. The study highlights that clinical decision-making in critical neurology must combine objective medical evaluation with respect for fundamental ethical principles. The application of an interdisciplinary and bioethical approach contributes to responsible and patient-centered management. At the same time, this approach supports the development of balanced medical decisions that consider both the clinical prognosis and the dignity and rights of the patient.

Keywords. ethics, multidisciplinary team, responsibility, treatment.

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27. THE DUAL LOYALITY CONFLICT IN PRISON MEDICAL CARE

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Introduction. Persons deprived of liberty still have human rights, even if they have lost some freedom. Prisoners are more vulnerable and face moral, social, and health risks while incarcerated. Healthcare providers experience a conflict of loyalty between their duty to the patients and the demands of the correctional system. This tension leads to ethical uncertainty, as medical choices can be affected by non-medical factors. Prison healthcare focuses mainly on punishment and security, not health. The issue of „dual loyalty" poses a significant challenge in bioethics, especially in palliative care for terminally ill prisoners.

Aim of study. This work aims to show that all incarcerated people have moral values like anyone else. The study will: analyze the structural and ethical issues in correctional healthcare; look at how conflicts can appear in palliative settings and affect care quality; investigate the special protections needed for vulnerable prisoners; and suggest ways to reduce conflicts while respecting human rights and ethical standards.

Methods and materials. This study utilized materials, articles, and scientific sources from various electronic libraries at national and international levels regarding the life aspects of prisoners. The methodological approach incorporated bioethical, sociological, and spiritual analyses to demonstrate the equality of any prisoner, which remains comparable to that of non-incarcerated persons. The research employed systematic review of literature concerning dual loyalty in prison healthcare.

Results. Prisoners experience systemic inequities in accessing public services, particularly palliative medical care. This leads to conflicts of dual loyalty in medical settings, resulting in compromised confidentiality, influenced consent, and restricted pain relief. Bioethics advocates for equal medical resource distribution, recognizing prisoners as a vulnerable group facing persistent ethical challenges. Structural issues within prison healthcare erode trust and compromise patient assessments. Resolving these conflicts requires structural reforms, including ethical guidelines.

Conclusions. Every person in prison has the right to social, spiritual, and medical support, regardless of their crime. Prisoners are seen as vulnerable in bioethics, and their rights must be respected. There is a conflict between healthcare and security in prisons, which creates a systemic issue in prison medical care. Prisoners should receive the same quality of healthcare as everyone else, but this is hard to achieve under security-focused systems. Changes are needed in the healthcare-punishment relationship. Healthcare professionals should be aware of the ethical challenges in prisons and support each other.

Keywords. dual loyalty; prison healthcare; bioethics; palliative care; medical ethics; prisoner rights.

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28. INDEPENDENT NURSING INTERVENTIONS IN THE MANAGEMENT OF CARDIOVASCULAR RISK FACTORS

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Introduction. Cardiovascular diseases are the leading cause of morbidity and mortality worldwide. Primary prevention has proven to be much more cost-effective, and nurses are valuable members of the primary healthcare team in implementing prevention activities among the population.

Aim of study. The aim of the study was to determine the extent of nurses' interventions in implementation of prevention methods in the management of people with cardiovascular risk factors.

Methods and materials. We conducted a narrative review study using the PubMed and Google Scholar search engines. Keywords were used for the search. Inclusion criteria: complete, free articles in English, published in the last 5 years. Exclusion criteria: only abstract available, other language. Total number of articles – 35.

Results. Researchers found that nurses play a key role in reducing cardiovascular risk through the following independent activities: actively promoting and supporting recommended physical activity, personalised diets, quitting smoking/alcohol, hypercholesterolemia, diabetes, obesity, and high blood pressure by providing information, education, support, motivation, setting personalised plans, monitoring results, scheduling repeat visits, individual consultations (face-to-face, telephone or other AI devices), group consultations, increasing compliance, including treatment.

Conclusions. Nurses actively contribute to cardiovascular risk prevention through various activities independent of physicians, thereby reducing the burden on physicians in carrying out these activities and serving as reliable members of the medical team.

Keywords. nurse, prevention, interventions, cardiovascular risk.

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BASIC SCIENCES SECTION

1. THE WHITENING OF BROWN ADIPOSE TISSUE: FROM PHYSIOLOGICAL PATHWAYS TO METABOLIC CONSEQUENCES

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Introduction. Brown adipose tissue (BAT) is a specialized, metabolically active tissue characterized by multilocular lipid droplets, high mitochondrial density, and the expression of uncoupling protein 1 (UCP1), which facilitates non-shivering thermogenesis. In contrast to the beneficial process of "browning" (the conversion of white adipocytes to beige), BAT can undergo "whitening." This phenomenon involves a disadvantageous transdifferentiation where brown adipocytes acquire white-like characteristics, leading to mitochondrial dysfunction, reduced energy expenditure, and systemic metabolic impairment.

Aim of study. This literature review aims to summarize current knowledge regarding the triggers and molecular mechanisms of BAT whitening and to identify potential therapeutic targets for delaying or inhibiting this process in the context of obesity and metabolic syndrome.

Methods and materials. A comprehensive analysis of recent scientific literature was conducted, focusing on animal models (mice, rabbits, sheep) and human studies. The review examined the impact of diet, environmental temperature, aging, oxygen levels, hormonal shifts, and chemical exposure on BAT morphology and function, using data from transcriptomics and single-cell RNA sequencing.

Results. BAT whitening is a chronic complication of obesity influenced by several factors. High-fat diets (HFD) induce rapid whitening via vascular rarefaction, reduced VEGFA signaling, and inflammation. Thermoneutrality triggers a "dormant" state in BAT, reducing UCP1 expression and promoting lipid accumulation. Aging is associated with hyperacetylation of PPARγ and immune cell infiltration (S100A8+ cells and IFN-γ-secreting T-cells), which inhibit thermogenesis. Additionally, environmental pollutants like bisphenols and heavy metals, as well as glucocorticoid administration, accelerate the transition to a white phenotype. Recent studies identify key regulators such as PRDM16, PGC-1α, and various non-coding RNAs (lncRNAs, circRNAs) in governing this transition.

Conclusions. BAT whitening represents a significant barrier to effective obesity treatment. While browning is a popular research focus, inhibiting whitening is equally crucial for maintaining metabolic health. Future therapeutic strategies may focus on stabilizing mitochondrial integrity, promoting angiogenesis, and modulating hormonal and epigenetic regulators to preserve BAT thermogenic capacity.

Keywords. Brown Adipose Tissue, Obesity, Thermogenesis, UCP1.

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2. DOPAMINERGIC MODULATION OF ATTENTION FRAGMENTATION IN HIGH DIGITAL MEDIA EXPOSURE

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Introduction. The rapid expansion of digital technologies has significantly altered patterns of cognitive stimulation and reward processing. Digital media platforms are designed to deliver rapid and frequent reward signals, activating dopaminergic pathways involved in motivation and reinforcement, particularly within the mesolimbic system. These neurobiological mechanisms may influence attentional regulation and cognitive control. Since the prefrontal cortex, responsible for executive functions, impulse control, and decision-making, continues to mature until approximately 25 years of age, adolescents and young adults may be particularly vulnerable to the cognitive effects of prolonged digital media exposure.

Aim of study. To analyze the relationship between high levels of digital media consumption and attention fragmentation, focusing on mesolimbic dopaminergic activity as a potential neurobiological mediator.

Methods and materials. An analytical literature review was conducted using PubMed, Google Scholar, and Elicit. From 84 peer-reviewed publications (2013–2024) identified using keywords on dopamine reward pathways, digital media exposure, attention, and cognitive control, 46 studies met inclusion criteria. Exclusions were non-peer-reviewed sources, duplicates, non-English articles, studies without neurocognitive focus, and non-human models lacking cognitive-behavioral relevance.

Results. The analyzed studies consistently demonstrate that repeated exposure to highly stimulating digital environments activates dopaminergic reward circuits within the mesolimbic pathway, reinforcing rapid engagement behaviors characterized by frequent reward anticipation. Approximately 65–75% of reviewed studies reported associations between intensive digital media use and reduced sustained attention or increased attentional fragmentation. Neuroimaging findings from several studies indicate increased activity in reward-related regions such as the ventral striatum, accompanied by reduced engagement of prefrontal cortical areas responsible for executive control. These patterns suggest that frequent digital reward cycles may reduce tolerance for cognitively demanding tasks requiring prolonged concentration.

Conclusions. High levels of digital media exposure may influence attentional regulation through dopaminergic reward mechanisms within the mesolimbic system. These neurocognitive dynamics may contribute to attention fragmentation and decreased sustained focus, particularly among adolescents and young adults. Understanding these mechanisms may support the development of preventive strategies aimed at promoting balanced digital media use and protecting cognitive health.

Keywords. Attention fragmentation, Dopamine reward system, Digital media exposure, Cognitive control.

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3. EVALUATION OF THE CO-PRESCRIPTION OF GASTROPROTECTIVE THERAPY IN PATIENTS TREATED WITH NONSTEROIDAL ANTI-INFLAMMATORY DRUGS

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Introduction. Nonsteroidal anti-inflammatory drugs (NSAIDs) are widely used in the management of pain and inflammatory conditions but are associated with an increased risk of gastrointestinal complications, particularly in older patients and those with comorbidities or concomitant medications. Current clinical guidelines recommend the use of gastroprotective therapy in patients with gastrointestinal risk factors in order to reduce NSAID-related adverse events.

Aim of study. To assess patterns of gastroprotective therapy in hospitalized patients receiving NSAIDs and to analyse their relationship with gastrointestinal risk factors and current guideline recommendations.

Methods and materials. A retrospective observational study was conducted on 168 hospitalized patients who received NSAIDs during admission. Demographic characteristics, comorbidities, gastrointestinal risk factors, NSAID regimens, and concomitant gastroprotective therapy were analyzed. The use of gastroprotective agents was evaluated in relation to the patients' risk profiles and international guideline recommendations.

Results. Among the 168 patients included in the analysis, 58.6% were older than 60 years and hypertension was the most frequent comorbidity. Ketoprofen was the most commonly prescribed NSAID. Analysis of gastroprotective therapy patterns demonstrated a marked predominance of famotidine use, prescribed in 93.1% of patients. Proton pump inhibitors were used less frequently, including omeprazole (3.8%) and pantoprazole (2.5%), while lansoprazole and antacids were rarely administered (0.6% each). Other gastroprotective agents accounted for 1.3% of prescriptions. A substantial proportion of patients presented at least one gastrointestinal risk factor, highlighting the importance of preventive pharmacotherapy in this population.

Conclusions. NSAID use in hospital practice is frequent and, in most cases, appropriately accompanied by gastroprotective therapy, reflecting good adherence to evidence-based principles. Prescribing patterns were aligned with patients' gastrointestinal risk profiles; however, variability in the selection of gastroprotective agents highlights the need for further standardization of institutional practices to optimize therapeutic safety.

Keywords. NSAIDs, Gastroprotective therapy, Risk profile, Therapeutic safety.

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4. CORPUS LUTEUM ANGIOGENESIS AS A PREDICTIVE MARKER OF SPONTANEOUS MISCARRIAGE

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Introduction. Early pregnancy maintenance depends on adequate luteal vascularization and balanced immunological regulation. Angiogenic mediators together with cytokine-mediated immune pathways contribute to the regulation of corpus luteum function and progesterone secretion.

Aim of study. To synthesize evidence regarding the relationship between corpus luteum angiogenesis, immunological biomarkers, and the risk of spontaneous miscarriage in early pregnancy.

Methods and materials. A narrative literature review was conducted using databases: PubMed, Scopus, Web of Science. Prospective and observational studies evaluating corpus luteum vascularization through transvaginal color Doppler ultrasound and investigations analyzing cytokine profiles in early pregnancy or threatened miscarriage were included. The following reported parameters were included: Doppler indices of corpus luteum blood flow - resistance index (RI), pulsatility index (PI), as well as circulating cytokines and angiogenic factors.

Results. Evidence from prospective studies demonstrates a significant association between corpus luteum perfusion and pregnancy outcome. Viable pregnancies generally exhibit lower vascular resistance within the corpus luteum (mean RI approximately 0,40–0,50), whereas pregnancies that culminate in miscarriage show higher RI values (approximately 0,55–0,65) and increased PI, reflecting reduced luteal perfusion and impaired functional activity. These Doppler changes have been linked to decreased serum progesterone levels. Immunological investigations in women with threatened miscarriage have identified distinct cytokine patterns associated with pregnancy outcome. Women who subsequently experienced miscarriage showed reduced concentrations of several immune mediators involved in T-cell activation, B-cell regulation, and natural killer cell cytotoxicity, including IL-2, IL-12p70, IL-17A, interferon-γ, and TNF-α. Conversely, higher levels of angiogenic and chemotactic factors - such as VEGF-A, IL-21, and SDF-1α - were observed in these cases. VEGF-A demonstrated a modest inverse correlation with serum progesterone levels, suggesting potential interaction between angiogenic signaling and luteal endocrine function. Some studies suggest that cytokine pathway dysregulation plays a key role in spontaneous miscarriage.

Conclusions. Alterations in corpus luteum vascularization and immune-inflammatory signaling pathways are associated with early pregnancy loss. The combined evaluation of luteal Doppler parameters and immunological biomarkers may improve early identification of pregnancies at increased risk of spontaneous miscarriage.

Keywords. corpus luteum, angiogenesis, early pregnancy, spontaneous miscarriage.

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5. BIOLOGICAL THERAPY IN MULTIPLE SCLEROSIS – EFFICACY, SAFETY AND IMPACT ON DISEASE PROGRESSION

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Introduction. Multiple sclerosis (MS) is a chronic autoimmune disease of the central nervous system characterized by recurrent inflammation, demyelination, and progressive neurodegeneration. The relapsing-remitting form accounts for approximately 80–85% of initial cases. The use of targeted biological therapies has significantly modified the course of the disease by directly interfering with immunological mechanisms involved in its pathogenesis.

Aim of study. Evaluation of the scientific literature on the efficacy and safety of biological therapies used in multiple sclerosis, focusing on reducing relapses, preventing disability progression, and controlling imaging activity.

Methods and materials. A narrative analysis of randomized clinical trials, meta-analyses, and long-term extension studies (2015–2026) indexed in PubMed, MEDLINE, and the Cochrane Library was performed. The review included biological therapies approved for relapsing forms and active progressive forms of MS, such as Ocrelizumab, Ofatumumab, Ublituximab, Natalizumab, and Alemtuzumab.

Results. Anti-CD20 antibodies induce selective depletion of B lymphocytes, thereby reducing inflammatory activity. Ocrelizumab reduced the annualized relapse rate (ARR) by 46–47% compared with interferon beta-1a and decreased confirmed disability progression by 40%; in primary progressive MS, the risk of disease worsening was reduced by 24% compared with placebo. Ofatumumab demonstrated a 50–58% reduction in ARR versus teriflunomide and a decrease of over 80% in gadolinium-enhancing lesions. Ublituximab reduced ARR by 49–59% and active imaging lesions by more than 95%. Natalizumab limits lymphocyte migration across the blood–brain barrier, reducing relapses by 68% and new T2 lesions by 83%, although it carries a risk of progressive multifocal leukoencephalopathy (3–4 cases per 1000 patients). Alemtuzumab decreases ARR by 49–55% and disability progression by approximately 42%, but autoimmune reactions - particularly thyroid disorders - occur in 30–40% of patients. In long-term follow-up (≥5 years), the NEDA status (No Evidence of Disease Activity) is achieved in 35–48% of patients treated with high-efficacy biological therapies, compared with less than 20% under conventional injectable therapies. Adverse events include mild-to-moderate infections (30–60%), administration-related reactions (20–35%), and rare severe events (<5%).

Conclusions. Monoclonal antibodies significantly reduce relapse rates (up to 68%), imaging activity (up to 95%), and disability progression (24–42%), representing the current therapeutic standard for active forms of MS. Early initiation and individualized treatment strategies optimize long-term functional prognosis and contribute to improving the quality of life of patients with multiple sclerosis.

Keywords. Biological therapy, monoclonal antibodies, multiple sclerosis;.

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6. VIRTUAL REALITY AND BRAIN-COMPUTER INTERFACES AS MODULATORS OF NEUROPLASTICITY IN NEUROREHABILITATION

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Introduction. Virtual Reality (VR) and Brain-Computer Interfaces (BCIs) are emerging technologies increasingly used to modulate neuroplasticity through functional, structural, and biochemical mechanisms. By exploiting the brain's capacity to reorganize under experience and repetition, these platforms offer therapeutic applications ranging from neurodevelopmental conditions in children to motor and cognitive rehabilitation in adults following stroke or neurodegeneration.

Aim of study. To analyze and synthesize specialized literature on how VR and BCIs leverage Hebbian plasticity, cortical reorganization, and neurochemical modulation to support neural recovery across pediatric and adult populations, with emphasis on underlying biochemical mechanisms.

Methods and materials. A narrative review was conducted using PubMed, Scopus, Web of Science, and ScienceDirect, prioritizing publications published between 2016 and 2026 and focusing on motor and cognitive outcomes, neuroimaging markers, and neurochemical correlates of VR- and BCI-based interventions across clinical populations.

Results. In pediatric populations, VR-based interventions demonstrated significant improvements in cognitive and social communication abilities in children with autism spectrum disorder, motor coordination in developmental coordination disorder, and visual cortex reorganization in amblyopia. These changes reflect technology-driven neuroplastic remodeling during critical developmental windows. In adult populations, VR and BCI protocols integrating task-oriented training with closed-loop feedback consistently enhanced motor relearning post-stroke and executive function, particularly when combined with Functional Electrical Stimulation. At the biochemical level, predictable reward feedback is thought to reactivate dopaminergic pathways and engage intracellular cascades involving DARPP-32-dependent inhibition of protein phosphatase-1, thereby favoring phosphorylation states of NMDA and AMPA receptors that support long-term potentiation. Concurrently, CREB-driven BDNF expression via TrkB signaling promotes dendritic spine stabilization and structural synaptic consolidation across age groups.

Conclusions. VR and BCIs represent promising platforms for harnessing neuroplasticity across the lifespan, converging Hebbian mechanisms, structural remodeling, and neurochemical modulation. Standardized trials with robust biochemical and neuroimaging biomarkers remain necessary to define optimal parameters across specific clinical populations.

Keywords. Virtual reality, brain-computer interface, neuroplasticity, neurorehabilitation, pediatric rehabilitation.

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7. DECODING THYROID PATHOPHYSIOLOGY THROUGH AI DIAGNOSTICS AND TARGETED ACUPUNCTURE

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Introduction. Thyroid disorders affect almost 200 million people globally through HPT axis disruptions and autoimmune cascades. While levothyroxine manages hormonal imbalances, it fails to stop follicular destruction. Tools such as SimThyr use AI to simulate the endocrine system's responses, while neural networks are used to investigate the impact of acupuncture on the immune system.

Aim of study. This study evaluates integrating AI digital modeling, machine learning diagnostics, and targeted acupuncture therapy to predict, diagnose, and treat autoimmune thyroid pathophysiology.

Methods and materials. A systematic literature review (2000-2024) was conducted with PubMed, Web of Science, Scopus, and Cochrane Library, excluding non-peer-reviewed, non-statistical studies, and case reports lacking hormonal data. The study assessed 14 RCTs (1,020 patients) comparing acupuncture to levothyroxine for Hashimoto's thyroiditis. It assessed advanced AI diagnostic models, including cGANs, Flow Matching for 2,954 scintigraphy scans, and the first offline multi-model LLM for thyroid cancer staging.

Results. Clinical data from 1,020 patients demonstrate that targeted acupuncture significantly reduces damaging thyroperoxidase and thyroglobulin antibodies while normalizing the HPT axis (TSH, FT3, and FT4). Among a vast number of 229,230 individuals, merely 7.9% reported minor and transient side effects following acupuncture, and only 0.0035% experienced serious adverse effects. Diagnostically, AI models optimized through Differential Evolution achieved 99.8% accuracy throughout 10 thyroid diseases, and the totality of classifiers reached 99.1%. Multimodal networks forecasting hyperthyroidism recorded 91.32% sensitivity and 94.18% specificity. An entire offline, large language model (LLM)-based system has also been developed recently that offers multiple modality capabilities for direct diagnosis of difficult thyroid cancers based on unstructured pathology reports. This new AI system achieved between 92.9% and 98.1% accuracy when utilizing staging done by the AJCC, and achieved 100% accuracy with ATA cancer risk assessment classification. Physicians will save an appraised 50% of their time spent developing patient visit-related preparation documents while protecting the confidentiality of the patient's identifying information.

Conclusions. Bringing together AI-powered digital modeling and the way acupuncture affects hormones could really change how we approach endocrinology. Acupuncture seems to have an impact on autoimmune thyroid issues, and with AI and more complex models in combination, doctors can diagnose problems faster and more accurately. When you combine these two tools, you end up with a personalized way to predict and manage thyroid disease.

Keywords. Artificial Intelligence, Thyroid Pathophysiology, Acupuncture.

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8. PATHOPHYSIOLOGICAL MECHANISMS OF ARRHYTHMOGENESIS IN OBESITY

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Introduction. In 2025, 2.11 billion adults, 493 million children and adolescents were overweight or obese, and there is strong evidence of a direct correlation between obesity and the development of atrial and ventricular arrhythmias. For instance, individuals with a BMI over 30 kg/m² may have up to a 65% higher risk of developing atrial fibrillation compared with those with a normal BMI, corresponding to an approximate 4% increase in risk for each one-unit rise in BMI.

Aim of study. To demonstrate the correlation between metabolic syndrome and arrhythmias, focusing on epicardial adipose tissue (EAT) and its distinct secretome, highlighting evidence that EAT-derived cytokines and free fatty acids modulate ion channels, connexin expression and promote fibrotic remodeling. Additionally, the study aims to illustrate the multifactorial aspects involving sleep apnea and arterial hypertension.

Methods and materials. A retrospective analysis of studies published over the last five years was conducted using scientific sources, with the key search terms “metabolic syndrome” and “epicardial adipose tissue”.

Results. With the increase in the thickness of epicardial adipose tissue, infiltration of the myocardium by fat also occurs, and the increasing cellular mass leads to a higher oxygen demand. Adipocytes can couple with cardiomyocytes via connexin-43, which may lead to a decrease in membrane depolarization potential and result in slowed transmission of the action potential due to the interaction of their electrophysiological properties. Likewise, a negative dromotropic effect occurs through the lengthening of conduction pathways and the formation of a sinusoidal conduction path. Under significant physiological stress, cellular hypoxia develops, and adipocytes become pro-inflammatory and pro-fibrotic cells through the production of cytokines, such as TNF-α, leptin, resistin, visfatin, IL-6, and adiponectin. Calcium channels are altered by the negative influence of secretome products. The extracellular matrix is affected by fibrosis, with metalloproteinases and microRNAs acting as cofactors. Several studies have demonstrated that epicardial adipose tissue located near atrial conduction pathways can lead to electrocardiographic changes, including P wave modification and PR interval prolongation.

Conclusions. Obesity is directly involved through the effects of adipocytes within epicardial and myocardial tissue and indirectly through ischemic and fibrotic processes. The main associated arrhythmias include atrial fibrillation, Brugada syndrome, early repolarization syndrome, and idiopathic ventricular fibrillation.

Keywords. Epicardial adipose tissue, fibrosis, adipocytes.

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9. RETINAL PROTEIN AGGREGATION AS A POTENTIAL BIOMARKER FOR NEURODEGENERATIVE DISEASES

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Introduction. Neurodegenerative diseases are characterized by proteostasis disruption and accumulation of protein aggregates leading to neuronal dysfunction and progressive cell loss. Since the retina is an embryonic extension of the central nervous system, the molecular changes involved in neuronal destruction can also be reflected at the retinal level.

Aim of study. To analyze the link between protein aggregates at the retinal level and neurodegenerative processes, as well as to evaluate the potential of the retina as a source of biomarkers for the early diagnosis of neurodegenerative diseases.

Methods and materials. A narrative review of the scientific literature conducted using a PRISMA-based approach for study identification and selection. Searches were performed in the PubMed database using keywords related to retinal involvement in neurodegeneration and pathological protein aggregation. After screening titles and abstracts, 10 experimental and observational studies were included in the analysis.

Results. Accumulating evidence suggests that the retina mirrors fundamental mechanisms of cerebral neurodegeneration through several interconnected pathways. First, protein deposition shows marked spatial specificity across retinal layers: β-amyloid (Aβ) mostly in the inner plexiform layer and retinal ganglion cells; hyperphosphorylated tau (p-tau) in ganglion cell axons; α-synuclein (α-syn) in amacrine neurons, although broader distributions have occasionally been reported. Similar patterns of protein aggregation are central to neurodegenerative processes in the brain. Second, there is a temporal hierarchy of protein aggregation - Aβ deposition appears early in the degenerative cascade, followed by axonal accumulation of p-tau, whereas α-syn aggregation progresses gradually during disease evolution (e.g., Braak theory in Parkinson disease), reflecting pathogenic sequences also observed in cerebral neurodegeneration. Thirdly, neuroinflammatory responses are portrayed through the specific microglial (e.g., Iba1; Trem2), and astrocytic (e.g., GFAP) markers, revealing an inflammatory response that correlates proportionally to the protein load. The process is comparable to glial activation mechanisms described in the central nervous system. Finally, cellular clearance mechanisms, including autophagy and the ubiquitin–proteasome system, provide protective effects. Autophagy markers such as Ambra1 and p62/SQSTM1 indicate active degradation of aggregated proteins, and their dysfunction contributes to retinal and cerebral proteinopathies.

Conclusions. The retina reflects protein aggregation processes central to neurodegeneration (e.g., Aβ, tau, α-syn aggregates) and represents an accessible window to the central nervous system. Thus, techniques such as non-invasive retinal imaging could aid in identifying biomarkers for early diagnosis and disease monitoring.

Keywords. Retina; Proteinopathy, Neurodegeneration, Biomarker.

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10. BIOSCAFFOLDS PRODUCED BY 3D-BIOPRINTING AS A STRATEGY FOR BONE TISSUE REGENERATION

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Introduction. The integrity of bone tissue is one of the key components of the human organism, providing its normal functioning, including support, movement, and the protection of internal organs. Population aging, various injuries, tumors, and infections are factors that lead to bone damage and the formation of bone defects, significantly impairing the quality of life of patients. To date, the gold standard of treatment remains the use of autografts; however, their widespread clinical application is limited by the high morbidity of the tissue harvesting procedure and the shortage of available autologous resources. A promising approach that opens new horizons in the restoration of bone defects could be the strategy of utilizing 3D-bioprinting to create bioscaffolds that precisely mimic the structure and function of natural bone tissue.

Aim of study. To analyze the possibilities of using an innovative strategy for bone tissue regeneration with the help of 3D-bioprinting, aimed at overcoming current limitations in transplantation by creating bioscaffolds with a high level of bioinductivity and biointegration.

Methods and materials. The research methodology was based on a systematic analysis of scientific literature using the PubMed/PMC, ScienceDirect and Web of Science, published within the period of 2016-2026. Several sources were filtered out by keywords, leaving 35 sources on which this review study is based. The analysis focused on evaluating the potential of 3D-printed scaffolds as an alternative to traditional methods. The main evaluation criteria were biocompatibility and structural similarity to natural bone tissue.

Results. A comprehensive review of the literature has demonstrated that 3D-bioprinting outperforms traditional transplantation methods in approximately 75% of cases. This advantage stems from scaffold architecture (porosity 70-92% and modulus 12-48 MPa), mimicking natural bone. In in vivo experiments with critical-sized bone defects, bioscaffolds promoted complete regeneration in 8-12 weeks - 35-65% faster than control groups. Histological examination confirmed extensive vascularisation and lamellar bone development without detectable inflammatory response. Due to the use of microchannel bioprinting, the problem of vascularisation in structures larger than 10 mm was effectively (95% to 98%) solved, as proven in studies published between 2023 and 2026. Thus, 3D-bioprinting demonstrates high biological activity and osteoconductivity and is therefore characterised as a strategic approach in modern regenerative medicine.

Conclusions. In conclusion, 3D-bioprinting of scaffolds is a highly effective strategy for bone tissue regeneration that can replace the use of traditional autografts by creating structures that closely mimic the architecture and properties of natural bone. This ensures a high level of bioinductivity and biointegration.

Keywords. 3D-bioprinting, bone regeneration strategy, bioscaffolds.

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11. PATHOPHYSIOLOGICAL MECHANISMS LINKING CHRONIC STRESS TO CENTRAL AUTONOMIC NETWORK DYSFUNCTION: A NARRATIVE REVIEW

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Introduction. The Central Autonomic Network (CAN) is a distributed system of cortical, subcortical, hypothalamic, and brainstem regions that regulates autonomic, emotional, and neuroendocrine responses. While acute stress is adaptive, chronic stress may induce persistent dysfunction within these central circuits and contribute to long-term brain and autonomic vulnerability.

Aim of study. To synthesize recent evidence on the central pathophysiological mechanisms linking chronic stress to CAN dysfunction.

Methods and materials. A structured literature search was conducted based on the PRISMA 2020 framework for studies published between 2020-2026 in PubMed and Google Scholar databases using the search terms: chronic stress, central autonomic network, autonomic dysregulation. Human and translational studies reporting mechanistic or functional evidence of CAN dysfunction were included. After screening, 17 studies were retained.

Results. Data suggest four interrelated pathophysiological pathways. (1) Impaired proteostasis is frequently cited, involving several key processes: accumulation of misfolded/insoluble proteins; increased oxidative stress; and impaired autophagic/mitophagic clearance, particularly in brainstem sympathetic centers. (2) Chronic stress promotes neuronal hyperexcitability through excitatory/inhibitory neurotransmitter imbalance (excess of glutamate, lack of GABA), prolonged glucocorticoid exposure increasing glutamatergic drive, and intrinsic excitability of corticotropin-releasing hormone neurons. (3) The latter findings trigger microglial activation, with a shift toward the M1 phenotype, which increases expression of pro-inflammatory cytokines, mainly IL-6 and TNF-α, and further damages synaptic function and exacerbates oxidative stress. (4) At circuit level, remodeling across the amygdala, medial prefrontal cortex and brainstem nuclei increases limbic influence and weakens cortical feedback responses impairing autonomic coordination. Functionally, these changes are associated with loss of baroreflex control, reduced vagal activity, sympathetic dominance, and lower heart rate variability.

Conclusions. These findings highlight chronic stress as a major driver of CAN dysregulation through impaired proteostasis, neuronal hyperexcitability, neuroinflammation, and maladaptive circuit remodeling, thereby identifying potential targets for prophylaxis.

Keywords. Central Autonomic Network, Chronic stress, Dysautonomia, Neuroinflammation, Proteostasis.

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12. MOLECULAR ORGANIZATION OF BIOMEMBRANES: FUNDAMENTAL STRUCTURAL PRINCIPLES AND PATHOPHYSIOLOGICAL IMPLICATIONS

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Introduction. Biomembranes are dynamic lipid-protein assemblies that form the structural basis of cellular compartments, regulating essential processes such as signaling, transport, and homeostasis. The Fluid-Mosaic Model, proposed over 50 years ago, describes membranes as a mosaic of proteins embedded in a fluid lipid bilayer, with asymmetry, lateral mobility, and domain formation as key features. Variations in lipid composition and organization influence membrane fluidity and function, and disruptions can lead to pathophysiological conditions, including neurodegenerative diseases and metabolic disorders.

Aim of study. To delineate the core structural principles of biomembrane molecular organization and assess their pathophysiological implications in cellular dysfunction and disease.

Methods and materials. A narrative synthesis of the literature was conducted by reviewing articles from PubMed, published between 2016 and 2026. Search terms included "biomembrane molecular organization", "membrane structural principles", and "pathophysiological implications of biomembranes". Selected studies focused on lipid-protein interactions, membrane domains, asymmetry, and disease associations, with data verified for accuracy from sources emphasizing the Fluid-Mosaic Model, lipid rafts, and mitochondrial lipids.

Results. Biomembranes consist of a phospholipid bilayer with embedded proteins and cholesterol, organized into domains such as lipid rafts that facilitate signal transduction and protein clustering. Membrane asymmetry, with distinct lipid compositions in inner and outer leaflets, supports curvature and vesicle formation, regulated by proteins like BAR domains. Cardiolipin in mitochondrial membranes is crucial for electron transport and dynamics; its oxidation impairs function, contributing to oxidative stress in metabolic syndromes. In pathophysiology, altered cholesterol levels disrupt raft integrity, promoting amyloid-beta accumulation in Alzheimer's disease, while dysregulated lipid order affects immune signaling and cancer progression. Advanced techniques, including fluorescent probes and cryo-electron microscopy, reveal nanoscale heterogeneity and adaptive responses.

Conclusions. Insights into biomembrane organization underscore its role in cellular physiology and disease etiology, paving the way for targeted therapies, such as lipid replacement strategies, to mitigate membrane-related pathologies. Future research on dynamic interactions may enhance interventions for neurodegeneration and metabolic diseases.

Keywords. biomembranes, molecular organization, Fluid-Mosaic Model, lipid rafts, pathophysiological implications.

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13. NEUROPHYSIOLOGICAL AND CLINICAL EFFECTS OF ACUPUNCTURE IN PERIPHERAL NEUROPATHY: A COMPLEMENTARY THERAPEUTIC PERSPECTIVE

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Introduction. Peripheral neuropathy is a common neurological disorder characterized by structural and functional damage of peripheral nerves, leading to sensory disturbances, neuropathic pain, motor impairment and reduced quality of life. Because of its chronic and multifactorial nature, conventional pharmacological treatment often provides only partial symptomatic relief. Consequently, complementary therapeutic approaches capable of influencing neurophysiological mechanisms of pain modulation have attracted increasing scientific interest. Acupuncture is considered one of the most studied complementary interventions in this context.

Aim of study. To evaluate the therapeutic relevance of acupuncture and related point-stimulation techniques in the management of peripheral neuropathy.

Methods and materials. A narrative literature review was conducted using recent scientific publications indexed in international medical databases. Studies investigating the effects of traditional acupuncture, electroacupuncture, laser acupuncture and acupressure in peripheral neuropathy were analyzed, focusing on mechanisms of action and reported clinical outcomes.

Results. The analyzed studies suggest that acupuncture-based interventions reduce neuropathic pain intensity, improve sensory function and enhance peripheral nerve microcirculation. Proposed mechanisms include activation of endogenous opioid pathways, modulation of neurotransmitters involved in nociception, reduction of inflammatory mediators and stimulation of neural plasticity.

Conclusions. The integration of acupuncture as a complementary therapeutic modality within a multidisciplinary management strategy for peripheral neuropathy may improve symptom control, reduce the intensity of neuropathic pain, and facilitate functional recovery. Through its neuromodulatory and microcirculatory effects, acupuncture may contribute to improved clinical outcomes and enhance the overall therapeutic management of patients with peripheral neuropathy.

Keywords. peripheral neuropathy, acupuncture, neuromodulation, neuropathic pain, complementary therapy.

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14. GLUCAGON-LIKE PEPTIDE-1 RECEPTOR AGONISTS IN THE TREATMENT OF TYPE 2 DIABETES MELLITUS

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Introduction. Diabetes mellitus is one of the most common metabolic disorders worldwide, the prevalence of which is increasing from year to year at an impressive rate. Long-term uncontrolled hyperglycemia causes irreversible changes in the microvascular and macrovascular beds. The association of other comorbidities such as cardiovascular and renal diseases has challenged researchers and accelerated the development of a new group of antidiabetic drugs. The study of the role of physiological incretins (glucagon-like peptide 1 (GLP-1) and gastric inhibitory peptide (GIP)) has contributed to the development of new classes of antidiabetic agents in the treatment of type 2 diabetes mellitus (T2DM), including glucagon-like peptide-1 receptor agonists (GLP-1RAs).

Aim of study. The aim of the study was to evaluate and analyze the pharmacological properties and development directions of GLP-1RAs and dual- or multi target agents to optimize the management of T2DM.

Methods and materials. A series of English-language articles available in the PubMed database, published between 2020 and 2025, was selected, focusing on GLP-1RAs and future directions. Based on the selected sources, a narrative analysis of GLP-1RAs and dual- and multi-agonists for glucagon and GIP receptors was performed.

Results. Considering the physiological role of the incretin system in the regulation of carbohydrate metabolism, a series of studies has led to the development of several classes of drugs targeting GLP-1 receptor: long-acting GLP-1RAs (exenatide, dulaglutide, semaglutide); oral non-peptide GLP-1RAs (orfoglipron, danuglipron); dual GLP-1/GIP receptor agonists (tirzepatide); dual GLP-1/amylin receptor agonists (semaglutide- cagrilintide [CagriSema]); dual GLP-1/glucagon receptor agonists (mazdutide, survodutide), and triple GLP-1/GIP/glucagon receptor agonists (retatrutide). Clinical findings for exenatide and liraglutide demonstrate benefits in terms of lowering blood pressure values and ameliorating dyslipidemia. Liraglutide has been shown to enhance nitric oxide synthesis and reduce thrombotic risk. GLP-1RAs also exert additional extrapancreatic effects including the renoprotective effect by increasing natriuresis through the inhibition of the sodium-hydrogen exchanger isoform 3 (NHE3).

Conclusions. The development of long-acting, orally administered, dual-acting and triple-acting GLP-1RAs has enabled a pathogenetic approach to the management of T2DM by increasing insulin secretion and sensitivity, decreasing hepatic glucose production, and suppressing appetite, which leads to weight loss.

Keywords. GLP-1 receptor agonists, type 2 diabetes mellitus.

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15. A SILENT ONSET, AGGRESSIVE COURSE: PEDIATRIC DESMOPLASTIC SMALL ROUND CELL TUMOR

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Introduction. Desmoplastic small round cell tumor (DSRCT) is a rare and highly aggressive soft-tissue malignancy that typically occurs in young individuals, characterized by polyphenotypic differentiation, nonspecific clinical manifestations, and predominant involvement of abdominopelvic structures, with subsequent hematogenous, lymphatic, pleuropulmonary, and mediastinal spread. The DSRCT pathogenesis remains controversial, involving gene deregulation, insidious onset, and rapid progression. Diagnosis requires a combination of imaging modalities followed by invasive procedures, histological examination and immunohistochemical phenotyping. Although a multimodal treatment approach is used in patients with DSRCT, the prognosis remains poor with limited overall survival.

Case presentation. A 14-year-old patient with no medical history was admitted to the Pediatric Surgery Department of "Sfânta Maria" Emergency Children's Hospital, Iași, complaining of nocturnal left lumbar pain. Clinical evaluation identified palpable masses in the hypogastrium and left flank. Contrast-enhanced CT imaging revealed multiple heterogeneous formations with central hypodense areas and calcifications, involving the peritoneum with retroperitoneal and intestinal extension, ascites, and additional subcapsular structures along the spleen and liver, in the left ureter, and within the right parietal pleura. Consequently, a midline laparotomy allowed excision of several tumoral formations, followed by abdominal lavage and drainage. Histological examination revealed nests of small round cells, surrounded by desmoplastic stroma, with lymphovascular invasion present. Immunohistochemistry highlighted the co-expression of mesenchymal (vimentin), epithelial (epithelial membrane antigen, cytokeratin antibodies AE1/AE3), and myogenic (desmin) differentiation markers in the tumor cells, along with an elevated Ki-67 proliferation index. Given the advanced stage of the DSRCT and non-feasibility of curative surgery, the patient underwent a chemotherapy regimen consisting of vincristine, doxorubicin, and cyclophosphamide; however the prognosis remained unfavorable due to metastatic progression.

Discussions. DSRCT is a rare and highly aggressive tumor, often diagnosed at an advanced stage due to its nonspecific clinical presentation. In this case, histopathological and immunohistochemical findings were essential for diagnosis, while the extensive dissemination and poor response to therapy reflected the unfavorable prognosis.

Conclusions. This case illustrates the aggressive nature of DSRCT, which often presents with extensive dissemination and limited options of curative intervention. Despite multimodal management, outcomes remain poor, emphasizing the necessity of earlier recognition and the development of more effective treatment protocols.

Keywords. Desmoplastic Small Round Cell Tumor, Immunohistochemistry, Adolescent, Metastasis, Soft Tissue Neoplasms.

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16. DURA MATER AND VENOUS SINUSES AS KEY MORPHOLOGICAL STRUCTURES OF THE CRANIOSACRAL SYSTEM

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Introduction. The craniosacral system is a complex anatomo-functional structure that includes the bones of the skull, sutures, dura mater and its derivatives, cerebrospinal fluid, and the sacrum. It begins at the sphenobasilar junction of the skull base and continues through the dura mater down to the sacrum. The dura mater serves a central role, providing structural support and fixation; through its folds, it forms intracranial partitions – the falx cerebri, tentorium cerebelli, falx cerebelli, and diaphragma sellae.

Aim of study. To investigate the morphological features and determine the clinical significance of the dura mater and venous sinuses in the functioning of the craniosacral system.

Methods and materials. A literature review was conducted using articles from PubMed, Web of Science, as well as electronic libraries of medical universities.

Results. The studies showed that the dura mater not only provides structural support but also ensures mechanical integrity and functional integration of the skull, vertebral canal, and sacrum. It is firmly attached at the foramen magnum, at the level of C2-C3 vertebrae, and the sacrum (S2). These points of fixation form a system of reciprocal tension that transmits impulses throughout the craniosacral system. Within the cranial cavity, the dura mater consists of two layers – periosteal and meningeal. The meningeal layer forms the falx cerebri, tentorium cerebelli, falx cerebelli, and diaphragma sellae. Between these folds are located the venous sinuses (superior and inferior sagittal sinuses, straight sinus, transverse sinus, sigmoid sinus, and cavernous sinus), through which venous blood drains and cerebrospinal fluid is partially resorbed. Thus, the dura mater participates in regulating CSF circulation, which has important clinical significance in craniosacral therapy. It was also found that the dura mater influences the autonomic nervous system due to its rich innervation by branches of the trigeminal nerve and the cervical sympathetic trunk, the presence of pain and vascular receptors, and its role in regulating cerebrospinal fluid and venous dynamics.

Conclusions. In summary, the dura mater and its folds have considerable clinical importance, performing multiple functions owing to their morphological structure and anatomical location. Firstly, they provide the structural framework of the craniosacral system; secondly, they support venous outflow, cerebrospinal fluid circulation, and biomechanical balance between the skull and sacrum. All of this provides a clear understanding of the pathogenesis of functional disorders in the cranio-cerebral region.

Keywords. Craniosacral system, dura mater,venous sinus, CSF, fold.

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17. ANTIMICROBIAL TOLERANCE AND PERSISTENCE BEYOND CLASSICAL RESISTANCE: MOLECULAR MECHANISMS AND CLINICAL IMPLICATIONS

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Introduction. Antimicrobial resistance (AMR) has become a major global health challenge, but it does not fully explain the therapeutic failure in bacterial infections. In recent years, antimicrobial tolerance and persistence have gained attention as widespread but underrecognized phenotypic mechanisms that enable bacterial survival despite exposure to active antibiotics. Their clinical importance is especially evident in recurrent, chronic, and biofilm-associated infections, where treatment may fail in the absence of detectable resistance.

Aim of study. The aim of this study is to analyze and compare antimicrobial persistence and tolerance with classical antimicrobial resistance and to evaluate their contribution to therapeutic failure in bacterial infection.

Methods and materials. The study is analytical and based on a selection of articles published between 2019 and 2026 in PubMed and Google Scholar databases, using the keywords: antimicrobial tolerance, bacterial persistence, biofilms, and therapeutic failure.

Results. There are two types of phenotypic survival strategies: Persistence - survival of a dormant bacterial sub-population, without heritable resistance; Tolerance - delayed killing of the entire bacterial population without a change in the minimum inhibitory concentration. Various molecular mechanisms include activation of toxin-antitoxin modules, ppGpp-mediated stringent response, dormancy-related metabolic reprogramming, and SOS response for DNA damage repair. Biofilms support these mechanisms by providing an environment where antibiotics are hindered and nutrient-poor regions are generated, which helps to enhance persistence. Both Gram-positive pathogens (e.g., Staphylococcus aureus, Mycobacterium tuberculosis) and Gram-negative pathogens (Pseudomonas aeruginosa, Escherichia coli, Salmonella enterica) have been shown to form persister cells, which may contribute to chronic or recurrent infections despite antibiotic susceptibility. These observations suggest that tolerant and persistent bacterial populations may represent an important reservoir that promotes survival during antibiotic exposure and may facilitate the subsequent emergence of genetically resistant strains.

Conclusions. Antimicrobial tolerance and persistence remain clinically underestimated phenomena compared with classical antimicrobial resistance. Improved detection of dormant bacterial populations and the development of standardized testing protocols may help reduce treatment failure and limit emergence of fully resistant strains.

Keywords. Antimicrobial tolerance, bacterial persistence, biofilms, therapeutic failure.

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18. ARTIFICIAL INTELLIGENCE IN MODELING PATHOPHYSIOLOGICAL MECHANISMS OF NEURODEGENERATIVE DISEASES FOR PREDICTIVE MEDICINE

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Introduction. Neurodegenerative diseases (NDDs), including Alzheimer's disease and Parkinson's disease, are defined by the progressive loss of neuronal integrity and are characterized by pathophysiological pathways such as proteotoxicity, neuroinflammation, and mitochondrial dysfunction. As the global burden of NDDs escalates in aging populations, traditional models struggle to capture the high-dimensional and non-linear nature of these diseases. Artificial intelligence (AI) offers a powerful framework for integrating diverse biomedical data, enabling the simulation of disease mechanisms and the identification of biological signatures before clinical symptoms appear.

Aim of study. To investigate how AI models key pathophysiological mechanisms in neurodegenerative diseases and how it supports personalized treatment.

Methods and materials. A literature review of studies published between 2020 and 2026 was conducted using PubMed, Scopus, and Google Scholar, with keywords such as “neurodegenerative diseases”, “artificial intelligence”, “Explainable AI”, and “digital twin”, to evaluate applications in disease pathophysiology. The analysis prioritized Explainable Artificial Intelligence (XAI) for interpretability and Digital Twin paradigms for patient-specific simulation. Studies were appraised for their ability to analyze complex datasets and support personalized therapeutic strategies.

Results. Recent peer-reviewed evidence indicates that AI integration in neurology is growing at a 28.9% compound annual growth rate. Multimodal frameworks achieve accuracies approaching 94% in early detection and significantly reduce diagnostic errors. AI models capture non-linear interactions between key drivers, including amyloid-beta, tau, and α-synuclein aggregates, along with neuroinflammation and mitochondrial stress. These mechanisms lead to synaptic failure and progressive neuronal loss. Deep learning architectures detect subtle patterns of mitochondrial dysfunction, often preceding clinical symptoms. Explainable AI addresses the “black box” of deep learning by providing transparent predictions and mapping cellular mechanisms to regional neuronal loss, ensuring biological validity. Moreover, Digital Twin paradigms simulate these pathways, enhancing personalized medicine.

Conclusions. Artificial intelligence is facilitating a shift from reactive diagnostics to proactive, predictive modeling. By integrating data on proteotoxicity and metabolism, AI-driven Digital Twins provide a framework for personalized medicine. Explainable AI is essential for this transition, ensuring result reliability and fostering clinical trust. Ultimately, simulating pathophysiological progression in silico enables stage-specific interventions, leading to precise, mechanism-based neuroprotection.

Keywords. Artificial Intelligence, Neurodegenerative Diseases, XAI, Digital Twin, Physiology.

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19. ARTIFICIAL INTELLIGENCE IN NANOMEDICINE: CURRENT APPLICATIONS AND FUTURE PERSPECTIVES

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Introduction. Nanomedicine represents one of the most promising fields of modern medical research, aiming to use nanoscale materials for monitoring, development, drug delivery and targeted therapeutic strategies. In recent years, the rapid development of artificial intelligence (AI) and its integration into medical research have significantly influenced this domain. AI algorithms are increasingly applied to analyze complex medical datasets, optimize the design of nanoparticles and predict how nanomaterials interact with biological systems.

Aim of study. The aim of this study was to highlight the main applications of AI in nanomedicine and its role in the development of nanomaterials.

Methods and materials. This paper represents a narrative review of 15 scientific articles retrieved from databases such as PubMed, Google Scholar, MDPI and ResearchGate, published between 2019 and 2025. Open-access, full-text articles were selected using specific keywords.

Results. According to recent studies, machine learning and deep learning algorithms, including artificial neural networks, contribute to the assessment of the physicochemical properties of nanoparticles, improve the performance of nanocarriers and model drug-release mechanisms in order to increase therapeutic effectiveness and reduce toxicity. Convolutional and recurrent neural networks are capable of analyzing and processing large volumes of data on nanoparticle morphology and pharmacokinetics. Through these models, AI algorithms can correlate nanomaterial design parameters, such as composition, ligand density, or surface charge, with biodistribution and cellular uptake, thus contributing to the optimization of therapeutic efficacy. In oncological research, AI-assisted nanomedicine has demonstrated considerable potential in optimizing therapies based on nanoparticles and nanorobots, supporting the development of effective personalized treatment strategies.

Conclusions. Artificial intelligence represents a valuable tool for the advancement of nanomedicine, contributing to the optimization and evaluation of nanoscale therapeutic systems. The synergy between AI and nanotechnology may enhance drug delivery, support the development of precision medicine and accelerate progress in medical research.

Keywords. Artificial intelligence, deep learning, nanomedicine, nanoparticles, drug delivery.

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20. EPIGENETIC LANDSCAPE OF INTRACRANIAL ANEURYSMS: MOLECULAR MECHANISMS DRIVING FORMATION AND RUPTURE

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Introduction. Intracranial aneurysms are abnormal dilations of cerebral arteries. Many patients remain asymptomatic for years, and aneurysms are often detected incidentally. When rupture occurs, however, it can lead to aneurysmal subarachnoid hemorrhage, a severe condition associated with high mortality and neurological disability. Hemodynamic stress and chronic inflammation contribute to aneurysm formation and gradually damage the vessel wall. The molecular mechanisms are still not fully understood. In recent years, epigenetic regulation has been increasingly investigated as a possible factor in aneurysm development.

Aim of study. The aim of this review was to summarize current knowledge about epigenetic mechanisms that may influence the formation and rupture of intracranial aneurysms.

Methods and materials. A literature search was performed in PubMed. Articles published between 2019 and 2026 were considered. The search included keywords: intracranial aneurysm, epigenetics, DNA methylation, histone modification, microRNA, lncRNA and circRNA. Both experimental and clinical studies were reviewed. We included studies that investigated epigenetic changes in human samples, animal models, or cellular systems related to aneurysm development.

Results. Recent data suggest that epigenetic changes may influence intracranial aneurysm development. Mechanisms involved in aneurysm pathogenesis include endothelial dysfunction, inflammatory activation, and weakening of the extracellular matrix in the vessel wall. DNA methylation is one of the most studied processes. Hypomethylation of the GSTA4 promoter has been associated with increased gene expression in vascular smooth muscle cells. Genome-wide methylation studies in patients with aneurysmal subarachnoid hemorrhage have also identified immune-related epigenetic signatures, including changes in the AIM2 inflammasome pathway. Histone modifications may contribute to vascular injury. Increased HDAC9 activity reduces miR-34a-5p expression through decreased histone H3 acetylation, which leads to higher VEGFA expression and endothelial damage. Non-coding RNAs represent another regulatory level. Elevated circulating miR-188-5p levels have been linked to extracellular matrix degradation and vascular inflammation through modulation of IL6ST signaling and increased MMP-2 and MMP-9 activity.

Conclusions. Epigenetic regulation appears to be involved in several processes that contribute to intracranial aneurysm formation and rupture. These mechanisms affect inflammation, vascular remodeling and endothelial function. Understanding these regulatory pathways may help improve risk assessment in the future. It may also open new possibilities for therapeutic strategies. However, larger multicenter and long-term studies are still needed to confirm current findings.

Keywords. intracranial aneurysm, epigenetics, DNA methylation, microRNA, histone modification.

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21. CENTRAL NERVOUS SYSTEM DAMAGE IN CHRONIC KIDNEY DISEASE

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Introduction. Patients with chronic kidney disease (CKD) are frequently affected by neurological complications (uremic encephalopathy, cognitive decline, stroke, etc.). Understanding the molecular relationships between these conditions may provide insights into effective strategies for managing neurological complications.

Aim of study. To explore the molecular kidney–brain interactions (inflammation, oxidative stress, vascular dysfunction, and alterations in neurotransmission) in order to identify new diagnostic and therapeutic strategies.

Methods and materials. An analysis of studies published between 2019 and 2025 focusing on neurological complications associated with CKD was performed. Original articles, clinical studies, and experimental research investigating the role of pro-inflammatory mediators, uremic toxins, homocysteine, fibroblast growth factor-23 (FGF-23), parathyroid hormone (PTH), and advanced glycation end products (AGEs) were included.

Results. The molecular mechanisms linking renal dysfunction to neurological complications include the effects of uremic toxins (indoxyl sulfate, p-cresyl sulfate), which induce oxidative stress and systemic inflammation, affecting the blood–brain barrier. Increased levels of pro-inflammatory cytokines (IL-6, TNF-α) and activation of NF-κB promote neuroinflammation. Elevated FGF-23 and hyperhomocysteinemia are associated with an increased risk of stroke. AGEs and PTH contribute to neuronal injury. Neuroimaging techniques (functional MRI, DTI) confirm the correlation between CKD severity and structural brain changes.

Conclusions. An interdisciplinary approach is essential. Biomarkers such as FGF-23, homocysteine, and AGEs may allow early diagnosis and assessment of neurological risk. Therapeutic strategies focus on reducing uremic toxins, controlling inflammation, and protecting the blood–brain barrier.

Keywords. chronic kidney disease, neurological complications, uremic toxins.

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22. MOLECULAR GENETIC ASPECTS OF NEUROFIBROMATOSIS

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Introduction. Neurofibromatosis is a group of genetic disorders characterized by a predisposition to the development of tumors affecting the central and peripheral nervous system. The main forms currently recognized include neurofibromatosis type 1 (NF1), NF2-related schwannomatosis and schwannomatosis associated with the SMARCB1 and LZTR1 genes. Among these, NF1 is the most frequent, accounting for approximately 96% of cases. In recent years, advances in molecular genetics have significantly improved the understanding of the mechanisms underlying these conditions, particularly the role of mutations affecting tumor suppressor genes and intracellular signaling pathways.

Aim of study. The aim of this study was to analyze the molecular and genetic mechanisms involved in neurofibromatosis and to highlight their relevance for clinical variability, diagnosis, and therapeutic perspectives.

Methods and materials. The present paper represents a narrative review of the scientific literature. A total of 51 bibliographic sources were analyzed, most of them published within the last decade. The literature search was performed by using several international databases, including PubMed, Wiley Online Library, ScienceDirect, and Google Scholar.

Results. Neurofibromatoses are mainly caused by mutations affecting genes with tumor suppressor functions. NF1 is associated with mutations in the NF1 gene located on chromosome 17q11.2, which encodes neurofibromin, a protein involved in the negative regulation of RAS signaling. Loss of neurofibromin activity results in persistent activation of several pathways involved in cell proliferation and survival, including RAF/MEK/ERK, PI3K/AKT/mTOR, and Ral. NF2-related schwannomatosis is caused by mutations in the NF2 gene, which encodes the protein Merlin, another important tumor suppressor involved in the regulation of pathways such as Hippo, RTK, and mTOR. In contrast, schwannomatosis associated with SMARCB1 and LZTR1 genes involves complex multistep mechanisms of tumor development and is often characterized by multiple schwannomas and chronic pain. Studies have also highlighted several genotype-phenotype correlations, suggesting that the type and localization of mutations may influence disease severity and clinical manifestations.

Conclusions. Neurofibromatoses represent complex genetic conditions with diverse molecular mechanisms and significant clinical heterogeneity. A better understanding of their molecular genetic background is essential for improving diagnostic strategies, supporting genetic counseling, and guiding the development of targeted therapeutic approaches.

Keywords. Neurofibromatosis, schwannomatosis, genotype–phenotype correlations, molecular diagnosis, targeted therapy.

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23. THE ROLE OF LACTYLATION IN EPILEPTOGENESIS: BIOCHEMICAL MECHANISMS

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Introduction. Epilepsy is a brain disorder that results in recurrent seizures, which have the central pathological mechanism of abnormal synchronous neural firing. There is a new pathophysiology with lactate metabolism disturbance, which has been becoming increasingly important in epilepsy. Lactate, which was a byproduct of glycolysis, is now being defined as a dynamic signal molecule, which directly regulates gene expression and function, through lactylation. The role of lactylation in epileptogenesis is demonstrated by different mechanisms, including neurotransmitter imbalance, neuro-inflammation, and neural plasticity.

Aim of study. To study the biochemical mechanisms of lactylation in epileptogenesis, its regulatory pathways, and potential therapeutic targets.

Methods and materials. It has performed a structured analysis of 30 relevant articles from the period 2015–2025, selected from the PubMed database, using the following key-words: metabolic epilepsy, lactate, lactylation, epileptogenesis.

Results. The 1st mechanism is related to the neurotransmitters. A core pathological process in epilepsy involves the disharmony between excitatory glutamate and inhibitory GABA. An enhanced glutamate release into the synaptic cleft induces excessive neuronal excitability. The regulation of the glutamate reuptake by astrocytes implies the glutamate transporter (GLT-1), which is influenced by lactate homeostasis. After intense exercise, GLT-1 mRNA expression was diminished in the cortical motor region, resulting in high extracellular glutamate concentration. Neuroinflammation constitutes the 2nd mechanism, which involves the following process: Abnormal high-frequency neuronal activities occur during epileptic seizures, resulting in lactate production due to tissue hypoxia. These metabolic conditions can increase the lactylation of p53 in microglia, which can boost lipopolysaccharide mediated pro-inflammatory activation by enhancing the expression of IL-1β, TNF-α, and IL-6. They directly enhance the activity of NMDAR while inhibiting GABA transmission, boosting neuronal excitability. The 3rd mechanism leans on neuronal plasticity. The synaptic associated proteins play a crucial role in the regulation of synaptic functions and plasticity, which is associated with epileptogenesis. The increase in lactate secretion by the intense neuronal excitatory function, such as epileptic seizures, can thus regulate lactylation of proteins and gene expression, which is associated with epilepsy-related synaptic plasticity anomalies.

Conclusions. Lactylation is a new form of post-translational modification, and it is a very important mediator of epileptogenesis because of gene expression, plasticity, and neuro-inflammation. It should be noted that the role of lactate goes beyond being a metabolism byproduct because it is a very important signaling molecule in physiology.

Keywords. Metabolic epilepsy, lactate, lactylation, epileptogenesis.

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24. IMMUNE MILIEU OF THE OVARY ACROSS THE FEMALE REPRODUCTIVE LIFESPAN

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Introduction. The ovarian pool represents the reservoir of primordial follicles in the ovaries and determines the reproductive potential of women. The intricate interplay of genetic, hormonal and metabolic factors shapes the maintenance of the ovarian follicle pool across the female reproductive life. However, in recent years, the ovarian immune microenvironment has emerged as an important regulator of follicular homeostasis.

Aim of study. To characterize the ovarian immune cell milieu across the female reproductive lifespan.

Methods and materials. A literature review of relevant peer-reviewed articles published in English between 2020 and 2025 was performed.

Results. The ovarian immune cell microenvironment is represented by cells of innate (macrophages, natural killer (NK) cells) and adaptive (B and T lymphocytes) immunity, which regulate the homeostasis of follicles by secretion of various growth factors and cytokines. The role of immune cells ranges from selection of resting follicles and ovulation, to tissue remodelling and repair, and immune surveillance. In particular, macrophages are involved in follicle rupture and oocyte release, post-ovulatory tissue remodeling, corpus luteum formation and removal of atretic follicles. Natural killer cells regulate follicle maturation, luteal angiogenesis and subsequent breakdown of corpus luteum (luteolysis). T lymphocytes are responsible for follicular development, local immune homeostasis and modulation of ovarian aging and inflammation. In the aging process, is observed a decline of macrophages with a concomitant increase of T lymphocytes. This shift is associated with a higher recognition and elimination capacity of senescent follicular cells and reduced inflammatory potential of immune cells. Alterations in immune cell profiles are linked to several pathological conditions that might occur along the reproductive lifespan, including premature ovarian failure, ovarian cancer, and polycystic ovary syndrome.

Conclusions. The local immune cell environment of the ovaries orchestrates a variety of structural and functional alterations of the follicles. Across the reproductive life, follicular aging is marked by a shift from innate to adaptive immunity cell predominance.

Keywords. Ovaries, reproductive lifespan, immune environment.

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25. ARTIFICIAL INTELLIGENCE IN METABOLOMICS FOR EARLY DETECTION OF TYPE 2 DIABETES MELLITUS

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Introduction. Type 2 diabetes mellitus (T2DM) is a chronic metabolic disorder characterized by insulin resistance, progressive β-cell dysfunction, and disturbances in carbohydrates, lipids, and amino-acid metabolism. It represents one of the most significant global health challenges due to its high prevalence and its association with severe complications such as cardiovascular disease, nephropathy, neuropathy, and retinopathy. Early detection of metabolic alterations before the onset of clinical disease is essential for effective prevention and management. Metabolomics, the comprehensive study of small-molecule metabolites in biological systems, allows detailed characterization of metabolic pathways involved in disease development. Advances in artificial intelligence and machine learning have enabled the analysis of large and complex metabolomic datasets, facilitating the identification of metabolic signatures associated with early stages of T2DM.

Aim of study. To signify the role of artificial intelligence techniques in analyzing metabolomic data for early detection and risk prediction of type 2 diabetes mellitus.

Methods and materials. A comprehensive synthesis of literature published between 2019 and 2025 from electronic libraries such as PubMed, Scopus and Web of Science was curated.

Results. The reviewed studies demonstrate that AI-based models can identify metabolomic patterns associated with early metabolic disturbances preceding the clinical diagnosis of T2DM. Predictive accuracy reached 80-90%, with area under the receiving operating curve(AUC) values >0.85, showing high model accuracy in distinguishing diabetes risk. Metabolites frequently associated with increased diabetes risk included branched-chain amino acids (leucine, isoleucine, valine), aromatic amino acids (phenylalanine and tyrosine), fatty-acid derivatives, ceramides, and intermediates of glucose metabolism. Machine learning algorithms were able to detect complex interactions among metabolites, improving predictive performance. Several studies also showed that combining metabolomic biomarkers with clinical parameters such as body mass index, fasting glucose, and lipid profiles further improved prediction of diabetes risk. These findings suggest that AI-driven metabolomic analysis can identify individuals at high risk for diabetes during the prediabetic stage, potentially years before overt hyperglycemia becomes clinically detectable.

Conclusions. Artificial intelligence applied to metabolomic analysis promises early detection of type 2 diabetes mellitus. Identification of specific metabolic signatures may enable earlier diagnosis, improved risk stratification, and targeted interventions. Integration of metabolomic, clinical, and genetic data may further enhance predictive models and help develop precision medicine strategies for diabetes prevention.

Keywords. Metabolomics, type 2 diabetes mellitus, machine learning, biomarkers.

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26. EPIGENETIC SCARS OF STRESS: HOW CHRONIC PSYCHOEMOTIONAL STRESS PROGRAMS CARDIOVASCULAR DISEASES

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Introduction. One significant environmental factor affecting cardiovascular health is chronic psychological stress. According to developments in epigenetics, stress can cause long-lasting molecular alterations that control gene expression without changing the DNA sequence. These epigenetic changes could offer a biological connection between long-term cardiovascular disease risk and exposure to psychosocial stress.

Aim of study. This study aims to investigate the molecular and genetic mechanisms by which chronic psychoemotional stress induces epigenetic modifications that affect stress-response genes and facilitate the progression of cardiovascular diseases.

Methods and materials. The study looked at scientific literature from databases like PubMed, ScienceDirect, Nature, scitable , learn.genetics and Springer. It focused on epigenetic mechanisms such as DNA methylation, histone modification, and gene expression regulation in situations related to stress. The researchers examined both experimental and review studies on how environmental factors influence epigenetic marks and disease risk.

Results. Experimental and human studies show that chronic psychoemotional stress induces epigenetic modifications in genes regulating the HPA axis and cardiovascular homeostasis. A major target is the NR3C1 gene, which encodes the glucocorticoid receptor. Increased DNA methylation in the promoter region of exon 1F of NR3C1 has been observed in individuals with childhood stress. This promoter hypermethylation reduces binding of transcription factors such as NGFI-A, leading to decreased NR3C1 transcription and reduced GR protein expression in hippocampal neurons. Under normal conditions, cortisol binds to cytoplasmic GR, forming a cortisol–GR complex that translocates to the nucleus and regulates transcription of glucocorticoid-responsive genes involved in stress feedback. Reduced GR expression weakens negative feedback regulation of the HPA axis, resulting in prolonged cortisol signaling. Stress-related epigenetic alterations are also reported in FKBP5, CRH, IL6, TNF-α, and NOS3 affecting glucocorticoid sensitivity, inflammatory pathways, endothelial function, and promoting hypertension and atherosclerosis.

Conclusions. Chronic stress causes NR3C1 promoter methylation, reducing glucocorticoid receptor expression and dysregulating the HPA axis. This epigenetic change in FKBP5, IL6, and TNF-α links stress to increased cardiovascular disease risk.

Keywords. Epigenetics, chronic stress, cardiovascular disease, DNA methylation, histone modification, glucocorticoid receptor, HPA axis.

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27. SECOND-GENERATION ANTI-AMYLOID ANTIBODIES IN ALZHEIMER'S DISEASE

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Introduction. Alzheimer's disease is a progressive neurodegenerative disorder and the leading cause of dementia, imposing a substantial burden on patients, caregivers, and healthcare systems. For decades, available pharmacological treatments have provided mainly symptomatic benefits, with limited influence on disease progression. This has stimulated major interest in disease: modifying therapies, particularly monoclonal antibodies targeting beta-amyloid. Recent primary clinical studies suggest that second-generation anti-amyloid antibodies can reduce cerebral amyloid burden and modestly slow cognitive and functional decline in patients with early Alzheimer's disease.

Aim of study. To assess the therapeutic potential, clinical effects, biomarker changes, and safety profile of second-generation anti-amyloid monoclonal antibodies in early Alzheimer's disease.

Methods and materials. A review of primary clinical studies published between 2021 and 2026 was performed. Priority was given to randomized controlled trials, open-label extension studies, and secondary analyses evaluating aducanumab, lecanemab, and donanemab in patients with mild cognitive impairment due to Alzheimer's disease or mild Alzheimer's dementia with confirmed amyloid pathology.

Results. Current primary evidence indicates that the most convincing results have been obtained with lecanemab and donanemab. In phase 3 trials, both agents produced substantial amyloid reduction accompanied by modest but measurable slowing of clinical decline. Lecanemab demonstrated beneficial effects on global clinical assessment, cognition, and daily functioning over 18 months of treatment. Donanemab also slowed disease progression, with more favorable outcomes observed in patients at earlier pathological stages. Aducanumab showed a clear amyloid-lowering effect, although its clinical benefit remained less consistent across pivotal trials. Overall, treatment effects appear more evident when therapy is initiated early and in biomarker-selected patients. The main safety concern associated with this class is amyloid- related imaging abnormalities, particularly cerebral edema and microhemorrhages, which may be influenced by individual risk factors, including APOE ε4 carrier status.

Conclusions. Recent primary clinical studies support second-generation anti-amyloid monoclonal antibodies, especially lecanemab and donanemab, as an important advance in the pharmacological management of early Alzheimer's disease. Although their benefits remain moderate, these agents represent some of the first therapies to demonstrate reproducible disease- modifying effects in a biomarker-defined population.

Keywords. Alzheimer's disease, anti-amyloid monoclonal antibodies, aducanumab, lecanemab, donanemab.

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28. FROM PHOTODAMAGE TO STRUCTURAL DISRUPTION: HISTOLOGICAL CONSEQUENCES OF ULTRAVIOLET RADIATION ON HUMAN SKIN

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Introduction. The photoaging process results from repeated and chronic exposure of the skin to ultraviolet radiation and involves several key cell types, particularly fibroblasts, keratinocytes, and infiltrating neutrophils. The susceptibility of skin to UV-induced damage varies according to melanin content and skin phototype, which influence the degree of photoprotection.

Aim of study. The aim of this study was to evaluate the effects of ultraviolet radiation on human skin, focusing on the molecular, cellular, and histological alterations associated with photodamage and photoaging.

Methods and materials. A literature review was conducted using scientific databases including PubMed, ResearchGate, in order to identify relevant studies describing the histological and molecular changes induced by ultraviolet radiation in human skin.

Results. Ultraviolet radiation induces both direct DNA damage and indirect oxidative injury through the generation of reactive oxygen species (ROS). Excessive ROS production disrupts cellular redox balance, leading to oxidative stress and damage to DNA, proteins, and lipids. In the epidermis, UVB exposure promotes keratinocyte apoptosis and the formation of sunburn cells, while simultaneously inhibiting keratinocyte proliferation and promoting cellular senescence, characterized by increased β-galactosidase activity and p16^INK4a upregulation. Photoaged epidermis also demonstrates morphological alterations of keratinocytes, including irregular cell shape and loss of cellular polarity. In the dermis, both UVA and UVB stimulate the expression of MMP-1, which promotes degradation of type I and type III collagen, while simultaneously reducing procollagen synthesis. These processes lead to extracellular matrix disorganization, fragmentation of fibers, and the development of solar elastosis, characterized by the accumulation of abnormal elastic fibers. Chronic UV exposure also induces vascular and inflammatory changes, as well as alterations in cutaneous immune function. In particular, ultraviolet radiation reduces the number and activity of Langerhans cells, resulting in local immunosuppression and decreased immune surveillance.

Conclusions. Chronic exposure to ultraviolet radiation represents a major pathogenic factor responsible for structural and functional alterations of the skin. UV radiation drives the development of photoaging and increases the susceptibility of skin to various pathological conditions, including premalignant and malignant lesions. Understanding these mechanisms is essential for improving photoprotective strategies.

Keywords. Ultraviolet radiation, photodamage, photoaging, epidermis, dermis.

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29. MOLECULAR INTERACTION BETWEEN STIM1 AND HCN4 CHANNELS: A NOVEL MECHANISM OF CARDIAC AUTOMATICITY

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Introduction. Heart excitation depends on the rhythmic signals from the sinoatrial node (SAN). Inside the SAN, specialized cells generate these impulses using a "coupled-clock" system. This system links the "membrane clock" (HCN4 channels) with the "calcium clock" (RyR2-mediated Ca2+ release). Usually, they work in perfect sync. However, during conditions like Sick Sinus Syndrome or heart failure, the calcium clock often fails. Interestingly, while STIM1 is a well-known calcium sensor, we still don't fully understand its specific role in the SAN or its direct link to HCN4.

Aim of study. Analysis of the interaction between STIM1 and HCN4 channels to see how this interaction helps maintain heart rhythm when calcium stores are low.

Methods and materials. Review of existing literature on PubMed and Google Scholar (2015-2026). We focused on studies involving STIM1, HCN4, and the automaticity of the sinoatrial node.

Results. In a healthy heart, the coupled-clock ensures a steady rhythm. But if the SR loses too much Ca2+, the calcium clock stops providing enough drive. This is exactly where STIM1 steps in as a metabolic sensor. When Ca2+ levels drop, STIM1 changes its shape and physically binds to the CNBD domain of the HCN4 channel. This contact changes the sensitivity and response of the channel to voltage. In fact, the membrane clock works harder to compensate for the failing calcium clock. This "backup" mechanism effectively prevents severe bradycardia and keeps the heart rate stable.

Conclusions. The findings suggest that the STIM1-HCN4 interaction is a vital safety pathway for the heart. Any interaction with this mechanism might lead to new ways to treat sinus node dysfunction or other rhythmic disorders.

Keywords. STIM1, HCN4, sinoatrial node, coupled-clock, calcium clock.

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30. PECULIARITIES OF SPHINGOLIPID AND CHOLESTEROL METABOLISM IN GLOMERULAR DISORDERS

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Introduction. Glomerular disorders, such as focal segmental glomerulosclerosis and diabetic kidney disease, are conventionally seen through the lens of hemodynamics and immunology. However, recent studies emphasize the "lipid-centric" nature of podocyte injury. Beyond systemic dyslipidemia, the localized metabolism of sphingolipids and cholesterol within the glomerular filtration barrier performs a pivotal function in supporting structural integrity. Dysregulation in these pathways leads to the disruption of lipid rafts, which are essential platforms for podocyte signaling and cytoskeletal stability.

Aim of study. The aim of this literature review is to integrate recent evidence regarding the specific alterations in sphingolipid and cholesterol metabolic pathways in glomerular diseases, identifying key enzymatic regulators and lipid metabolites that drive podocyte dysfunction and disease progression.

Methods and materials. This work synthesized the latest research from PubMed, NCBI, ScienceDirect, Elsevier, and Google Scholar. Peer-reviewed articles and manuals involving lipidomic, knockout model, and human biopsy studies were analyzed, focusing specifically on the roles of sphingomyelin phosphodiesterase acid-like 3b (SMPDL3b), ATP-binding cassette transporter A1 (ABCA1), and ceramide species in podocyte metabolism.

Results. The synthesized data disclose that glomerular injury is characterized by a "lipotoxic" environment. Key findings include: Sphingolipid Shifting: A constant observation of increased pro-apoptotic ceramides (specifically C16 and C24) and decreased sphingosine-1-phosphate in proteinuric states. SMPDL3b Paradox: In focal segmental glomerulosclerosis, a deficiency of SMPDL3b shifts the podocyte membrane toward a pro-inflammatory state, while its overexpression in diabetic kidney disease contributes to insulin resistance. Cholesterol Sequestration: Impaired cholesterol efflux, primarily due to the down regulation of ABCA1 leads to intracellular accumulation. This "foam-cell" transformation of podocytes causes the activation of the NLRP3 (NOD-, LRR-, and pyrin domain-containing protein 3) inflammasome and succeeding foot process disintegration.

Conclusions. Peculiarities in glomerular lipid metabolism are not purely secondary to systemic modifications, but are primary factors of glomerular filtration barrier failure. The exchange between sphingomyelin hydrolysis and cholesterol transport advocates that podocytes are exclusively sensitive to lipid raft composition. Therapeutic approaches that regulate these specific intrarenal lipid pathways rather than just lowering systemic cholesterol represent a promising frontier in treating refractory glomerular disorders.

Keywords. Sphingolipids, Cholesterol Efflux, Podocytes, Glomerular Filtration Barrier.

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31. THE EFFECTS OF RESPIRATORY BIOFEEDBACK ON STATE ANXIETY SYMPTOMS

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Introduction. Multiple studies confirm the existence of correlations between anxiety and dysfunctional breathing (DB). DB is a term describing a group of breathing disorders in patients where chronic changes in breathing pattern result in dyspnea and often non-respiratory symptoms in the absence of organic respiratory disease. Deep or rhythmic breathing is a good way to decrease symptoms of anxiety.

Aim of study. To assess the effect of respiratory biofeedback on the level of state anxiety.

Methods and materials. Participants (N=25, aged 19-35 years) completed Spielberger Stat-Trait Anxiety Inventory (STAI). 12 participants with higher trait anxiety score were selected for the second phase of the study. The experimental protocol included the recording of breathing pattern (using respiratory inductance plethysmography) in following conditions: resting state (3 min), paced voluntary hyperventilation (HV, 3min) and recovery after voluntary hyperventilation (PHV, 3 min). Following parameters were analyzed: tidal volume (TV), duration of inspiration (Ti), duration of respiratory cycle (Tt) and respiratory minute volume (MV). The selected participants performed a training of respiratory biofeedback (RB), which lasted 14 days, and included daily sessions (15 min) of visually guided breathing, with fixed rate (6 bpm), depth (1 L) and inspiratory ratio (50%). At the end of the training, participants completed STAI again and the experimental protocol was repeated.

Results. After RB, the level of personal anxiety has been reduced from 52.7±6.2 to 44.9±7.7, while state anxiety remains at the same level (29.3±6.4 and 30.8±7.2). TV in resting state was comparably greater before training (0.69±0.03 l); after RB TV has decreased (0.57±0.03 l). During HV test, TV had increased greater before RB training (2.32±0.7 l vs 2.01±0.07 l). During PHV test, TV value decreased to values higher than those in resting state and before RB training, as well as after (0.78±0.06 l and 0.65±0.06 l). Tt was shorter slightly before RB training during resting state (3.82±0.13 s and 4.27±0.15 s), maintained same values during HV test (following the conditions of HV), and was significantly longer in PHV test after RB (4.41±0.21 s before RB and 5.37±0.17 after RB). Ti, however, had not manifested any important changes during the tests before RB and after RB. MV also decreased after RB in all three tests (10.78±0.31 l/min and 8.05±0.28 l/min in resting state; 36.38±0.88 l/min and 28.27±0.75 l/min during HV test; 10.65±0.41 l/min and 7.25±0.35 l/min during PHV test).

Conclusions. The results of this study allow us to recommend the method of respiratory biofeedback as complementary and alternative method in the treatment of affective disorders.

Keywords. State anxiety, respiratory biofeedback, psychophysiology of respiration.

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32. CLINICAL AND GENETIC ASPECTS IN FRIEDRICH'S ATAXIA

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Introduction. Friedreich's ataxia (FA) is a rare autosomal recessive neurodegenerative disorder characterized by progressive gait and limb ataxia, dysarthria, loss of deep tendon reflexes, sensory neuropathy, scoliosis, and cardiomyopathy. It is most commonly caused by a homozygous GAA trinucleotide repeat expansion in the FXN gene, resulting in reduced frataxin levels.

Case presentation. We analyzed the case of a 15-year-old male patient evaluated for progressive gait instability and coordination difficulties. The assessment included detailed clinical and neurological examination, cardiological evaluation, imaging studies, and molecular genetic testing for FXN gene mutations using polymerase chain reaction (PCR) analysis.

Discussions. Clinical examination revealed an ataxic gait, positive Romberg sign, dysmetria, dysarthria, absence of lower limb deep tendon reflexes, and impaired vibration and proprioceptive sensitivity, consistent with sensory neuropathy. Skeletal abnormalities were noted on physical examination. Inspection of the feet revealed bilateral pes cavus with a high medial arch and claw-like toe positioning, consistent with neuromuscular imbalance in FA. Neuroimaging excluded structural brain and spinal cord lesions. Molecular testing identified a homozygous GAA repeat expansion in the FXN gene, confirming FA.

Conclusions. Early recognition of neurological signs combined with molecular confirmation is essential for accurate diagnosis, appropriate management, rehabilitation strategies, and genetic counseling for affected families.

Keywords. Friedreich's ataxia, FXN gene, neurodegenerative disorder, adolescent, genetic diagnosis.

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33. HOFBAUER CELL – IMMUNOHISTOCHEMICAL

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Introduction. Hofbauer cells participate in the formation of an optimal immunological microclimate, which allows the coexistence of two immunologically different components - mother and fetus. Through the secretion of proangiogenic factors (such as VEGF – Vascular Endothelial Growth Factor, PlGF – Placental Growth Factor, TGF-β – Transforming Growth Factor beta, etc.) and anti-inflammatory cytokines (IL-10, IL-4), the cells are involved in the processes of vasculo- and angiogenesis with the maturation of the vascular network of the placenta

Aim of study. evaluate and analyze the immunohistochemical profile of Hofbauer cells and determine their impact on the angiogenesis process in short-term dysregulated pregnancies with stagnant status.

Methods and materials. This literature review was based on exploring scientific articles from pubmed, scopus, web of science, google scholar, open-access platforms. Articles were selected from the period 2020-2025.

Results. The analysis of data from recent literature on the structure of chorionic villi and the immunohistochemical profile of Hofbauer cells revealed significant changes in stalled pregnancies. These include villous hypovascularization with reduced capillary density and the presence of stromal edema associated with delayed villus maturation. Changes in the density and distribution of Hofbauer cells have been observed, sometimes with an increase in their number in response to hypoxia and oxidative stress. The analysis of immunohistochemical markers demonstrated an increased expression of the macrophage markers CD68 and CD163 concomitantly with the decrease or uneven distribution of proangiogenic factors such as VEGF. The given changes reflect the disruption of the angiogenic microenvironment and the placental immunological balance. The functional disorder of these cells is associated with the onset of early placental insufficiency, contributing to the stopping of the pregnancy in progress.

Conclusions. The representative Hofbauer cells of the mononuclear-phagocytic system present a differentiated, multifactorial immunohistochemical profile with participation in the formation of the angiogenic microenvironment necessary in the formation of the choriovillary stromal vascular network. Disruption of the angiogenic environment in the choriovillary stroma, followed by hypo-anavascularization of the choriovillary, thus contributing to the establishment of placental dysfunction of vascular origin, can be seen in short-term dysregulated pregnancies.

Keywords. Hofbauer cells, placental macrophages, early pregnancy loss, missed abortion, placental angiogenesis.

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34. ARTIFICIAL INTELLIGENCE IN IDENTIFICATION AND ANALYSIS OF ANATOMICAL STRUCTURES IN CT AND MRI

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Introduction. Artificial intelligence (AI) has rapidly transformed the field of medical imaging by automating complex imaging tasks such as segmentation, detection, and quantitative analysis of anatomical structures in Computed Tomography (CT) and Magnetic Resonance Imaging (MRI) scans. CT and MRI provide high-resolution, cross-sectional views of internal body structures, but manual interpretation is labor-intensive and prone to inter-observer variability. Deep learning paradigms, particularly convolutional neural networks such as U-Net, have shown strong capacity for precise image segmentation and generalization across imaging modalities, making them prime candidates for clinical implementation. The adoption of AI promises improvements in diagnostic accuracy, workflow efficiency, and reproducibility in radiology.

Aim of study. This study aims to synthesize current methods and findings on AI-driven identification and analysis of anatomical structures in CT and MRI, focusing on segmentation frameworks, state-of-the-art deep learning architectures, preprocessing techniques, evaluation metrics, and challenges towards clinical translation.

Methods and materials. To write this work, 18 scientific literature sources were studied and analyzed, which were published in the period from 2016 to 2026.

Results. Segmentation Performance. AI models, particularly U-Net and its derivatives, achieve high accuracy in anatomical segmentation across modalities: In brain MRI, deep learning pipelines successfully segment gray/white matter, ventricles, and lesions with speed and precision, alleviating the manual burden on radiologists. In CT scans of the abdomen and chest, AI has been shown to accurately segment organs such as liver, spleen, and kidneys. However, anatomically variable regions like pancreas and small lesions remain challenging due to low contrast and morphological diversity. AI-driven fusion techniques that combine CT and MRI data can generate robust 3D models with high segmentation accuracy (Dice ≈ 0.86), useful for preoperative planning and individualized anatomical mapping.

Conclusions. AI-driven segmentation and analysis have matured into powerful tools for automating the identification of anatomical structures in CT and MRI. Deep learning architectures like U-Net and frameworks such as nnU-Net demonstrate strong performance and clinical relevance. However, achieving broad clinical adoption requires addressing generalization challenges, improving interpretability, and ensuring compliance with regulatory and ethical standards. Future research will likely incorporate foundation models, multimodal data fusion methods, and enhanced explain ability to further align AI capabilities with clinical needs.

Keywords. Artificial intelligence, medical image segmentation, computed tomography, magnetic resonance imaging, anatomical structures.

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35. CHRONOTHERAPY: TIMING DRUG DELIVERY TO PEAK GLYMPHATIC ACTIVITY

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Introduction. The glymphatic system (GS) is the macroscopic waste-clearance network of the brain. Functioning similarly to the lymphatic system, it facilitates the exchange of cerebrospinal fluid (CSF) and interstitial fluid (ISF) via perivascular spaces and aquaporin-4 (AQP4) channels. It regulates waste removal, nutrient distribution, and immune cell migration throughout the brain. GS follows the circadian rhythm and peaks during the rest phase (marked by a 60% expansion of the extracellular space(ECF)). Its malfunction contributes to the accumulation of neurotoxic proteins, which increase interstitial pressure, impair fluid flow, and create a proinflammatory microenvironment that leads to the progression of neurodegenerative disorders(ND) and Glioblastoma (GBM). GBMs act as a double-edged sword; they disrupt immune cells' pathways but use the same to spread.

Aim of study. To analyse and evaluate the potential of chronotherapy, the strategic timing of drug delivery coinciding with peak glymphatic activity, to overcome physiological barriers and explore its capacity to enhance drug penetration into deep parenchyma and enhance the clearance of proinflammatory cytokines that create an immunosuppressive environment in cases of ND and GBM.

Methods and materials. Literature review of papers across various databases.

Results. Studies conducted on murine models show that the glymphatic influx was 53% higher and net clearance rate 37-55% higher in mid rest phase than active phase. The persistence of this rhythm even in constant light,confirmed its regulation by internal circadian rhythm rather than by light cycles. While initial research proposed that GS rhythms were influenced directly by AQP4 polarisation, later experiments revealed that timing of peak GS flow was driven by other circadian factors like heart rate, arterial pulsatility, and slow vasomotion, while AQP4 levels remained relatively stable throughout the circadian cycle. GBM (>5kPa) compresses perivascular spaces and causes AQP4 displacement. Therefore choosing the window of peak flow, marked by lower interstitial resistance and maximum mechanical driving forces, allows the therapeutic drugs to penetrate and channel through the tumor environment more effectively than other times. Further, circadian regulators (melatonin etc.) boost the glymphatic clearance by 30-50%.

Conclusions. Chronotherapy proves to be an effective method for increasing the success and effectiveness of drug therapies and can be implemented by tailoring treatment schedules to the individual's unique circadian and biological profile.

Keywords. Glymphatic system, circadian rhythm, chronotherapy, Glioblastoma.

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36. INSULIN MISUSE AS A PERFORMANCE-ENHANCING AGENT IN SPORT

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Introduction. Insulin, a hormone widely used in the treatment of diabetes mellitus, plays a key role in regulating glucose metabolism and cellular energy balance. Due to its anabolic and anti-catabolic effects, which may promote glycogen storage, muscle recovery, and protein synthesis, insulin has attracted attention as a potential performance-enhancing substance in sport. For this reason, insulin and its analogues were included in 1999 on the World Anti-Doping Agency (WADA) Prohibited List, under class S4 – hormonal and metabolic modulators, with their use permitted only for athletes with diabetes mellitus under a Therapeutic Use Exemption (TUE).

Aim of study. To highlight the ergogenic potential and health risks associated with the misuse of insulin in performance sport.

Methods and materials. A narrative review of scientific articles published between 2016 and 2025 was conducted using the MedLine, PubMed, ResearchGate, and Google Scholar databases. Relevant anti-doping reports were also analysed to better understand the misuse of insulin in performance sport.

Results. Insulin exerts strong anabolic and anti-catabolic effects that may influence athletic performance. By activating insulin receptors and promoting GLUT4 translocation, it increases glucose uptake in muscle cells and stimulates glycogen synthesis, facilitating rapid restoration of energy stores after intense exercise. At the same time, insulin inhibits protein breakdown and promotes a positive nitrogen balance, creating favourable conditions for muscle growth. In doping practices, insulin is often combined with other anabolic agents, particularly growth hormone or anabolic steroids, producing synergistic effects that may further enhance muscle hypertrophy and recovery. However, its misuse carries significant health risks, with severe hypoglycaemia representing the most critical complication, potentially leading to seizures, coma, or death. Detection remains difficult due to its short half-life and structural similarity to endogenous insulin. According to recent WADA reports, 879 positive insulin tests were recorded in 2023 and 1191 in 2024, representing approximately 0.1–0.2% of adverse analytical findings, indicating that insulin misuse persists in competitive sport.

Conclusions. Due to its anabolic and metabolic effects, insulin remains a substance with potential ergogenic relevance in competitive sport. However, its misuse is associated with severe health risks, particularly life-threatening hypoglycaemia. These aspects highlight the need for continuous monitoring and improved detection strategies in anti-doping control.

Keywords. Insulin, performance-enhancing substances, metabolic doping, anabolic effects, WADA.

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37. FROM GUT HORMONES TO INCRETIN THERAPY: MOLECULAR MECHANISMS AND DETERMINANTS OF TREATMENT VARIABILITY

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Introduction. Gastrointestinal hormones (GIHs) are key metabolic signals in gut-brain communication and regulators of food intake, with orexigenic effects (ghrelin) and anorexigenic effects (cholecystokinin [CCK], glucose-dependent insulinotropic polypeptide [GIP], peptide YY [PYY], and glucagon-like peptide-1 [GLP-1]). Amid the rising global burden of obesity, understanding the neuroendocrine basis of appetite has become a translational priority.

Aim of study. To elucidate the molecular mechanisms by which GIHs modulate feeding behavior, evaluate the pharmacological potential of incretin-based interventions with an emphasis on GLP-1 receptor agonists (GLP-1 RAs), and examine the determinants of inter-individual variability in hormonal and therapeutic responsiveness.

Methods and materials. A literature search was conducted in PubMed, MDPI, and Google Scholar for original research articles and systematic reviews published between 2016 and 2026. Selection criteria prioritized studies addressing GIH-mediated appetite regulation, incretin pharmacology, and sources of biological heterogeneity in treatment outcomes.

Results. Research confirmed that GIHs have multiple effects on feeding behavior. Ghrelin activates GHS-R1a receptors in the hypothalamic arcuate nucleus, potentiating orexigenic NPY/AgRP signaling and engaging mesolimbic dopaminergic circuitry to amplify hedonic food-seeking. Conversely, GLP-1, PYY, CCK, and GIP decreased food intake by slowing gastric emptying and intestinal motility, and decreased appetite by inhibiting hypothalamic orexigenic NPY/AgRP neurons and activating populations of neurons co-expressing CART and POMC, which have anorexigenic effects. Clinically, GLP-1 RAs have demonstrated compelling efficacy: injectable semaglutide (2.4 mg/week) achieved a mean weight reduction of 14.9% vs. 2.4% with placebo (Wilding et al., 2021), while tirzepatide (15 mg/week), the dual GIP/GLP-1 agonist, led to a 20.9% reduction vs. 3.1% with placebo (Jastreboff et al., 2022). Notably, significant inter-individual variability in treatment response is observed, attributable to factors such as polymorphisms in GHS-R1a signaling, differential postprandial GLP-1 and PYY secretion patterns, and adiposity-associated hormonal desensitization.

Conclusions. GIHs orchestrate feeding behavior through a dual-axis regulatory architecture, involving the peripheral control of gastrointestinal motility and the central modulation of hypothalamic appetite circuits. This framework underscores the therapeutic relevance of incretin-based pharmacological targeting, particularly with GLP-1 RAs, and highlights the necessity of individualized approaches that account for endocrine and genetic variability in the clinical management of metabolic and eating behavior disorders.

Keywords. Gastrointestinal hormones, appetite regulation, orexigenic, anorexigenic, incretin therapy.

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38. PLEIOTROPIC MECHANISMS AND CARDIOVASCULAR EFFECTS OF GLP-1 RECEPTOR AGONISTS IN HEART FAILURE

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Introduction. Initially developed for type 2 diabetes mellitus and obesity, GLP-1 receptor (GLP-1 RAs) agonists have shown significant cardiovascular benefits. Clinical trials and meta-analyses have now confirmed that GLP-1 RAs improve myocardial function, prevent or reduce cardiac remodeling and limit the progression of heart failure.

Aim of study. This study discusses the pleiotropic effects of GLP-1 RAs on the cardiovascular system and provides evidence for their use in heart failure patients.

Methods and materials. Thirty-two appropriate articles and case studies from PubMed, Cochrane Library and Medscape databases were found by searching on 2025-2026 for the terms used for GLP-1 RAs.

Results. GLP-1 RAs bind to GLP-1 receptors in pancreas, cardiomyocytes, vascular endothelium, and autonomic nervous system. These bindings trigger a cascade of events including stimulation of adenylate cyclase-cAMP-protein kinase A pathway which improves contractility and resilience of cardiomyocytes and reduces cellular apoptosis. GLP-1 agonists alter cardiac metabolism through an increase of glucose uptake, a reduction of fatty acid oxidation and an improvement of energy utilization in cardiomyocytes. It is important for treatment of heart failure, because heart muscle uses its energy with low efficiency. In addition to this, binding of GLP-1 agonists to their receptor activates pathways which lead to a decrease of expression of inflammatory mediators such as TNF-α, IL-6 and CRP. Due to this decrease of inflammatory mediators, there is less oxidative stress and cardiomyocytes are protected against oxidative stress and subsequently less likely to undergo oxidative damage leading to cardiac remodeling. Additionally, GLP-1 RAs activate endothelial nitric oxide synthase and therefore improve production of endothelial nitric oxide resulting in a decreased systemic vascular resistance and left ventricular afterload. By reducing inflammation, oxidative stress, and cardiac hypertrophy, GLP-1 agonists may limit cardiac remodeling in heart failure. Studies show that GLP-1 agonists reduce left ventricular mass and NT-proBNP levels in heart failure patients. Research demonstrates that GLP-1 agonists reduce cardiac complications following myocardial infarction by improving microvascular flow in myocardium.

Conclusions. GLP-1 RAs effect on cardiovascular outcomes is primarily through beneficial effects on the myocardium (cellular signaling pathways, energy metabolism and reduction of inflammation), and on the vascular system (endothelial function and reduction in cardiovascular risk factors); both of which may contribute significantly to the management of heart failure patients.

Keywords. GLP-1 receptor agonists, heart failure, cardiac remodeling, myocardial metabolism.

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39. OBSTRUCTIVE SLEEP APNEA DURING PREGNANCY

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Introduction. The global prevalence of obstructive sleep apnea (OSA) in pregnancy is estimated at 15%, rising from 3.6–10.5% in the first trimester to 26–27% in the third trimester. However, the rate of identification of OSA in pregnant women is low; for every 100 pregnant women with the condition, only about 1-2 are actually being formally diagnosed and treated.

Aim of study. It aims to identify risk factors for OSA within pregnancy and explain maternal and fetal outcomes related to it.

Methods and materials. A study of online scientific research papers published between 2015 and 2025 using the PubMed platform.

Results. Pregnant women undergo several morphological and physiological changes, increasing their chance of having OSA. Normally, progesterone acts as a stimulant of the respiratory center. However, at high, sustained levels, its effect can reverse, causing instability of respiratory control and leading to fluctuations between hypo- and hyperventilation, which can develop into OSA susceptibility. Estrogen promotes airway collapse during sleep by increasing mucosal vascularity and capillary permeability, thereby, it promotes fluid retention and edema in the nasal and pharyngeal tissues. Pregnancy-related weight gain, whether due to increased appetite or insulin resistance, can lead to fat deposition in the soft tissues of the neck, narrowing the upper airway. During fetal development, an inflammatory state may be developed that triggers airway swelling and obstruction. As pregnancy progresses and the uterus enlarges, the diaphragm is displaced upward, reducing the space for lung expansion, increasing the chance of hypoventilation. Recurrent intermittent hypoxia and sympathetic activation induced by OSA promote several outcomes: the repeated cycles of hypoxia and reoxygenation promote inflammation and the production of reactive O_2 species, tumor necrosis factor alpha and IL-6, leading to vasoconstriction and elevated arterial blood pressure. Moreover, persistent hypoxia leads to placental malfunction, resulting in limited fetal growth (intrauterine growth restriction, increasing the rate of preterm birth and low birth weight). Fragmented sleep elevates cortisol levels, which in turn lead to mood disturbances, insulin resistance, and glucose intolerance, causing an increase in gestational diabetes from 3.6% in early pregnancy to 8.3% in mid-pregnancy. To improve OSA detection, the BATE algorithm can be used. It focuses on four objective markers: B – BMI (Body Mass Index), A – Age, T – Tongue enlargement, E – Edema.

Conclusions. Maternal OSA is closely linked to maternal morbidity and mortality, as well as significant adverse fetal outcomes. Early screening and proper care are essential to reduce pregnancy-related complications.

Keywords. Obstructive sleep apnea, Pregnancy, Intermittent hypoxia.

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40. SOLITARY OSTEOCHONDROMA VS HEREDITARY MULTIPLE EXOSTOSIS: DIAGNOSIS MORPHOPATHOLOGICAL FEATURES

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Introduction. Osteochondroma - the most common benign osteo-cartilaginous tumor, preferentially located at the metaphysis of long tubular bones. In 85% of cases it is in solitary form, in 15% multiple - hereditary multiple exostosis (HME). Diagnosis is based on clinical, genetic investigations within HME, and morphopathological examination is useful in differentiating and detecting the malignant form.

Aim of study. Identification of the specific morphopathological profile in solitary and multiple forms as well as the impact of etiology in morphofunctional modifications.

Methods and materials. A literature review based on articles from databases such as: PubMed, Scopus, Google Scholar, using the terms: "osteochondroma histopathology, pathogenesis, exostoses".

Results. Solitary osteochondroma - a sporadic developmental lesion associated with trauma and irradiation, with the involvement of homozygous deletions of the EXT1 gene in approximately 80% recently described. Macroscopically: bone proliferation, consisting of cortex and medullary cavity, with continuity of the underlying bone covered by cartilage. Microscopically: similar to the growth plate and endochondral ossification. Cartilage thickness in children 2-3 cm, in adults < 2 cm. HME is transmitted autosomal dominantly, with mutations in the EXT1 and EXT2 genes, involved in the synthesis of heparan sulfate proteoglycan (HSPG) which contributes to the regulation of bone and cartilage formation by interacting with bone morphogenetic proteins. HSPG deficiency leads to disruption of bone growth, manifested by the formation of exostoses. Macroscopically and microscopically HME similar to the solitary form, but with the presence of at least 2 exostoses, bone deformities, more active proliferation, disorganized architecture and higher risk of malignancy. Detection of atypical cells, cartilage layer thickness > 2 cm, abnormal proliferative activity, bone erosions are the suggestive signs of a malignant bone lesion.

Conclusions. Solitary osteochondroma and HME share multiple morphological characteristics, differing in the number of lesions, occurrence, risk of malignancy and association of bone deformities. Histopathological examination has the role of establishing the differential diagnosis within the osteo-cartilaginous pathology, including the malignant profile. Establishing the correct diagnosis and understanding the pathogenesis contributes to the establishment of an appropriate treatment, the creation of targeted therapies in the future and the performance of genetic screening of affected families.

Keywords. Osteochondroma, EXT, cartilage.

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41. MORPHOCLINICAL SIGNIFICANCE OF UTERINE LYMPHATIC DRAINAGE IN GYNECOLOGICAL ONCOLOGICAL STAGING

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Introduction. Lymphatic anatomy is crucial for understanding how gynecologic oncology develops. The lymphatic topography may influence the pattern of tumor spread and the distribution of nodal metastases. The intricate segmented pathways of the uterine lymphatic network are not respected by malignant cells that preferentially skip first echelon nodes and directly involve more downstream nodes.

Aim of study. To analyze the morphoclinical significance of uterine lymphatic drainage pathways and evaluate their role in the oncological staging of gynecological malignancies, with emphasis on sentinel lymph node (SLN) mapping, as described in current bibliographic sources.

Methods and materials. A multicentre prospective study (2021–2023) of 187 women: 124 with endometrioid adenocarcinoma and 63 with cervical squamous cell carcinoma with pelvic invasion underwent intraoperative ICG fluorescence SLN mapping alongside standard pelvic and para-aortic lymph node dissection. Lymphatic routes were identified by high-definition video and correlated with histopathological parameters, including grade, myometrial invasion depth, and lymphovascular space invasion. For endometrial cancer, the cervical injection is performed in a dual-depth four-quadrant technique to identify the subepithelial and stromal lymphatic structures. Statistical analyses were used to find links between different factors and to predict which patients would survive longer. Proper lymphadenectomy is crucial for accurate tumor staging and knowing that higher number of nodes is associated with more accurate staging.

Results. Three lymphatic drainage patterns were identified: type I (unilateral iliac drainage, 58.3%), type II (bilateral iliac and obturator drainage, 29.4%), and type III (drainage via the presacral or superior hypogastric plexus, 12.3%). Type III was associated with deeper myometrial invasion, lymphovascular space involvement, and para-aortic spread even without pelvic node involvement — occurring in 18.9% of type III cases — suggesting a skip metastasis pathway bypassing the pelvis entirely. Five-year recurrence-free survival differed significantly across types: 89.1% for type I, 76.5% for type II, and 54.3% for type III.

Conclusions. These observations show how important it is to understand the lymphatic routes in order to predict disease progression. If we include the study of these routes into the regular staging protocols we may be able to improve the precision of the medical approaches, which will allow for better risk assessment and more tailored management of gynecological cancers.

Keywords. Lymphatic drainage, uterus, sentinel lymph node, gynecological oncology.

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42. THE ROLE OF SPECIFIC CAROTENOID-BINDING PROTEINS IN RETINAL DEGENERATION

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Introduction. Carotenoids, particularly lutein and zeaxanthin, are lipophilic compounds that require specific molecular mechanisms for their transport, stabilization, and accumulation in the macular region of the retina. Zeaxanthin predominates in the central fovea, while lutein is more abundant in the peripheral macula.

Aim of study. To elucidate the role of carotenoid-binding proteins in maintaining the macular pigment homeostasis and their implication in the retinal protection against oxidative stress.

Methods and materials. This review is based on 12 recent scientific articles published in the last five years, selected from databases such as PubMed, Web of Science, Google Scholar, Elsevier, Medline, and MedEscape. Only studies involving carotenoid-binding in the retina using human, cellular, or animal models were included in the research.

Results. The main macular carotenoid-binding proteins are GSTP1 (Glutathione S-transferase P1) and StARD3 (Steroidogenic Acute Regulatory Domain-containing Protein 3). GSTP1, localized in retinal pigment epithelial cells, binds zeaxanthin, stabilizing it against oxidation. Genetic variants of GSTP1 impair zeaxanthin transport and antioxidant defense. StARD3 binds lutein with high specificity, within the structurally adapted START domain and is primarily expressed in the macula. Downregulation of StARD3 in age-related macular degeneration is associated with decreased macular pigment density and increased photoreceptor vulnerability.

Conclusions. Carotenoid-binding proteins, especially GSTP1 and StARD3, are essential for the stabilization and localization of macular pigments. Their dysfunction may serve as an early biomarker and potential therapeutic target in personalized strategies for preventing retinal degeneration.

Keywords. Binding proteins, carotenoids, retinal degeneration.

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43. THE IMPORTANCE OF ADAPTATION MECHANISMS TO AEROBIC EXERCISE IN THE PREVENTION OF CARDIOVASCULAR DISEASES

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Introduction. Cardiovascular diseases occupy a leading place among the causes of population mortality, which determines the necessity of searching for effective approaches to their prevention. One of the factors influencing the state of the cardiovascular system are aerobic physical exercises. They act as a universal physiological stimulus, causing a wide spectrum of reactions aimed at maintaining adequate tissue blood supply and ensuring energy metabolism. The study of mechanisms of adaptation of the cardiovascular system to aerobic exercises makes it possible to better understand the process of cardiac activity.

Aim of study. To identify the influence of acute and chronic mechanisms of adaptation of the cardiovascular system to aerobic exercises and to determine their role in the prevention of chronic diseases.

Methods and materials. A systematic review of literature, articles and cohort studies of 2018–2025 in PubMed, ScienceDirect, Web of Science and Journal of Physiology, CMSJ, MDPI, JAAC was conducted. Out of 110 publications, 40 were selected.

Results. The analysis of studies shows that the cardiovascular system demonstrates a clear stepwise adaptation to aerobic physical exercises. In the acute phase (minutes–hours) an increase in heart rate, stroke volume and cardiac output is observed, which ensures redistribution of blood flow to working muscles and enhancement of oxygen delivery. Blood pressure predominantly increases due to the systolic component. There is involvement of capillaries closed at rest, along with vasodilation, however vascular elasticity remains unchanged. Long-term aerobic trainings (months–years) form pronounced adaptations: stroke volume increases due to enlargement of the left ventricular chamber, leading to a reduction in heart rate – prevention of ischemic heart disease. Muscle capillarization increases, vascular elasticity improves – improvement of microcirculation and reduction of risk of arterial hypertension. Altogether, all the above parameters contribute to a significant increase in maximal oxygen uptake, which is one of the most important cardioprotective factors. Such changes increase overall endurance, improve oxygen delivery to tissues and reduce cardiac load at rest and during submaximal and maximal activity.

Conclusions. The results of studies demonstrate a consistent adaptation of the cardiovascular system to physical exercises. The reaction of the acute phase consists in providing working muscles with oxygen. Chronic adaptation consists in morpho-functional changes contributing to increasing efficiency and economizing the work of the heart. A positive correlation is noted between regular aerobic exercises and reduction of risks of major cardiovascular diseases.

Keywords. Acute and chronic physical adaptation, aerobic, cardiovascular system.

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44. TARGETING MITOCHONDRIAL PATHWAYS IN CANCER THERAPY

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Introduction. Cancer cells are characterized by high metabolic plasticity, which allows them to adapt to microenvironmental stress and resist therapy. In this context, mitochondria are central to energy metabolism, apoptosis regulation, and reactive oxygen species (ROS) control. These functions make them a promising avenue for the development of new anticancer strategies.

Aim of study. The purpose of this study was to evaluate the effectiveness of modulating mitochondrial function, apoptosis, and oxidative stress to suppress tumor cell proliferation and overcome chemoresistance.

Methods and materials. A systematic review of the literature was performed using the PubMed, MEDLINE, and Medscape databases to identify relevant articles published between 2015 and 2025 referring to "mitochondria", "metabolic reprogramming", and "tumor growth".

Results. Recent studies highlight several mitochondrial-directed tactics in cancer therapy, focusing on mitochondrial metabolism, apoptosis, and ROS balance. Tumor cells partially rely on oxidative phosphorylation (OXPHOS) for ATP production; therefore, inhibitors of the mitochondrial respiratory chain, such as metformin, atovaquone, and VLX600, can reduce ATP generation, limit cellular proliferation, and increase sensitivity to radiotherapy. Reactivation of apoptosis represents another therapeutic approach and can be achieved using BH3-mimetics, including venetoclax, which inhibit anti-apoptotic B-cell lymphoma 2 (BCL-2) family proteins and restore apoptotic signaling in tumor cells. In addition, regulation of ROS levels constitutes an alternative cytotoxic mechanism: excessive oxidative stress or disruption of antioxidant defenses can damage cellular components and induce tumor cell death. Beyond these methods, cancer treatment may benefit from modulating mitochondrial organization. Strategies to overcome chemoresistance and improve antitumor efficacy include modulation of mitochondrial dynamics, such as dynamin-related protein 1 (DRP1), mitofusin 1/2 (MFN1/2), and optic atrophy protein 1 (OPA1). Furthermore, mitochondria-targeted compounds, such as triphenylphosphonium (TPP+) conjugates, and regulation of mitophagy represent additional therapeutic options.

Conclusions. Mitochondria and cell death mechanisms continue to attract growing interest as targets for novel anticancer strategies. Ongoing research elucidates the critical role of mitochondria in cancer progression, paving the way for innovative therapeutic strategies. By bringing into focus the interplay between mitochondrial function and tumor cell survival, mitochondrial-focused approaches represent an important direction in modern oncology. Manipulating their function may enhance treatment efficacy and help overcome resistance.

Keywords. Cancer therapy, mitochondria, apoptosis regulation.

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45. HEADACHE CONNECTED WITH OBSTRUCTIVE SLEEP APNEA SYNDROME

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Introduction. Obstructive Sleep Apnea Syndrome (OSAS) is a common breathing disorder during sleep characterized by repeating upper airway obstruction, intermittent hypoxia and sleep fragmentation. OSAS is usually comorbid with primary headaches and other neurocognitive and cardiovascular complications which exacerbates the burden of the illness, research showing it could be the main cause of several phenotypes, including headaches.

Aim of study. To present and break down the pathogenesis and different approaches in diagnosis of headaches occurring in patients with OSAS, focusing on new studies based on clinical perspectives and epidemiological research.

Methods and materials. The literature review is based on articles published on PubMed, Google Scholar and Cochrane Library (2019–2024) lead by original studies, meta analysis`s and overviews, in reference to OSAS headache with the keywords: "obstructive sleep apnea", "sleep apnea headache", "morning headache", "hypoxia", "CPAP". Priority was given to epidemiological studies and research on neuromechanisms, biomarkers, randomized/controlled treatment studies and PAP therapy recommendations.

Results. Data from population-based studies and clinical studies show that approximately one third of patients with OSAS report headaches including morning headaches and headaches linked to “sleep apnea”, which are classified as secondary headaches caused by hypoxia/hypercapnia according to ICHD-3. The dominating phenotypes are morning headaches connected to mechanical hypoxia/hypercapnia, sleep fragmentation, systemic inflammation, oxidizing stress and altered pain modulation that promote nociceptive sensibilisation and damage to the central nervous system. Inflammatory and vascular biomarkers (CRP, IL-6, TNF-α, VCAM-1, VEGF, MDA) and new molecular contenders (ADAM29, IL-6, Vimentin) reflect a hypoxic-inflammatory burden associated with OSAS that helps to phenotype patients predisposed to headaches in the future. Functional and structural neuroimaging of patients with OSAS demonstrate changes in parts of the brain that regulate pain and stress, which provides substrate for cephalgic symptoms. Constant positive pressure in airways (CPAP) significantly lowers complications with OSAS, improves quality of life, including lowering the morning headaches burden, although left cephalic headaches usually appear with multimorbid phenotypes.

Conclusions. OSAS headaches are a clinically important display of sleep breathing disorder complications. Its pathogenesis is multifactorial led by intermittent hypoxia, sleep fragmentation and neuroinflammation scientifically related to biomarkers and data from neuroimaging. CPAP therapy is still the keystone treatment and leads to improvement of headaches, even though phenotype orientated and personalized approaches in targeted studies of OSAS headaches are required.

Keywords. Obstructive Sleep Apnea Syndrome, morning headache, intermittent hypoxia, CPAP therap.

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46. NEUROPLASTICITY AND THE ROLE OF OXYTOCIN: MECHANISMS OF ACTION AND PHYSIOLOGICAL IMPLICATIONS

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Introduction. Neuroplasticity is the capacity of the nervous system to reorganize its structure and function in response to internal and external stimuli. This process handles learning, memory formation, emotional regulation, recovery following neural injury, and involves both structural and functional modifications of neural networks. Oxytocin is a hypothalamic neuropeptide traditionally linked to parturition and social bonding. However, growing evidence shows it significantly modulates neuronal connectivity, synaptic transmission, and brain plasticity.

Aim of study. A review of the scientific literature was conducted to identify relevant sources and to clarify the mechanisms by which oxytocin modulates neuroplasticity, stress adaptation, social cognition, and brain development.

Methods and materials. A systematic literature review was performed using PubMed, Scopus, Web of Science, and Google Scholar (2000–2025). The search strategy included keywords related to neuroplasticity and oxytocin, such as OXTR, LTP, MAPK/ERK signaling, and social behavior. Selected papers examined oxytocin's effects on the CNS and mechanisms underlying neuroplasticity.

Results. The reviewed data indicate that activation of oxytocin receptors (OXTR) initiates multiple intracellular signaling cascades, including Gq/PLC/IP_3–Ca^{2+}, MAPK/ERK, and cAMP pathways. These signaling mechanisms modulate neuronal excitability and regulate the release of several neurotransmitters, including dopamine, serotonin, γ-aminobutyric acid (GABA), and glutamate. Through OXTR activation, oxytocin enhances neuroplasticity by strengthening synaptic connectivity, particularly within the hippocampus. Experimental studies in animal models demonstrate increased dendritic spine density, stimulation of neurogenesis, and protection against cortisol-induced neuronal atrophy. In addition, oxytocin suppresses hyperactivity of the hypothalamic–pituitary–adrenal (HPA) axis, thereby reducing chronic stress and promoting stress resilience. In the social domain, oxytocin facilitates pair bonding and maternal behavior through dopaminergic activation within the nucleus accumbens. In humans, intranasal administration of oxytocin has been shown to enhance empathy and reduce amygdala reactivity in anxiety-related conditions. Furthermore, early-life stress models reveal additional neuroprotective effects of oxytocin, including the stimulation of angiogenesis and neurogenesis.

Conclusions. Oxytocin plays an important role in the regulation of neuroplasticity by promoting synaptic remodeling and attenuating stress-induced neural damage. These findings highlight its potential therapeutic relevance in affective disorders and neurorehabilitation. Further research is required to clarify dose-dependent effects, long-term outcomes, and the influence of genetic polymorphisms of the oxytocin receptor.

Keywords. Neuroplasticity, oxytocin, OXTR, synaptic plasticity, social attachment.

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47. AGE-RELATED ALTERATIONS OF THE BLOOD-BRAIN BARRIER: HISTOLOGICAL CHANGES AND CLINICAL IMPLICATIONS

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Introduction. The blood–brain barrier (BBB) is a very specialized barrier that keeps the bloodstream and the central nervous system (CNS) apart. It keeps the stable environment that neurons need to work normally by tightly controlling molecular exchange. The BBB is made up of endothelial cells that are held together by tight junctions and supported by pericytes, astrocytic end-feet, and a basement membrane. More and more evidence shows that aging slowly breaks down this system, which leads to neuroinflammation, metabolic imbalance, and a greater risk of neurodegenerative diseases.

Aim of study. The study aim was to review and synthesize current evidence regarding age-related histological alterations of the BBB and their clinical implications.

Methods and materials. A structured literature review was conducted using online databases including Cochrane database of systematic reviews, PubMed, and Google Scholar.

Results. In both human studies and animal models, aging is consistently associated with the remodeling and weakening of the blood-brain barrier (BBB). Old brain tissues have less of the important tight junction proteins claudin-5, occludin, and ZO-1 ($p < 0.001$), as well as signs of endothelial degeneration and less coverage by pericytes. Ultrastructural analyses (transmission electron microscopy and electron tomography) reveal a thickening of the basement membrane with age, reported to be approximately twofold in aged mice relative to 6-month-old controls. This change is partly due to the buildup of lipid bodies, especially on the glial side. Astrocytic end-feet exhibit augmented lipid droplets, indicating modified lipid regulation within the neurovascular unit. Functionally, these structural changes lead to a higher BBB permeability, problems with endothelial transport, problems with mitochondria, and more oxidative stress. Clinically, the disruption of the blood-brain barrier (BBB) in older adults has been linked to cognitive decline, cerebral small vessel disease, and neurodegenerative disorders such as Alzheimer's and Parkinson's disease. Dynamic contrast-enhanced MRI shows that BBB leakage may happen early in aging, sometimes even before obvious neurodegenerative changes.

Conclusions. BBB dysfunction seems to be a significant factor in brain aging rather than a trivial subsequent effect. Progressive damage to the neurovascular unit may lead to chronic neuroinflammation, metabolic disruption, and neuronal susceptibility, heightening the risk of cognitive decline and neurodegenerative disorders. Early breakdown of the blood-brain barrier (BBB) shows promise as both a biomarker and a target for treatment.

Keywords. blood–brain barrier, astrocytes, neurodegenerative disorders, aging.

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48. CORTICAL AREAS: ORGANIZATION AND FUNCTIONS

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Introduction. The cerebral cortex forms the morpho-functional foundation of motor, sensory and cognitive neurological activities. The cerebral cortex presents a complex organization, which reflects a cellular differentiation and a characteristic stratified architecture. Recent studies on the organization of the cerebral cortex show that the traditional division of the cortex into regions, based exclusively on histological characteristics, has been complemented and refined by modern imaging techniques and analyses of neuronal connections.

Aim of study. Updated and integrated synthesis of data from the scientific literature regarding the morphological organization of cortical areas, the correlation between cortical structure and motor, sensory and cognitive functions.

Methods and materials. A narrative review of the scientific resources PubMed and Google Scholar was conducted with a focus on current information regarding the cortical organization, cytoarchitecture and functions of the cerebral cortex areas.

Results. Korbinian Brodmann divided the cerebral cortex into 52 distinct areas, differentiated by their cytoarchitecture, but also related to various functions. The sensory areas receive and process information from the sense organs and include primary somatosensory cortex, primary auditory cortex, primary visual cortex. The motor areas are related to the control of voluntary movements and comprise primary motor cortex, supplementary motor cortex and premotor cortex. The association areas integrate sensory and motor information, support abstract thinking and language. Parieto-occipito-temporal association area integrate sensory information and information stored in memory. Prefrontal association cortex is involved in planning movement and abstract thought. The cortical areas do not function as isolated units they are parts of a sophisticated interconnected system. Currently, the emphasis is on how different cortical areas are interconnected through neuronal networks, thus offering a more nuanced perspective on their collaboration in the performance of cognitive, sensory and motor functions.

Conclusions. Current neuroscience data suggest that the cerebral cortex should be viewed not simply as a succession of histologically defined regions, but as a dynamic network of interconnected areas that communicate functionally through complex patterns of structural and functional connectivity. Morpho-clinical differences observed in the cortex can be correlated with neurological and behavioral manifestations, providing a robust conceptual framework for understanding both normal physiology and clinical disorders.

Keywords. Cerebral cortex areas, neuronal networks.

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49. THE ROLE OF EXOSOMES IN 3D BIOPRINTING FOR TISSUE REGENERATION

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Introduction. Modern medicine and technology are utilizing new methods of treatment and tissue reconstruction, such as 3D bioprinting. The study of exosomes, once considered useless waste products of cellular metabolism, is currently generating significant interest in tissue engineering. Nanovesicles can be composed of specialized biomolecules for guiding the steps of cell proliferation for regeneration in terms of bioengineering, offering new and effective opportunities for 3D bioprinting.

Aim of study. To study the role of exosomes in 3D bioprinting for tissue regeneration in conditions of bioengineering.

Methods and materials. During a thorough review and analysis of the literature, 18 scientific sources from Google Scholar, PubMed, Science Direct, published in the period 2016-2026 were used.

Results. Exosomes are membrane-bound extracellular vesicles secreted into the extracellular environment by various cell types via exocytosis. These nanovesicles contain a wide variety of bioactive molecules derived from the excreted cell. Using paracrine signaling, exosomes can serve as transporters for material. The main components of exosomes include lipids, mRNA, microRNA, and proteins. Guided exosomes are a crucial component in tissue engineering, as they can regulate critical and fundamental processes such as angiogenesis and immunomodulation. Transporting materials by exosomes into cells, the gene expression of the target cell is influenced, this aspect is used in bioengineering, in order to guide the process of effective tissue regeneration at molecular level. An important precondition of tissue regeneration during 3D bioprinting is the stimulated angiogenesis that delivers oxygen and nutrients to artificially created tissues. This precondition can be effectively realized by artificially induced exosomes to the growing tissues. To induce and support angiogenesis, exosomes utilize and transport proangiogenic factors such as VEGF and microRNA. These accelerate the cell proliferation and tubular formation of endothelial cells, ensuring the morphological and functional integration of angiogenesis and the growing tissue.

Conclusions. Extracellular nanovesicles play a fundamental role in tissue engineering due to their extracellular communication capabilities through paracrine interactions, that can be modulated artificially using the exosomes as carrier for materials necessary for artificially guided cell growth in terms of tissue regeneration in bioprinting. An important effect for regeneration is the guided transport of VEGF by the exosomes to the cells, inducing vascularization for the growing tissue.

Keywords. Exosomes, nanovesicles, 3D bioprinting, regeneration, angiogenesis.

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50. THE IMPACT OF VITAMIN D DEFICIENCY ON NERVOUS SYSTEM ACTIVITY

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Introduction. Vitamin D regulates neuronal homeostasis via VDR (vitamin D receptors) signaling, BDNF (brain-derived neurotrophic factor) and NGF (nerve growth factor) expression, modulation of neurotransmission and antioxidant pathways.

Aim of study. This study aimed to investigate the impact of vitamin D deficiency on the nervous system by examining its role in neurobiological mechanisms and by evaluating its association with neurological and neuropsychiatric disorders such as depression, multiple sclerosis, and neurodegenerative diseases.

Methods and materials. A structured literature review was conducted using PubMed and Google Scholar. Inclusion criteria comprised original studies published in the last 5 years. Exclusion criteria included articles published in a language other than English, animal studies, editorials and articles without full-text open access. A total of 11 studies met the criteria and were included in the analysis.

Results. Studies have shown that $1,25(OH)_2$-D_3 binds to the VDR expressed in neurons, microglia and oligodendrocytes, regulating transcription of NGF and BDNF. Vitamin D deficiency reduces VDR signaling, leading to decreased transcription of antioxidant and mitochondrial genes. Consequently, the expression of enzymes involved in GSH (glutathione) metabolism and antioxidant defense, including γ-glutamyl transpeptidase, glutamate-cysteine ligase, glutathione reductase and catalase are down-regulated. This results in reduced intracellular GSH, impaired detoxification of ROS (reactive oxygen species). Reduced VDR activity also affects mitochondrial electron transport chain complex I, decreasing ATP production and increasing mitochondrial ROS. In multiple sclerosis, VDR-RXR (Vitamin D Receptor and Retinoid X receptor) signaling regulates OPC (oligodendrocyte precursor cell) differentiation, myelin synthesis and stabilizes the blood–brain barrier via zonula occludens-1, claudin-5 and suppression of MMP-9 (Matrix Metalloproteinase-9). In Alzheimer's disease, deficiency promotes β-amyloid accumulation and tau phosphorylation through dysregulation of GSK-3β (glycogen synthase kinase-3 β) and oxidative pathways. In Parkinson's disease, vitamin D modulates dopaminergic neuron survival, Ca^{2+} homeostasis and α-synuclein toxicity. Low serum vitamin D levels were frequently observed in patients with depression, suggesting a role of vitamin D deficiency in neuropsychiatric disorders.

Conclusions. Vitamin D exerts neuroprotective effects through VDR-mediated regulation of neurotrophins, modulation of microglial activation and stabilization of the blood–brain barrier. Evidence also indicates that monitoring and supplementation of vitamin D in some medical conditions may support neuroprotection. However, heterogeneous clinical outcomes highlight the need for large-scale controlled trials to clarify therapeutic efficacy and optimal dosing in neurological disorders.

Keywords. Vitamin D; Neuroinflammation; Neurodegeneration; Neuroprotection.

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51. MOLECULAR INTERACTIONS BETWEEN HPV E6/E7 ONCOPROTEINS, DYSREGULATION OF CELL CYCLE PROTEINS, AND INACTIVATION OF TUMOR SUPPRESSOR GENES

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Introduction. Viral oncogenesis exemplifies how infections can lead to malignant transformations via molecular disruptions. In HPV infection, this is a gradual process involving interactions between viral proteins and cellular mechanisms. The E6 and E7 oncoproteins play key roles by inactivating crucial cellular regulators, namely p53 and the retinoblastoma protein. This inactivation prevents the cell from halting the cycle despite genetic errors, leading to unchecked proliferation, genomic instability, and malignant transformation.

Aim of study. This study aims to evaluate the relationships between the expression of cell cycle markers p16INK4a and Ki-67, the integration of viral oncogenes E6/E7, and the epigenetic alterations in tumor suppressor genes CADM1 and MAL. Understanding these connections could lead to enhanced diagnostic and therapeutic approaches in HPV-related cancers.

Methods and materials. We explored PubMed articles on interactions among three major components: cell proliferation, viral oncogene expression, and epigenetic silencing of tumor suppressor genes. By correlating the expression of p16INK4a and Ki-67 with the integration of E6/E7 and the methylation of CADM1 and MAL, we aimed to deepen the understanding of underlying molecular mechanisms and evaluate personalized medicine strategies in HPV-associated conditions.

Results. Recent findings underscore that the integration of HPV DNA into the host genome has profound epigenetic effects, including chromatin reorganization and activation of tumor survival pathways. Continuous expression of E6 and E7 is crucial for maintaining the malignant phenotype by promoting cell proliferation (as evidenced by increased Ki-67 levels) and inducing oncogenic stress, indicated by elevated p16INK4a. These interactions are observable even at the single-cell level. In a state of genomic instability, methylation of CpG islands within the CADM1 and MAL promoters diminishes their expression, impacting gene functions linked to epithelial integrity. The loss of these genes contributes to progression to invasive carcinoma, underscoring the importance of elucidating these molecular steps to develop improved clinical interventions for HPV-associated diseases.

Conclusions. The connections among HPV E6/E7 overexpression, cell-cycle disruption signaled by p16INK4a and Ki-67, and hypermethylation of CADM1 and MAL illuminate the epigenetic changes driving HPV-related carcinogenesis. Recognizing these alterations offers potential pathways to enhance early diagnosis and introduce personalized treatment strategies.

Keywords. HPV, E6/E7, p16INK4a, Ki-67, Methylated CADM1/MAL.

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52. APPLICATION OF ARTIFICIAL INTELLIGENCE IN THORACIC ADIPOSE TISSUE ANALYSIS

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Introduction. This study aims to evaluate the benefits of AI modalities such as Radiomics and computer vision in visualising and quantifying the thoracic adipose tissue, including pericoronary and epicardial, pericardial, these adipose tissue compartments are associated with cardiovascular diseases and cardiopulmonary diseases as well. Advanced AI-based quantification methods enable early diagnosis of high-risk patients and predict cardiovascular events such as Myocardial infarction, Coronary artery disease(CAD), and atherosclerosis.

Aim of study. Evaluate the role of Artificial intelligence mainly the radiomics, in the visualization and quantification of thoracic adipose tissue, including epicardial, pericardial, and pericoronary fat, and determine their association with cardiovascular and cardiopulmonary disease. How these AI-based imaging modalities will influence the training of the new generation of Radiologists and the improvement in making medical decisions and procedural planning for cardiothoracic surgeons.

Methods and materials. Obtained images by thoracic computed tomography (CT) scans, including radiomics analysis and computer vision algorithms. AI-based tools offer the visualizations of Epicardial and pericoronary, pericardial fat can be identified, segmented, and quantified. Deep learning networks for automatic pericardium and heart segmentation and radiomics pipelines for feature extraction from adipose tissue regions.

Results. Manual analysis for the thoracic adipose tissue is time-consuming and less qualitative, so efficient AI methods and machine learning (ML), and Deep Learning (DL), which offer correct and efficient prediction of possible pathologies in the future. Meanwhile, challenges might be found, such as clinical validation, training, and acceptance by clinicians. AI models require large, well-labeled datasets.

Conclusions. Accurate classification of adipose tissue is a critical task in the field of medical imaging, as they contribute to enhanced medical diagnostics. However, some challenges are still taken into consideration, such as the cost of implementing AI-Technologies including software development and professional training. These challenges must be taken into consideration in order to integrate AI-based technologies in an efficient way.

Keywords. Epicardial adipose tissue (EAT),Machine learning (ML),Deep learning(DL),Coronary artery disease(CAD).

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53. THE IMPACT OF THE MEDITERRANEAN DIET ON MITOCHONDRIAL DYSFUNCTION IN OBESITY

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Introduction. The Mediterranean diet represents a dietary pattern rich in nutrients capable of preventing cardiovascular and metabolic diseases. Recent studies mention the role of mitochondrial dysfunction characterized by reduced oxygen consumption, dysregulation of oxidative phosphorylation and mitochondrial biogenesis in obesity.

Aim of study. Studying the effects of different nutrients on mitochondrial dysfunction in order to develop effective nutritional strategies for the prevention and management of obesity.

Methods and materials. Articles from the PubMed, Researcher, NCBI, Medscape, Elsevier, Hinari, Science Direct databases published between 2015 and 2026 were analyzed. Observational studies and systematic reviews were included to estimate the benefits of nutrients on mitochondrial function and the role of the Mediterranean diet in obesity management.

Results. The Mediterranean diet provides a range of nutrients that improve mitochondrial dysfunction and contribute to the prevention of obesity. Polyphenols possess antioxidant properties, reducing the production of reactive oxygen species. Resveratrol stimulates mitochondrial biogenesis by modulating sirtuin activity. Lycopene improves the activity of respiratory chain complexes and the energy efficiency of mitochondria. Monounsaturated fatty acids (MUFAs) and polyunsaturated fatty acids (PUFAs) are ligands for Peroxisome Proliferator-Activated Receptors (PPARs), the activation of which induces the expression of mitochondrial enzymes, including carnitine acyltransferase I and II, palmitate synthase, involved in the beta-oxidation of fatty acids. Some amino acids, like leucine, arginine, glutamine, influence mitochondrial metabolism by supporting energy production and regulating cellular signaling pathways. Minerals, as iron, magnesium, selenium support mitochondrial function, acting as cofactors for enzymes involved in energy production and antioxidant defense.

Conclusions. Mitochondrial function is strongly influenced by nutrient availability and dietary composition. Interaction of different nutrients present in the Mediterranean diet, such as polyphenols, MUFA, PUFA, some amino acids and minerals has beneficial synergistic effects related to mitochondrial function, energy intake and weight control, contributing in the long term to the prevention and control of obesity.

Keywords. Mediterranean diet, mitochondrial dysfunction, nutrients.

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54. ALDOSTERONE SYNTHASE INHIBITORS: A NEW PERSPECTIVE IN THE TREATMENT OF ARTERIAL HYPERTENSION

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Introduction. The renin–angiotensin–aldosterone system (RAAS) plays a fundamental role in maintaining homeostasis, regulating blood pressure (BP), and preserving hydro-electrolytic balance, as well as in the pathophysiology of arterial hypertension. Scientific studies of the RAAS have contributed to the introduction of new classes of drugs, aldosterone synthase inhibitors emerging as an innovative option for the treatment of arterial hypertension.

Aim of study. The aim of the study was to elucidate the mechanism of action of aldosterone synthase inhibitors and to evaluate their efficacy in the treatment of arterial hypertension.

Methods and materials. Scientific articles from the PubMed database from the last 10 years were analyzed, providing data on aldosterone synthase inhibitors and their effects.

Results. Competitive steroidal aldosterone antagonists (spironolactone, eplerenone) and nonsteroidal ones (finerenone, esaxerenone), in association with other antihypertensives, have proven effective in the treatment of arterial hypertension. Spironolactone and eplerenone present reduced tolerability (gynecomastia, sexual dysfunction) due to the lack of selectivity for mineralocorticoid receptors and the influence on glucocorticoid, progesterone, and androgen receptors. Inhibition of aldosterone synthase has been developed as a new option by diminishing mineralocorticoid receptor–dependent and independent effects. The study of the structural homology of aldosterone synthase (CYP11B2) and 11-beta-hydroxylase, responsible for cortisol synthesis, made it possible to highlight the active sites with the development of a series of aldosterone synthase inhibitors, such as baxdrostat and lorundrostat. Phase III clinical research of baxdrostat demonstrated a reduction of systolic BP by 9–10 mmHg with potential in the treatment of resistant arterial hypertension. The drug demonstrated satisfactory tolerability and safety, without significant changes in biochemical effects. Blood pressure increased modestly after discontinuation of administration, which suggests a physiological modification of sodium balance or vascular tone. Concomitently, a stable and similar therapeutic effect was observed across different age and sex groups.

Conclusions. International guidelines recommend aldosterone antagonists for the treatment of arterial hypertension in association with other antihypertensives, especially RAAS inhibitors. Experimental and clinical research have demonstrated that aldosterone synthase inhibitors are a promising strategy. Clinical studies have focused on identifying patients who could benefit from this treatment, as well as providing data on the long-term effect.

Keywords. Aldosterone synthase inhibitors, baxdrostat.

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55. ASSESSMENT OF NOOTROPIC USE IN CHRONIC SOMATIC DISORDERS

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Introduction. Chronic somatic and neurological diseases are frequently associated with asthenia, reduced exercise tolerance, pain, and sensory complaints, which may significantly impair functional status and quality of life. In clinical practice, nootropic agents are often included in complex therapeutic regimens aimed at supporting neurological recovery and improving patient well-being. However, their real-world use in heterogeneous rehabilitation populations requires further descriptive evaluation.

Aim of study. Assessment of the clinical and functional evolution of patients with chronic somatic and neurological conditions who received nootropic-containing therapy during inpatient rehabilitation, and to summarize literature data regarding the potential rationale for such treatment.

Methods and materials. A descriptive retrospective study was performed based on 50 randomly selected medical records of patients hospitalized in the medical rehabilitation department of IMSP SR Glodeni. The analysis included demographic characteristics, underlying diagnoses, administered treatment, and clinical status at discharge.

Results. The study included 50 patients aged 34–84 years (m=63,3±11,7), of whom 29 (58%) were women and 21 (42%) were men. The most frequent conditions were ischemic stroke (28%), dyscirculatory encephalopathy (22%), lumbar radiculopathy (18%), degenerative spinal spondylopathy with pain syndrome (12%), and vertebrobasilar insufficiency (10%), less frequent conditions included hemorrhagic stroke, infantile cerebral palsy, and vertebrogenic cervicothoracic pain. Patients received individualized therapy, commonly including vinpocetine, piracetam, pentoxifylline, and vitamins B1, B6, and B12. At discharge, many patients showed favorable clinical dynamics, including reduced fatigue, better effort tolerance, and decreased burning sensations, numbness, and pain complaints.

Conclusions. Use of nootropic-containing combination therapy was associated with favorable short-term clinical evolution in patients undergoing rehabilitation for chronic somatic and neurological disorders. Given the heterogeneity of diagnoses and the combined treatment approach, the specific contribution of nootropic agents cannot be determined conclusively. Nevertheless, available literature and the observed clinical dynamics suggest that nootropics may have a supportive role within individualized multimodal rehabilitation strategies. Further controlled studies are needed to evaluate their efficacy and indications.

Keywords. Nootropics, rehabilitation, chronic disease, functional status, pain syndrome.

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56. RECENT EVIDENCE ON PCSK9-TARGETED THERAPY IN HIGH CARDIOVASCULAR RISK PATIENTS

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Introduction. Elevated LDL cholesterol (LDL-C) is a major determinant of residual atherosclerotic cardiovascular risk. Although statins are the cornerstone of lipid-lowering therapy, a considerable proportion of high-risk patients do not achieve recommended LDL-C targets despite maximally tolerated treatment, with or without ezetimibe. This has increased interest in PCSK9-targeted therapies as an intensification strategy.

Aim of study. To summarize recent evidence (2022-2025) on the efficacy, safety, and clinical role of PCSK9-targeted therapies in patients with high cardiovascular risk.

Methods and materials. A narrative literature review was performed using PubMed and MEDLINE, focusing on publications from 2022 to 2025. Priority was given to primary research, including randomized clinical trials, long-term extension studies, pooled analyses, and implementation studies evaluating evolocumab, alirocumab, and inclisiran.

Results. Recent studies confirm that PCSK9-targeted therapies cause substantial and sustained LDL-C reduction. Long-term evolocumab data show favorable safety over more than 8 years, with continued cardiovascular benefit. Inclisiran extension studies demonstrate durable LDL-C lowering over 4 years of follow-up with twice-yearly maintenance dosing. Across recent studies, LDL-C reductions are generally around 50-60%, depending on background lipid-lowering therapy. Safety analyses report no major new safety issues, with injection-site reactions remaining the most common adverse effect. In addition, implementation studies suggest that earlier use of inclisiran may improve LDL-C goal attainment compared with usual care.

Conclusions. Current data from 2022-2025 support PCSK9-targeted therapies as effective and well-tolerated options for patients who remain above LDL-C targets despite standard lipid-lowering treatment or who cannot tolerate adequate statin therapy. Recent studies particularly strengthen confidence in their long-term durability, safety, and practical role in contemporary cardiovascular prevention.

Keywords. PCSK9 inhibitors; inclisiran; LDL-C; dyslipidemia; cardiovascular risk.

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57. BIFURCATION GEOMETRY AS A MORPHO-FUNCTIONAL DETERMINANT OF INTRACRANIAL ANEURYSM INITIATION

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Introduction. Intracranial saccular aneurysms develop preferentially at cerebral arterial bifurcations, where branching morphology reorganizes inflow into localized impingement jets, flow separation, and recirculation. These patterns generate spatially heterogeneous mechanical stimuli at the luminal surface and within the wall, making bifurcation anatomy a key upstream determinant of the microenvironment that precedes aneurysm formation.

Aim of study. To provide an updated, focused synthesis of how measurable bifurcation geometry (branching angles, branch diameter asymmetry, parent-vessel curvature, and parent-vessel radius) shapes wall shear stress distribution and spatial shear-stress gradients that are mechanistically linked to the earliest stages of intracranial aneurysm initiation.

Methods and materials. A systematic literature review was conducted by selecting relevant studies from PubMed, Scopus, and Web of Science to analyze the relationship between cerebral bifurcation geometry and saccular aneurysms. Both clinical and experimental studies were included. The statistical methods applied included meta-analyses and recent reviews.

Results. Across the reviewed evidence, bifurcations with wider or unfavorable angle configurations, pronounced branch caliber asymmetry, and increased curvature of the parent segment tend to concentrate inflow toward the apex and adjacent impaction region. This configuration is repeatedly associated with marked spatial heterogeneity of shear forces, including elevated local gradients and disturbed, non-uniform shear profiles. Such hemodynamic signatures are consistently linked to early endothelial dysfunction and maladaptive remodeling responses, offering a mechanistic bridge between bifurcation anatomy and focal wall vulnerability prior to clinically apparent aneurysm enlargement. Collectively, the findings support a geometry–flow–wall sequence in which relatively small, quantifiable differences in branching configuration can modify local hemodynamic conditions, predisposing the site to aneurysm initiation.

Conclusions. The predilection of intracranial aneurysms for cerebral bifurcations is most coherently explained by the impact of bifurcation geometry on shear-stress heterogeneity and spatial gradients. A focused morpho-functional evaluation of branching angles, diameter asymmetry, parent-vessel curvature, and parent-vessel radius provides a biologically grounded framework for understanding aneurysm initiation at specific branching sites.

Keywords. intracranial aneurysm; cerebral bifurcation; vascular geometry.

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58. STROMAL REMODELING AND MICROVASCULAR DECLINE OF THE MENOPAUSAL OVARY

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Introduction. Ovarian aging is a complex biological process characterized by the progressive decline of reproductive and endocrine ovarian function. Most studies have focused on ovarian follicles as the functional units of the ovary. However,increasing evidence highlights the critical role of the stromal microenvironment in maintaining ovarian homeostasis and regulating age-related ovarian senescence. The ovarian stroma is composed of diverse cellular and extracellular components, including stromal fibroblast-like cells, endothelial cells, pericytes, immune cells, and extracellular matrix elements, which interact with the microvascular network to support folliculogenesis and tissue integrity.

Aim of study. The aim of this study was to analyze and synthesize current evidence regarding stromal remodeling and microvascular alterations associated with ovarian aging and menopause, highlighting their role in the disruption of the ovarian microenvironment and the decline of reproductive function.

Methods and materials. This study represents a narrative review of recent scientific literature addressing stromal and vascular changes in the aging ovary. Review articles and experimental studies published in national and international medical databases were analyzed.

Results. The ovarian stroma provides the structural framework for follicular development. Aging is associated with progressive stromal remodeling characterized by increased deposition of type I and III collagen, decreased levels of hyaluronic acid, and accumulation of low-molecular-weight fragments that may promote inflammatory signaling and impair follicular dynamics. The ovarian microvasculature undergoes age-related deterioration, including reduced blood flow, decreased vascular density, lumen narrowing, and increased hyalinization and sclerosis. These alterations impair tissue perfusion and induce local hypoxia, contributing to ovarian dysfunction. Endothelial cells and pericytes also exhibit age-related alterations, such as reduced regenerative potential and diminished nitric oxide synthase activity, leading to impaired angiogenic remodeling and vascular instability. Furthermore, age-associated modifications of the ovarian lymphatic system-including capillary rarefaction, dilation of collecting vessels and increased vascular permeability may contribute to tissue inflammation and disruption of stromal homeostasis. Stromal fibrosis and microvascular decline alter the perifollicular niche, affecting primordial follicle activation, oocyte maturation and endocrine activity.

Conclusions. Stromal remodeling and microvascular deterioration are key mechanisms of ovarian aging. Understanding these processes may support the development of strategies to preserve ovarian function and delay reproductive aging.

Keywords. ovarian stroma, aging, fibrosis, angiogenesis, menopause.

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59. TREATMENT BASED ON THE MOLECULAR AND GENETIC ASPECTS OF MULTIPLE SCLEROSIS

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Introduction. Multiple sclerosis (MS) is an autoimmune inflammatory disease of the central nervous system that predominantly affects women between the ages of 20 and 40 and is a leading cause of irreversible neurological disability in young adults. The pathogenesis of the disease involves demyelination and significant blood–brain barrier damage, which subsequently leads to progressive neurodegeneration. Despite significant progress in reducing focal inflammatory activity through the use of disease-modifying therapies, several major challenges remain in multiple sclerosis research, including an incomplete understanding of the molecular and genetic mechanisms of the disease, the progression of neurodegenerative processes, and variability in clinical course and therapeutic response among different patients.

Aim of study. To find out which molecular genetic aspects of multiple sclerosis can be used to develop more precise and effective treatment methods aimed at stopping the development of this disease.

Methods and materials. The material was collected using peer-reviewed biomedical bibliografic sources including PubMed, Scopus, Web of Science, Oxford Academic, Google Scholar, ScienceDirect, Springer Nature and BioMed Central . This comprehensive study is based on 18 selected articles. All analyzed sources were published in the period of 2016-2026.

Results. Research has shown that the most important allele involved in the development of the autoimmune response is HLA-DRB1*15:01, along with the genes IL2RA, IL7R, TYK2, and STAT3. Therefore, the development of targeted therapies has been initiated, using natalizumab, which blocks the α4 integrin, thereby inhibiting lymphocyte migration. Ocrelizumab selectively suppresses B lymphocytes by binding to CD20; fingolimod blocks the release of lymphocytes from the lymph nodes by modulating S1P. Additionally, microRNAs and epigenetic modifications, such as DNA methylation and histone modifications, play an important role in future therapeutic approaches.

Conclusions. A deep understanding of the molecular-genetic aspects of multiple sclerosis pathogenesis, especially the role of the HLA-DRB1*15:01 allele, represents the beginning of the development of an effective personalized therapy, which will open new horizons and advance medicine to a new level.

Keywords. Multiple sclerosis, HLA-DRB1*15:01, natalizumab, microRNA.

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60. GENETIC BASIS OF CONGENITAL CENTRAL HYPOVENTILATION SYNDROME

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Introduction. Congenital central hypoventilation syndrome (CCHS), also known as Ondine`s curse is a rare autosomal dominant neurodevelopmental disorder affecting the autonomic nervous system. CCHS is caused by mutations in the paired-like homeobox 2B (PHOX2B) gene and typically manifests in the neonatal period with recurrent episodes of central apnea, especially during sleep or sedation. Despite the global prevalence of approximately 1 in 200,000 live births, delayed diagnosis remains a significant challenge due to non-specific symptoms.

Aim of study. The aim of the study is to characterize genetic etiology of CCHS and analyze the impact of PHOX2B mutation types on disease manifestations.

Methods and materials. The study was designed as a systematic literature review. It comprises data collected from 16 bibliographic sources, which were selected from various research platforms such as PubMed, Google Scholar, ScienceDirect, Springer Nature and databases GeneCards, Atlas of Genetics and Cytogenetics in Oncology, TISSUES database (JensenLab) covering the period of 2016-2026.

Results. The pathophysiology of CCHS is genetically determined by predominantly de novo mutations in the PHOX2B gene, which encodes the paired mesoderm homeobox protein 2B, an important transcription factor involved in neurodevelopment. Approximately 90% of manifested cases are associated with dynamic mutations in the PHOX2B gene. The trinucleotide repeating occurs in the third exon, in the majority of cases leading to the consequence at the level of protein - an expansion of alanine from 20 to 33 times. Taking an account that a repeating of 20 times is premutation and 23 times is considered as mutation with clinical manifestations. Predominantly resulting from slipped strand mispairing, these additional repeats provoke particular severity of clinical symptoms that correlates with expansion length. The remaining 10% of cases result from missense, nonsense and frameshift mutations in exons 1-2, which are also associated with Hirschsprung disease and neuroblastoma. These mutations lead to abnormal protein synthesis or complete loss of function, impairing the differentiation of autonomic nervous system, including brainstem respiratory center.

Conclusions. Consequently, clinical variability and severity of respiratory failure in the CCHS is determined by the time of polyalanine repeats. Other dynamic mutations in this gene are associated with additional neurodevelopmental comorbidities. Therefore, identification of PHOX2B mutations makes the confirmation of CCHS diagnosis possible, and the determination of specific mutation can serve as a biomarker of clinical outcomes and disease progression.

Keywords. congenital central hypoventilation syndrome, congenital diseases, polyalanine expansions.

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61. CLINICAL ANATOMY ASPECTS OF HIP PROSTHETICS

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Introduction. The hip joint is a major weight bearing ball-and-socket joint formed by the acetabulum and femoral head, enabling gait and daily movements. Degenerative conditions such as osteoarthritis, fractures, and avascular necrosis may require total hip arthroplasty (THA) to relieve pain and restore function.

Aim of study. To evaluate how hip prostheses influence anatomical restoration parameters such as femoral offset, center of rotation, and leg length.The study also reviews implant materials, their biomechanical influence, and the timing of reported patient outcomes and complications.

Methods and materials. A literature review of peer-reviewed studies on hip anatomy, prosthetic design, and implant biomaterials was conducted using PubMed and related research databases. Publications from 2003-2025 were analyzed to evaluate anatomical reconstruction techniques, implant materials, and prosthetic performance.

Results. Hip anatomy strongly influence prosthetic design.the femoral neck angle, acetabular depth, and soft tissue attachments influence both implant fit and range of motion. Accurate reconstruction of these parameters reduces complications such as limb length discrepancy and impaired gait. Materials used in hip prostheses include metals (titanium alloys,cobalt chromium), ceramics (alumina, zirconia) and polymers (polyethylene). These materials provide strength, wear resistance, and biocompatibility. Combination surfaces like metal-on-polyethylene and ceramic- on-ceramic influence wear and longevity.only pain scales are reported at time points less than one week which has Harris Hip score 6.6% in THA trials,while various joint specific functional outcomes were reported at later time points.dislocation,abductor insufficiency,fracture and nerve injury are the most common complications.

Conclusions. Successful total hip arthroplasty depends on precise anatomical restoration of femoral offset, center of rotation, and leg length to ensure stability, normal gait, and reduced complications. Implant material selection influences wear, longevity, and biocompatibility. While early outcomes mainly assess pain, long-term functional scores better reflect overall success. Careful surgical technique and appropriate prosthesis choice are key to optimal patient outcomes.

Keywords. Hip prosthetics,leg length, complications, femoral offset, implant material.

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62. TYPE 2 DIABETES MELLITUS - MOLECULAR PREDICTORS OF PROGRESSION TO INSULIN DEPENDENCE

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Introduction. Type 2 diabetes mellitus is a progressive metabolic disorder characterized by chronic hyperglycemia resulting from peripheral insulin resistance coupled with progressive pancreatic β-cell dysfunction in approximately 80% of cases. Globally, nearly 537 million adults are affected, with estimates projecting 783 million by 2045. T2DM pathogenesis involves polygenic susceptibility, visceral obesity, atherogenic dyslipidemia, and chronic low-grade inflammation with elevated cytokines (IL-6, TNF-α). Conventional markers like glycated hemoglobin often fail to detect preclinical β-cell impairment, underscoring the need for molecular biomarkers to predict progression and enable early intervention.

Aim of study. To evaluate molecular predictors- branched-chain amino acids (isoleucine), triglycerides, β-cell stress proteins (GDF15)- for anticipating pancreatic functional collapse and insulin dependence in T2DM via integrated multi-omics review of prospective multicenter studies (n>2900 subjects), optimizing risk stratification and personalized therapeutic strategies.

Methods and materials. PubMed Central literature review (2016-2026) of prospective registries: Go-DARTS (n=1324), DCS (n=1126), ANDIS (n>500, ≤5-year duration). Serum parameters (branched-chain amino acids, triglycerides, GDF15) compared with normoglycemic controls using Cox proportional hazards models and ROC analyses for insulin dependence prediction. GWAS data synthesized from cohorts >50.000 participants.

Results. GWAS data from European cohorts (Go-DARTS, DCS >50.000 participants) identified >500 T2DM susceptibility variants impacting β-cell function. TCF7L2 variants impair Wnt/β-catenin signaling, reducing glucose-stimulated insulin secretion, SLC30A8 (ZnT8) variants disrupt zinc transport for insulin granule crystallization, KCNJ11 variants alter KATP channel glucose responsiveness. FTO variants promote abdominal adiposity/insulin resistance; PPARG Pro12Ala confers protection via enhanced insulin sensitivity. Go-DARTS/DCS metabolomics: isoleucine ↑25% (metabolic stress), homocitrulline ↑ (mitochondrial dysfunction), triglycerides ↑40% (β-cell lipotoxicity), GDF15 ↑ (β-mitochondrial stress). Multi-omics models achieved ROC-AUC 0.89 (5-year prediction) vs HbA1c 0.71.

Conclusions. Combining polygenic risk scores with biomarkers (isoleucine, GDF15) outperforms HbA1c for T2DM progression prediction (ROC-AUC 0.89 vs 0.71). This approach identifies high-risk individuals for rapid β-cell failure and insulin dependence, enabling personalized interventions-early insulin therapy, GLP-1 receptor agonists, SGLT2 inhibitors-to prevent microvascular and macrovascular complications.

Keywords. Type 2 diabetes mellitus, β-cell dysfunction, polygenic risk score, isoleucine, GWAS, Go-DARTS.

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63. DECIDUAL CD56+ CELLS IN EARLY PREGNANCY LOSS

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Introduction. Pregnancy constitutes a unique immunological environment in which the maternal immune system must balance tolerance toward the semi-allogeneic fetus with the capacity to maintain immune defense. Natural killer (NK) cells play a key role in early pregnancy, and their dysregulation has been associated with adverse outcomes such as missed and spontaneous miscarriage. NK cells divide into peripheral NK (pNK) cells and uterine NK (uNK) cells (that become decidual NK (dNK) cells when recruited to the decidua), characterized by CD56brightCD16- and CD56dimCD16+ phenotypes. During early pregnancy, dNK cells contribute to trophoblast invasion and spiral artery remodeling, while pNK cells are primarily involved in immune surveillance. Both excessive and insufficient NK cell activity at the maternal-fetal interface can compromise pregnancy. Therefore, the quantitative assessment of CD56 positive (CD56+) cells in the decidua is relevant for understanding immune changes in early pregnancy disorders. The anti-CD56 antibody detects the CD56 marker expressed by NK cells and certain T lymphocytes, enabling identification of the decidual CD56+ compartment.

Aim of study. To evaluate the role of local immunity at the maternal-fetal interface in early pregnancy disorders by quantitatively assessing CD56+ cells at the implantation site, comparing their distribution between study groups using statistical analysis.

Methods and materials. A total of 73 uterine aspirates were obtained from patients admitted to the Public Medical Institution "Mother and Child Institute", Department of Gynecology, with early pregnancy disorders (mean age 34,2 years) and gestational age of up to 12 weeks. The cohort comprised 32 cases of missed miscarriage (SS), 25 cases of spontaneous miscarriage (ASP) and 16 cases of electively terminated pregnancies for social indications (ADS), used as control. Immunohistochemical staining for CD56 was performed using FLEX CD56 antibody (clone 123C3) with the EnVisionTM FLEX visualization system. Evaluation fields were selected using the "hot-spot" method by identifying areas with the highest CD56+ cell density.

Results. Quantitative assessment and comparative analysis of CD56+ cell distribution revealed statistically significant differences between the studied groups ($p < 0.05$). The highest mean CD56+ cell count was observed in the ASP group (96.9 cells/field), followed by SS (77.5 cells/field), whereas the control group (ADS) showed the lowest values (57.6 cells/field).

Conclusions. Altered decidual CD56+ cell density in the basal decidua reflects local immune dysregulation in early pregnancy disorders and suggests a link between immune imbalance and pregnancy loss, supporting further studies on decidual immune cell function.

Keywords. CD56, early pregnancy, miscarriage.

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64. PHYSIOPATHOLOGICAL CORRELATIONS BETWEEN NEURODEGENERATION AND BEHAVIORAL DISORDERS DURING REM SLEEP. SCREENING METHODS

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Introduction. REM sleep behavior disorder (RBD) is frequently associated with neurodegenerative diseases (NBD). RBD manifests itself, in most cases, through the loss of muscle atonia during REM sleep, which leads to sudden limb movements and/or vocalizations that reflect dream content. Therefore, RBD is an early marker of the onset of neurodegeneration, allowing for the implementation of early therapeutic strategies.

Aim of study. This paper aims to analyze the relationship between BND and REM sleep behavior disorders, focusing on common pathophysiological mechanisms and the importance of prodromal screening.

Methods and materials. We conducted an extensive literature review using databases such as PubMed, NIH, Wiley, and the Google Scholar search engine. We selected papers published in English since 2015.

Results. Studies show that most patients suffering from RBD exhibit abnormal nocturnal behaviors, such as violent limb movements and vocalizations in accordance with the dreams they have during REM sleep. RBD may occur before the onset of clinical manifestations of BND, but there are also cases in which these disturbances occur concurrently with or around the onset of specific motor or cognitive symptoms. Early manifestations of RBD are associated with progressive damage to certain regions of the brainstem nuclei involved in sleep regulation and REM atonia, such as the sublaterodorsal nucleus (SLD), locus coeruleus, and magnocellular nucleus. Also, in the early stages of the neurodegenerative process, before cognitive disorders are noticed, the dopaminergic (responsible for maintaining muscle atonia during REM sleep) and cholinergic (involved in cortical activation during REM) neural networks are also involved. Recognition of RBD as an essential prodromal marker requires the use of screening tests in the evaluation of patients at risk for synucleinopathies. The most widely used clinical tool in this case is the RBD Screening Questionnaire (RBDSQ), which has high sensitivity. For more complex assessments, such as the presence, frequency, and severity of symptoms over the past year, the RBDQ-HK (Hong Kong version) is used. A method considered more accurate is the Mayo Sleep Questionnaire (MSQ), which takes into account the direct observations of the sleep partner regarding the nocturnal behaviors of people with RBD.

Conclusions. A better understanding of the pathophysiological mechanisms linking neurodegenerative diseases to REM sleep behavior disorders can help in the early identification of prodromal markers. Using screening methods in routine assessment allows us to establish an early diagnosis, monitor disease progression, and develop neuroprotective therapeutic strategies in the preclinical stages.

Keywords. REM sleep, REM sleep behavior disorder, synucleinopathies, screening, muscle atonia.

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65. DAYTIME IMPACT OF INSOMNIA

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Introduction. Insomnia is a multifactorial condition in which persistent emotional arousal interferes with the regulatory processes involved in normal sleep. This interaction may extend beyond nocturnal disturbances, interfering with daytime functioning. The evaluation and understanding of this functional impact are crucial from a clinical perspective.

Aim of study. To identify the daytime impact of insomnia, with particular emphasis on cognitive function, emotional regulation and overall daily performance.

Methods and materials. Articles published between 2015 and 2025 were analysed using academic databeses and medical platforms such as Google Scholar, Medscape and Elsevier resources.

Results. Insomnia was associated with daytime consequences across cognitive, emotional and functional domains. From a cognitive perspective, individuals often experience reduced attention, mental fatigue and difficulty maintaining focus during prolonged or demanding tasks. Many became easily distracted, processed information more slowly and demonstrated delayed reactions when sustained concentration or multitasking was required. A common finding was the difference between subjective perception and objective performance, with many individuals describing a sense of “mental fog” or reduced clarity of thinking, even when measurable deficits were mild. Emotionally, sleep disturbance associated with anxiety was related to irritability, heightened emotional reactivity and lower tolerance to stress, reflecting impaired emotional regulation in the absence of restorative sleep. Mood fluctuations and increased sensitivity to everyday situations often made routine challenges feel more overwhelming and contributed to persistent psychological tension. Functionally, these changes were reflected in reduced productivity, difficulties in organising activities and challenges sustaining stable performance throughout the day. Individuals reported more frequent mistakes, decreased motivation and greater difficulty coping with daily responsibilities. Interpersonal interactions were also affected with increased impatience, reduced tolerance in social contexts and a tendency to withdraw from demanding or stressful situations, further influencing overall energy levels and engagement in everyday life.

Conclusions. Approaching insomnia not only as a nighttime disturbance but also as a condition that affects thinking, emotional responses and everyday functioning may improve its clinical understanding. The relationship between sleep quality, emotional state and daily demands appears to play an important role in influencing these daytime effects. Recognising these patterns may contribute to a more balanced clinical evaluation and management of insomnia.

Keywords. anxiety, insomnia, daytime functioning, emotional regulation.

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66. UTERINE VASCULAR REMODELING DURING PREGNANCY

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Introduction. Uterine vascular remodeling is a physiological process of pregnancy through which uterine circulation adapts to ensure an adequate supply of oxygen and nutrients to the fetus. A central component of this process is the transformations of the uterine spiral arteries.

Aim of study. The aim of this study was to perform a comparative histological evaluation of uterine spiral artery remodeling in normal pregnancies and in pregnancies complicated by arterial hypertension, preeclampsia and fetal growth restriction, with particular emphasis on the extent of trophoblastic invasion and the structural alterations of the vascular wall in placental bed biopsies.

Methods and materials. The study included 23 uncomplicated pregnancies, 30 pregnancies complicated by preeclampsia, and 40 pregnancies with other obstetric complications, including fetal growth restriction. Placental bed biopsies were obtained intraoperatively and examined histologically using standard hematoxylin-eosin staining. Microscopic evaluation focused on the presence or absence of trophoblastic invasion, subintimal structural changes of the vascular wall, as well as pathological vascular lesions associated with hypertensive disorders.

Results. In uncomplicated pregnancies, physiological remodeling of the spiral arteries is an essential process for the adaptation of uteroplacental circulation and is characterized by trophoblastic invasion and reduction of the vascular smooth muscle layer. The data demonstrated that 22 out of 23 biopsies (96%) from normal pregnancies exhibited these changes. In pregnancies complicated by preeclampsia, physiological transformation was observed in only 1 out of 30 cases (3.3%), indicating a marked difference compared to normal pregnancies. In the majority of hypertensive cases, trophoblastic invasion was absent or superficial. In contrast, biopsies frequently revealed pathological lesions such as medial hyperplasia, fibrin deposition, acute atherosis, and thrombosis. The absence of spiral artery remodeling was associated not only with preeclampsia but also with intrauterine growth restriction, highlighting the central role of this process in the pathogenesis of placental insufficiency.

Conclusions. Physiological remodeling of the spiral arteries is essential for adequate uteroplacental perfusion and normal pregnancy development. Incomplete or absent remodeling is associated with preeclampsia and fetal growth restriction, reflecting impaired placental adaptation. The variability between histopathological findings and clinical severity suggestes the involvement of additional maternal compensatory mechanisms.

Keywords. Uterine vascular remodeling, pregnancy, spiral arteries, trophoblastic invasion.

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67. INTEGRATION OF ARTIFICIAL INTELLIGENCE AND LABORATORY BIOMARKERS IN THE EVALUATION OF NEUROPATHIES

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Introduction. Neuropathies represent a heterogeneous group of diseases with a multifactorial etiology determined by the complex interaction of inflammation, intracellular metabolic processes and axonal degeneration. The diagnosis of these diseases requires the correlation of the clinical presentation with the results of laboratory investigations to define the main etiopathogenetic link. In the context of the accelerated progress recorded by artificial intelligence, the analysis and interpretation of the multitude of biochemical data becomes much easier, offering new perspectives for the identification and monitoring of patients.

Aim of study. Determining the application potential of artificial intelligence in the processing and interpretation of paraclinical indicators involved in the onset of various types of neuropathies.

Methods and materials. The study included an exhaustive analysis of 15 scientific articles, published between 2021-2026, in open access, from internationally indexed databases: PubMed, Scopus, ScienceDirect. Selection criteria targeted research that investigated the role of artificial intelligence algorithms in early diagnosis in association with the elevation of distinctive biochemical parameters. Inconclusive results with the purpose of the work, as well as publications with restricted access, were excluded from the research.

Results. The implementation of medical software systems based on artificial intelligence facilitates the simultaneous analysis of a large volume of data from specific laboratory investigations. Thus, machine learning algorithms can correlate biomarkers such as neurofilament light (NfL), proinflammatory cytokines, oxidative stress indicators, S100B protein and distinctive antibodies involved in degeneration and demyelination. For example, the combined analysis of serum levels of NfL, glycated hemoglobin and proinflammatory interleukins can differentiate pathognomonic profiles for diabetic neuropathy as opposed to autoimmune or deficiency ones. Accordingly, these systems facilitate the creation of predictive models for assessing the risk of progression of nerve damage and the detection of patients with an increased probability of severe disease evolution.

Conclusions. The involvement of artificial intelligence in research deliberately allows opening new perspectives for recording and evaluating emerging biomarkers in the occurrence of neuropathies. Comprehensive analysis of discrepancies in changes in laboratory indicators allows establishing characteristic patterns depending on their genesis. These modern strategies increase diagnostic accuracy and constitute an impetuous step in the modern paradigm of precision medicine.

Keywords. neuropathies, laboratory biomarkers, NfL, artificial intelligence.

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68. ARTIFICIAL INTELLIGENCE IN THE INTERPRETATION OF VARIANTS OF UNCERTAIN SIGNIFICANCE IN EPILEPSY GENES

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Introduction. Genetic epilepsies are clinically and molecularly heterogeneous disorders in which next-generation sequencing has improved diagnostic yield, but has also increased the detection of variants of uncertain significance (VUS), especially missense changes. These findings often delay diagnostic clarification and complicate genetic counseling, making artificial intelligence (Al) - assisted tools increasingly relevant for variant interpretation in epilepsy-associated genes.

Aim of study. To review recent evidence on Al-assisted interpretation of VUS in epilepsy-associated genes, with emphasis on diagnostic utility, clinical relevance, and current limitations.

Methods and materials. A structured literature review was conducted in PubMed, Scopus, and Web of Science for studies published between 2016 and 2026. Study selection followed PRISMA principles. Original studies evaluating Al-based or advanced computational models for variant interpretation in epilepsy-related genes were included. After screening and eligibility assessment, nine studies were retained for qualitative synthesis.

Results. The reviewed studies consistently showed that newer ensemble, gene-specific, structure-informed, and deep-learning predictors offer more meaningful support for missense variant interpretation than older rule-based tools. In epilepsy-focused analyses, models such as AlphaMissense, REVEL, and other gene-customized approaches were most useful not as stand-alone classifiers, but as instruments for refining variant prioritization and guiding VUS reassessment. Their strongest contribution was the ability to identify variants that merit closer clinical correlation, segregation analysis, or functional testing, while also helping distinguish persistently uncertain findings from those with stronger pathogenic potential. Across the literature, the best-performing approaches were those interpreted in conjunction with phenotype, inheritance pattern, family data, functional evidence, and ACMG/ AMP criteria. At the same time, important limitations remained, including uneven performance across genes and variant classes, reduced reliability for non-missense variants, ancestry-related bias in reference datasets, and the risk of overinterpreting computational outputs in the absence of clinico-genetic correlation.

Conclusions. Al-assisted variant interpretation represents a meaningful advance in epilepsy genetics, particularly for VUS prioritization and reassessment. Its greatest clinical value lies in decision support, while the most reliable interpretation remains one that integrates computational predictions with detailed phenotyping, family studies, functional data, and expert ACMG/AMP-based evaluation.

Keywords. epilepsy, variants of uncertain significance, artificial intelligence, machine learning, variant interpretation.

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69. RISK FACTORS THAT DETERMINE A HIGHER PREVALENCE OF MULTIPLE SCLEROSIS IN WOMEN

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Introduction. Multiple sclerosis (MS) is a chronic autoimmune neurological pathology, caused by inflammation and demyelination of the central nervous system (CNS). Women are more frequently affected than men with a ratio of 3:1, due to the interaction between endogenous factors (hormones, genetic susceptibility, sex chromosomes) and exogenous factors (Epstein–Barr infection, vitamin D deficiency, smoking, obesity), generating a major autoimmune risk.

Aim of study. To identify factors that increase the rate of MS patients in females.

Methods and materials. An in-depth search was conducted on 68 articles out of 150 in databases (PubMed, Google scholar, Molecular genetics) with the interval 2015-2025.

Results. Genome-wide association studies reveal over 230 risk variants, many of which are responsible for sex-dependent effects. The strongest risk locus (HLA-DRB1*15:01) correlates with immune genes. The ribonucleoprotein complex XIST functions as an immunogenic trigger for female autoimmunity. The toll-like receptor 7 (TLR7) gene favors female immunity, because it is not subject to X-linked inactivation. TLR7 expression is more pronounced in XY neurons, which means that the progression of MS is more aggressive in males. Female patients have higher relapse rates and recovery is more successful, while male patients suffer from more aggressive neurodegeneration with fewer relapses. Th1 and Th17 are more common in women: they secrete pro-inflammatory cytokines (IFN-γ, TNF-α, IL-17, IL-21, IL-22), which activate microglia and macrophages in the CNS, increase antigen presentation and cause extensive damage to myelin and axons. Estrogen suppresses pro-inflammatory cytokines such as IL-6, IFN-γ, and TNF-α, while promoting the production of regulatory T cells and anti-inflammatory IL-10. Progesterone amplifies the action of GABA and promotes myelin regeneration, reducing relapse rates by 70%. MS reactivation often occurs within the first 3 months postpartum, when progesterone levels decline. Nulliparity, advanced maternal age (≥35 years), urbanization, stress, Western dietary pattern, sedentary lifestyle are related to educational level in women and correlate with a higher risk of MS. Menopause accelerates disease progression due to low estrogen levels. DNA methylation in CD4+ T cells shows sex-specific differences that modulate HLA-DRB1 expression and increase MS risk. microRNAs (mir-155, mir-338, mir-491) are upregulated in women with progressive MS and affect the synthesis of progesterone, allopregnanolone, pregnenolone, deoxycorticosterone, which have a neuroprotective role.

Conclusions. MS affects women more often than men due to complex interactions between genetic susceptibility, hormonal balance and environmental factors.

Keywords. multiple sclerosis, risk factors, women.

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70. THE IMPACT OF HEART RATE VARIABILITY ON ACADEMIC BURNOUT IN UNDERGRADUATE MEDICAL STUDENTS

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Introduction. Academic burnout represents a major challenge in medical education due to the demanding and high-pressure nature of the field, characterized by intensive workloads, prolonged study hours, frequent examinations, and emotionally demanding clinical experiences. Burnout has been associated with reduced academic engagement, diminished motivation, feelings of incompetence, and an increased risk of academic withdrawal, primarily resulting from chronic stress experienced during the early years of medical training. Heart rate variability (HRV) is a widely used and well-established physiological indicator of stress, reflecting variations in the time intervals between consecutive heartbeats and the heart's capacity to adapt dynamically to physiological and environmental demands. Therefore, HRV represents a noninvasive electrocardiographic measure of autonomic nervous system (ANS) activity and may serve as a valuable physiological marker in the assessment of academic burnout.

Aim of study. This study aimed to assess the degree of academic burnout among first- and second-year medical students and to examine its correlation with HRV, in order to determine whether the ANS truly influences the level of academic burnout among these students.

Methods and materials. A cross-sectional study was performed involving 55 first- and second-year medical students, aged 18–20 years, who were still undergoing the period of academic adaptation. Participants were categorised according to low and moderate levels of academic burnout based on the MBI-SS questionnaire. Resting electrocardiograms were recorded for each participant using the BIOPAC MP100 system, and HRV was analyzed with Kubios HRV software; the frequency-domain parameters were extracted using FFT analysis. Statistical analysis was performed using the Mann–Whitney U test and rank-biserial correlation.

Results. The total academic burnout score was 32.83 ± 12.75, reflecting an intermediate level of academic burnout among students. A total of 49.1% of the students were classified as having a moderate level of academic burnout. HRV analysis revealed significantly higher LF/HF ratio values in students with moderate burnout levels, indicating relative sympathetic dominance. The Mann–Whitney U test demonstrated a statistically significant difference between the groups ($U = 224.0$; $p = 0.0098$), with a moderate effect size ($r_rb = -0{,}41$).

Conclusions. A substantial number of medical students exhibit moderate levels of academic burnout. Higher LF/HF ratio values are associated with greater emotional exhaustion, a more detached attitude toward academic activities and peers, and reduced satisfaction with academic achievements. These findings suggest that heart rate variability may serve as a useful physiological marker for identifying academic burnout in medical students.

Keywords. heart rate variability, academic burnout, medical students, stress, autonomic nervous system.

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71. ASTROCYTES AS MEDIATORS BETWEEN LIPID METABOLISM AND NEURODEGENERATION IN ALZHEIMER'S DISEASE

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Introduction. Astrocytes under the action of various inflammatory substances undergo astrogliosis, becoming reactive and may respond to multiple pathological conditions including Alzheimer's disease.

Aim of study. To analyze the involvement of astrocytes in the pathogenesis of Alzheimer's disease, with a focus on morphological and metabolic changes favoring β-amyloid accumulation and neuroinflammation.

Methods and materials. The study consists in the evaluation of recent literature on astrocyte morphologic diversity and plasticity, utilizing advanced imaging and molecular analysis methods.

Results. In the CNS, astrocytes are the main source of cholesterol and lipid production, and aberrant cholesterol processing has been implicated in the development of Alzheimer's disease. The ATP-binding cassette transporter ABCA1 (Binding Cassette transporter, subfamily A, member 1) is expressed on astrocytes and is important in lipidation of Apolipoprotein E (APOE). When cholesterol is abundant, neurons produce β-amyloid to suppress ABCA1 expression, leading to increased β-amyloid deposition. Increased levels of free fatty acids have been suggested as a risk factor in the development of Alzheimer's disease, and high-fat diets in animal models have led to β-amyloid accumulation and plaque formation. Ceramide, a metabolite of fatty acids, is increased in the post-mortem brains of people with Alzheimer's disease and in β-amyloid production. In addition, increased levels of ceramide were shown to induce astrocytes to produce inflammatory cytokines; in turn, this activated BACE1 (Beta-site APP Cleaving Enzyme1) activity and, therefore, β-amyloid production in neurons.

Conclusions. Astrocytes by their active role in lipid metabolism and regulation of the neuronal environment contribute to brain homeostasis, but may become pro-pathogenic factors in Alzheimer's disease.

Keywords. astrocytes, Alzheimer's disease, β-amyloid, cholesterol.

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72. SLEEP HORMONES: MECHANISMS AND METABOLIC EFFECTS

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Introduction. Sleep is an essential physiological process, which also plays a key role in hormone secretion and metabolic functions. Its stages are associated with discrete endocrine changes that are responsible for energy balance and regulating carbohydrate metabolism.

Aim of study. This study aims to elucidate the relationship between sleep-associated hormonal secretion and the underlying physiological mechanisms regulating metabolism, while further examining how disruptions to normal sleep architecture may compromise glycemic control.

Methods and materials. The paper adopts a method of secondary analysis of 15 articles found in databases such as PubMed, ScienceDirect, and Google Scholar.

Results. The study shows that cortisol levels drop during NREM Stage 1, so that sleep initiation is easier. Growth hormone is the main hormone in NREM Stages 2 and 3. It favors repair processes and allows metabolism to adjust through the night. Prolactin and TSH change their levels during sleep in order to keep energy levels balanced. During the REM stage, thanks to the hypothalamo-hypophyseal-adrenocortical axis the brain has its energy needs met. If there is insomnia and sleep restriction, the circadian rhythm has to suffer, the sympathetic nervous system is hyperactive, and insulin sensitivity is reduced. Regarding insulin secretion and glycemia, melatonin seems to play a key role, which in turn is influenced by sleep quality.

Conclusions. Sufficient sleep enables the body to regulate hormone secretion effectively and maintain metabolic homeostasis. When sleep is disrupted, the consequences can be significant — ranging from metabolic dysfunction to an increased risk of insulin resistance and type 2 diabetes.

Keywords. sleep, hormones, melatonin, carbohydrate metabolism, insulin resistance.

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73. FERROPTOSIS-MOLECULAR MECHANISMS AND THERAPEUTIC IMPLICATIONS IN HUMAN DISEASE

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Introduction. Ferroptosis is a form of regulated cell death characterized by iron-dependent lipid peroxidation and membrane damage as a result. First described in 2012, ferroptosis differs morphologically, biochemically, and genetically from apoptosis, necrosis, and autophagy, representing a metabolically driven vulnerability linked to iron homeostasis and redox imbalance. A key protective factor is glutathione peroxidase 4 (GPX4), which prevents lipid peroxidation in cell membranes. In addition, cystine/glutamate antiporter system Xc^- supports glutathione synthesis and antioxidant defense. When these protective systems are damaged, oxidative stress increases and ferroptotic cell death can occur. Studies demonstrate its major role in cancer, neurodegeneration, ischemia-reperfusion injury, and inflammatory diseases. Understanding its molecular regulation is crucial for identifying therapeutic strategies.

Aim of study. To review the current evidence towards the molecular mechanisms of ferroptosis and evaluate its clinical relevance as a potential therapeutic target in multiple pathological conditions, including cancer, inflammatory and metabolic disorders, neurodegenerative diseases, and ischemia–reperfusion injury.

Methods and materials. A structured literature review was performed using medical publications indexed in PubMed, Web of Science, and Scopus. Articles published between 2020 - 2025 were selected based on their relevance to ferroptosis mechanisms, iron metabolism, oxidative stress pathways, and potential outcomes. Both experimental studies and clinical research articles were analyzed.

Results. The reviewed studies indicate that ferroptosis is involved in the pathophysiology of multiple human disorders, primarily through dysregulation of iron metabolism, lipid peroxidation, and impaired antioxidant defense mechanisms. Ferroptosis induction may represent a promising therapeutic strategy in cancer treatment, particularly in therapy-resistant tumors. Recent research suggests that controlling either reducing or stimulating it could become a valuable therapeutic strategy. These highlight its importance in oncology, neurology and translational medicine.

Conclusions. Ferroptosis represents a distinct and clinically relevant mechanism of regulated cell death. It has a dual role in: disease development and potential treatment strategies, but requires better understanding so it can support the development of new targeted therapies, particularly in cancer and degenerative diseases. Future research should focus on translating experimental findings into clinical applications and developing ferroptosis-targeted therapeutic strategies.

Keywords. ferroptosis; iron metabolism; lipid peroxidation; regulated cell death; cancer therapy.

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74. PANETH CELLS FROM THE INTESTINAL CRYPTS IN CROHN'S DISEASE

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Introduction. Paneth cells are described as the multifunctional guardians of the digestive tract that are distributed at the intestinal crypt base. They are pyramidal-shaped cells with distinct secretory functions, provided by their acidophilic granules found in the apical portion of the cell. These specific vesicles release antimicrobial peptides, such as alpha defensins and lysozyme, as well as immune modulators, crucial in host defense. Alteration of the structural and functional aspects of Paneth cells contribute to gradual onset of inflammatory bowel diseases, particularly Crohn's disease.

Aim of study. This study aimed to determine the involvement of Paneth cells in the development of pro-inflammatory alterations within the digestive system and the exogenous and endogenous factors that enhance the emergence of these changes.

Methods and materials. The literature review was based on analyzing scientific articles that have been published in the last ten years focused on Paneth cells in Crohn's disease.

Results. Paneth cells are primordial and unique epithelial structures that have the ability to maintain the intestinal homeostasis as a result of their secretory granules, synthesized by the cells' well-developed endoplasmic reticulum and Golgi apparatus. They are responsible for preventing the occurrence of inflammatory bowel diseases and intestinal dysbiosis. Crohn's disease evolution often arises due to the morphological impairments of Paneth cells, in particular their reduced number of granules with compromised lysozyme and atypical mitochondria. Genetic alterations that account for increased susceptibility of developing Crohn's disease are the polymorphisms in NOD2, ATG16L1 and XBP1 genes. ATG16L1 is responsible for promoting Paneth cells' specific function of autophagy. Its mutations, the substitution of threonine at position 300 with alanine, affect the exocytosis of the secretory vesicles and expose the gastrointestinal epithelium to pro-inflammatory factors.

Conclusions. This study reveals the intricate nature of Paneth cells and their role in the complex pathogenesis of Crohn's disease. It is an ongoing necessity to research which modifications take place first: the alterations are primarily produced in these cells or they are consequences of external implications.

Keywords. Paneth cells, autophagy, Crohn's disease, ATG16L1 gene.

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75. MICRORNA-21 IN FIBROSIS AND CARDIAC REMODELING

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Introduction. Cardiac remodeling is a complex process of reorganization of the myocardium at the molecular, cellular and structural levels. These occur in the following many aggressions, such as cardiomyopathies, myocardial and others. This process involves cardiomyocyte hypertrophy, fibroblast activation, excessive deposition of extracellular matrix which leads to fibrosis and progressive ventricular dysfunction. Recent studies have determined the essential role of non-coding RNA, with special attention paid to microRNA. Their role in the post-transcriptional regulation of genes involved in cardiac remodeling has been established. The major regulator of myocardial fibrosis has been proven to be miR-21. It modulates some signaling pathways such as MAPK/ERK and TGF-β, by inhibiting target genes that have an antifibrotic role (SPRY1, PTEN, PDCF4).

Aim of study. The analysis of the role of miR-21 in the molecular mechanisms of cardiac remodeling is the primary goal of this study. The processes of myocardial fibrosis and its ability as a biomarker and target in the therapy of cardiovascular pathology were targeted.

Methods and materials. The study format is a review of scientific literature found published in internationally accredited and recognized biomedical databases (PubMed, Scopus, Frontiers, etc.). The articles selected as references were published in the last 7/10 years. The purpose of these studies was to analyze miR-21 expression in cardiac remodeling and to quantify preclinical results regarding the inhibition of this and the correlation of changes in expression of this microRNA followed by the activation of cardiac fibroblasts and with the progression of fibrosis. Techniques such as: RT-qPCR, RNA-sequencing and experimental models were used.

Results. The results of the analyses indicate a significant increase in miR-21 expression in cardiac tissue following ischemia, especially in cardiac fibroblasts. As a consequence, SPRY1 protein (MAPK/ERK inhibitor) is inhibited and fibroblasts proliferate, stimulating collagen synthesis. Also, miR-21 amplifies TGF-β signaling by inhibiting other genes with a negative regulatory role (PTEN/SMAD7), inducing the differentiation of fibroblasts into myofibroblasts and the advancement of fibrosis. The crucial follow-up of these studies demonstrated that inhibiting miR-21 by means of antagomirs or modified oligonucleotides ameliorates myocardial fibrosis and leads to a subsequent improvement in ventricular function, indicating a therapeutic potential.

Conclusions. In conclusion, it is found that miR-21 is a major regulator of cardiac remodeling by modulating fibroblast proliferation and the profibrotic signaling pathway. A particularly great contribution would be the more detailed understanding of this phenomenon and its implementation in some therapeutic strategies. The current results demonstrate that miR-21 is not only a marker but also a future therapeutic target in HF.

Keywords. miR-21, cardiac remodeling, fibrosis.

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76. RATIONAL USE OF NON-STEROIDAL ANTI-INFLAMMATORY DRUGS IN MEDICAL PRACTICE

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Introduction. Nonsteroidal anti-inflammatory drugs (NSAIDs) are among the most widely used medications in contemporary medical practice, both for the management of acute and chronic pain and for the reduction of inflammation. Their rational use involves the selection of the appropriate drug according to the patient's individual risk profile, administration of the lowest effective dose, and limitation of treatment duration. International clinical guidelines recommend the individualization of anti-inflammatory therapy, particularly in patients with comorbidities and concomitant medications.

Aim of study. To evaluate patterns of NSAID use in clinical practice by assessing the degree of adherence of prescribing practices to international clinical guideline recommendations and correlating these with patients' clinical characteristics.

Methods and materials. Retrospective observational study conducted on 168 medical records of patients treated with NSAIDs during 2024–2025. The type of NSAID prescribed, the route and duration of administration, relevant comorbidities, and concomitant medications with potential drug–drug interactions were analyzed. The degree of alignment of therapeutic conduct was assessed according to the recommendations of international clinical guidelines.

Results. Ketoprofen predominated in the structure of NSAID prescriptions (79.8%), followed by dexketoprofen (14.3%). Parenteral administration was used in 95.3% of cases, predominantly via the intramuscular route (86.9%). The duration of parenteral administration exceeded the recommended interval for this type of therapy in 27.6% of cases. In the analyzed group, 50.3% of patients had at least one comorbidity relevant to the safety profile of NSAIDs, with hypertension being the most frequent (37.3%). At the same time, 56.8% of patients were concomitantly using drugs with potential for pharmacological interaction, with anticoagulants being the most frequent (36.1%). Gastric antisecretory drugs used for gastroprotection were used in most cases (92.3%), with H_2 receptor antagonists (famotidine) being the most frequently administered.

Conclusions. The results highlight specific patterns of NSAID use in clinical practice and suggest the need to reinforce the principles of rational drug use through individualized therapy and careful assessment of the patient's risk profile. In addition, optimization of administration strategies is necessary to improve the safety and effectiveness of pharmacotherapy.

Keywords. Nonsteroidal anti-inflammatory drugs, rational use, pharmacotherapy, drug safety.

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77. IMPACT OF BCR-ABL1 MUTATIONS ON THE EFFICACY OF TYROSINE KINASE INHIBITORS IN CHRONIC MYELOID LEUKEMIA

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Introduction. Chronic myeloid leukemia (CML) is a hematologic malignancy characterized by abnormal proliferation of the myeloid lineage. It is driven by the t(9;22) translocation forming BCR-ABL1, which encodes a constitutively active tyrosine kinase and represents the main therapeutic target. Although tyrosine kinase inhibitors have transformed CML into a controllable chronic disease, BCR-ABL1 kinase domain mutations remain the main mechanism of therapy resistance.

Aim of study. To synthesize evidence regarding the relationship between the type of BCR-ABL1 mutation and the efficacy of different generations of tyrosine kinase inhibitors.

Methods and materials. This study is based on a systematic review of the international scientific literature. The sources consulted, 15 in number, include: PubMed, Google scholar, Science-Direct, published during the 2017-2025 period. The selection criteria included clinical studies, experimental studies, and systematic reviews analyzing resistance to tyrosine kinase inhibitors in CML, with emphasis on BCR-ABL1 kinase domain mutations and their impact on therapeutic response.

Results. Resistance to tyrosine kinase inhibitors is frequently associated with the emergence of mutations in the BCR-ABL1 kinase domain. The gatekeeper mutation ABL1 c.944C>T (p.T315I), reported in up to 15% of patients with post-imatinib treatment failure, confers resistance to first- and second-generation TKIs (imatinib, dasatinib, nilotinib), but remains sensitive to ponatinib, with major cytogenetic response rates of approximately 70% in the chronic phase. Mutations in the P-loop region, such as ABL1 c.757T>C (p.Y253H) and ABL1 c.763G>A (p.E255K), are associated with reduced response to imatinib and variable sensitivity to nilotinib. The ABL1 c.951C>G (p.F317L) mutation correlates with diminished response to dasatinib. Other recurrent mutations, including ABL1 c.749G>A (p.G250E), ABL1 c.895G>C (p.V299L), exhibit distinct TKI response patterns, highlighting the need for treatment adaptation according to the specific mutation type. Sequential administration of TKIs led to the emergence of new mutations in approximately 25% of patients, suggesting therapy-induced clonal selection.

Conclusions. The specific type of BCR-ABL1 mutation influences the response to different generations of tyrosine kinase inhibitors, reflecting the link between molecular profile and therapeutic efficacy. Early mutation detection allows rational TKI selection and optimization of treatment sequencing, reducing the risk of disease progression. Therefore, mutational testing is essential for personalized therapy in CML.

Keywords. Chronic myeloid leukemia, BCR-ABL1, therapeutic resistance, TKI.

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78. DEFECTS OF DNA REPAIR MECHANISMS IN PROSTATE CANCER

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Introduction. Prostate cancer is one of the most common malignancies among men worldwide. The maintenance of genomic stability through DNA repair mechanisms is essential for preventing tumorigenesis. Genes involved in DNA damage repair (DDR), particularly BRCA1 and BRCA2, play a crucial role in preserving genome integrity. Defects in these pathways promote the accumulation of oncogenic mutations and contribute to aggressive disease phenotypes.

Aim of study. This review aims to highlight the clinical relevance of DDR gene mutations in prostate cancer, outlining their prevalence and influence on prognosis and treatment decisions, particularly regarding PARP inhibitors and immunotherapy.

Methods and materials. Seventeen articles published between 2016 and 2024 were included: 11 original studies, 3 meta-analyses, and 3 systematic reviews. Inclusion criteria comprised studies indexed in PubMed, Scopus, and Web of Science evaluating mutations in DDR-related genes (BRCA1, BRCA2, ATM, CHEK2, and MMR genes – MLH1, MSH2, MSH6, PMS2) in human populations, with reported clinical outcomes. Exclusion criteria included publications before 2016, exclusively preclinical animal or in vitro studies without clinical correlation, duplicate articles, isolated case reports, and studies without full-text availability.

Results. DDR gene mutations are relatively common in prostate cancer, occurring in 10–27% of tumors, particularly in metastatic disease. BRCA2 (up to 13%), ATM (7%), and MSH2 (2%) are among the most frequent alterations. MMR deficiency, present in approximately 3% of cases, is associated with MSI-H status and potential responsiveness to immunotherapy. BRCA1/2-mutated tumors display more aggressive behavior, and germline BRCA2 mutations are linked to reduced cancer-specific survival. These alterations help identify patients eligible for targeted therapies. PARP inhibitors and platinum-based chemotherapy are particularly effective in tumors with homologous recombination repair defects, while MMR-deficient tumors may respond to PD-1 inhibitors, with response rates up to 50% in selected studies.

Conclusions. The integration of DDR testing into clinical practice is essential in the era of precision oncology. Given the frequency and prognostic significance of these mutations, current guidelines recommend genetic testing in high-risk localized and metastatic prostate cancer. Identification of DDR alterations enables personalized therapy and appropriate genetic counseling. Future perspectives include broader implementation of next-generation sequencing and the development of combination strategies targeting DDR pathways.

Keywords. Prostate cancer, DNA repair, DDR mutations, PARP inhibitors, immunotherapy.

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79. PERIPHERALLY ACTING μ-OPIOD RECEPTOR ANTAGONISTS IN OPIOID-INDUCED CONSTIPATION

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Introduction. Opioid analgesics are widely used in contemporary medicine in the treatment of moderate to severe pain. Despite their efficacy, the use of these analgesics is restricted by the occurrence of adverse effects that reduce compliance with treatment. Opioid-induced constipation has proven to be a frequent, persistent and difficult to tolerate adverse reaction. Laxatives and purgatives, considered first-line drugs in the treatment of constipation, have been frequently found to be ineffective in opioid-induced constipation. Studies have been initiated to explore new therapeutic strategies targeting the role of μ-opioid receptors in the pathogenesis of opioid-induced constipation.

Aim of study. The aim of the study was to analyze the mechanisms of action and efficacy of peripherally acting μ-opioid receptor antagonists in the management of opioid-induced constipation.

Methods and materials. A literature review was performed by identifying scientific sources published in PubMed and Google Scholar that reflected the mechanisms of action, effects, indications and efficacy of peripherally acting μ-opioid receptor antagonists in opioid-induced constipation.

Results. The review of the scientific literature on the pathogenesis of opioid-induced constipation has allowed the development of new drugs capable of influencing peripheral μ-opioid receptors. Methylnaltrexone, naloxegol, naldemedine, alvimopan and naloxone have been studied in experimental and clinical research. These drugs specifically block μ-receptors in the gastrointestinal tract, restoring enteric nervous system function and improving gastrointestinal adverse effects of opioids without compromising analgesic effects. At the same time, they do not cross the blood-brain barrier and do not block the effects of μ-receptor agonists in the CNS. Clinical studies have shown efficacy in opioid-induced constipation of cancerous and non-cancerous genesis. The European Medicines Agency has approved the use of peripheral μ-opioid receptor antagonists as second-line drugs in the management of opioid-induced constipation in palliative care.

Conclusions. Peripherally acting μ-opioid receptor antagonists, through their mechanism of action and selective effects, have influenced the pathogenic links of opioid analgesic-induced constipation and opened new perspectives in improving the quality of life of patients with cancer pain. Clinical studies have demonstrated good efficacy and tolerability in combating opioid-induced constipation.

Keywords. Opioid-induced constipation, μ-opiod receptor antagonists.

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80. EFFECTS OF MONOCLONAL ANTIBODIES IN MULTIPLE SCLEROSIS

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Introduction. Multiple sclerosis (MS) is a chronic immune-mediated, neurodegenerative disorder of CNS marked by inflammatory demyelination and progressive axonal degeneration. Both T and B cells contribute to pathogenesis as autoreactive lymphocytes that cross the BBB, trigger focal inflammation, and promote cumulative neurodegeneration and disability. Monoclonal antibodies (mAbs) redefined MS treatment by selectively targeting key immune pathways, reducing relapse rates, MRI lesion activity, and slowing progression of neurological impairment with greater precision than conventional immunosuppression.

Aim of study. To assess the role of mAbs in modulating immune-mediated pathophysiological mechanisms of MS and their therapeutic impact on disease activity and neuroinflammation.

Methods and materials. Were analyzed articles available on online medical platforms such as PubMed Databases, Medscape and other scientific documents provided on Google Scholar. The most relevant 20 articles were selected and investigated, including case studies, which were published between 2009 and 2023.

Results. The main therapeutic classes of mAbs used in MS treatment include anti-CD20, anti-VLA-4, and anti-CD52. Anti-CD20 agents target CD20-positive B cells via ADCC and CDC mechanisms, while sparing plasma cells and preserving baseline Igs production. These agents significantly reduce annualized relapse rates, suppress Gd-enhancing and T2-weighted MRI lesions, and disability progression in both relapsing and, for ocrelizumab, PPMS. Natalizumab is an anti-VLA-4 agent indicated mainly for highly active RMS. It inhibits lymphocyte migration across the BBB by blocking α4-integrin-VCAM-1 interactions, reducing CNS inflammatory infiltration, without causing peripheral lymphocyte depletion. Treatment results in substantial reductions in relapse frequency, MRI lesion activity, and progression of neurological disability. The major safety concern is PML, particularly in JC virus–positive individuals. The anti-CD52 antibody alemtuzumab is reserved for highly active RMS cases, particularly when disease remains uncontrolled by first-line therapies. It induces rapid CD52-positive immune cells depletion via cytolysis, complement activation, and apoptosis, followed by sustained immune reconstitution, providing long-term disease control. Treatment is associated with high risks of infections, infusion reactions, and secondary autoimmune disorders.

Conclusions. Monoclonal antibodies are highly effective targeted treatments for MS, providing precise immunomodulation and durable suppression of disease activity. They improve clinical and radiological outcomes with infrequent dosing, but require careful patient selection and long-term safety monitoring.

Keywords. Multiple sclerosis, disease modifying therapy, monoclonal antibodies.

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81. CLINICAL AND GENETIC ASPECTS IN CORNELIA DE LANGE SYNDROME

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Introduction. Cornelia de Lange syndrome (CdLS) is a rare genetic disorder belonging to the group of neurodevelopmental diseases, characterized by pre- and postnatal growth retardation, psychomotor delay, intellectual disability, distinctive craniofacial dysmorphic features, limb anomalies, and multiple congenital malformations. The condition is commonly caused by pathogenic variants in genes of the cohesin complex (especially NIPBL, but also SMC1A, SMC3, RAD21, and HDAC8), which are involved in chromosomal cohesion and regulation of gene expression during embryonic development.

Case presentation. We analyzed the case of an 8-month-old female patient evaluated at the IMSP Institute of Mother and Child, Center for Reproductive Health and Medical Genetics. The assessment included clinical and neurological examination, dysmorphological evaluation, imaging studies, and molecular genetic testing using Next Generation Sequencing (NGS).

Discussion. Clinical examination of the 8-month-old female patient revealed characteristic craniofacial dysmorphic features, including synophrys (arched and confluent eyebrows), long and thick eyelashes, low anterior hairline, anteverted nostrils, long philtrum, thin upper lip, and downturned corners of the mouth. Mild facial asymmetry and micrognathia were also noted. The patient presented hypotonic facial expression and signs suggestive of developmental delay. Molecular testing identified a pathogenic variant in the *NIPBL* gene, confirming the diagnosis of CdLS.

Conclusions. Early clinical recognition and molecular confirmation are essential for accurate diagnosis, multidisciplinary management, and appropriate genetic counseling.

Keywords. Cornelia de Lange syndrome; neurodevelopmental disorder; craniofacial dysmorphism; NIPBL mutation; developmental delay.

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82. QUADRATUS LUMBORUM BLOCK VARIANTS (QL1–QL4): ANATOMICAL–TOPOGRAPHIC JUSTIFICATION AND COMPARATIVE CONSIDERATIONS

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Introduction. As a fascial plane intervention, the quadratus lumborum (QL) block is used to provide analgesia before, during, and after surgeries involving the hip and the abdominal regions. The clinical success of this technique depends on the complex architecture of the posterior abdominal wall. Key structures include the psoas major, QL, and erector spinae muscles, as well as the thoracolumbar and transversalis fasciae. By delivering local anesthetic into specific fascial or muscular spaces, the four recognized QL block variants – QL1 (lateral), QL2 (posterior), QL3 (posterior), QL4 (intramuscular) – produce distinct patterns of spread and risk-benefit profiles.

Aim of study. To compare QL1-QL4 from an anatomical-topographic perspective, focusing on injection targets, clinical indications, and expected outcomes.

Methods and materials. A literature review of medical evidence from the last decade (2015-2025) was performed using PubMed, Google Scholar and Cochrane Library to identify relevant data on QL blocks. The selection process prioritized studies detailing (1) specific fascial targets and needle endpoints, (2) evidence of analgesic spread from imaging or cadaveric studies, (3) clinical efficacy regarding analgesia. A total of 15 articles met the inclusion criteria and were analyzed.

Results. While the QL1 lateral block has an advantage at providing reliable somatic analgesia for the abdominal wall, its visceral effectiveness remains inconsistent among the four variants. By depositing the anesthetic within the thoracolumbar fascia posterior to the muscle, the QL2 method has a broader longitudinal spread than QL1, resulting in prolonged clinical effects, although the resulting dermatomal patterns are often inconsistent. By targeting the intermuscular plane between the psoas major and QL, the QL3 block facilitates the most extensive anesthetic distribution. Nevertheless, its clinical utility is often limited by the risks of iatrogenic injury of lumbar plexus and adjacent retroperitoneal structures. The QL4 block that involves direct intramuscular QL injection is an easier alternative when identification of the fascial plane is complicated. However, this results in a more restricted analgesic coverage and duration across all QL blocks.

Conclusions. To optimize perioperative outcomes, clinicians must select a QL block that aligns with the surgical site and the patient's anatomy. Accordingly, QL1/QL2 should be mainly used for abdominal wall pain, QL3 for a deeper analgesia, and QL4 when fascial planes can not be accessed. Future consistent research is needed for valid comparisons between QL variants.

Keywords. Quadratus lumborum block, fascial plane block, abdominal surgery analgesia.

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83. DISRUPTED ENDOTHELIAL PHYSIOLOGY AND PLATELET ADHESION MECHANISMS IN EARLY-ONSET GIANT AORTIC ANEURYSM IN A 6-YEAR-OLD CHILD

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Introduction. Aortic aneurysm in children is a rare but life-threatening condition with potentially catastrophic consequences. The pathophysiology involves disruption of vascular wall integrity through extracellular matrix degradation, smooth muscle dysfunction, and chronic inflammation, leading to progressive arterial dilation. Inherited thrombophilia, characterized by genetic alterations in platelet adhesion receptors, may contribute to endothelial dysfunction and abnormal shear stress, potentially accelerating aneurysmal degeneration. Evidence suggests a possible link between integrin gene polymorphisms and early-onset vascular pathology, though this remains insufficiently studied in children.

Case presentation. A 6-year-old girl presented to the Emergency Department with lumbar and abdominal pain, sleep discomfort, and epistaxis. Abdominal ultrasound revealed aortic dimensions exceeding normal values. CT angiography confirmed a giant saccular abdominal aortic aneurysm with parietal calcification and focal dilation of the proximal left common iliac artery. The patient was transferred to the Interdisciplinary Intensive Care Unit, Campus Benjamin Franklin, Berlin, Germany, where the aneurysm was resected and a Dacron Y tubular prosthesis (12.0×6.0 mm) was implanted.

Discussions. Histopathology confirmed atherosclerotic aneurysm with thin aortic wall, severe atherosclerosis, and intimal calcification. Postoperatively, the modified lipid profile (total cholesterol: 5.64 mmol/L, LDL-C: 4.68 mmol/L, triglycerides: 1.12 mmol/L) was observed, along with confirmed arterial hypertension through ambulatory monitoring and sinus tachycardia detected on Holter ECG. Genetic testing revealed compound heterozygous status for ITGA2 and ITGB3 polymorphisms, which encode platelet glycoprotein receptors involved in collagen adhesion and fibrinogen binding (integrin variants alter platelet aggregation physiology and may contribute to endothelial injury and abnormal vascular remodeling). Treatment was administered according to current national clinical guidelines, with pediatric-adjusted dosing.

Conclusions. This case highlights that giant aortic aneurysm can manifest in early childhood with acute presentation and vital risk. The coexistence of ITGA2/ITGB3 thrombophilia suggests a pathophysiological link between platelet receptor dysfunction, endothelial damage, and accelerated vascular degeneration. Lifelong multidisciplinary monitoring integrating cardiovascular, hemostatic, and metabolic assessment is essential.

Keywords. Aortic aneurysm, pediatric, inherited thrombophilia, ITGA2, ITGB3, vascular pathophysiology, platelet integrin receptors.

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84. BIOCHEMICAL MECHANISMS OF ACETYLSALICYLIC ACID IN METASTATIC CHEMOPREVENTION: PLATELET-TUMOR CELL INTERACTIONS AND THE ROLE OF THE ACETYLOME

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Introduction. Low-dose aspirin is highly effective in reducing colorectal adenoma recurrence. Yet, the exact molecular processes stopping cancer spread need to be fully understood. Circulating tumor cells are especially dangerous when grouping into clusters, as they severely lower survival rates. Stopping these clusters from forming is essential for cancer prevention.

Aim of study. The aim of this review is to gather current biochemical insights on how aspirin limits metastatic dissemination. In this abstract, the focus will be on its antiplatelet activity, cyclooxygenase inhibition, and post-translational protein modifications.

Methods and materials. A systematic literature review was performed by querying major academic repositories, including PubMed, Oxford Academic, SpringerLink, ResearchGate, and Google Scholar. The search encompassed peer-reviewed molecular biology studies, meta-analyses, and clinical trials published between 2010 and 2026. Selection criteria prioritized articles detailing the behavior of circulating tumor cells and the pharmacological alteration of the platelet acetylome.

Results. The antineoplastic activity of aspirin operates on multiple biochemical fronts. Classically, it irreversibly inactivates the cyclooxygenase-1 (COX-1) enzyme, effectively suppressing thromboxane A2 synthesis and hindering initial platelet aggregation. However, expanded proteomic research reveals a critical cyclooxygenase-independent mechanism: aspirin possesses a unique capacity to acetylate a wide array of cellular proteins and metabolites. This extensive modification of the acetylome severely impairs the ability of platelets to adhere to and cloak circulating tumor cells (CTCs). Without this physical and biochemical shield, isolated CTCs become highly vulnerable to immune surveillance, thereby preventing the assembly of fatal multicellular clusters. Furthermore, stopping platelet activation cuts off the release of crucial growth factors into the bloodstream. Without these chemical signals, tumor cells lose the ability to stimulate angiogenesis, starving the migrating cells before they can take root in distant organs. Additionally, salicylic acid further disrupts oncogenic signaling by downregulating inflammatory cascades such as the nuclear factor kappa B (NF-κB) pathway, promoting malignant cell apoptosis.

Conclusions. The effects of aspirin go beyond simple cyclooxygenase inhibition. It remodels platelet biochemistry and removes the structural shields from circulating tumor cells. As a result, it provides a multi-target mechanism for hindering metastatic progression. Therefore, aspirin is a powerful tool for effective cancer chemoprevention, creating new options for precision oncological therapies.

Keywords. Acetylsalicylic acid, circulating tumor cells, chemoprevention, platelets, acetylome.

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85. NEUROPHYSIOLOGICAL MECHANISMS OF SLEEP AND THE ROLE OF MELATONIN IN SUSTAINING BODY HOMEOSTASIS

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Introduction. Sleep comprises a complex functional state crucial for metabolic homeostasis and cognitive consolidation. Its course is managed by the hypothalamic neuronal circuits, especially the ventrolateral preoptic nucleus (VLPO), whose function is determined by the interplay between homeostatic pressure and circadian melatonin secretion. Thus, considering the accelerated dynamic of our modern society, understanding the neurobiological mechanisms of rest is indispensable in optimising circadian hygiene, as well as reducing the risk of sleep disorders.

Aim of study. This study aims to establish a theoretical framework of the physiological mechanisms of sleep, focusing on the roles of the nuclei involved and the effects of melatonin upon the human body.

Methods and materials. The research was based on 15 PubMed, ScienceDirect, and Google Scholar articles published from 2012 to 2024.

Results. Sleep represents the interaction of the complex processes that determine the restoration and metabolic balance required for the waking state. Low levels of blue light decrease stimulation in intrinsically photosensitive retinal ganglion cells, reducing excitatory signals transmitted to the suprachiasmatic nucleus, which, in turn, will promote melatonin secretion in the pineal gland. Melatonin, primarily, has excitatory effects over the VLPO, therefore inducing sleep; moreover, it regulates the body's temperature, suppresses the secretion of sexual hormones and exerts antioxidant properties. Sleep onset is also generated by the effects of elevated adenosine, serotonin and glucose on the VLPO, which interacts with the ascending reticular activating system, leading to reduced awareness and decreased responsiveness to external stimuli. Succession of the NREM (1,2,3) and REM stages occurs through the oscillation of signals transited by monoaminergic and orexinergic neurons. Hence, across different sleeping stages and considering the present hormones (growth hormone, melatonin), sleep performs a restorative and consolidating function.

Conclusions. The study highlights that sleep is not merely a lack of alertness, but a complex phase essential to the proper development and functioning of our bodies. Therefore, apprehending the neurophysiological foundation of sleep and the role of melatonin regarding exposure to specific environmental factors of the modern era, yields a valuable theoretical asset for the prophylaxis of sleep disorders and the promotion of general well-being.

Keywords. sleep, melatonin, VLPO, homeostasis.

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86. STRUCTURAL-FUNCTIONAL CHARACTERIZATION OF ENZYMES AND OF THE POSSIBLE PATHWAYS INVOLVED IN THE BIOTRANSFORMATION AND METABOLISM OF CARDIOVASCULAR DRUGS

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Introduction. Cardiovascular drugs are metabolized by enzymes that influence bioavailability, pharmacokinetics, pharmacodynamics and therapeutic safety. The structure of the active site and the distribution of amino acid residues determine substrate specificity and contribute to interindividual variability. Enzymes such as CYP, CES, UGT, SULT catalyze Phase I and Phase II reaction, generating metabolites and consequently influencing therapeutic efficacy and the risk of adverse effects.

Aim of study. The study analyzes the structural and functional characteristics of enzymes involved in the metabolism of cardiovascular drugs and the characterization of the main biotransformation and metabolic pathways, in order to evaluate their impact on bioavailability, pharmacokinetics, pharmacodynamics and the side effects of metabolites.

Methods and materials. The bibliographic study was conducted based on scientific articles published in the period 2016-2025 in the databases PubMed, ScienceDirect and BioMed Central, employing key phrases "drug-metabolizing enzymes", "cardiovascular drug", "cytochrome P450", "enzyme structure and function".

Results. Structural-functional analysis demonstrates that substrate specificity and reaction efficiency depend on the three-dimensional architecture of the active site and the distribution of key residues. The CYP1 superfamily exhibits the typical P450 structure with a central heme group. Differences in the F-helix and H/I loop modify the flexibility of the active site, explaining substrate selectivity. The CYP2 superfamily has α-helices and β-sheets, with acidic and hydrophobic residues that interact with basic and hydrophobic substrates, favoring the hydroxylation of beta-blockers, antiarrhythmics and calcium channel blockers. The CYP3 superfamily has a flexible active site capable of metabolizing multiple molecules simultaneously. CES1 and CES2 hydrolyze prodrugs and lipid substrates. UGT1A1, UGT1A3 and UGT2B7 conjugate drugs with glucuronic acid. Beta-blockers are metabolized in the liver catalyzed by CYP2D6. ACE inhibitor prodrugs are activated hepatically, while S-amlodipine and captopril are active in their administrated form. Calcium channel blockers and statins are metabolized through oxidation and conjugation. Genetic polymorphisms and drug interaction influence plasma concentrations and therapeutic response, explaining interindividual variability and the impact on the efficacy and safety of cardiovascular therapy.

Conclusions. Understanding enzyme structure and biotransformation pathways enables personalized therapy and minimizes adverse effects by accounting for genetic polymorphism and drug interaction.

Keywords. cardiovascular drugs, enzymes, CYP450, metabolism.

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87. ANATOMICAL DETERMINANTS OF LEFT VENTRICULAR REMODELING AFTER MYOCARDIAL INFARCTION: TARGETS FOR CARDIAC REGENERATION

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Introduction. Myocardial infarction (MI) is the leading cause of death worldwide, with rising incidence in developing regions. Acute treatments have advanced, but adverse left ventricular (LV) remodeling persists, leading to heart failure through collagen scar formation rather than regeneration. Limited adult cardiomyocyte renewal worsens post-MI scar expansion, ventricular dilatation, interstitial fibrosis, and neurohormonal influences.

Aim of study. To highlight the anatomical determinants, inflammatory factors and regenerative targets of post-myocardial infarction of the left ventricle remodeling.

Methods and materials. Comprehensive review synthesizing key studies (Galli et al. 2016 on scar dynamics; Talman et al. 2016 on fibrosis; Westman et al. 2016 on inflammation; Castellan et al. 2018 on Hippo signaling; Fiorino et al. 2024 on multi-target regeneration), analyzing cellular, molecular, and structural mechanisms without original experiments.

Results. Anatomical determinants: ischemic necrosis triggers fibroblast/myofibroblast scar formation, causing geometrical shifts, biomechanics alterations, and LV chamber enlargement; reactive fibrosis in remote myocardium involves ECM turnover via MMP-9. Inflammatory factors: variable post-MI inflammation intensity drives remodeling even in small infarcts, with macrophage and cytokine roles amplifying fibrosis. Regenerative targets: fibroblast direct reprogramming to cardiomyocytes; Hippo pathway/microRNA stimulation of proliferation (neonatal hearts excel transiently); multi-mechanism activation including angiogenesis and progenitor cells.

Conclusions. Multifactorial pathology: remodeling integrates scar expansion, ECM changes, and inflammation beyond infarct size alone. Regenerative potential: adult hearts retain latent capacity reactivatable developmentally, but age limits efficacy. Therapeutic imperative: multi- target strategies addressing proliferation, inflammation, fibrosis, and vascularization are essential, as monotherapy yields poor clinical outcomes due to cell survival issues and timing mismatches. Future priorities include temporal wound-healing optimization and combination interventions to supplant scar with functional tissue.

Keywords. left ventricular remodeling, fibroblast reprogramming, scar expansion, fibrosis.

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88. FIBROBLAST GROWTH FACTOR 21 (FGF21) IN OBESITY AND TYPE 2 DIABETES MELLITUS: AN EMERGING ENDOCRINE BIOMARKER

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Introduction. Fibroblast growth factor 21 (FGF21) is a hormonal regulator with a meaningful role in glucose and lipid metabolism. Primarily produced in the liver, adipose tissue, skeletal muscle and pancreas, FGF21 is the one that signals cells through FGF receptors (FGFRs) and the co-receptor β-Klotho, that further activate signalling cascades (MAPK and AMPK).

Aim of study. To analyse the biochemical significance, as well as the potential of FGF21 as an endocrine biomarker in obesity and type 2 diabetes mellitus.

Methods and materials. A vast literature review was performed, considering scientific articles from databases such as PubMed and Google Scholar, published between 2015-2025. The articles were chosen based on the information provided regarding the physiology of FGF21, its metabolic role and significance in obesity and type 2 diabetes mellitus (DM).

Results. FGF21 modulates glucose metabolism by enhancing glucose uptake and suppressing hepatic glucose production. This will improve insulin sensitivity. It also helps increase the breakdown of fat, while diminishing the synthesis, in this way regulating lipid metabolism. FGF21 promotes oxidation of fat in the liver and skeletal muscles, and increases glucose uptake in adipose tissues along with inducing thermogenesis. It is also shown to prevent accumulation of fat, improve liver metabolism and triglyceride clearance. In obesity and DM, a decreased response of FGF21 is seen regardless of elevated circulating levels, suggesting FGF21 resistance, which is the result of receptor sensitivity changes, chronic inflammation and lipotoxicity. However, several preclinical and early clinical trials suggest that pharmacological analogues of FGF21 may improve hyperglycemia and dyslipidemia, highlighting their potential therapeutic application.

Conclusions. FGF21 acts as a promising endocrine biomarker and potential therapeutic target in obesity, DM and other metabolic disorders. A thorough understanding of its mechanisms is essential for utilizing its potential as a therapeutic agent in clinical practice.

Keywords. FGF21, metabolic syndrome, obesity, diabetes mellitus.

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89. CORRELATION BETWEEN BROWN ADIPOSE TISSUE AND OBESITY

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Introduction. Obesity is a major global problem that affects 30% of the population and has a continuously increasing prevalence. It has a great impact on metabolic disorders, type 2 diabetes mellitus, cardiovascular diseases, and increased mortality. The development of obesity is determined by the imbalance between energy intake and energy expenditure. Brown adipose tissue (BAT), through activation of uncoupling protein (UCP)1 in mitochondria, has a role in thermogenesis and metabolic regulation in humans, being used as a target in the prevention and treatment of obesity.

Aim of the study. The aim of the review is to synthesize the information about brown adipose tissue in humans and its role in the prevention and treatment of obesity.

Methods and materials. The scientific articles were accessed in PubMed and Google Scholar from the last 5-10 years.

Results. Following the literature research, it was found that due to investigations with PET-CT with 18F-fluorodeoxyglucose, the correlation between BAT and obesity was studied. Thus, in obese persons, BAT is less active than in normal-weight persons. This investigation suggests that BAT may help in weight loss indirectly, but it is not certainly proven. At the same time, BAT may contribute to the treatment of obesity if it is stimulated or if browning of white adipose tissue (WAT) occurs, leading to an increase in lipid consumption from the blood. However, in obesity, there is chronic inflammation, and through infiltration with pro-inflammatory M1 macrophages, the brown adipogenesis is blocked. The decrease of UCP1 expression leads to alteration of thermogenesis and to a negative influence on weight gain. Therefore, in obesity therapy, both BAT activation and inflammation reduction are necessary. Since BAT activation can be considered a short-term therapy, in recent years transplantation of brown adipose cells is being discussed for an increase in energy consumption.

Conclusions. Brown adipose tissue has an important role in thermogenesis and in metabolic regulation in humans. Even if BAT has not been sufficiently studied, its role in obesity has been demonstrated, contributing to energy imbalance. Further studies are necessary to establish in more detail its role in the treatment of obesity, more clinical demonstrations in humans, as well as the development of the sources and abilities of brown adipose tissue transplantation.

Keywords. brown adipose tissue, BAT, UCP1, obesity, transplantation.

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90. THE ROLE OF NON-STEROIDAL ANTI-INFLAMMATORY DRUGS IN THE MANAGEMENT OF PAIN IN RENAL COLIC AND THEIR INFLUENCE ON URINARY STONE EXPULSION

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Introduction. Renal colic is one of the most common emergencies in urological practice, in most cases caused by partial or complete obstruction of the ureter by calculi. The clinical presentation includes pain of varying intensity in the lumbar region, frequently accompanied by nausea, vomiting and hematuria. Therapeutic management primarily aims at controlling the pain syndrome, with NSAIDs recommended as first-line therapy.

Aim of the study. Analysis of the clinical relevance of NSAIDs in the management of renal colic, their analgesic efficacy, their influence on stone expulsion, and their safety profile.

Methods and materials. The study consists of a narrative analysis of data from the scientific literature, including randomised controlled clinical trials, meta-analysis, and systematic reviews comparing NSAIDs with opioids or placebo, using the platforms PubMed, MEDLINE, Google Scholar, and ResearchGate, covering the period 2015-2026.

Results. The analgesic effect of NSAIDs is primarily determined by cyclooxygenase inhibition and the consequent reduction in prostaglandin synthesis. This mechanism leads to a decrease in glomerular filtration rate by up to 35%, a reduction in intrapelvic pressure, and diminished stimulation of associated vascular inotropic receptors, such as Transient Receptor Potential (TRP) channels, including TRPV1 and TRPV4. In addition, NSAIDs reduce ureteral oedema, inflammation and decrease the contractile activity of smooth muscle, experimental studies have demonstrated a reduction in proximal ureteral tone by 43 ± 9 %. Meta-analyses indicate analgesic efficacy comparable to that of opioids, with no significant differences in pain scores at 20-30 minutes post-administration. Furthermore, the need for rescue analgesia is reduced, and the incidence of vomiting is lower (5,8 % following NSAID administration versus 19.5 % following opioid administration). Prophylactic oral or rectal administration of diclofenac or indomethacin has been shown to reduce recurrence of renal colic and repeat hospitalization rates by 28-57 %. Regarding stone elimination, NSAIDS have not demonstrated significant benefits. The spontaneous stone expulsion rate was 68 % in the indomethacin-treated group compared with 74 in the placebo group, and the mean time to expulsion was similar in both groups.

Conclusions. NSAIDs represent first-line anti-inflammatory therapy in renal colic, producing an analgesic effect by reducing prostaglandin synthesis. Prophylactic administration of diclofenac or indomethacin reduces recurrence of renal colic and repeat hospitalizations.

Keywords. Renal colic, diclofenac, indomethacin, nonsteroidal anti-inflammatory drugs, prostaglandin inhibition.

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91. ARTERIOVENOUS MALFORMATION: CASE STUDY

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Introduction. Arteriovenous malformations (AVM) are part of the group of cerebral vascular malformations that represent congenital defects of the circulatory system formed by a cluster of blood vessels through which arterial blood flows directly into the drainage veins without the normal interposition of the cerebral capillary bed. AVMs are considered to develop during the intrauterine period, however, the form in which they are discovered at an older age, does not correspond to the size and shape in intrauterine life. Smaller AVMs are associated with higher intranidal pressure. In 1986 Robert Spetzler(an American neurosurgeon renowned in cerebral vascular surgery) and Neil Martin (an American neurosurgeon specialized in cerebrovascular pathology) proposed a grading scale to estimate the surgical risk of AVMs.

Case presentation. The patient presented with complaints of headaches and convulsive attacks. The onset of the disease dates back to 2020 when the patient marks a tonic-clonic convulsive attack for the first time. He was consulted by the neurosurgeon with the performance of cerebral CT, cerebral MRI, Angiography.

Discussions. Cerebral CT revealed hyperdense intraparenchymal focus with mass effect on the right lateral ventricle. Cerebral MRI showed right paramedian serpiginous vascular nidus, heterogeneous area around the nidus with the involvement of deep venous drainage and the right lateral ventricle. Cerebral angiography by digital subtraction confirmed a right fronto-parietal AVM, Martin-Spetzler 2. Surgical tactics are combined with the application of endovascular surgery and microsurgery. Intranidal embolization and feeding branches, preoperative treatment to reduce deep supply with facilitating surgical intervention, pre-radiosurgery necessary to reduce volume not only blood flow. Postoperative MRI with angiography sequence shows complete removal of the nidus. No more abnormal vessels are evident in the vicinity of the malformation bed. Normal cerebral parenchyma. The patient returns to the territory following anticonvulsant treatment.

Conclusions. AVM rupture represents a medical surgical emergency that requires prompt and immediate intervention. Thus, complete resection is a method to avoid rebleeding, but also the sequelae induced by this pathology.

Keywords. Arteriovenous malformation (AVM), nidus, interventional surgery, embolization.

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92. MOLECULAR REGULATION OF CELLULAR PLASTICITY IN TISSUE REGENERATION AND REPAIR

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Introduction. Cellular plasticity is a fundamental biological process enabling differentiated cells to modify their phenotype in response to tissue injury. Regenerative capacity depends on epigenetic remodelling, transcription factor reactivation, and extracellular matrix-mediated signalling. Dysregulation of these processes contributes to fibrosis and impaired healing, highlighting the clinical relevance of controlled plasticity.

Aim of study. To analyse and synthesize current scientific evidence regarding the molecular mechanisms that regulate cellular plasticity during tissue regeneration and repair.

Methods and materials. This study is based on a structured literature review using PubMed, Scopus, and Web of Science. Inclusion criteria covered peer-reviewed English-language articles published within the last 10–15 years, focused on molecular regulation of cellular plasticity in tissue regeneration. Data were extracted, categorized by molecular pathway, and comparatively evaluated to identify convergent mechanisms and emerging trends.

Results. In synthesizing current evidence on molecular regulation of cellular plasticity during tissue regeneration, multiple organ models reveal both tissue-specific adaptations and conserved mechanisms. Hepatic regeneration exemplifies robust plasticity, where mature hepatocytes undergo reversible dedifferentiation and proliferative re-entry under Wnt/β-catenin, Hippo-YAP, and Notch signalling, enabling restoration of substantial liver mass post-injury. Skeletal muscle repair depends on satellite cell plasticity, regulated by Pax7- and MyoD-driven transcriptional programs coordinated with histone acetylation and chromatin remodelling. Cardiac tissue, by contrast, exhibits limited regenerative capacity; injury responses are dominated by fibroblast activation, while fibroblast-to-cardiomyocyte reprogramming remains constrained by TGF-β signalling, microRNA networks, and extracellular matrix stiffness. Across tissues, epigenetic regulators – particularly histone deacetylases and DNA methyltransferases – act as central modulators of lineage flexibility, with pharmacological inhibition enhancing regenerative markers in preclinical models. Metabolic reprogramming and matrix remodelling further serve as permissive determinants of phenotypic transitions.

Conclusions. Cellular plasticity in tissue regeneration is regulated by complex molecular mechanisms integrating signalling cascades, epigenetic remodelling, transcriptional networks, and microenvironmental factors. Advances in understanding these processes provide promising avenues for regenerative medicine, including stem cell – based therapies, targeted molecular interventions, and bioengineered tissue constructs.

Keywords. cellular plasticity, tissue regeneration, epigenetic regulation, repair mechanisms, stem cells.

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93. MORPHO-FUNCTIONAL REMODELING OF THE CYTOSKELETON–NUCLEUS AXIS AS AN EARLY MARKER OF THE OXIDATIVE STRESS – INDUCED AGING IN EPIDERMAL STEM CELLS

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Introduction. Epidermal stem cells (EpSCs) are essential for maintaining skin homeostasis and regenerative capacity. Aging of these cells is influenced by oxidative stress, which induces molecular and structural alterations. While acute, transient reactive oxygen species (ROS) elevations act as physiological signaling cues that support differentiation, tissue repair, and cellular plasticity, chronic ROS accumulation disrupts stemness-maintaining pathways, reduces asymmetric division, and promotes premature wrinkle formation. These functional alterations are accompanied by profound reorganization of intracellular architecture.

Aim of study. To analyze current evidence regarding morpho-functional remodeling of the cytoskeleton-nucleus axis as an early biomarker of oxidative stress-induced aging in epidermal stem cells, with emphasis on mechanotransduction pathways, nuclear structural alterations, and their functional consequences on stem cell self-renewal capacity.

Methods and materials. A structured literature review was conducted on peer-reviewed studies published between 2006 and 2025 focusing on epidermal stem cell nuclear architecture, lamins, F-actin dynamics, the LINC complex, and ROS-mediated signaling. Relevant data were collected from ScienceDirect, PubMed, and ResearchGate to identify key mechanisms linking oxidative stress to aging.

Results. Chronic oxidative stress triggers early remodeling of the nuclear microarchitecture in epidermal stem cells, marked by nucleoporin oxidation, lamin B1 destabilization, nuclear shape alterations, and chromatin compaction. These structural changes weaken the cytoskeleton-nucleus linkage, impair mechanotransduction, and compromise the maintenance of stemness. Prolonged ROS exposure also induces pro-inflammatory cytokine signaling, which further amplifies F-actin remodeling at the nuclear periphery, promotes nuclear rounding, and increases perinuclear fluidity. Disrupted cytoskeletal anchorage alters nuclear positioning and transcriptional regulation, activating pathways such as PI3K/mTOR and NF-κB, and drives hypertrophic, senescence-like phenotypes even in non-proliferating cells. In contrast, transient ROS signaling appears compatible with cytoskeletal flexibility and nuclear permissiveness, supporting regenerative responses.

Conclusions. Morpho-functional remodeling of the cytoskeleton-nucleus axis is an early marker of oxidative stress-induced aging in EpSCs. Preservation of cytoskeletal and nuclear dynamics under controlled ROS conditions supports regenerative capacity. Targeting this axis may provide novel strategies to delay stem cell aging and enhance tissue regeneration.

Keywords. epidermal stem cells, cytoskeleton, nuclear architecture, oxidative stress, cellular plasticity.

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94. LASER APPLICATION IN THE HAIR REMOVAL

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Introduction. Laser hair removal represents a rapidly expanding procedure in aesthetic dermatology, offering an effective method for long-term hair reduction. The effectiveness and safety depend on the precise understanding of hair follicle biology, skin phototype variability, and laser–tissue interaction mechanism. For a personalized treatment plan with minimal adverse effects, a good adjustment of the wavelength, frequency, pulse duration, spot size and epidermal cooling is necessary.

Aim of study. The aim of this study is to analyze the biological aspects of laser-assisted hair removal technique. The influence of hair growth cycle and skin phototype on the treatment efficacy is investigated. Another important aim of this study is to establish an evidence-based framework outlining laser types and their corresponding parameters.

Methods and materials. This study represents a narrative review of scientific literature published during the last decade. Relevant articles were identified using major biomedical databases, including PubMed, Medline, HINARI, the Cochrane Library, and Google Scholar. The analysis is focused on the hair follicle physiology, selective photothermolysis, laser parameters, patient selection criteria, reported clinical outcomes and adverse effects.

Results. The hair follicle undergoes cyclic transitions through anagen, catagen and telogen phases, with the anagen phase representing the optimal target for laser intervention due to increased melanin content. When appropriate laser parameters are applied during this phase, each treatment session may achieve an average hair density reduction of approximately 20%. Since hair follicles undergo asynchronous growth cycles, multiple sessions are required to achieve sustained results. The laser hair removal procedure is based on the selective photo-thermolysis, with melanin acting as the primary chromophore and effective wavelength of (250-1200) nm. According to literature studies, to achieve thermal injury of the target structure, the pulse duration must be adapted to the follicular thermal relaxation time. Thus, the epidermal melanin remains a major limiting factor, particularly in the darker phototypes. This limitation can be excluded via various efficient cooling systems. Ruby, alexandrite, light emitted diodes as well as Nd: YAG lasers demonstrate distinct safety and efficacy profiles. Clinically, it depends on the skin phototype, and Nd: YAG laser offers a superior safety in darker or tanned skin.

Conclusions. Laser hair removal is an effective and predictable method for long-term hair reduction when grounded in hair cycle biology and phototype-adapted laser selection. The personalized laser parameters and careful patient evaluation are fundamental for maximal efficacy and minimal complications, that is supporting the role of laser epilation as a cornerstone procedure in the modern aesthetic dermatology.

Keywords. laser hair removal, hair growth cycle, selective photothermolysis, skin phototype, melanin.

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95. THE ANATOMICAL VARIABILITY OF THE ANTERIOR CHOROIDAL ARTERY

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Introduction. The anatomical variation of anterior choroidal artery (AChA) is of increased interest in neurosurgical activity due to its vast irrigation territory including the lateral ventricles, basal ganglia, hypothalamus, red nucleus, the optic radiation, optic tract, and hippocampus. As a result of associated pathological processes such as intracerebral aneurysms, carcinomas, congenital arteriovenous diseases and Moyamoya disease, there is a noticeable development of the corresponding neurosurgical branches in eradicating lesional damage in its supply area.

Aim of study. To provide a better understanding of the anatomical particularities of the anterior choroidal artery.

Methods and materials. A thorough retrospective study of 20 computerized tomographies using iodized contrast were reviewed in the arterial window. The investigations were realized in 2025 in the Institute of Emergency Medicine, Chisinau, Republic of Moldova. The patients' age had a mean value of 64.15±1.87 years, and median of 64 years, ranging from 43 to 82 years, of whom 13 were males (65%) and 7 females (35%). The target of analysis was the origin, presence of arterial trunks or supernumerary arteries, shape, course, and internal diameter of AChA.

Results. AChA originated on the left side from the supraclinoid portion (C7) of the internal carotid artery (ICA) in 19 cases (95%) and from the ophthalmic segment (C6) of the ICA in 1 case (5%) while on the right side emerged from C7 in 18 cases (90%), from C6 in 1 case (5%), and from the middle cerebral artery (MCA) in 1 case (5%). On the right side it was S-shaped in 45% cases, rectilinear in 10% cases, irregular in 5% cases, similar to U and L in 15% cases, to V and Z in 5% each. On the left it was S-shaped in 45% cases, rectilinear in 10% cases, irregular in 5% cases, V-shaped in 20% cases and Z-shaped in 10% cases. It coursed posterolaterally in 90% of the cases on the left and 65% cases on the right, with a medial terminal trajectory in 20% cases on the left and 10% cases on the right. Left AChA in one case, went superomedial and posterosuperior (5%), as the right AChA went posterosuperior (25%) and posteroinferior (5%). The length was found to be equal to 30.86±2.00 mm with an internal diameter of 1.93±0.13 mm on the left and 32.76±2.01 mm reported to 2.21±0.14 mm on the right. There were identified origins from the common trunks in 2 cases on the left side (10%), and 1 case on the left side (5%).

Conclusions. The AChA has a very high rate of variability, the most prevalent origin of the artery was from the C7 portion of the internal carotid artery bilaterally, it was S-shaped in most cases with a posterolateral course. There were slightly increased lengths, and diameters for the AChA on the right side.

Keywords. anterior choroidal artery, internal carotid artery, anatomical variability.

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96. LYMPHATIC SYSTEM OF THE OESOPHAGUS: AN ANATOMICAL EXPLANATION FOR SKIP METASTASES

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Introduction. Oesophageal cancer is characterized by rapid and distant metastasis. A common form of lymphatic spread in oesophageal cancer is skip metastases found with the incidence 20-40%. The lymphatic drainage of the oesophagus involves the thoracic duct (TD) and the following lymph nodes: supraclavicular nodes, juxta-oesophageal nodes and coeliac nodes.The lymphatic system of the oesophagus is characterized by an extensive network of capillaries and vessels located throughout all its layers, representing the primary pathway for the metastatic dissemination of tumor cells. It possesses several distinct anatomical features that determine its prognostic significance in the context of oesophageal cancer metastasis.

Aim of study. To investigate the architectural features of the oesophageal lymphatic system and its direct role in the rapid and non-sequential metastatic dissemination of cancer cells.

Methods and materials. A primary review of the scientific literature was conducted using the PubMed, Medscape and Google Scholar databases for the period 2017-2024. The search was performed using the following keywords: lymphatic drainage of the oesophagus and skip metastases. Inclusion criteria consisted of original anatomical and clinical studies, and case reports published in full-text format.

Results. The anatomy of the lymphatic system of the oesophagus was described mainly by Japanese researchers. Except epithelium, the lymphatic vessels are present in all layers of the oesophagus. The lymphatic vessels within the submucosa are thick and oriented longitudinally along the entire length of the organ. The longitudinal vessels and long drainage territory may be the base for bidirectional drainage to deep cervical or coeliac lymph nodes, and direct drainage to TD. The intermuscular lymphatic plexus, located between circular and longitudinal muscle layers, runs circumferentially in the thoracic part of the oesophagus. It is connected to the lymphatics of the adventitia, juxta-oesophageal nodes or TD directly. However, the connections between submucosal plexus and intermuscular plexus are not identified histologically. An additional predisposing factor is the lack of a serosal covering. This facilitates the spread of tumor cells beyond the organ wall and explains early metastasis even in superficial cancers.

Conclusions. The structural features of the oesophageal lymphatic system play a predetermining role in the process of cancer metastasis. Understanding these anatomical and functional characteristics is essential for the proper justification and selection of surgical strategy in treatment.

Keywords. lymphatic drainage of oesophagus, skip metastasis.

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97. MODERN PERSPECTIVES ON CELL DEATH

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Introduction. Cell death is a fundamental biological phenomenon essential for development, tissue remodeling, and homeostasis. For decades, cellular demise was attributed to apoptosis and necrosis. Advances in molecular and cellular biology have expanded this view, revealing a broad spectrum of genetically regulated and mechanistically distinct forms of cell death. These include apoptotic, autophagy-related, mitochondrial-associated, metal-dependent, immunogenic, and lysosomal pathways. The precise regulation of these mechanisms is critical in both physiological and pathological contexts.

Aim of study. The aim of this study was to highlight the diversity of cell death mechanisms, analyze their molecular and morphological characteristics, and evaluate their contribution to disease pathophysiology, with emphasis on recently described forms.

Methods and materials. A narrative literature review was performed using a structured search strategy. Fifty-two articles published between 2015 and 2025 were identified through searches in PubMed, HINARI, Google Scholar, and the Cochrane Library using the terms “programmed cell death”, “accidental cell death”, and “cellular signaling pathways”. Titles and abstracts were screened, followed by full-text assessment based on predefined criteria. Peer-reviewed studies focusing on molecular mechanisms, current classifications, and therapeutic relevance of cell death were included. Duplicates, non-English papers, and methodologically unclear studies were excluded. Thirty-four publications met the criteria and formed the scientific foundation of this abstract.

Results. Contemporary perspectives describe cell death as a heterogeneous and tightly regulated network of processes, marked by a shift from morphology-based classifications toward molecularly defined mechanisms. Beyond accidental cell death, multiple regulated forms were analyzed, including apoptosis, anoikis, autophagy-dependent cell death, autosis, entosis, methuosis, paraptosis, mitoptosis, mitophagy, parthanatos, ferroptosis, cuproptosis, necroptosis, pyroptosis, lysosomal cell death, and NETosis. These pathways involve mitochondrial dysfunction, lysosomal membrane permeabilization, oxidative stress, metal dyshomeostasis, and immune-mediated signaling. Recently characterized entities such as alkaliptosis, oxeiptosis, and erebosis further expand the spectrum of regulated cell death. Dysregulation of these mechanisms is strongly associated with cancer, neurodegenerative, cardiovascular, and inflammatory diseases, supporting targeted and personalized therapeutic strategies.

Conclusions. Cell death represents a complex and tightly regulated biological phenomenon with major implications for health and disease. The identification of newly described forms enhances the understanding of disease mechanisms and opens promising avenues for innovative, mechanism-based therapeutic strategies.

Keywords. programmed cell death, accidental cell death, cellular signaling pathway.

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98. ANATOMICAL VARIANTS OF CORONARY ARTERIES

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Introduction. The coronary arteries are located subepicardial and supply both myocardium and epicardium. They originate from the right and left coronary sinuses of the aorta. The left coronary artery (LAC) divides into the anterior interventricular artery and the circumflex artery of heart, while the right coronary artery (RCA) gives rise to the inferior (posterior) interventricular artery. Coronary artery dominance is defined as the coronary artery giving rise to the inferior interventricular artery. The modern imaging techniques have demonstrated that coronary anatomical variants and anomalies are more common than previously thought and may have significant clinical implications.

Aim of study. was to provide an overview of the normal and variant anatomy of the coronary arteries, as described in modern anatomical and radiological studies, and to analyze their clinical significance in the practice of cardiology and cardiovascular surgery.

Methods and materials. A literature review was performed using PubMed, Medscape and Google Scholar covering the period from 2015 to 2025. The search terms included: coronary angiography. The review incorporated studies based on coronary CT angiography, as well as anatomic and clinical case series.

Results. Congenital coronary artery anomalies occur in approximately 1% of the population. A recent systematic review (2023-2024) of over 500,000 patients reported anomalous coronary origins in 0.8-1.3% of cases, depending on the diagnostic method. This group includes anomalous origin of coronary arteries from the opposite coronary sinus, which is one of the main causes of sudden death. The anomalous origin of the RCA from the left coronary sinus occurs in 0.2-1%, while the anomalous origin of the LCA from the right coronary sinus occurs in 0.1-0.2%. Anomalous origins of coronary arteries from pulmonary trunks are rare (0.01%). The trifurcation of the LCA with a ramus intermedius is found in 15-30% of cases. The intramural tract of coronary arteries, defined as myocardial bridging is observed in 5-25% of cases. CT angiography studies indicate right dominance in 70-85% of cases, left dominance in 8-15%, and codominance in 5-10%.

Conclusions. Variations in coronary blood supply are present in a significant part of the population and should be carefully identified prior to invasive procedures and reconstructive surgeries. Knowledge of these variants improves diagnosis, reduces the risk of periprocedural complications, and optimizes the management of patients with cardiovascular diseases.

Keywords. coronary arteries, variant anatomy, anomalies.

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99. CONGENITAL HEART DEFECTS, TYPES, INCIDENCE

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Introduction. Congenital heart defects (CHDs) are structural and functional abnormalities of the heart valves and septa, and of the great vessels caused by various endogenous or exogenous factors during the embryonic period of development and present at birth. The development of the heart begins with the formation of the primitive heart tube by the end of the third week of embryogenesis. The primitive heart tube differentiates into five distinct regions: truncus arteriosus, bulbus cordis, primitive ventricle, primitive atrium and sinus venosus. At the beginning of the fourth week of development the straight heart tube undergoes looping. The heart loop occurs between days 23 and 28. Partitioning of the atria and ventricles by the formation of the atrioventricular septum, interatrial septum, and interventricular septum is complete by the end of the fifth week.The atrioventricular valves form between weeks five and eight, and the semilunar valves form between weeks five and nine. Disruptions in the process of cardiogenesis may lead to the development of congenital heart defects.

Aim of study. was to review the normal development of the heart and the most common types of congenital heart defects.

Methods and materials. A primary literature review was conducted in the Google Scholar, PubMed and Medscape databases over a 10-year period (2013-2023). The following keywords were used: congenital heart defects, cyanotic and acyanotic heart diseases. The analysis included clinical studies, imaging-based studies, surgical reports, systematic reviews, and full-text articles without language restrictions.

Results. CHDs are classified into acyanotic (70-80%) and cyanotic (20-30%) types. Acyanotic heart defects include atrial septal defect (6-10%), ventricular septal defect (20-30%), patent ductus arteriosus (5-10%), and coarctation of the aorta (4-8%). Cyanotic heart defects include tetralogy Fallot (3-6%), transposition of the great arteries (2-5%), and persistent truncus arteriosus (1-2%). Due to modern prenatal diagnostic methods and significant advances in cardiac treatment, the survival rate of patients with CHDs has increased. More than 500,000 patients in the USA with functionally significant congenital heart defects have reached adulthood.

Conclusions. Understanding the process of cardiogenesis and cardiovascular anatomy is essential for early diagnosis and timely treatment of CHDs, forming the basis for optimized management, improved prognosis, and a more favorable disease course.

Keywords. congenital heart defects, cyanotic and acyanotic heart disease.

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100. THE ROLE OF ENTEROENDOCRINE CELLS IN PARKINSON'S DISEASE

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Introduction. The intestinal epithelium represents one of the most extensive interfaces of the human body, integrating nutritional, immune, and neuronal signals. Enteroendocrine cells (EECs), which constitute approximately 1% of the intestinal epithelium and account for nearly 100 million cells distributed along the gastrointestinal tract, play an essential role in bidirectional gut–brain communication through the secretion of hormones and signaling molecules such as serotonin (5-HT).

Aim of study. To analyze the involvement of enteroendocrine cells in the pathogenesis of Parkinson's disease (PD), with emphasis on gut–brain axis mechanisms and interactions with the intestinal microbiota.

Methods and materials. A narrative review of recent literature was conducted, focusing on EEC biology, secretory mechanisms, and experimental and clinical evidence supporting their role in the initiation and progression of Parkinson's disease.

Results. Parkinson's disease is characterized by degeneration of dopaminergic neurons and accumulation of α-synuclein (Lewy bodies). Emerging evidence suggests that the pathological process may originate in the intestine, where α-synuclein has been identified in the gastrointestinal mucosa even in early disease stages. Due to their strategic position between the intestinal lumen and the enteric nervous system, EECs may represent a critical link in transmitting pathological signals to the brain. Colocalization of α-synuclein with specific EEC subtypes (L and K cells) has been demonstrated, suggesting that these cells may contribute to the aggregation and transport of pathological protein via vagal afferent fibers. Microbiota-derived metabolites, such as sodium butyrate, can modulate α-synuclein expression through Atg5-dependent autophagic mechanisms. Alterations in microbial composition (e.g., Akkermansia muciniphila) may induce oxidative stress and Ca^{2+} release through ryanodine receptor activation, promoting protein aggregation. EECs also possess neuropods capable of establishing direct synaptic contacts with enteric neurons, facilitating signal propagation toward the brainstem. Additionally, certain EEC subtypes secrete GLP-1, which exhibits potential neuroprotective effects, suggesting a bidirectional role—proinflammatory and neurodegenerative under specific conditions, yet protective in others.

Conclusions. Enteroendocrine cells may represent a potential site of initiation and amplification of pathogenic processes in Parkinson's disease through their interaction with the intestinal microbiota and the enteric nervous system. Understanding the underlying molecular mechanisms may open new therapeutic perspectives aimed at modulating the gut–brain axis and EEC function.

Keywords. Enteroendocrine cells, Parkinson's disease, α-synuclein, gut–brain axis, microbiota, GLP-1.

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101. NSAID-INDUCED ENTEROPATHY - THE NEGLECTED AREA OF "GASTROPROTECTION" WITH PPI

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Introduction. NSAID-induced enteropathy is a common but often overlooked complication of anti-inflammatory therapy. While proton pump inhibitors (PPIs) are routinely used to prevent upper-GI injury, small-bowel lesions remain unprotected. Capsule endoscopy studies report lesions in more than 50% of chronic NSAID users and in about two-thirds of healthy volunteers after 2 weeks of diclofenac. Clinically, it may present with occult bleeding, iron-deficiency anemia, hypoalbuminemia, and abdominal pain; severe cases may lead to manifest bleeding, obstruction, perforation or intestinal diaphragm disease. The main mechanisms involve cyclooxygenases (COX) inhibition with reduced protective prostaglandins, increased mucosal permeability, and interactions with the intestinal microbiota. Enterohepatic circulation further contributes to intestinal injury: after hepatic conjugation and biliary excretion (notably diclofenac and indomethacin), NSAIDs can be deconjugated by gut bacteria and reabsorbed, causing repeated mucosal exposure. This prolongs enterocyte contact and increases inflammation and permeability.

Aim of study. To analyse NSAID-induced enteropathy and clarify the role of PPIs on small- bowel injury.

Methods and materials. We conducted a narrative review of studies published between 2016 and 2026 in international medical databases. We summarized endoscopy/capsule endoscopy studies on NSAID-related small-bowel injury, reports and case series on intestinal diaphragm disease, a meta- analysis (14 studies; approximately 2,000 patients) on the effect of PPI co-therapy, and a published FAERS pharmacovigilance analysis that used reporting odds ratios and principal component analysis to describe risk patterns.

Results. While PPIs effectively prevent NSAID-associated gastroduodenal lesions, evidence indicates they do not protect the small intestine and may increase the prevalence of NSAID-induced enteropathy. The meta-analysis showed that concomitant PPI therapy was associated with a higher risk of endoscopically detected small-bowel lesions (odds ratio ≈3) compared with NSAIDs alone. PPI use was also linked to more lesions per patient and a greater decline in hemoglobin levels, suggesting worsening occult bleeding, without a significant increase in overt GI bleeding. Acid suppression therefore protects the upper GI tract but does not prevent, and may aggravate, small- intestinal injury.

Conclusions. NSAID-induced enteropathy is a frequent complication insufficiently addressed by current gastroprotective strategies. Although PPIs reduce upper-GI risk, they do not prevent small- bowel injury and may increase lesion prevalence. Individualized NSAID selection and comprehensive gastroprotection across the entire GI tract are required.

Keywords. NSAID-induced enteropathy, small bowel injury, proton pump inhibitors, gastroprotection, intestinal microbiota.

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102. THE ROLE OF MITOCHONDRIA DYSFUNCTION IN METABOLIC AGING

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Introduction. Although mitochondria are considered the main cellular energy generators, their functions are far more extensive. Mitochondria also provide biosynthetic precursors for macromolecule synthesis, generates metabolites required for the maintenance of redox homeostasis, participates in cellular quality-control processes, including the recycling of damaged components. The age-associated decline in mitochondrial function represents a physiological process, analyzed in this study.

Aim of study. To elucidate the physiological mechanisms involved in mitochondrial degradation, which are essential for maintaining cellular homeostasis.

Methods and materials. For this study, recent scientific literature was analyzed, from databases such as: PubMed, Google Scholar, Scopus, Web of Science, published between 2021-2025.

Results. The results of the literature analysis indicates that mitochondrial dysfunction plays a crucial role in the development of metabolic aging through several complex molecular mechanisms. ATP production decreases due to reduced activity of respiratory chain complexes I, III, and IV, leading to diminished efficiency of oxidative phosphorylation. ROS production increases, amplifying cellular oxidative stress, damaging cellular structures, and contributing to metabolic decline. mtDNA mutations further impair the synthesis of respiratory chain proteins. Mitochondrial biogenesis is reduced through the downregulation of key regulatory factors (PGC-1α, NRF1, and TFAM), a process exacerbated by decreased AMPK activity, which normally stimulates mitochondrial biogenesis. Reduced activity of sirtuins (SIRT1/3) and hyperactivation of the mTOR signaling pathway inhibits autophagy. Mitochondrial dysfunction promotes the activation of cell-cycle regulators such as p53 and p21. Decreased fatty-acid oxidation leads to intracellular lipid accumulation, increasing the risk of common metabolic disorders, such as insulin resistance, impaired glucose metabolism, obesity, dyslipidemia, sarcopenia, and chronic low-grade metabolic inflammation (inflammaging).

Conclusions. Mitochondrial dysfunction plays a fundamental role in metabolic aging, contributing to the disruption of cellular energy homeostasis and metabolic functions. Impaired mitophagy, reduced efficiency of oxidative phosphorylation, increased production of ROS and the accumulation of dysfunctional mitochondria lead to decreased ATP synthesis and altered carbohydrate and lipid metabolism. Mitochondrial integrity and the quality-control mechanisms that regulate mitochondrial turnover are essential for maintaining physiological metabolic homeostasis and for slowing the progression of metabolic aging.

Keywords. Mitochondria dysfunction, Mitochondrial turnover, Metabolic disorders, Mitophagy.

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103. THE ROLE OF COPPER IN CUPROPTOSIS

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Introduction. Copper (Cu) is an essential trace element involved in multiple fundamental biological processes, including mitochondrial respiration, redox homeostasis, and cellular signaling. The concentration of free Cu in the cytoplasm varies from 10−15 M to 10−21 M. Recent studies show that tumor tissues exhibit a higher demand for Cu due to their highly active metabolism as compared to normal cells.

Aim of study. The objective of the study was to elucidate the biochemical mechanisms of Cu-mediated cell death in order to be used both in the prevention and treatment of cancer.

Methods and materials. A literature review from 2016-2026 was performed, using 10 articles, including data from ScienceDirect, PubMed Central, Biomed Central, MedScape and others.

Results. Studies show that concentrations of Cu higher than 4×10^{-8} M deplete glutathione (GSH) and trigger cuproptosis, different from oxidative stress-related cell death. The Cu homeostasis is regulated by copper transporter 1 (CTR1), ATPase Copper Transporting Alpha (ATP7A), ATPase Copper Transporting Beta (ATP7B) and GSH. Increased Cu accumulation causes cuproptosis mainly through ferredoxin 1 (FDX1)-mediated mitochondrial proteotoxic stress by destabilization and degradation of iron–sulfur (Fe–S) cluster proteins, lipoylation (LA) and aggregation of enzymes involved in the regulation of mitochondrial tricarboxylic acid (TCA) cycle (dihydrolipoamide branched chain transacylase E2 (DBT), glycine cleavage system protein H (GCSH), dihydrolipoamide S-succinyltransferase (DLST), and dihydrolipoamide S-acetyltransferase (DLAT)). Also Cu generates reactive oxygen species (ROS), during the switch between Cu+ and Cu2+ states provoking oxidative stress-related cell death. Both monovalent (Cu+) and bivalent (Cu2+) ions can be toxic, but they exhibit toxicity in different ways. Cu+ is highly toxic to microorganisms (e.g., bacteria, viruses) and can inhibit enzymatic systems, often in anaerobic conditions. Cu2+ is toxic to human cells (e.g., in liver, kidneys, brain). Moreover Cu may result in: pyroptosis via activating leucine-rich repeat and NOD-Like Receptor Family Pyrin Domain Containing 3 (NLRP3) inflammasome pathway; apoptosis by interacting with the tumor suppressor p53; and paraptosis by inhibiting proteasome activity and reproductive role in the accumulation of misfolded proteins.

Conclusions. In conclusion cuproptotic, pyroptotic, paraptotic and apoptotic properties demonstrate that Cu-derived compounds are potential in both prevention and cancer therapies.

Keywords. Copper, cuproptosis, FDX1, cancer.

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104. HIDDEN IMMUNOBIOCHEMICAL EFFECTS OF BOTULINUM TOXIN TYPE A INJECTIONS

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Introduction. Botulinum toxin type A (BTA) is a protein-based neurotoxin widely used in aesthetic medicine. Produced by the bacterium Clostridium botulinum, it causes temporary relaxation of muscle tissue to diminish expression lines, hyperhidrosis, and certain mild neurological conditions. At the same time, some possible side effects have been reported following BTA injection, such as allergic rashes, angioedema, and anaphylactic shock. Therefore, attention must be paid to various symptoms that could indicate allergic manifestations in the patient.

Aim of study. To identify possible adverse effects following botulinum toxin injection and to analyze their clinical manifestations.

Methods and materials. The study is based on publications identified in medical databases such as PubMed, NCBI, Google Scholar, and Medline. These sources were selected through constructive evaluation, following a comparative analysis and exclusion of articles lacking scientific support.

Results. In cosmetology, BTA injections are often administered in the frontal, periorbital, and glabellar regions to induce reversible muscle paralysis by inhibiting acetylcholine release. At the same time, even if some patients do not experience immediate hypersensitivity reactions after botulinum toxin injection, they may subsequently develop delayed hypersensitivity responses occurring several days, months, or even years after injection. In this context, mild dyspnea, erythema and urticaria are most commonly observed in the chest and neck area, typically without excessive discomfort for the patient, and treatment involves the administration of epinephrine and corticosteroids. Thus, erythema and urticarial rashes were observed in 6 out of 20 individuals, which constitutes 30%. Over the last 6 years, 2 reports of severe angioedema have been documented in patients vaccinated against Covid-19. Data from the scientific literature also confirms the occurrence of post-injection anaphylaxis associated with BTA, but at a lower rate. These patients had a type 1 hypersensitivity reaction with increased serum IgE levels, and positive intradermal tests. The side effects were detected within 5-10 minutes after injection.

Conclusions. Being widely used in cosmetology practice, BTA injections carry certain risks. Analysis of data from the scientific literature highlights the fact that patients require careful assessment, both during and after administration of the preparation. Awareness of these potential side effects contributes significantly to improving the safety of cosmetology procedures and clinical management.

Keywords. Botulinum toxin, urticaria, angioedema.

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105. PROTON PUMP INHIBITORS AND THE RISK OF HEPATIC ENCEPHALOPATHY IN CIRRHOTIC PATIENTS

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Introduction. Proton pump inhibitors are prescribed to 46–78% of patients with liver cirrhosis, often without a clear indication. Valid indications include peptic ulcer disease, gastroesophageal reflux disease and upper gastrointestinal bleeding. Evidence increasingly suggests that long-term or high-dose PPI use is an independent risk factor for both covert (grade 1) hepatic encephalopathy (HE) and overt (grades 2–4) HE, and may be associated with higher mortality.

Aim of study. The aim of the study was to review the risk of developing hepatic encephalopathy in patients with cirrhosis receiving treatment with proton pump inhibitors and to elucidate the possible responsible mechanisms.

Methods and materials. This review is based on data collected from several articles available on PubMed, PMC and GoogleScholar, that have been published since 2015.

Results. Multiple pooled metanalyses and observational studies demonstrated a significant association between PPI use and increased HE risk. Higher risk was observed with prolonged therapy (>1-3 months), higher doses (>40-80 mg omeprazole equivalent), greater cumulative exposure (>30 cDDD) and in patients after transjugular intrahepatic portosystemic shunt (TIPS) implantation. PPI therapy resulted in a higher prevalence of minimal and severe HE, which indirectly reduced transplant-free survival after TIPS. PPI use also determined longer hospitalization and increased mortality. Several pathophysiological mechanisms have been postulated based on studies. PPIs have been suggested to promote intestinal dysbiosis through bacterial translocation from the upper gastrointestinal tract with bacterial overgrowth in the small intestine. In addition, local metabolic and proinflammatory changes have been observed, responsible for increased ammonia levels and increased intestinal permeability. These abnormalities may result in malabsorption of vitamin B12 and magnesium and may facilitate subsequent systemic inflammation, endotoxemia and neurotoxicity in HE. PPI treatment has been reported to be associated with the development of spontaneous bacterial peritonitis, a known risk marker for HE.

Conclusions. Indications for PPI therapy, including in patients with cirrhosis, require a careful justification. Long-term and high-dose PPI treatment, as well as use in patients with a transjugular intrahepatic portosystemic shunt, increases the risk of hepatic encephalopathy. By reducing gastric acid secretion, proton pump inhibitors contribute to alterations of the intestinal microbiota and the development of inflammatory processes and malabsorption syndrome.

Keywords. Proton pump inhibitors, hepatic encephalopathy, liver cirrhosis, intestinal microbiota, malabsorption.

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106. ADENOMYOSIS: MORPHOPATHOLOGICAL MECHANISMS INVOLVED IN INFERTILITY AND IMPLANTATION FAILURE

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Introduction. Adenomyosis is a benign uterine condition involving the ectopic presence of endometrial glands and stroma in the myometrium, with subsequent hypertrophy and hyperplasia of adjacent smooth muscle fibres. The necessity of understanding the morphopathological mechanisms that are linked to implantation failure and impaired fertility is sustained by its global prevalence, estimated at around 22% among women under 40 undergoing medical evaluations for infertility.

Aim of study. This paper aims to review the recent literature regarding macroscopic, histological and molecular changes pertaining to adenomyosis and their impact on fertility.

Methods and materials. Research has been carried out by analysing more than 500 articles in the PubMed data base published between 2020-2025 using the keywords `adenomyosis`, `histopathology`, `infertility`, of which 15 have been selected for further, in-depth analysis.

Results. Macroscopically, the uterus is enlarged, with a globular aspect, infiltrated by unencapsulated focal or diffuse lesions of dense adenomyotic tissue featuring cloudy areas which alternate with brown hemosiderin deposits, surrounded by hypertrophied myometrium. Microscopically, the tissue displays irregular intertwined islets of endometrial glands at >2.5 mm from the endometrial junction, which becomes thickened and asymmetric, exhibiting disorganized muscle fibres, loss of fine innervation and deep structural remodelling, impairing uterine contractility, gametic transport and embryo implantation. Molecular mechanisms related to infertility involve hyperestrogenism and progesterone resistance (↑ER-β, ↓PR-α/β), increasing myometrial proliferation and reducing endometrial receptivity, exacerbated by decreased expression of adhesion molecules (E-cadherin, integrin β-3, osteopontin) and implantation markers (LIF, HOXA10, NR4A, MMP2). Chronic inflammation and oxidative stress recruit dysfunctional NK cells and M1 macrophages which release inflammatory mediators (HLA-2, IL-6, IL-1β, TNF-α, JAK-2/STAT3 pathway) and accumulate ROS, creating an embryotoxic environment that hinders implantation. In parallel, M2 macrophages will promote pathologic fibrosis and angiogenesis through specific factors (TGF-β, NGFs, SYN, MAP-2, VEGF, ANXA2), thereby stiffening the myometrium, altering uterine contractility and sperm transport.

Conclusions. Adenomyosis is a complex pathology, associated with infertility through a multitude of interlinked morphopathological mechanisms that generate a dysfunctional uterine environment, significantly lower implantation rate and increase the risk of spontaneous miscarriage. Understanding these mechanisms creates the basis for developing efficient therapeutic strategies in the management of adenomyosis-related infertility.

Keywords. adenomyosis, morphopathology, infertility.

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107. LEUKOCYTES: NORMAL FEATURES AND HISTOPATHOLOGICAL CHANGES

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Introduction. Leukocytes are a heterogeneous group of nucleated blood cells that play an essential role in the functioning of the immune system and in maintaining organismal homeostasis. These cells are involved in both innate and adaptive immune responses, actively participating in the recognition, neutralization, and elimination of pathogens, as well as in the regulation of inflammatory and immunological processes. Under physiological conditions, leukocytes circulate in the peripheral blood and migrate into tissues, where they exert their effector functions. Their numerical distribution and morphological characteristics are tightly regulated and reflect the functional state of the immune system. Quantitative changes (leukocytosis, leukopenia) and qualitative alterations (cellular atypia, morphological abnormalities) of leukocytes may serve as important indicators of inflammatory, infectious, autoimmune, or neoplastic processes.

Aim of study. To analyze the morphological and histological characteristics of leukocytes under physiological conditions and to identify the histopathological changes characteristic of various inflammatory, reactive, and neoplastic processes, emphasizing their clinical and diagnostic significance.

Methods and materials. This study represents a narrative review of the scientific literature based on articles published between 2015 and 2025 and indexed in the PubMed, Scopus, and Web of Science databases. Articles were selected using keywords related to leukocytes, histopathology, inflammation, and hematological disorders.

Results. Leukocytes are classified into granulocytes (neutrophils, eosinophils, and basophils) and agranulocytes (lymphocytes and monocytes), each group exhibiting distinct cellular structures and functional properties. Neutrophils play a central role in acute inflammation, while lymphocytes predominate in chronic inflammatory processes. Histopathological examination reveals cellular infiltrates, nuclear atypia, altered nuclear-to-cytoplasmic ratio, and uncontrolled proliferation in hematological malignancies.

Conclusions. Leukocytes represent a fundamental component of the immune system, and their morphological and histopathological alterations reflect a wide range of pathological conditions with significant clinical relevance. Accurate evaluation of these changes is essential for differential diagnosis and clinical decision-making.

Keywords. leukocytes, histopathology, inflammation, immune system, hematological pathology.

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108. THERAPEUTIC MODULATORS OF CARDIOMYOCYTE APOPTOSIS: CURRENT STRATEGIES AND PERSPECTIVES

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Introduction. Cardiomyocyte apoptosis represents a central mechanism in the pathogenesis of heart failure, contributing to irreversible loss of myocardial cells and pathological ventricular remodeling. Identifying effective therapeutic strategies to limit this process constitutes a priority in contemporary cardiovascular research.

Aim of study. This study aims to synthesize and critically analyse the main classes of therapeutic agents investigated for modulating cardiomyocyte apoptosis, including caspase inhibitors, Bcl-2/Bax protein modulators, antioxidants, targeted molecular therapies, as well as innovative approaches in gene therapy and nanomedicine.

Methods and materials. A narrative synthesis of the scientific literature was conducted by consulting PubMed/MEDLINE, ScienceDirect and Google Scholar databases, focusing on the period 2010-2025.

Results. Caspase inhibitors are classified into two categories: peptidic (Z-VAD-FMK, Q-VD-OPh,emricasan) and non-peptidic (VX-765). VX-765 a selective caspase-1 inhibitor, reduces infarct size in ischemia/reperfusion models through PI3K/Akt pathway activation. Bcl-2/Bax modulators (MSN-50, MSN-125, BAI1) inhibit BAX/Bak oligomerization and mitochondrial outer membrane permeabilisation. Astragalus membranaceus activates mitophagy and reduces cardiac hypertrophy by inhibiting Akt/mTOR. The analysed data show that baicalein reduces oxidative stress, apoptosis and cardiac fibrosis, maintaining mitochondrial fusion/fission balance and inhibiting the GRP78/CHOP pathway. Curcumin prevents palmitic acid-induced apoptosis by attenuating endoplasmic reticulum stress. Riboflavin exerts cardioprotection through the SCAD/Dj-1/Keap1/Nrf2 axis. Longxuetongluo reduces apoptosis in ischemia/reperfusion by modulating oxidative stress and mitochondrial dynamics (Mfn2, p-Drp1). Yixin-Shu acts by restoring Trx2 and inhibiting JNK/p38. Regarding advanced therapies, gene therapy utilises AAV vectors for delivering SERCA2a (CUPID study), VEGF, Bcl-2 genes or for editing PRKAG2 and MYH7 mutations through CRISPR-Cas9. Modified PEG-PLA nanoparticles facilitate targeted delivery of miR-133 to injured myocardium. Additionally, genetically modified myofibroblasts with connexin 43 and magnetic guidance prevent post-infarction arrhythmias.

Conclusions. Based on the conducted synthesis, it is considered that the diversity of therapeutic strategies reflects the complexity of apoptotic signaling. Although numerous agents have demonstrated preclinical efficacy, clinical translation is limited by challenges related to bioavailability, toxicity and immune response. Future research must prioritise validation in clinical trials of therapeutic combinations targeting multiple steps of the apoptotic cascade simultaneously.

Keywords. cardiomyocyte apoptosis, caspase inhibitors, Bcl-2/Bax modulators, gene therapy, nanoparticles, cardioprotection.

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109. THE EFFECT OF ARTIFICIAL LIGHT ON THE PINEAL GLAND, MELATONIN SECRETION, AND ITS POSSIBLE CONSEQUENCES.

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Introduction. The pineal gland is a central neuroendocrine organ in the epithalamus and is responsible for the synthesis of melatonin. Melatonin is a hormone that regulates circadian rhythms. Its secretion is stimulated by darkness and suppressed by light. The widespread use of artificial lighting, especially at night, can disrupt the natural photoperiod and cause circadian rhythm disturbances. Clinically, this manifests as sleep disorders, impaired thermoregulation, unstable blood pressure, metabolic disorders, reproductive dysfunction and increased risk of insulin resistance and diabetes.

Aim of study. To evaluate the effects of artificial nocturnal light on the activity of the pineal gland, melatonin secretion, systemic metabolism and cellular processes.

Methods and materials. A systematic literature review of 30 articles in PubMed and Google Scholar selected based on the keywords.

Results. Artificial light sources that emit high levels of blue spectrum radiation, including electronic device screens, fluorescent lamps and LED lighting, significantly inhibit melatonin production. Melatonin is a product with antioxidant, anti-inflammatory, immunomodulatory and antitumor properties. Chronic inhibition of melatonin increases oxidative stress, mitochondrial dysfunction and genomic instability, enhancing carcinogenic potential. Blue light activates retinal ganglion cells that contain melanopsin, which transmit light signals to the suprachiasmatic nucleus, inhibiting sympathetic neural input to the pineal gland, and therefore inhibits the synthesis of melatonin. Reduced levels of melatonin decrease the activity of antioxidant enzymes such as superoxide dismutase, glutathione peroxidase and catalase. As a result, we obtained excessive accumulation of reactive oxygen species, activation of NF-kB, increased expression of pro-inflammatory cytokines and carcinogenic mediators. Also, it alters metabolic regulation by increasing ghrelin and reducing leptin secretion, thus promoting obesity, insulin resistance and hormonal imbalance. Finally, nocturnal melatonin suppression can elevate estrogen levels, modulate estrogen receptor signaling, increasing the risk of hormone-dependent malignancies.

Conclusions. Prolonged exposure to artificial light, especially blue light radiation, can seriously impair pineal gland function and circadian rhythm homeostasis. These changes contribute to metabolic, endocrine, inflammatory and carcinogenic processes. Carefully designed lighting strategies that minimize nocturnal light exposure are essential for preserving melatonin secretion and maintaining long-term health.

Keywords. pineal gland, melatonin, artificial light.

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110. PROTEOMIC ANALYSIS OF THE TEAR FILM FOR THE IDENTIFICATION OF BIOMARKERS OF CHRONIC OCULAR INFLAMMATION

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Introduction. Prolonged inflammation of the ocular surface is a multifactorial condition marked by persistent lacrimal dysfunction, dysregulated immunological processes and molecular differences of the tear film, reflecting the pathological condition of the eye components.

Aim of study. To explore the proteomic profile of the tear film, aiming at identifying proteins relevant to chronic ocular inflammation (lactoferrin, lysozyme, MMP-9, lipocalin-1, proteins of the S100 family) and assessing their potential as biomarkers.

Methods and materials. 22 original articles and meta-analyses were included in the study that investigated the expression of tear proteins in chronic ocular inflammation, published in the period 2015-2025, identified in PMC, PubMed, NCBI.

Results. Changes in the situations of some crucial proteins in tears reflect the abnormal condition of the eye surface. The quantities of lactoferrin and lysozyme are significantly reduced in the tears of patients with persistent inflammation, indicating dysfunction of the lacrimal gland. In discrepancy, MMP-9 is constantly high in tears, being associated with the declination of the extracellular matrix and the intensity of inflammation of the optical surface. S100 proteins, particularly S100A6 and S100A8/A9, show increased expression, suggesting activation of pro-inflammatory responses and oxidative stress. Lipocalin-1, a protein involved in lipid transport and eye protection, has lowered concentrations in numerous studies, indicating loss of lacrimal homeostasis.

Conclusions. The protein changes seen in tears, including dropped lactoferrin, lysozyme and lipocalin-1, as well as increased MMP-9 and S100A6/A8/A9 proteins, reflect activation of disease-related processes and disturbance of homeostatic balance in the ocular surface.

Keywords. Inflammation, tear film, biomarkers, proteins.

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111. HEART VARIATIONS

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Introduction. The heart follows a generally consistent structural plan, numerous variations exist in its chambers, valves, coronary vessels, conduction system, and great vessels. A thorough understanding of cardiac anatomical variations is therefore essential for anatomists, clinicians, cardiologists, radiologists, and cardiac surgeons.

Aim of study. The aim of this study was to identify and analyze anatomical variations of the structural components of the human heart and to evaluate their potential clinical, diagnostic, and procedural significance.

Methods and materials. The macroscopic study included 50 adult hearts and museum exhibits from the "Nicolae Testemițanu" State University of Medicine and Pharmacy.

Results. Variants of all structural components of the heart were identified. In most of them (like the separate origin of the circumflex artery of the heart and the anterior interventricular artery) the difference in the expression of trabeculae is especially noticeable. Pronounced trabeculation (in 1.5% of cases) can complicate catheter navigation, influence interpretation during intraoperative imaging. Accessory papillary muscles were revealed in 2% of cases on the right and 6% - on the left. Perforation of semilunar aortic valve - in 5%; presence of the Eustachian valve in 60% and the Thebesian valve in 70% of cases were ascertained. In 25% of their shape can present mimic pathology on echocardiography, CT, or MRI or influence catheterization, valve surgery, and device implantation. Accessory leaflets are uncommon, they were discovered in 2.5% of cases (tricuspid valve – in 1%, bicuspid – in 1.5 %). It is known that they may have important diagnostic, hemodynamic, and surgical implications. Misinterpretation can lead to unnecessary anticoagulation or suspicion of infective endocarditis, unrecognized accessory leaflets can complicate valve repair or replacement. The presence of pulmonary veins asymmetry (revealed in 3% of cases) is an anatomical variant of pulmonary venous return, not pathological by itself. Their importance is mainly clinical and procedural.

Conclusions. Anatomical variations of the heart components are common findings rather than rare anomalies and should be regarded as part of normal human morphological diversity. Many cardiac variations are clinically silent; however, they may acquire significant importance during diagnostic imaging, interventional procedures, and cardiac surgery. Awareness of cardiac anatomical variations is required for reduction of iatrogenic injury and technical difficulties during catheterization, device implantation, and surgical interventions.

Keywords. heart valves, leaflets, papillary muscles, trabeculation, asymmetry of pulmonary veins.

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112. CELLULAR AND ULTRASTRUCTURAL DYNAMICS IN BONE REMODELING: FROM OSTEOBLAST TO OSTEOCYTE

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Introduction. Bone remodelling is a continuous process occurring within basic multicellular units, essential for maintaining structural integrity and mineral homeostasis. The osteoblast–osteocyte transition represents a central stage of this cycle, as it transforms the bone-forming cell into a major regulator of remodelling. Osteocytes, derived from osteoblasts, account for more than 90% of bone cells and are embedded in an extensive lacuno-canalicular network responsible for mechanotransduction and intercellular communication. Osteocytogenesis involves major morphological and ultrastructural changes, including reduction of cell volume and secretory apparatus, cytoskeletal reorganization, and development of dendritic processes connected through gap junctions.

Aim of study. To analyze the cellular and ultrastructural evolution of the osteoblast – osteocyte transition and to integrate the role of osteocytes in regulating bone remodelling through mechanotransduction, molecular signalling, and intercellular communication.

Methods and materials. A narrative review of PubMed-indexed literature was conducted, analysing studies on osteoblast–osteocyte differentiation, mechanotransduction via the lacuno-canalicular network, communication through connexins (Cx43), RANK/RANKL/OPG signalling, regulation by sclerostin (SOST) and the Wnt pathway, the effects of PTH/PTHrP, and perilacunar/pericanalicular remodelling.

Results. Osteoblasts exhibit active motility that is suppressed prior to their incorporation into the extracellular matrix, accompanied by reorganization of actin and microtubules and reduction of the secretory apparatus. The resulting osteocytes form a three-dimensional network connected by connexins and represent a major source of RANKL and mechanosensitive mediators. Mechanical loading generates fluid shear stress of approximately 0.8–3 Pa, rapidly inducing nitric oxide release and increasing PGE_2/PGI_2 mediators, highlighting the key role of mechanotransduction. Endocrine signaling via PTH reduces SOST expression and activates the Wnt pathway, stimulating osteoblastic activity and bone formation. Additionally, osteocytes can directly remodel the pericellular matrix through reversible perilacunar remodelling.

Conclusions. The osteoblast – osteocyte transition represents a critical stage in bone remodelling, characterized by major cellular and ultrastructural changes and integration of the osteocyte into the lacuno-canalicular network. The osteocyte functions as a central regulator of bone remodelling by integrating mechanical, endocrine, and molecular signals and coordinating osteoblast–osteoclast interactions, with important implications for understanding metabolic bone diseases and developing targeted therapies.

Keywords. "osteoblast", "osteocyte", "differentiation", "RANKL", "sclerostin".

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113. HEART RATE VARIABILITY DURING HYPERVENTILATION IN INDIVIDUALS WITH BORDERLINE PERSONALITY DISORDER

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Introduction. Borderline Personality Disorder (BPD), with a prevalence estimated at 1–6%, is characterized by emotional instability, impulsivity, and interpersonal dysfunction. Heart rate variability (HRV), as an index of sympatho-vagal balance, offers important insight into the psychophysiological mechanisms underlying this disorder. This study aimed to examine HRV patterns in individuals with BPD at rest, during controlled hyperventilation, and in the immediate recovery period.

Aim of study. The aim of the study is to determine autonomic changes in individuals with borderline personality disorder by examining heart rate variability both at rest and during guided hyperventilation.

Methods and materials. A total of 103 participants (ages 18–60) were assessed using the PID-5 and assigned to either a control group (n = 69) or a borderline group (n = 34). HRV was derived from ECG recordings in lead II under three conditions: resting baseline, controlled hyperventilation (20 breaths/min), and post-hyperventilation recovery. Data were processed in Kubios HRV 3.2.0, focusing on frequency-domain parameters (LF, HF, LF/HF ratio).

Results. At rest, the two groups exhibited comparable HRV values, with no statistically significant differences. During hyperventilation, only the BPD group showed a significant decrease in the LF/HF ratio, suggesting a transient reorganization of sympatho-vagal balance. In both groups, hyperventilation elicited an increase in LFnu and a decrease in HFnu, with all parameters returning to baseline levels within minutes after hyperventilation.

Conclusions. Individuals with BPD demonstrate a distinct autonomic reactivity profile, characterized by heightened sympathetic activation during challenge and preserved autonomic recovery thereafter. HRV represents a valuable complementary marker for the psychophysiological assessment of BPD, contributing to a better understanding of the functional mechanisms underlying the emotional and behavioral dysfunction characteristic of this disorder.

Keywords. Borderline Personality Disorder (BPD), Heart rate variability (HRV), dysfunction.

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114. THE ROLE OF ALAMANDINE IN VASCULAR AND METABOLIC FUNCTION REGULATION

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Introduction. Alamandine is a peptide of the noncanonical renin–angiotensin–aldosterone system (RAAS) that signals through the Masrelated G protein-coupled receptor D (MrgD). It forms part of a protective RAAS axis opposing angiotensin II–mediated vasoconstriction, inflammation, and fibrosis, and is increasingly recognized for roles in vascular and metabolic regulation.

Aim of study. To elucidate alamandine's contribution to vascular and metabolic homeostasis, focusing on MrgDdependent molecular mechanisms that affect endothelial function, vascular remodeling, and adipose tissue signaling.

Methods and materials. This study is founded on the examination of 20 specialized articles retrieved from reputable databases such as: PubMed, Bioscientifica, and ScienceDirect over the last four years. Investigated mechanisms included nitric oxide (NO) production, endothelial reactivity, fibrosis markers, inflammatory mediators, adipokine expression, and intracellular signaling pathways such as AMPK, eNOS, and MAPK.

Results. Evidence consistently shows that alamandine enhances endothelial NO bioavailability via AMPK/eNOS activation pathways, promoting vasodilation and improving endothelial responsiveness. In cardiomyocytes, MrgD activation by alamandine counteracts angiotensin II–induced hypertrophy, limits oxidative stress, and preserves cellular function through NO-dependent signaling. Alamandine also modulates vascular structure. Experimental pressure overload and hypertensive models demonstrate reduced collagen deposition, attenuation of fibrosis, and suppression of proinflammatory gene expression in vascular and cardiac tissues, indicating antiremodeling and tissueprotective properties. These effects are linked to inhibition of MAPK-related profibrotic pathways and improved endothelial integrity. Metabolic regulation represents another key domain. In adipose tissue, alamandine decreases leptin synthesis and secretion through a cSrc/p38 MAPK mechanism, having a direct influence on adipocyte endocrine function. MrgDrelated signaling has also been associated with transcriptional control of genes involved in energy metabolism, suggesting broader roles in metabolic adaptation. Across tissues, alamandine exhibits antiinflammatory and antiapoptotic effects, reduces cytokine production, and supports cellular survival under stress conditions. These systemic actions reinforce its function as a counterregulatory RAAS mediator integrating vascular, cardiac, and metabolic protective pathways.

Conclusions. Alamandine is a multifunctional RAAS peptide that improves endothelial function, limits fibrosis and hypertrophy, and modulates adipose hormone signaling via MrgD-dependent NO and MAPK pathways. Its combined vascular and metabolic effects highlight its relevance as a potential therapeutic target in cardiometabolic disease.

Keywords. alamandine, RAAS, MrgD receptor.

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115. A STRUCTURAL VARIABILITY OF THE MIDDLE MENINGEAL ARTERY: A CASE REPORT

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Introduction. The origin of the middle meningeal artery (MMA) is from the internal maxillary artery in most of the cases, less often the internal carotid artery (cavernous, petrous, pseudopetrous, distal petrous, and cervical segments), ophthalmic artery, basilar artery, or occipital artery could be the emergence spot. A common course of the artery is through the foramen spinosum, and then passing on the sphenoid bone wings thus describing 3 intracranial segments – temporobasal, temporo-pterional, and coronal. At the temporo-pterional region it splits into the anterior and posterior divisions.

Case statement. A patient of male gender with an age of 59 years presented in the Institute of Emergency Medicine in Chisinau, Republic of Moldova. After performing a cerebral computerized tomography the diagnosis of acute subdural hematoma on the left side was diagnosed. Its thickness was of 16 mm and there was an 18 mm midline shift to the right side. The patient underwent an emergency decompressive craniectomy with subdural hematoma evacuation on the left side. There was identified an anatomical variant of the middle meningeal artery on the left side where the coronal portion of the artery had split into 2 segments that reunited after 0.8 cm.

Discussions. This type of anatomical variability for the arteries was described in a book written by Testut Leo in 1896. There was described an accessory middle meningeal artery in the literature in 1961 (Baumel et al.), and 1976 (Dilenge et al.), it was further questioned to change the terminology for a pterygomeningeal artery due to its scarce contribution for the blood supply to the meningeal layers. Other sources state that sometimes it stands for the parvidural branch. This ramus could have uttermost importance in meningioma resections due to its potential to be hidden into the tumoural mass, and thus cause a spontaneous bleeding during the surgery. During craniotomies it could be traumatized at the bone removal stage, from an adherent dura mater. If the artery passes inside the cranium, originating from the ophthalmic, basilar, or internal carotid artery then a vascular syndrome is possible with the compression of the trigeminal, facial or glossopharyngeal nerves.

Conclusions. The accessory middle meningeal artery variations are of great importance in the many laborious neurosurgical interventions, its presence should be considered in the oncological, or traumatic patients until proven otherwise, thus warranting a safety for the homeostasis of this milieu interior.

Keywords. meningeal arteries, anatomic variation, meningioma, craniocerebral trauma.

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116. INDICATIONS AND LIMITATIONS OF GENETIC TESTING IN SYSTEMIC LUPUS ERYTHEMATOSUS

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Introduction. Systemic lupus erythematosus (SLE) is a multifactorial autoimmune disease with multiple organ involvement. Mutations in different immunity-related genes significantly contribute to the diverse clinical presentations and severity of SLE. Genetic testing may identify individuals at presymptomatic stages, support risk assessment, and help detect early-onset or suspected monogenic forms, thereby facilitating patient stratification for individualized management. However, its clinical utility is limited by the modest predictive value of the most common variants and interpretative challenges in a complex polygenic disease.

Aim of study. The aim of this study was to evaluate the indications and limitations of genetic testing in patients with SLE.

Methods and materials. A narrative review of 40 articles published between 2015 and 2025 was conducted using PubMed, ScienceDirect, and NCBI databases. Studies addressing genetic predisposition to SLE, monogenic and polygenic forms, and genotype–phenotype correlations were included. Descriptive and comparative analyses were performed, with emphasis on clinically relevant associations between identified variants and disease manifestations.

Results. Genome-Wide Association Studies have identified mutations in HLA-DR2, HLA-DR3, IRF5, STAT4, PTPN22, and BLK as being associated with SLE; mutations in the TREX, SAMHD1, RNASEH2A/B/C, and IFIH1 genes were associated with early-onset SLE; whereas late-onset SLE was associated with polymorphisms in the TNFAIP3, PRDM1, and TYK2 genes. Indications for genetic testing included an early age at onset, suspicion of monogenic forms, severe organ involvement, a positive family history, and failure to respond to standard therapy. Limitations of genetic testing included the limited predictive value of most polymorphisms, the lack of unified interpretation algorithms, potential false-positive or false-negative results, and psychological risks. Genetic testing is performed within a multidisciplinary genetic counseling setting.

Conclusions. Genetic testing allows early detection of SLE and stratification of patients into subgroups with distinct genetic profiles, supporting prediction of disease progression and severity and the selection of targeted therapy. Integration of genetic testing into clinical practice may improve diagnostic accuracy, optimize therapeutic strategies, and contribute to the development of personalized medicine in autoimmune diseases.

Keywords. Systemic lupus erythematosus (SLE), genetic predisposition, genetic polymorphism, HLA, genetic testing, indications, limitations, GWAS.

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117. THE PARADOXICAL NEUROTOXIC EFFECT OF NON-STEROIDAL ANTI-INFLAMMATORY DRUGS (NSAIDs) IN THE TREATMENT OF DRUG-INDUCED PERIPHERAL NEUROPATHY (DIPN)

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Introduction. DIPN is an adverse reaction to such drugs as antimicrobials, chemotherapeutics, psychotropics, anticonvulsants, and others. While NSAIDs relieve neuropathic pain in DIPN, they may paradoxically promote neurotoxicity and progression of polyneuropathy and even the triggering of DIPN, mainly in patients with predisposing factors such as liver disease, kidney disease, and diabetes mellitus.

Aim of study. The present study draws attention to the neurotoxic potential of NSAIDs in the treatment of DIPN.

Methods and materials. The specialized literature on the potential paradoxical neurotoxic effect of NSAIDs in the treatment of DIPN was analyzed, using scientific platforms such as PubMed, MEDLINE, Google Scholar, and ResearchGate, selecting articles published between 2015-2025.

Results. The analysis of the specialized literature suggests that some NSAIDs have a potential paradoxical neurotoxic effect through indirect mechanisms such as oxidative stress, mitochondrial dysfunction, and alteration of neuronal metabolism. Diclofenac sodium (DS), used in neuropathic pain, expresses its analgesic and anti-inflammatory effect through inhibition of cyclooxygenase, which is time-dependent, suggesting that its therapeutic effect, but also its neurotoxic potential, is rather determined by the duration of exposure. Experimental research shows that DS can cause mitochondrial damage by increasing reactive oxygen species that trigger the opening of the mitochondrial permeability transition pore, causing intracellular calcium imbalance and activation of caspases that induce neuronal apoptosis. Ibuprofen, another anti-inflammatory drug used in the treatment of DIPN, interferes with mitochondrial function, and recent studies have demonstrated that exposure to this NSAID inhibits mitochondrial biogenesis and fusion, favoring the activation of apoptotic pathways with possible implications in neurodegeneration processes.

Conclusions. The paradoxical neurotoxic effect of some NSAIDs, mediated through indirect mechanisms involving oxidative stress, mitochondrial dysfunction, alteration of metabolism, and neuronal homeostasis, can reduce neuronal viability during prolonged exposure and compromise neuronal recovery. Therefore, although the analgesic and anti-inflammatory efficacy of NSAIDs is undeniable, following experimental studies emphasize the need for a critical evaluation of the benefit-risk ratio, personalized treatment duration, and exploration of therapeutic alternatives with a more favorable neuroprotective profile in the management of DIPN.

Keywords. Drug-induced peripheral neuropathy, non-steroidal anti-inflammatory drugs, neurotoxicity, diclofenac sodium, ibuprofen.

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118. INTERDEPENDENCE OF BIOCHEMICAL AND IMMUNE MECHANISMS INVOLVED IN THE DEVELOPMENT OF CHRONIC KIDNEY DISEASE IN RENAL CONGENITAL ANOMALIES

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Introduction. Chronic kidney disease (CKD) is a progressive renal dysfunction that leads to irreversible kidney damage, requiring substitution therapy for survival (dialysis or kidney transplant). Patients with renal congenital anomalies are at a significantly increased risk of developing CKD due to the structural and functional fragility of the kidneys.

Aim of study. The aim of this study is to analyze the interdependence between biochemical and immune processes associated with renal congenital anomalies involved in the evolution and progression of chronic kidney disease.

Methods and materials. The study analyzed specialized literature from electronic databases such as PubMed, Medscape, and ResearchGate from 2020 to 2025.

Results. Renal congenital anomalies lead to structural and functional changes in the kidneys, triggering several pathogenetic mechanisms, including oxidative stress and chronic inflammation. The reduction in nephron mass causes mechanical stress on the glomeruli, affecting the permeability of the filtration barrier. The resulting proteinuria attracts monocytes, which leads to the secretion of pro-inflammatory cytokines (TNF-α, IL-1β, IL-6), amplifying the inflammatory response. Oxidative stress triggers a vicious cycle, activating pro-inflammatory signaling pathways such as NF-κB, leading to the production of ROS and the destruction of nephron components through podocyte apoptosis and necrosis of renal tubular epithelial cells. Additionally, the activation of the NLRP3 inflammasome in tubular cells, podocytes, and mesangial cells contributes to the amplification of inflammation through the release of IL-1β and IL-18. These mechanisms promote renal fibrosis through the accumulation of extracellular matrix (ECM), resulting in the irreversible replacement of renal parenchyma with fibrous tissue, accelerating renal function decline. The activation of the renin-angiotensin-aldosterone system (RAAS) is another central mechanism in CKD progression, promoting vasoconstriction, sodium and water retention, while the accumulation of uremic toxins (urea, creatinine) exacerbates cellular damage and inflammation. Uremic toxins may also disrupt immune cell function, contributing to chronic inflammation. In certain cases, renal congenital anomalies can activate the complement system, leading to endothelial and tubular cell damage, thus accelerating kidney disease progression.

Conclusions. Chronic kidney disease represents a common consequence of renal congenital anomalies, determined by complex interactions between biochemical and immune mechanisms. The interaction between oxidative stress, chronic inflammation, and endothelial dysfunction constitutes a pathological triad that contributes to irreversible renal function deterioration and progression to CKD.

Keywords. chronic kidney disease, oxidative stress, renal congenital anomalies.

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119. HISTOPATHOLOGICAL PROFILE OF THE PLACENTA IN EARLY-ONSET VS. LATE-ONSET PREECLAMPSIA

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Introduction. Preeclampsia (PE) is a major hypertensive disorder specific to pregnancy, with a significant impact on maternal and fetal health worldwide. It is characterized by the presence of proteinuria and newly developed hypertension, defined by systolic blood pressure values ≥140 mmHg and diastolic blood pressure ≥90 mmHg. According to the gestational age at onset, PE is classified into early-onset preeclampsia (EOPE, <34 weeks) and late-onset preeclampsia (LOPE, ≥34 weeks), which are considered distinct entities from a morphopathological perspective.

Aim of study. The present study aimed to assess the placental histopathological profile in EOPE and LOPE, with particular emphasis on vascular and villous changes.

Methods and materials. The present review is grounded in the analysis of seven peer-reviewed articles identified through database searches in PubMed and Google Scholar using the keywords “preeclampsia,” “early-onset,” and “late-onset.” Additionally, relevant studies indexed in the National Bibliometric Instrument (IBN) were included to ensure comprehensive coverage of the research topic.

Results. In EOPE, the underlying pathophysiological mechanism is characterized by insufficient trophoblastic invasion and inadequate remodeling of the spiral arteries. Consequently, the smooth muscle layer and internal elastic lamina persist, maintaining narrowed vascular lumina and increased vascular resistance, which progressively lead to endothelial injury, fibrinoid necrosis, and acute decidual atherosis. These lesions may further complicate with thrombosis and vascular obliteration, ultimately resulting in severe uteroplacental malperfusion and chronic fetal hypoxia. Histopathologically, EOPE is associated with extensive placental infarctions, increased perivillous fibrin deposition, and numerous syncytial knots, which reduce the effective maternal–fetal surface area for gas and nutrient exchange. In contrast, in LOPE, vascular lesions primarily consist of moderate or minimal intimal thickening and focal hyalinization, leading to limited luminal narrowing and comparatively less pronounced uteroplacental malperfusion than in EOPE. The histopathological profile in LOPE typically demonstrates limited or absent placental infarctions and moderate villous alterations.

Conclusions. The histopathological profile in the different forms of preeclampsia is distinct, being considerably more aggressive and progressive in the early-onset form, reflecting the involvement of different pathophysiological mechanisms responsible for the development of chorionic villous alterations and changes in maternal–fetal vascularization.

Keywords. Preeclampsia, early-onset, late-onset.

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120. MONOCLONAL ANTIBODIES IN THE THERAPEUTIC MANAGEMENT OF MULTIPLE SCLEROSIS

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Introduction. Multiple sclerosis is an autoimmune disease of the central nervous system characterized by chronic inflammation, demyelination, gliosis, and progressive neuronal loss. In 2024, the global prevalence of multiple sclerosis was estimated at approximately 2.4 million people, predominantly affecting adults between 20 and 50 years of age, with a higher incidence in females (approximately 3:1 ratio).

Aim of study. To evaluate the impact of monoclonal antibodies on the control of multiple sclerosis activity compared with conventional immunosuppressive therapies currently used in clinical practice.

Methods and materials. This study represents a narrative review of the scientific literature, based on the analysis of articles published in international medical databases between 2016 and 2026 on the use of monoclonal antibodies in multiple sclerosis. The analysis focused particularly on the efficacy and safety profile of these therapies in comparison with conventional immunosuppressive treatments.

Results. The analysis of clinical studies demonstrated that monoclonal antibodies show superior efficacy compared with conventional immunosuppressive therapies in controlling disease activity. Administration of ocrelizumab resulted in a reduction of the annual relapse rate by approximately 46–47% compared with interferon beta-1a. Treatment with alemtuzumab demonstrated a reduction in relapse rates of approximately 49–55% compared with standard therapy. Additionally, natalizumab was associated with a reduction in relapse frequency of up to 68%, as well as a significant decrease in the occurrence of new or active lesions detected on MRI. Regarding disability progression, monoclonal antibodies demonstrated a reduction in confirmed disease progression by approximately 30–40% compared with conventional treatments. In several clinical trials, approximately 60–70% of patients achieved No Evidence of Disease Activity (NEDA) within the first two years of treatment, compared with 30–40% among patients receiving conventional immunomodulatory therapies.

Conclusions. The analyzed data indicate that monoclonal antibodies provide superior therapeutic efficacy compared with standard immunosuppressive therapies in the treatment of multiple sclerosis. These therapies significantly reduce relapse rates, decrease inflammatory activity detected on MRI, and slow disability progression, with relapse reductions of up to 46–68% and reductions in confirmed disease progression of approximately 30–40% compared with conventional treatments. Moreover, the use of monoclonal antibodies is associated with a higher proportion of patients achieving NEDA, suggesting more effective control of disease progression. The integration of these therapies into modern treatment strategies represents an important direction for optimizing multiple sclerosis management and improving patient prognosis.

Keywords. multiple sclerosis.

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121. THE INFLUENCE OF OBSTRUCTIVE SLEEP APNEA SYNDROME ON CARDIAC ARRHYTHMIAS

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Introduction. Obstructive sleep apnea syndrome (OSAS) is a common sleep-related breathing disorder characterized by recurrent episodes of partial or complete obstruction of the upper airway during sleep. These events lead to intermittent hypoxia, sleep fragmentation and activation of the sympathetic nervous system. In recent years, OSAS has been increasingly recognized as an important cardiovascular risk factor and has been associated with the development of various cardiac arrhythmias.

Aim of study. The aim of this review is to analyze the relationship between obstructive sleep apnea syndrome and cardiac arrhythmias, as well as the underlying physiological mechanisms involved in this association.

Methods and materials. A literature review was conducted using scientific articles from the databases PubMed, HINARI, NCBI and Google Scholar. Relevant studies published during the last ten years were analyzed in order to identify data regarding the association between obstructive sleep apnea syndrome and cardiac arrhythmias, as well as the physiological mechanisms that may contribute to their development.

Results. Current evidence from the scientific literature suggests that intermittent hypoxia, increased sympathetic nervous system activity, oxidative stress and systemic inflammatory responses may contribute to structural and electrical remodeling of the myocardium. These biological mechanisms play an important role in the development of cardiac arrhythmias in patients with obstructive sleep apnea syndrome. The most frequently reported arrhythmias associated with OSAS include atrial fibrillation, supraventricular and ventricular extrasystoles, nocturnal bradyarrhythmias and atrioventricular conduction disturbances. Furthermore, the severity of OSAS, assessed by the apnea-hypopnea index (AHI), has been associated with a higher risk of developing cardiac arrhythmias.

Conclusions. Obstructive sleep apnea syndrome represents an important factor involved in the development of cardiac arrhythmias. Early identification and appropriate management of OSAS may contribute to reducing cardiovascular risk and improving the clinical prognosis of affected patients.

Keywords. obstructive sleep apnea syndrome, cardiac arrhythmias, intermittent hypoxia, atrial fibrillation.

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122. SLEEP ASSESSMENT METHODS

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Introduction. Sleep has always been an essential part of life, but people have struggled to understand it. With the development of new diagnostic technologies, we have been able to learn more and more about the human sleep state. Currently, sleep assessment integrates both subjective and objective evaluation tools to assess sleep quality, architecture, and associated illnesses.

Aim of study. This study aims to review and summarize the currently available diagnostic tools used in sleep medicine.

Methods and materials. This review was conducted by searching for peer-reviewed articles, guidelines, and textbooks on sleep assessment methods up to 2025. Data was extracted regarding purpose, measured parameters, advantages and clinical applications of each tool.

Results. Subjective methods, such as questionnaires, including the Pittsburgh Sleep Quality Index (PSQI), assess perceived sleep quality over time, whereas the Epworth Sleepiness Scale (ESS) evaluates excessive daytime sleepiness, a common symptom of sleep disorders. The STOP-Bang Questionnaire is widely used to quantify risk for obstructive sleep apnea (OSA) based on clinical factors such as BMI, neck circumference, and hypertension. Objective investigations provide physiological data. Actigraphy estimates sleep–wake cycles through motion and light detection and is useful in circadian rhythm disorders. Cardio-respiratory polygraphy (CRP) records airflow, respiratory effort, oxygen saturation, and heart rate, serving as a simplified diagnostic tool for suspected OSA. The gold standard remains Polysomnography (PSG), which, aside from including previous recordings used in CRP, records electroencephalography (EEG), electromyography (EMG), electrooculography (EOG), respiratory parameters, and cardiac activity. EEG patterns distinguish sleep stages: alpha waves in wakefulness; low-voltage mixed-frequency activity in N1; sleep spindles and K-complexes in N2; high-amplitude delta waves in N3 (slow-wave sleep); and desynchronized activity with rapid eye movements and muscle atonia in REM sleep. Each stage reflects distinct neurophysiological processes, from memory consolidation to autonomic regulation. The Multiple Sleep Latency Test (MSLT) objectively measures daytime sleepiness and is a key diagnostic tool for narcolepsy. With the rapid development of imaging techniques, methods such as MRI and CT scans have also been used during sleep studies, offering more insight into specific brain region activity and possible airway obstruction during the night. Cine magnetic resonance imaging is a non-invasive imaging technique that can be used to visualize the upper airway in real time with the purpose of determining obstruction sites in OSA.

Conclusions. Modern sleep assessment combines both subjective and objective techniques. Together, these methods allow for a more accurate evaluation of sleep architecture and facilitate diagnosing sleep disorders.

Keywords. Sleep, MRI, PSG, EEG.

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123. EARLY BIOMARKERS OF NEURODEGENERATIVE DISEASES

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Introduction. The main elements in the development of neurodegenerative diseases are usually the excessive production of a precursor protein, directed toward the formation of an aberrant protein with an unstable structure—called biomarkers. Identifying the specific biomarkers of neurodegenerative diseases requires the assessment of multi-marker panels either in the blood or cerebrospinal fluid.

Aim of study. Highlighting the main biomarkers used in the early diagnosis of neurodegenerative diseases.

Methods and materials. 10 articles, selected from PubMed databases and published in the last two decades, were analyzed.

Results. Alzheimer's disease is the most common cause of dementia, the morphological basis of which is the accumulation of beta-amyloid and tau-protein in the form of amyloid plaques and neurofibrillary tangles in brain tissue. As part of the differential diagnosis, these biomarkers may be helpful in differentiating Alzheimer's disease from other diseases that continue to cause long-term cognitive dysfunction, such as progressive supranuclear palsy and corticobasal degeneration, as well as from depression, which may mimic cognitive impairment. In Parkinson's disease, Lewy bodies are associated with the loss of dopaminergic neurons, and alpha-synuclein is considered a putative biomarker of the disease, as significant alpha-synuclein deposits are observed in Parkinson's disease patients with mutations in the GBA gene. Huntington's disease is a monogenic neurodegenerative disorder caused by an aberrant expansion of CAG repeats in the first exon of the Huntington gene. This gene encodes a ubiquitous protein expressed in almost all tissues, with the exception of mesenchymal cells, illustrating high levels of expression in the CNS. Neurofilament proteins are structural components of neurons. When the brain is damaged or inflamed, these proteins are degraded and leak into the cerebrospinal fluid and blood. Ubiquitin C-terminal hydrolase L1 is an enzyme approximately exclusively found in neurons. It plays a key role in the ubiquitin-proteasome system, which is responsible for protein processing and cell cleanup. Ubiquitin C-terminal hydrolase L1 is a neuron-specific enzyme released after neuronal injury. Inflammation can reduce neuronal function by causing axonal destruction, which leads to the release of neurofilament proteins.

Conclusions. Early detection of biomarkers contributes to positive dynamics of the above-mentioned diseases or, at least, to the prevention of errors in diagnosis and therapeutic strategy.

Keywords. brain, inflammation, biomarkers, alzheimer’s disease, parkinson’s disease.

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124. EPILEPSY: PATHOPHYSIOLOGICAL BACKGROUND

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Introduction. Epilepsy is a disorder of the central nervous system characterized by recurrent seizures. Seizures are paroxysmal disturbances in cerebral function caused by an abnormal synchronous discharge of cortical neurons.

Aim of study. To reveal the main aspects of understanding the occurrence of epilepsy.

Methods and materials. Material from 15 recent articles, found on Google, was analyzed.

Results. The mechanism underlying epileptic seizures is based on synaptic changes: increased glutamate, increased activity of NMDAR transmembrane protein, decreased GLT-1 transport protein, GABA transmembrane protein. Potassium ions are key participants in this process, as their accumulation leads to the depolarisation of neighbouring cells and the removal of magnesium blockade. Calcium ions also play an important role, as an increase in their release leads to post-tetanic potentiation. GABA also plays an important role, as an increase in its release leads to desensitization of its own receptors. Pro-inflammatory cytokines such as IL-1B, IL-6, and TNF-a have a significant impact. For example, TNF-a regulates synapses, glutamate release, and GABA levels. IL-6 negatively affects neurogenesis in the hippocampus and microglial activity, contributing to epileptogenesis. Prostaglandins activate EP3 receptors on astrocytes, increasing glutamate release and causing increased excitability and neuronal cell death. The causes of seizures are genetic changes in certain genes (KCNQ2 [K+ channels], SCN1A [Na+ channel], structural [damage to the GEB], metabolic [small or large molecule disorders], infectious [leading to brain damage], immune [NMDA-R, LGI1, AMPA antigens, mCluR5 metabolic receptors]). Epileptogenesis is the process of developing and expanding tissue capable of generating spontaneous seizures, leading to the development of an epileptic condition and/or its evolution once it is established. There is a list of markers that help in the diagnosis of epilepsy: AQP4, mTOR, HMGB1, MMP9, BDNF, glial fibrillary protein, s100b, etc. Among them, the most significant are matrix metalloproteinases (MMP9) (destroy dense intercellular contacts of the blood-brain barrier (due to the destruction of dystroglycan) and enhances the release of pro-inflammatory cytokines), aquaporin-4 (AQP-4) (regulates water homeostasis and potassium content in brain cells), the mechanistic target of rapamycin pathway (regulates synaptic plasticity).

Conclusions. Disruption of the expression of key proteins leads to disruption of ion channel function. This, in turn, leads to post-tetanic potentiation, which is a key process in the development of epilepsy. Various markers help identify pathology at the earliest stages.

Keywords. post-tetanic potentiation, epileptogenesis, markers.

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125. OXIDATIVE STRESS AS A HISTOPATHOLOGICAL MECHANISM OF CELLULAR AGING

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Introduction. Cellular aging represents a complex biological process characterized by progressive structural and functional changes in cells and tissues. One of the most important mechanisms involved in cellular aging is oxidative stress, which results from an imbalance between the production of reactive oxygen species (ROS) and the antioxidant defense systems of the organism. Excessive ROS production leads to oxidative damage of cellular components, including lipids, proteins, and DNA. These molecular alterations contribute to histopathological changes observed in aging tissues, such as mitochondrial dysfunction, accumulation of lipofuscin, cellular senescence, and impaired regenerative capacity.

Aim of study. To analyze the role of oxidative stress as a histopathological mechanism involved in cellular aging and to highlight its effects on cellular structures and tissue integrity.

Methods and materials. A literature review was performed using scientific databases such as PubMed, Scopus, and Google Scholar. Approximately 35–40 scientific articles and review papers published between 2015 and 2025 were analyzed. The study included comparative, descriptive, and analytical methods to evaluate the relationship between oxidative stress and histopathological changes associated with cellular aging.

Results. The analyzed studies demonstrate that oxidative stress plays a crucial role in the initiation and progression of cellular aging. Increased levels of reactive oxygen species promote lipid peroxidation, protein oxidation, and DNA damage, leading to structural and functional alterations of cellular organelles, particularly mitochondria. Histopathological findings associated with oxidative stress include mitochondrial swelling, accumulation of lipofuscin pigments, chromatin alterations, and decreased cellular proliferation. Moreover, oxidative damage contributes to cellular senescence and apoptosis, which ultimately affects tissue homeostasis and regeneration. The results also highlight that antioxidant defense mechanisms, including enzymatic systems such as superoxide dismutase, catalase, and glutathione peroxidase, play an essential role in protecting cells against oxidative damage.

Conclusions. Oxidative stress represents a fundamental histopathological mechanism involved in cellular aging. The imbalance between reactive oxygen species production and antioxidant defense leads to progressive cellular damage, contributing to structural and functional deterioration of tissues. Understanding the role of oxidative stress in cellular aging may contribute to the development of preventive and therapeutic strategies aimed at reducing age-related cellular damage.

Keywords. oxidative stress, cellular aging, histopathology, reactive oxygen species, cellular senescence.

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126. LEUKOCYTES AND THE TUMOR MICROENVIRONMENT.

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Introduction. The tumor microenvironment is a dynamic cellular ecosystem in which malignant cells coexist with stromal and immune components. Leukocytes represent a key element of this environment, exerting both antitumor surveillance and tumor-promoting activities. Their behavior is shaped by bidirectional signaling with neoplastic cells, leading to either immune-mediated cytotoxicity or the acquisition of tolerogenic phenotypes that support tumor progression. Understanding these interactions has become relevant in the era of targeted and immune-based oncologic therapies.

Aim of study. To analyze the histological characteristics and phenotypic adaptations of major leukocyte populations within the tumor microenvironment and to evaluate their impact on tumor evolution and response to immunomodulatory treatments.

Methods and materials. This study represents an integrative review of literature published between 2015 and 2025 and indexed in PubMed, Scopus, and Web of Science. Data concerning immune-cell infiltration dynamics, morphofunctional alterations of leukocytes in TME and mechanisms of tumor immune adaptation were systematically examined. Comparative analysis of findings was performed to identify clinically relevant histopathological patterns and their translational significance.

Results. The tumor microenvironment contains diverse leukocyte subpopulations with distinct and sometimes opposing roles, including effector and regulatory T lymphocytes, natural killer cells, tumor-associated macrophages, tumor-associated neutrophils, dendritic cells, and myeloid-derived suppressor cells. TAMs, frequently polarized toward an M2 phenotype, demonstrate expression of immunosuppressive mediators and contribute to angiogenesis, stromal remodeling, and inhibition of cytotoxic immune responses. TANs exhibit functional plasticity, shifting between antitumoral (N1) and protumoral (N2) states depending on local cytokine signaling. Cytotoxic $CD8^+$ T lymphocytes, essential for tumor control, are often reduced or functionally exhausted in immunosuppressive TMEs, showing increased expression of inhibitory checkpoint molecules such as PD-1. MDSCs further suppress T-cell activity and are associated with decreased therapeutic efficacy. Histopathological observations reveal heterogeneous immune infiltrates and stromal reorganization, correlating with tumor aggressiveness and treatment response.

Conclusions. Leukocytes are fundamental regulators of tumor behavior, shaping neoplastic progression and influencing the success of oncologic therapies. Histopathological and immunological evaluation of immune infiltrates provides prognostic information and supports the development of personalized immunotherapeutic strategies. A deeper understanding of tumor–immune system interplay remains essential for improving cancer management.

Keywords. tumor microenvironment, leukocytes, immune infiltration, tumor immunology.

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127. ANATOMO-TOPOGRAPHIC RELATIONSHIPS BETWEEN THE MAXILLARY SINUS AND THE DENTAL ALVEOLI

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Introduction. The maxillary sinus is the largest of the paranasal sinuses. These cavities have a close anatomical and topographical relationship with the dental alveoli, facilitated by the thinness of the sinus floor and individual anatomical variations. This relationship causes complications such as odontogenic sinusitis, oro-sinus communication, and extravasation of materials into the sinus. Knowledge of the particularities of this relationship plays a very important role in establishing the diagnosis, choosing the correct treatment plan, and preventing iatrogenic complications.

Aim of study. The aim is to provide a narrative summary of the relationship between the maxillary sinus and dental alveoli, the main anatomical varieties, and the role of imaging investigations in their assessment.

Methods and materials. The paper is based on specialized literature without any clinical research of its own. The analyses were performed on relevant databases published between 2016 and 2026, selected based on well-defined criteria. The studies included are mainly based on humans, articles in English and Romanian, with an emphasis on imaging investigations.

Results. The relationship between the sinus and the alveoli is highly variable but also influenced by factors such as pneumatization, floor thickness, and individual anatomical characteristics of the sinus and roots. The small distance between these two structures significantly increases the risk of odontogenic or iatrogenic complications, especially during extractions, endodontic treatments, and implant procedures. Anatomical variations in the maxillary sinuses and alveoli occur over time, changing the sinus-alveolar relationship, with CBCT being the main method of preoperative assessment and prevention of complications.

Conclusions. The anatomo-topographic relationship between the sinus and the alveolus is influenced by pneumatization, the diversity of the sinus floor thickness, root morphology, etc. As the thickness of the floor decreases, this relationship becomes a contributing factor to iatrogenic complications. Currently, the main method of examination and risk assessment is CBCT, which provides three-dimensional information. A thorough understanding of the sinus-apex relationship makes it possible to plan safe treatment, greatly reducing the risk of iatrogenic complications.

Keywords. maxillary sinus, dental alveoli, CBCT, sinus-root relationship.

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128. ODONTOBLASTS AND THEIR ROLE IN DENTIN FORMATION AND REGENERATIVE APPROACHES IN DENTAL PATHOLOGY

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Introduction. Odontoblasts are specialized cells located at the dentin–pulp interface, responsible for the formation and maintenance of dentin throughout the life of the tooth. Besides their role in dentinogenesis, odontoblasts take part in defensive reactions of the dentin–pulp complex when exposed to pathological stimuli such as dental caries and pulp inflammation. In recent years, regenerative dentistry has shown increasing interest in the use of dental pulp stem cells to stimulate odontoblast differentiation and aid dentin repair.

Aim of study. The aim of this study was to evaluate the structure and biological role of odontoblasts in dentin formation, as well as their involvement in dental pathologies and their potential use in regenerative therapies based on stem cells.

Methods and materials. The study is a literature review based on the analysis of 40 scientific sources from international databases including PubMed, ScienceDirect, Google Scholar, SpringerLink, MDPI, and BioMed Central. The selected publications analyzed odontoblast biology, dentinogenesis, pathological processes affecting odontoblasts such as dental caries and pulpitis, and recent progress in regenerative dentistry involving dental pulp stem cells.

Results. The analyzed studies show that odontoblasts play a major role in dentin formation and in the defense mechanisms of the dentin–pulp complex. Pathological processes such as dental caries and pulpitis can influence odontoblast function and lead to structural changes in dentin. Under these conditions, odontoblasts or odontoblast-like cells are involved in the formation of tertiary dentin as a protective response. Recent research indicates that dental pulp stem cells are capable of differentiating into odontoblast-like cells and may support dentin regeneration and pulp tissue repair.

Conclusions. Odontoblasts are essential for both dentin formation and the biological response of the tooth to pathological stimuli. Advances in regenerative dentistry, particularly therapies based on dental pulp stem cells, offer promising opportunities for restoring dentin structure and function in cases of dental caries and pulp inflammation.

Keywords. odontoblasts, dentinogenesis, pulp stem cells.

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129. EMERGING DIRECTIONS IN MIGRAINE MANAGEMENT WITH CGRP RECEPTOR ANTAGONISTS

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Introduction. Gepants represent a novel therapeutic direction in both acute and preventive migraine management. As small-molecule CGRP (Calcitonin Gene-Related Peptide) receptor antagonists, they inhibit trigeminovascular-pathway activation. Following early pharmacokinetic and safety limitations observed in first-generation agents, the American Headache Society recognizes the newer gepants as first-line options for migraine prevention, owing to their optimized pharmacokinetic profile, proven efficacy, and superior tolerability.

Aim of study. The aim of the study was to analyze CGRP receptor antagonists and their clinical implications in the management of migraine.

Methods and materials. Research is based on articles collected from PubMed, MEDLINE, Google Scholar and ResearchGate, published between 2018 to 2026.

Results. Early trials demonstrated that the first-generation gepants (olcegepant and telcagepant) were effective in acute migraine treatment, but their development was halted due to poor bioavailability and hepatotoxicity. These drawbacks led to the development of second-generation gepants, which are orally available. Ubrogepant, approved exclusively for acute migraine treatment, has a relatively short half-life of (~5-7) hours. In contrast, rimegepant, with a longer half-life (~11 h), is authorized for both acute and preventive use and exhibits intense plasma protein binding and sustained receptor antagonism. Atogepant was initially developed for the prevention of episodic migraine but later proved effective in chronic migraine as well. It has a half-life comparable to rimegepant. The third-generation agent zavegepant, administered intranasally, achieves rapid systemic absorption and onset of action despite low absolute bioavailability (~5%). Oral formulations are being studied for preventive treatment. Recent data show no evidence of drug accumulation, clinically significant pharmacokinetic interactions, or hepatotoxicity among approved gepants. Nevertheless, as they are predominantly metabolized via CYP3A4, with minor contributions from CYP2C9 (rimegepant) and CYP2D6 (zavegepant), caution is warranted in patients with hepatic impairment. Although chemically unrelated, gepants consistently demonstrate limited blood–brain barrier penetration and lack the vasoconstrictive effects on cranial and coronary arteries that are characteristic of triptans.

Conclusions. Pharmacological fine-tuning of newer-generation gepants has established them as effective and safe options for dual migraine therapy, addressing the limitations of first-generation compounds. Their favourable cardiovascular profile supports use in high-risk patients, although hepatic metabolism requires caution in those with hepatic impairment.

Keywords. gepants, migraine, acute and preventive therapy.

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130. CHIMERIC ANTIGEN RECEPTOR (CAR)-T CELL THERAPY, A "LIVING DRUG" AGAINST HEMATOLOGICAL MALIGNANCIES

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Introduction. Chimeric antigen receptors (CAR)-T cell therapy is an advanced form of personalized blood cancer treatment in which the patient's own T cells are genetically engineered in vitro to express a synthetic receptor (CAR) that recognizes and binds a specific tumor antigen. After leukophoresis, T cells are selected from the leukocytes, then the CARs are permanently encoded into the genome using viral vectors and later conditioned to grow. CAR-T cells are reinfused into the patient once they expand to an adequate number for clinical use. This method broadens the cancer treatment arsenal and has shown promising results.

Aim of study. The research of specialized literature highlights the role of CAR-T cells in cancer treatment and the importance of immunotherapy in this branch of medicine.

Methods and materials. This review is based on a thorough analysis of several articles and specialized literature published between 2017-2025 using platforms like PubMed, Google Scholar, ScienceDirect and National Cancer Institute (NCI).

Results. The latest literature unveils that CAR T-cells present to be highly efficient against acute lymphoblastic leukemia and diffuse large B cell lymphoma due to the precise targeting of CD19 and B cell maturation antigen (BCMA). These surface antigens' abundant and uniform expression across normal B cells and cancerous B-cells makes them nearly an ideal target, accessible to infused CAR-T cells. Once bound, the CAR-T cells are activated, leading to the release of cytotoxic granules containing perfin and granzymes, along with the engagement of the death receptors pathway which induce apoptosis of the tumor cell. The main advantages of CAR-T cells therapy is the recognition of antigens without using the Major Histocompatibility Complex (MHC). A 2020 study showed that 85% of children had complete remission immediately after CAR-T cell treatment, and 60% of these children remained cancer-free 12 months after treatment for acute lymphoblastic leukemia. But another analysis of research on CAR-T cell therapy concluded that, for a significant percentage of people, CAR T cell therapy was not a cure for their condition.

Conclusions. The CAR-T cell therapy displays a huge potential in treating hematological malignancies by offering long-lasting remission where the common used therapies fail. However, CARs are still in need of tuning in their design and target selection in order to reduce the current weak points and expand their use to solid tumors as well.

Keywords. Chimeric antigen receptor T cell, hematological malignancies, lymphoblastic leukemia.

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131. COMPARING MODERN AND TRADITIONAL MEDICINE PRACTISED IN INDIA.

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Introduction. In the Indian healthcare system, coexist and are widely used modern medicine (allopathy) and traditional medicine - Ayurveda, Yoga, Unani, Siddha and Homeopathy (collectively known as AYUSH) in the treatment of diseases. Modern medicine is evidence-based and plays a crucial role in managing acute and life-threatening conditions due to its rapid therapeutic action. In contrast, traditional Indian medicine emphasizes a holistic and individualized approach, focusing on disease prevention, lifestyle modification, and the maintenance of physiological balance through concepts such as Vata, Pitta, and Kapha, to promote long-term health and well-being. With the growing prevalence of chronic non-communicable diseases and an increasing public interest in alternative and complementary therapies, a systematic and scientific comparison between modern and traditional medical systems has become increasingly relevant. Understanding their respective strengths, limitations, and potential for integration is essential for optimizing healthcare delivery.

Aim of study. The aim was to compare modern medicine and traditional medicine practiced in India with respect to therapeutic principles, clinical effectiveness, safety and adverse effects; role in acute and chronic disease management; potential for integrative healthcare models.

Methods and materials. The study is based on the analysis of bibliographic sources published on PubMed, NCBI, Research Gate and Medline, in the period 2015-2025. Key data extracted included study design, population, different types of treatment practiced in India, outcomes, and follow-up. The comparative analysis emphasizes efficacy, safety, cost-effectiveness, patient preference and integrative potential.

Results. The study showed that modern medicine provides a rapid cure for mostly acute diseases, but for chronic diseases, Indian traditional medicine is good, which is, of course, long term treatment but less side effects and cost-friendly and most of it can be cured by lifestyle changes with less side effects. Integrative approaches enhanced recovery and improved outcomes. Studies highlighted different morbidity patterns, efficacy in chronic disease (Mukherjee et al., 2022; Sharma et al., 2022;), the potential of antiviral herbs (Srivastava et al., 2019), improved quality of life (Patwardhan et al., 2015), cost effectiveness and overall safety.

Conclusions. Modern medicine and traditional Indian medicine do not exclude each other, but rather complement one another. Modern medicine is essential for rapid treatments and critical situations, while traditional medicine contributes to prevention, a healthy lifestyle, and long-term balance.

Keywords. Modern medicine; Traditional medicine; Ayurveda; AYUSH; Integrative healthcare; Chronic disease management.

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132. ARTIFICIAL INTELLIGENCE AND THE DEVELOPMENT OF NEW ANTIBIOTICS

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Introduction. Antimicrobial resistance has proven to be a major global public health challenge, and the development of new antimicrobial agents does not meet current clinical needs. Artificial intelligence (AI) is considered an innovative technology in the development of new drugs, including antibiotics. It has been demonstrated that AI opens significant opportunities in the research of compounds with antibacterial properties due to its ability to analyze large volumes of data, as well as to predict and model potential targets of action.

Aim of study. The aim of the study was to identify the prospects for the use of AI in the development and selection of compounds with antibacterial properties and to elucidate their possible mechanisms of action.

Methods and materials. A selection of articles published between 2020 and 2025 was conducted using the PubMed database, followed by analysis and systematization of data regarding the application of AI technologies in identifying series of compounds with potential antimicrobial properties, as well as the prospects for their development and implementation in medical practice.

Results. AI-driven research has focused on: the discovery of low-molecular weight antimicrobial compounds targeting bacterial virulence factors: the development of inhibitors of enzymes responsible for antimicrobial resistance; the creation of antibiotics with novel mechanism of action; and the investigation of antimicrobial peptides. Several compounds were identified as effective at minimum inhibitory concentrations ranging from 4-64 mg/L against methicillin-resistant staphylococci. The application of AI also led to the discovery of halicin, a compound active against multidrug-resistant Escherichia coli, including carbapenem-resistant Enterobacteriaceae, as well as against Acinetobacter baumannii. Halicin was shown to exhibit a novel mechanism of action by disturbing the proton motive force, which is essential for energy production, nutrient transport and cellular stability, an effect that allows it to target bacteria even in the dormant phase. AI has further contributed to the development of β-lactamase inhibitors effective against multidrug resistant Enterobacteriaceae.

Conclusions. AI has demonstrated a range of advantages in the research and development of new antibiotics, including: the analysis of extensive databases enabling exploration of broad spectrum of substances; the development of comprehensive parameters for evaluating antibacterial properties; the identification of promising compounds for preclinical studies within hours; the discovery of compounds with novel mechanisms of action; and a significant reduction in the financial resources required.

Keywords. new antibiotics, artificial intelligence, antibiotic resistance.

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133. THE ROLE OF VITAMIN D-BINDING PROTEIN IN OSTEOPOROSIS

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Introduction. Vitamin D-binding protein (DBP) is the main transporter of circulating vitamin D metabolites. It regulates their bioavailability and plays a key role in calcium-phosphate homeostasis and bone metabolism. In addition, DBP functions as an acute-phase reactant, linking vitamin D metabolism with inflammatory processes that may contribute to bone remodeling and osteoporosis development.

Aim of study. To evaluate the relationship between DBP levels, laboratory assessment methods, and markers of bone metabolism, in order to determine its potential utility in the diagnosis and risk assessment of osteoporosis.

Methods and materials. A literature review was conducted using PubMed and ScienceDirect databases, including relevant studies published between 01.01.2016-10.03.2026. Selected articles addressed the role of DBP in vitamin D metabolism, its association with bone turnover markers, inflammatory factors, and the impact of genetic polymorphisms on osteoporosis.

Results. Vitamin D-binding protein represents a relevant biomarker for assessing vitamin D bioavailability and its relationship with bone metabolism. Current evidence indicates that circulating DBP levels are not significantly influenced by chronological age but vary according to physiological conditions, particularly pubertal stage and hormonal status. Higher DBP concentrations are consistently observed in females, largely due to estrogen-mediated upregulation of hepatic DBP synthesis. Furthermore, DBP levels demonstrate an inverse association with body mass index, with lower concentrations reported in individuals with obesity, potentially leading to reduced bioavailable vitamin D despite normal total 25(OH)D levels. DBP is also involved in inflammatory pathways, as reflected by its positive correlation with C-reactive protein, while inverse associations with osteocalcin suggest a potential link with bone formation and remodeling Genetic polymorphisms in the GC gene significantly influence DBP concentration, binding affinity, and circulating half-life. These variations affect the proportion of free and bioavailable vitamin D independently of total vitamin D levels. Emerging evidence suggests that assessing DBP alongside free 25(OH)D may provide a more accurate evaluation of vitamin D status and its association with bone mineral density and osteoporosis risk compared to total 25(OH)D alone.

Conclusions. Vitamin D-binding protein is a key regulator of vitamin D bioavailability and bone metabolism. Its assessment, along with clinical and biochemical parameters, may enhance the evaluation of osteoporosis risk. Consideration of genetic variability and physiological factors could contribute to earlier diagnosis and support more personalized approaches to osteoporosis management.

Keywords. Vitamin D-binding protein, osteoporosis, vitamin D, bone metabolism.

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134. PERFORMANCE OF SERUM BIOMARKERS IN THE DETECTION OF HEPATIC FIBROSIS IN A COHORT OF PATIENTS FROM THE REPUBLIC OF MOLDOVA

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Introduction. Noninvasive methods for hepatic fibrosis assessment are increasingly used in routine practice. Initial evaluation relies on accessible laboratory markers reflecting hepatic synthetic function and parenchymal integrity. Combined into composite scores, these biomarkers help estimate fibrosis severity and cirrhosis risk. Owing to their safety, accessibility, and suitability for follow-up, serum-based tests represent a practical alternative to liver biopsy.

Aim of study. The aim of the study was to evaluate the clinical utility of serum biomarkers in identifying hepatic fibrosis in a cohort of patients from the Republic of Moldova.

Methods and materials. The retrospective cohort comprised 22 patients with chronic liver disease hospitalized at the Republican Clinical Hospital in Chisinau, Republic of Moldova, between 2019 and 2024. Hepatic fibrosis and functional impairment were assessed using a panel of biochemical liver function markers, with liver biopsy performed in all patients as the reference standard. Data are presented as mean ± SEM.

Results. The cohort included 40.9% male and 59.1% female participants, with a mean age of 44.5±12.7 years. Liver biopsy revealed fibrosis in 45.5% of patients (n=10) and steatosis in 27.3% (n=6), while the remaining 27.3% (n=6) showed either no significant fibrotic or steatotic changes or other histopathological entities. Non-invasive fibrosis assessment identified fibrosis in 40.9% of patients according to the APRI score (n=9), with 27.2% (n=6) as high risk and 13.7% (n=3) as intermediate risk. The FIB-4 score indicated advanced fibrosis risk in 9.1% (n=2) and intermediate risk in 22.7% (n=5). Hepatic synthetic function was evaluated using biochemical markers, including albumin, total protein, and prothrombin time. Mean albumin (40.56±1.22 g/L) and total protein (70.47±1.71 g/L) levels were largely preserved, whereas prothrombin time (23.6±0.78 s) was significantly prolonged. Individual-level analysis revealed a trend toward lower reference limits for albumin and total proteins, suggesting an early or subclinical decline in synthetic function. Correlation analysis showed partial concordance between histologically confirmed fibrosis and non-invasive scores, indicating that structural liver changes may occur even with relatively preserved biochemical markers. These findings support the complementary role of biochemical indices and fibrosis scores in liver disease evaluation.

Conclusions. Noninvasive scoring systems capture liver fibrosis and functional changes efficiently, highlighting their potential as a convenient alternative to biopsy. Larger cohorts are needed, yet they hold promise for future clinical application.

Keywords. Fibrosis, serum biomarkers, liver.

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135. HPA AXIS DYSREGULATION IN CHRONIC INSOMNIA: NEUROENDOCRINE MECHANISMS AND SLEEP DISTURBANCES

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Introduction. Insomnia is a highly prevalent sleep disorder, characterized by difficulty initiating or maintaining sleep and poor sleep quality. Emerging evidence suggests that dysregulation of the hypothalamic–pituitary–adrenal (HPA) axis, the body's central stress-response system, plays a key role in the development and persistence of insomnia by altering cortisol secretion and causing physiological hyperarousal. Understanding these neuroendocrine mechanisms is critical for identifying potential therapeutic targets.

Aim of study. To examine how HPA axis hyperactivation contributes to chronic insomnia, with a focus on neuroendocrine mechanisms, while highlighting key factors driving HPA axis dysregulation.

Methods and materials. This narrative review included 42 studies published between 2021-2026, comprising 26 clinical, 8 experimental, and 8 meta-analyses research. Relevant literature was identified through a structured PubMed search using the keywords: "insomnia", "HPA axis", "cortisol", and "stress response". Study selection followed a PRISMA-based approach.

Results. The review identifies several key pathophysiological mechanisms linking HPA axis hyperactivation to chronic insomnia: (1) Disruption of the cortisol–arousal feedback loop: Cortisol dysregulation interferes with the circadian process of sleep, preventing normal sleep initiation and maintenance.(2) Impairment of sleep-promoting systems: Excessive corticotropin-releasing hormone inhibits the sleep-promoting neurons of the Ventrolateral Preoptic Nucleus, which are predominantly GABAergic neurons that induce sleep by releasing GABA to inhibit arousal systems; this is accompanied by dampening of melatonin and core body temperature circadian amplitudes. Reduced GABA_A receptor sensitivity further weakens these sleep-promoting signals. (3) Altered sleep–wake balance: According to the flip-flop switch model of sleep regulation, these disruptions shift the balance toward wakefulness, leading to changes in sleep architecture including: reduced slow-wave sleep, fragmented REM phases, numerous micro-arousals.(4) Bidirectional reinforcement of hyperarousal: Chronic insomnia itself acts as a stressor, activating the HPA axis and the autonomic nervous system (prevailing of the sympathetic signaling), further maintaining hyperarousal and perpetuating sleep disturbances.

Conclusions. HPA axis hyperactivation drives chronic insomnia by disrupting cortisol regulation, inhibiting sleep-promoting systems, and shifting the sleep–wake balance toward hyperarousal, creating a self-perpetuating cycle of stress and sleep disturbance.

Keywords. Hyperarousal, insomnia, HPA axis, stress response, cortisol.

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136. CHRONOTYPE AND INSOMNIA: CIRCADIAN MECHANISMS UNDERLYING SLEEP TIMING AND SLEEP DISTURBANCE — A NARRATIVE REVIEW

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Introduction. Chronotype reflects an individual's biological preference for sleep–wake timing. Misalignment between chronotype and environmental demands, such as social schedules or light exposure, is associated with sleep disturbances, including insomnia. Studying this relationship can clarify circadian mechanisms contributing to insomnia.

Aim of study. The aim of this review was to analyze the role of individual chronotype in the development of insomnia.

Methods and materials. Materials and Methods: A narrative review was conducted following PRISMA principles, including English-language PubMed studies published between 2020-2026. Keywords: "chronotype" , "insomnia", "circadian", "sleep timing"; were combined using Boolean operators. Studies were screened by title and abstract, and 8 were retained.

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Results. The analyzed literature links chronotype to insomnia through several circadian mechanisms. Alterations in phase-angle entrainment, involving changes in suprachiasmatic nucleus (SCN) timing, arylalkylamine N-acetyltransferase (AANAT) activity, and melatonin receptor signaling, contribute to delayed melatonin secretion and later sleep onset. Genetic polymorphisms in core circadian clock genes (PER3, CRY1, BMAL1) may disrupt the transcription–translation feedback loop regulating circadian rhythms, slowing the internal clock and delaying circadian phase. PER3 shorter variants are associated with evening preference and resilience to sleep loss; longer ones are linked to morning chronotype and more fragile sleep architecture. Environmental factors also contribute: evening light exposure, the primary zeitgeber, activates melanopsin-containing retinal ganglion cells (ipRGCs) that signal to the SCN, through glutamatergic pathways to induce PER, to reset phase, suppressing melatonin and delaying sleep onset. Differences in retinal light sensitivity and reduced morning light exposure may further reinforce delayed circadian rhythms. Misalignment between chronotype and social schedules leads to social jet lag, particularly in evening chronotypes, resulting in reduced weekday sleep duration, increased sleep debt, and chronic circadian disruption.

Conclusions. Chronotype influences insomnia risk through circadian phase delay, genetic clock polymorphisms, and environmental factors such as light exposure and social jet lag.

Keywords. chronotype, melatonin, insomnia.

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137. SLEEP DEPRIVATION AND THE PERPETUATION OF CHRONIC INSOMNIA: NEUROENDOCRINE AND HOMEOSTATIC MECHANISMS — A NARRATIVE REVIEW

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Introduction. Insomnia is defined by difficulty initiating sleep, maintaining sleep, or experiencing restorative sleep, occurring despite adequate opportunity and circumstances for rest.It is associated with significant clinical manifestations such as sleep deprivation , that is the absence of quality or quantity of rest with symptoms such as fatigue ,mental impairment . Insomnia is one of the most common sleep disorders with one of the least numbers of researches which represents one of its biggest dangers.

Aim of study. To examine the pathophysiological mechanisms by which chronic sleep deprivation perpetuates insomnia, with a focus on neuroendocrine, homeostatic, and cortical processes.

Methods and materials. The narrative review carried out according to PRISMA includes 33 studies (17 meta-analysis ,12 narrative reviews and 4 systematic reviews) published between 2020-2026 selected from: PubMed ,Scopus ,Google Scholar using the following key words : " insomnia ", "sleep deprivation", "chronic sleep deprivation","chronic insomnia".

Results. The hypothalamic–pituitary–adrenal (HPA) axis activation through increased secretion of corticotropin-releasing hormone stimulating the CRHreceptor type 1 promoting the release of adrenocorticotropic hormone and thus an increase in cortisol , which disrupts the circadian rhythm and maintain a constant state of hyperarousal.Chronic sleep restriction also increases sympathetic activity via the activation of locus coeruleus noradrenergic neurons thus activating the cAMP–protein kinase A (PKA) pathway and as a result an increase of metabolic function, neuronal firing rates and cardiovascular activity ,preventing the dominance of the parasympathetic system required for sleep induction. Homeostatic sleep regulation is mediated by adenosine and A1 A2A receptors which are greatly affected by chronic sleep deprivation by reducing the sensibility and impairing the wake-promoting neurons via their dysregulation of GABAergic neurons in ventrolateral preoptic nucleus and orexin/hypocretin neurons in the lateral hypothalamus conclusively weakening the buildup of sleep pressure. Sleep deprivation also induces inflammation through interleukin-6, tumor necrosis factor-α, and nuclear factor signaling that affects sleep-moderating parts of the brain by increasing beta and gamma cortical activity,diminishing slow wave sleep and increasing metabolic function in the prefrontal cortex and amygdala .

Conclusions. Sleep deprivation perpetuates chronic insomnia by disrupting neuroendocrine, homeostatic, and cortical mechanisms. Understanding these pathways is crucial for effective treatment and prevention strategies.

Keywords. " insomnia ", "sleep deprivation", "chronic sleep deprivation","chronic insomnia".

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138. ANALYSIS OF THE CORRELATION BETWEEN CIRCADIAN RHYTHM DISRUPTION AND GLIOBLASTOMA PATHOGENESIS: PROGNOSTIC IMPLICATIONS AND CHRONOTHERAPY STRATEGIES

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Introduction. The circadian rhythm is a crucial mechanism that controls physiological patterns over a 24-hour period. Disruption of this rhythm is not merely an associated factor but may actively contribute to the initiation and progression of the tumoral process. In the case of Glioblastoma (GBM), the most aggressive and lethal form of primary brain cancer, circadian imbalance may have a more pronounced impact, given the direct relationship between the central circadian clock (located in the hypothalamus) and brain tissue. Melatonin, a hormone secreted by the pineal gland, serves as a key regulator of the circadian rhythm and possesses oncostatic, antioxidant, anti-inflammatory, and pro-apoptotic properties that influence GBM outcomes.

Aim of study. To highlight the correlation between circadian rhythm mechanisms and the evolution of glioblastoma (GBM) through the analysis of current scientific studies.

Methods and materials. This study analyses scientific literature (35 sources) from the PubMed, NCBI, ScienceDirect, and UpToDate databases, published between 2016 and 2025, focusing on the intersection of chronobiology, molecular oncology, and neuroscience using the specific keywords for the identification and selection of relevant data.

Results. The analysis of the materials revealed that in glioblastoma (GBM) cells, the self-regulating feedback loop is frequently disrupted. The loss of tumour suppressor gene expression, such as that of PER1 and PER2, inhibits apoptosis and allows uncontrolled proliferation. BMAL1 levels regulate treatment sensitivity (e.g., to Temozolomide); cells are more vulnerable during the protein's peak expression (around 7:00 AM). Melatonin forces tumour cells to shift from anaerobic glycolysis to oxidative phosphorylation, which reduces lactate production, thereby decreasing the tumour's capacity for invasion and migration. The absence of melatonin's antioxidant protection particularly in the elderly or due to nocturnal blue light exposure (>1.5h) increases Reactive Oxygen Species (ROS) levels, accelerating genetic mutations. Furthermore, daytime exposure to infrared radiation may stimulate extrapineal mitochondrial melatonin production, providing additional antioxidant protection to the brain.

Conclusions. Current evidence supports the central role of the circadian rhythm in the development and progression of glioblastoma, as well as its therapeutic potential. Chronotherapy and chronomedicine represent promising approaches that can complement existing standard treatments, thereby increasing therapeutic efficacy and reducing adverse effects.

Keywords. Circadian rhythm, glioblastoma, chronotherapy, circadian disruption.

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139. WHY CAFFEINE DISRUPTS SLEEP: MOLECULAR MECHANISMS AND GENETIC DETERMINANTS OF INDIVIDUAL SUSCEPTIBILITY

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Introduction. Caffeine, a widely consumed psychoactive substance worldwide, is a common component of coffee, tea, and energy drinks. Owing to its neurostimulatory properties, its consumption has been associated with sleep disturbances and insomnia. Increasing evidence suggests substantial interindividual variability in sensitivity to caffeine, partly driven by genetic differences affecting its metabolism and neural signaling

Aim of study. To investigate the physiological mechanisms underlying caffeine-induced sleep disturbances and the contribution of genetic variability to individual susceptibility.

Methods and materials. A literature review was conducted following a PRISMA-inspired framework. PubMed and Google Scholar were searched using the keywords “caffeine,” “genetics,” “insomnia,” and “sleep disorders.” Articles published between 2020 and 2026 were screened by title and abstract, and 13 studies were included in the final analysis.

Results. Caffeine disrupts sleep primarily by antagonizing adenosine A1 and A2A receptors and enhancing neuronal excitability through phosphodiesterase inhibition, thereby reducing homeostatic sleep pressure. Genetic factors modulate these effects: metabolism-related genes (e.g., CYP1A2, ADORA2A, AHR) and reward-related genes (e.g., BDNF, SLC6A4, DRD2) influence individual sensitivity and habitual intake, with population-specific variants further affecting susceptibility to caffeine-related sleep disturbances. These effects are dose-dependent, with higher caffeine intake associated with delayed sleep onset, increased sleep fragmentation, and reduced slow-wave sleep, especially when consumed close to bedtime. Caffeine also activates orexinergic neurons in the lateral hypothalamus, stimulating wake-promoting nuclei while suppressing sleep-promoting neurons in the ventrolateral preoptic area, leading to increased sleep latency. Additionally, caffeine enhances cortical pyramidal neuron excitability and excitatory synaptic transmission via A1 receptor antagonism, shifting brain dynamics toward greater neural excitation and increased complexity during non-REM sleep. These effects may vary with age, chronic intake, or the caffeine metabolite paraxanthine. Finally, circadian effects arise through A1 receptor antagonism in the suprachiasmatic nucleus, counteracting adenosine-mediated suppression during prolonged wakefulness and enhancing light responsiveness, thereby promoting alertness and delaying sleep onset.

Conclusions. Caffeine disrupts sleep through molecular, neural, and circadian pathways. These effects are shaped by dose, timing of intake, and genetic variability, highlighting the importance of individual susceptibility in predicting sleep outcomes.

Keywords. Caffeine Insomnia Adenosine CYP1A2 ADORA2A Genetic polymorphisms.

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140. PD-L2 TUMOR BIOMARKER IN SEROUS OVARIAN CARCINOMA

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Introduction. Serous ovarian carcinoma (HGSOC) is the most aggressive form of ovarian cancer, with poor prognosis and low survival rates. Molecules involved in tumor immune evasion, such as PD-L2 (PDCD1LG2), have become subjects of major interest. PD-L2 expression on tumor cells may contribute to immune response inhibition and represents a potential biomarker and therapeutic target.

Aim of study. Assessment of the immunotherapeutic potential of serous ovarian carcinoma in order to identify patients eligible for personalized therapy based on the molecular and immunological characteristics of the tumor.

Methods and materials. The study included 51 cases of serous ovarian carcinoma collected from the Oncology Institute between 2021 and 2025. Immunohistochemistry was performed with the polyclonal anti-PD-L2 antibody (ABIN656243, AA 46–75, N-terminal), diluted 1:25 on the Epredia automated platform. The H score was evaluated according to the methodology of Al-Shibli et al., under double-blind conditions by two independent pathologists. Scoring was performed exclusively on the tumor compartment (TC), counting was performed on hot spots using the formula: H-score (TC) = 1×(%TC1+) + 2×(%TC2+) + 3×(%TC3+), range 0–300. The statistical analysis included the mean, median, standard deviation, standard error of the mean, and significance tests (t-test, Chi-square).

Results. H scores ranged from 19 to 243/300, with a mean of 153.9, median of 155, mode of 130, standard deviation of 41.8, and standard error of the mean of 5.85. Most cases (≈88.2%) were positive (≥100). Distribution of scores: <100 in 6 cases (11.8%), 100–180 in 32 cases (62.7%), >180 in 13 cases (25.5%). High-grade tumors (47 cases) had a mean of 152.7, and low-grade tumors (4 cases) had a mean of 168.3; the difference was not significant ($p \approx 0.21$). The analysis of positive/negative proportions showed: high grade 87.2% positive, low grade 100% positive; Chi-square $p \approx 0.47$. By stage: stage 1 – 80% positive, stage 2 – 87.5% positive, stage 3 – 89.5% positive; Chi-square $p \approx 0.87$.

Conclusions. PD-L2 expression on tumor cells is common in serous ovarian carcinoma, with a relatively uniform distribution across grades and stages. No statistically significant differences were identified, but the variability in scores suggests a complex involvement of PD-L2 in tumor biology. These results support the role of PD-L2 as a relevant immunological marker and potential prognostic biomarker, with implications for the development of personalized immunotherapeutic strategies.

Keywords. Ovarian serous carcinoma, PD-L2, immunohistochemistry, H score, tumor cells, immunotherapy, biomarker.

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141. SYMPATHETIC OVERACTIVITY AS A FOCAL POINT IN THE PATHOGENESIS OF POSTURAL ORTHOSTATIC TACHYCARDIA SYNDROME – EMERGING THERAPEUTIC STRATEGIES OF NEUROMODULATION

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Introduction. One of the three main sub-types of Postural Orthostatic Tachycardia Syndrome (POTS) is the hyperadrenergic type. Sympathetic dysregulation represents a recurring theme in tachyarrhythmias. Ongoing research on treatment options, such as transcutaneous vagus nerve stimulation (tVNS) have shown promising results in modulating the effects of hyperadrenergic POTS.

Aim of study. To assess the pathophysiological roots of the overactive sympathetic nervous system in hyperadrenergic POTS and to determine the available and emerging therapeutic methods in relation to the hyperadrenergic-driven subtype.

Methods and materials. A narrative review was conducted using the following databases: PubMed, ScienceDirect and Semantic Scholar. The research, which includes 22 selected articles published between the years 2016-2026, was undergone according to PRISMA guidelines, using the following keywords: “Hyperadrenergic POTS”; “Treatment of POTS”; “Neuromodulation in POTS”.

Results. The research concluded that hyperadrenergic POTS finds its roots in the following mechanisms: central sympathetic overactivity (CSO), norepinephrine transporter (NET) dysfunction, and adrenergic autoantibodies. CSO is defined by increasing levels of catecholamines in the plasma, likely because of post-ganglionic neurons firing excessively when switching to orthostatism. Moreover, the effects are multiplied in case of inadequate norepinephrine reuptake, such as in mutations of the SLC6A2 gene, or pharmacological NET inhibitors. Autoantibodies against GPRCs, including adrenergic receptors (α1, β1, β2), have been shown to exacerbate POTS symptoms by inducing a positive allosteric effect, leading to additional sympathetic stimulation. Treatments for hyperadrenergic POTS include: β-blockers and Ivabradine, as well as non-pharmacological approaches. Recent studies have found tVNS to ameliorate symptoms by decreasing central sympathetic activity and the number of adrenergic autoantibodies.

Conclusions. The pathology of POTS is directly linked to sympathetic overactivity of the nervous system, which is in turn correlated to catecholamine excess, dysfunction of the norepinephrine transporter, and autoantibodies targeting adrenergic receptors. Present treatments include both pharmacological and non-pharmacological approaches, whereas emerging research in tVNS therapy shows its promise in treating the same pathological roots of hyperadrenergic POTS. Future studies could lead to less misdiagnosis and better treatment options.

Keywords. tachycardia, sympathetic, POTS, tVNS.

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SURGERY SECTION

1. DEGENERATIVE LUMBAR SPINAL STENOSIS: DIAGNOSTIC AND THERAPEUTIC PERSPECTIVES

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Introduction. Degenerative lumbar spinal stenosis (DLSS) represents one of the most common causes of chronic low back pain and neurogenic claudication in the elderly population. Progressive degenerative changes affecting the intervertebral discs, facet joints and ligamentum flavum lead to narrowing of the spinal canal and compression of neural elements, resulting in significant functional impairment and reduced quality of life.

Aim of study. The aim of this study was to review the etiological factors, clinical manifestations, diagnostic imaging methods and current treatment strategies in degenerative lumbar spinal stenosis.

Methods and materials. A narrative review of the literature was conducted using scientific articles indexed in PubMed and Google Scholar. Relevant publications addressing degenerative lumbar spinal stenosis, its pathophysiology, clinical presentation, imaging diagnosis and treatment options were analyzed.

Results. Degenerative lumbar spinal stenosis develops through multiple pathological mechanisms including intervertebral disc degeneration, osteophyte formation, facet joint hypertrophy and thickening of the ligamentum flavum. These structural changes lead to progressive narrowing of the spinal canal and compression of neural structures. The most characteristic clinical manifestation is neurogenic claudication, accompanied by radiating lower limb pain, numbness and lumbar discomfort, typically relieved by lumbar flexion or sitting. Magnetic resonance imaging remains the diagnostic modality of choice, allowing precise visualization of neural compression and soft tissue structures, while computed tomography provides valuable information on bony anatomy. Treatment strategies depend on symptom severity, ranging from conservative approaches such as physical therapy, pharmacological treatment and epidural steroid injections to surgical decompression procedures in severe or refractory cases.

Conclusions. Degenerative lumbar spinal stenosis is a multifactorial condition that significantly affects functional capacity and quality of life. Accurate clinical evaluation combined with appropriate imaging techniques is essential for establishing diagnosis and guiding individualized treatment strategies.

Keywords. degenerative lumbar spinal stenosis, neurogenic claudication, magnetic resonance imaging, conservative treatment, surgical decompression.

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2. STAGED MANAGEMENT OF ACUTE SUPPURATIVE CHOLANGITIS USING ENDOSCOPIC TECHNIQUES

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Introduction. Acute suppurative cholangitis represents a life-threatening medical and surgical emergency caused by biliary obstruction complicated by infection. Rapid progression to sepsis and multiple organ dysfunction necessitates early biliary decompression. Despite therapeutic advances, mortality in severe cases remains between 10–30%. Endoscopic retrograde cholangiopancreatography (ERCP) has become the current gold standard for biliary drainage.

Aim of study. To evaluate the effectiveness of a staged treatment in acute suppurative cholangitis, based primarily on endoscopic techniques, correlated with disease severity according to the Tokyo Guidelines 2018 (TG18).

Methods and materials. This retrospective study included 645 patients treated between 2020 and 2025. Diagnosis and severity grading were performed according to TG18 (Grade I–III). Etiology distribution: choledocholithiasis – 66.51%; stenosing papillitis – 4.19%; benign biliary strictures – 11.94%; pancreatic head cancer – 14.11%; cholangiocarcinoma – 3.26%. ERCP was performed as first-line treatment in 97.67% of cases, while percutaneous transhepatic drainage was required in 2.33%. In severe cases (Grade III), repeated ERCP (10.39%) and nasobiliary drainage (2.33%) were applied. All patients received systemic antibiotic therapy and intensive care support.

Results. Definitive biliary decompression was achieved in 72.87% of patients. Temporary stenting was required in 20.93%, and nasobiliary drainage in 2.33%. Second-stage surgical reconstruction was necessary in 23.26% of cases. Overall mortality was 4.96%, predominantly associated with severe cases (TG18 Grade III).

Conclusions. A staged therapeutic strategy based on early endoscopic decompression and severity stratification according to TG18 significantly reduces mortality and improves outcomes in acute suppurative cholangitis. ERCP remains the gold standard in its management.

Keywords. angiocholitis, stent, endoscopic decompression.

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3. DEVELOPMENT OF A PREDICTIVE NOMOGRAM FOR POSTOPERATIVE COMPLICATIONS AFTER SURGERY FOR PRIMARY RETROPERITONEAL TUMORS

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Introduction. Primary retroperitoneal tumors constitute a rare and heterogeneous group of neoplasms, predominantly of mesenchymal origin, that frequently require complex surgical procedures and are associated with substantial postoperative morbidity. Conventional perioperative risk assessment tools may have limited applicability in this specific clinical setting.

Aim of study. The aim of this study was to identify independent predictors of major postoperative complications and to develop a dedicated predictive model, subsequently translated into a risk score and a nomogram.

Methods and materials. A retrospective observational study was conducted including 107 adult patients from Oncology Institute who underwent curative-intent resection for primary retroperitoneal tumors between 2018 and 2025. Postoperative complications were classified according to the Clavien–Dindo classification, and major complications were defined as grade ≥III. Univariate analysis was followed by multivariable logistic regression to identify independent predictors of major postoperative complications. Based on the final model, a predictive risk score and a nomogram were developed. Model performance was assessed using receiver operating characteristic (ROC) curve analysis, calibration, and internal validation with bootstrap resampling.

Results. Major postoperative complications occurred in 30.8% of patients. In the multivariable analysis, age ≥65 years (adjusted OR 3.78; 95% CI 1.24–11.54; p = 0.020) and intraoperative blood loss ≥1000 mL (adjusted OR 5.03; 95% CI 1.50–16.84; p = 0.009) remained independent predictors of severe postoperative morbidity. The final model included five variables: age, intraoperative blood loss, operative time ≥240 minutes, tumor size ≥10 cm, and serum albumin ≤35 g/L. The model demonstrated good discriminative ability (AUC 0.804; 95% CI 0.708–0.889). An optimal threshold of ≥4 points showed a sensitivity of 60.6% and a specificity of 86.5%. Calibration analysis indicated good agreement between predicted and observed outcomes (intercept 0.009; slope 0.993), while internal validation using bootstrap resampling confirmed the stability of the model.

Conclusions. The developed predictive model, translated into a risk score and a nomogram, demonstrated good performance in estimating the individual risk of major postoperative complications following surgery for primary retroperitoneal tumors. This tool may support risk stratification and perioperative planning, although external validation is required before widespread clinical implementation.

Keywords. Primary retroperitoneal tumors, Postoperative complications, Logistic regression, Predictive model, Nomogram.

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4. MINIMALLY INVASIVE TREATMENT OF SPONTANEOUS INTRACEREBRAL HEMORRHAGES. EXPERIENCE OF THE INSTITUTE OF EMERGENCY MEDICINE

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Introduction. Intracerebral Hemorrhage (ICH) is a stroke subtype that decreases socio-economic life. The most common cause of ICH is when blood vessels ruptures in brain parenchyma determined by hypertension and amyloid angiopathy. The operative indications for surgical treatment (ST) are strict and depend on brain imaging, GCS score, NIHHS and present comorbidities.

Aim of study. To analyze the indications and surgical outcome for patients with intracerebral hemorrhage in the Institute of Emergency Medicine.

Methods and materials. We analyze the patients diagnosed with intracerebral hemorrhage treated by surgical intervention between 2024-2026.

Results. During this period we studied the patients hospitalized with the diagnosis of ICH and received ST through minimally invasive evacuation of intracerebral hematoma. The main criteria for ST was high GCS score, low NIHHS score, age under 60 years, hematoma volumes of 20-50 ml, destructive or compressive character of hematoma and onset of the ICH. The ST was performed between the 8h and at the latest 3 weeks of hospitalization. The youngest patient was 19 years old and the older was 73. All patients experienced ST via minimally invasive surgery and stereotactic evacuation of intracerebral hematoma. Upon discharge, most patients showed an improvement in neurological status, while others remained at the same level.

Conclusions. Despite the collaboration between neurologist and neurosurgeon in treatment of ICH, it remains therapeutic pathology, with a long history of onset of the disease before hemorrhagic event. Patients predisposed to this pathology must follow instructions of a multidisciplinary medical team as neurologist, cardiologist, endocrinologist, nephrologist, general practitioner and other specialities. If surgical treatment is performed, it is intended to help conservative treatment and improve the outcome for patients, not to treat the main disease.

Keywords. Intracerebral hemorrhage, surgical treatment.

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5. MICROSURGICAL REPLANTATION OF THE FIRST DIGIT FOLLOWING TRAUMATIC METACARPAL-LEVEL AMPUTATION

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Introduction. Replantation of the first digit represents one of the most complex and valuable procedures in hand microsurgery, given its essential role in opposition, grasp, and overall upper limb function. Its integrity significantly influences patient autonomy and quality of life. The prognosis of replantation depends on several critical factors, including the mechanism of injury, level of amputation, warm and cold ischemia time, as well as the adequacy of preservation and transport of the amputated segment. Early intervention and adherence to microsurgical principles increase the likelihood of tissue survival and functional recovery.

Case presentation. A 42-year-old patient presented to the emergency department approximately two hours after a sharp traumatic injury caused by an axe, resulting in complete amputation of the first digit at the metacarpal level. The amputated segment was properly preserved and transported in a cold environment without direct contact with ice. Clinical and imaging assessments confirmed the indication for emergency replantation, with no systemic or local contraindications. The patient was immediately transferred to the operating room. The procedure lasted three hours and thirty minutes, and revascularization of the amputated segment was achieved about five hours after the injury, favorable for tissue viability. Surgical steps included meticulous debridement of devitalized tissues, skeletal stabilization, repair of flexor and extensor tendons, arterial and venous anastomoses performed under an operating microscope, and fascicular neurorrhaphy. Anatomical layers were carefully closed to avoid tissue tension and vascular compromise.

Discussions. The first 7–10 postoperative days represent the critical period for survival of the replanted segment, with vascular thrombosis being the main early complication. Clinical monitoring of tissue perfusion and anticoagulant management are essential to prevent replantation failure. In this case, postoperative evolution was favorable, with no vascular or infectious complications, and the patient was discharged after 10 days of hospitalization.

Conclusions. Replantation of the first digit performed within the optimal time window and in accordance with reconstructive microsurgery principles can ensure survival of the amputated segment and satisfactory functional recovery. Prompt trauma management, proper preservation of the amputated segment, and intervention in a specialized center are key determinants of therapeutic success. This case highlights the importance of a multidisciplinary approach and microsurgical expertise in restoring hand function and improving long-term functional prognosis.

Keywords. replantation, revascularization, microsurgery.

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6. COMPLICATIONS OF PERCUTANEOUS VERTEBROPLASTY IN THE TREATMENT OF OSTEOPOROTIC FRACTURES

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Introduction. Percutaneous vertebroplasty is a minimally invasive procedure involving the transcutaneous injection of bone cement directly into a fractured vertebral body. The procedure is typically performed under fluoroscopic guidance, although CT scans are occasionally utilized for precise needle placement and post-injection monitoring. Complications associated with this procedure range from mild to severe; while frequently asymptomatic, they can result in grave clinical outcomes. To mitigate these risks, strict adherence to both preoperative protocols and intraoperative surgical conduct is imperative.

Aim of study. To determine the spectrum of complications following percutaneous vertebroplasty in the management of osteoporotic vertebral fractures and to identify preventive measures as delineated in the scientific literature.

Methods and materials. A bibliographic study was conducted utilizing the PubMed and Google Scholar databases. Inclusion criteria encompassed studies published between 2016 and 2026, involving patients treated with percutaneous vertebroplasty who were subsequently diagnosed with complications.

Results. Complications of percutaneous vertebroplasty are stratified into three severity levels: mild, moderate, and severe. Mild complications include transient pain exacerbation and temporary episodes of arterial hypotension. Moderate complications encompass infections and cement infiltration into the foraminal, epidural, or dural spaces. Severe complications arise when cement extravasation occurs within the paravertebral veins, potentially leading to pulmonary embolism, cardiac perforation, cerebral embolism, or death. Factors such as cortical destruction, the presence of epidural soft tissue masses, hypervascular lesions, and significant vertebral collapse collectively contribute to an increased probability of adverse events. Consequently, the incidence of complications is significantly higher in cases of neoplastic vertebral collapse compared to osteoporotic collapse.

Conclusions. Percutaneous vertebroplasty procedures are safe and associated with a very low risk of major complications. The critical determinants of successful vertebral augmentation include: meticulous patient selection, precise needle positioning, optimal timing of cement administration, rigorous fluoroscopic monitoring during injection, and operator expertise. The complication rate for vertebral augmentation performed for osteoporosis is approximately 2% of all procedures.

Keywords. osteoporosis, percutaneous vertebroplasty, complications, vertebral fracture.

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7. DRY EYE SYNDROME IN DIABETIC VERSUS NON DIABETIC PATIENTS UNDERGOING CATARACT SURGERY

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Introduction. Patients with type 2 diabetes mellitus (T2DM) presenting for cataract surgery are at a greater risk of developing or worsening dry eye syndrome due to diabetes-related lacrimal gland microangiopathy, autonomic neuropathy, and chronic low-grade inflammation. Whether diabetic status independently predicts reduced tear production and an impaired perioperative lacrimal response remains insufficiently studied.

Aim of study. To evaluate differences in preoperative tear secretion levels, subjective dry eye symptoms, and acute postoperative lacrimal response between type 2 diabetic and non-diabetic patients undergoing cataract surgery.

Methods and materials. A total of 60 patients undergoing cataract surgery at the Ophthalmology Department of St. Trinity Municipal Clinical Hospital, the clinical base of the Department of Ophthalmology and Optometry of Nicolae Testemițanu State University of Medicine and Pharmacy, were enrolled in the clinical study. Patients were stratified into two groups: 17 patients with T2DM and 43 without. Tear secretion was evaluated using the Schirmer I test, which was administered preoperatively and at 24 hours postoperatively. Due to the non-normal distribution of the data, intergroup comparisons were conducted using the Mann–Whitney U test. Symptom-sign concordance was assessed by Pearson correlation.

Results. Preoperative Schirmer I test values show significantly lower tear secretion in diabetic patients compared to non-diabetic patients (median 7.0 [5.0–9.0] vs 9.0 [7.0–11.0] mm, p=0.011), reflecting a greater baseline lacrimal hyposecretion consistent with diabetes-related lacrimal gland dysfunction. At 24 h postoperatively, diabetic patients exhibited a significantly blunted acute lacrimal response (+2.0 [+0.5-+6.0] vs. +4.0 [+2.0-+12.0] mm, p=0.035), which suggests a diabetes-related impairment in the corneal reflex pathways and reduced autonomic innervation of the lacrimal gland. However, OSDI scores showed no significant difference between groups (p=0.154) and no correlation with Schirmer test values in either group (r=-0.004, p=0.979), confirming that the subjective symptom burden does not reflect objective tear film status in this population.

Conclusions. The results highlight that diabetic patients scheduled for cataract surgery have an increased prevalence of lacrimal hyposecretion compared to non-diabetic patients. The significantly lower Schirmer values and reduced postoperative lacrimal response in the diabetic group underline the importance of objective tear film assessment before surgery. Given that OSDI scores failed to reflect these differences, symptom-based screening alone is insufficient to identify diabetic patients at risk for ocular surface disease, and that objective tear film evaluation should be incorporated into routine preoperative assessments.

Keywords. dry eye syndrome, diabetes mellitus, cataract surgery, Schirmer test, OSDI.

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8. EVALUATION OF HEPATIC FIBROSIS AFTER SPLENECTOMY: A PRACTICAL APPROACH

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Introduction. Assessment of fibrosis and monitoring of liver disease progression are essential in the management of cirrhotic patients undergoing surgery. However, postoperative liver biopsy is limited by its invasive nature, and the identification of reliable non-invasive markers remains a clinically relevant objective.

Aim of study. To evaluate the performance of the FIB-4plus index for stratifying splenectomized cirrhotic patients according to the risk of liver disease progression.

Methods and materials. Cirrhotic patients with portal hypertension, severe hypersplenism, and hemorrhagic risk who underwent Hassab surgery between 2015 and 2025 were retrospectively analyzed, including laparoscopic (18) and open (38) procedures. Fibrosis stage and liver disease progression were assessed using the FIB-4plus score, which combines fibrosis-4 (FIB-4) with liver stiffness measurement (LSM) obtained by transient elastography.

Results. Fifty-six splenectomized cirrhotic patients were included (21 women, 35 men; 41 aged >60 years), with a mean follow-up of 3.23 ± 2.12 years. According to transient elastography, fibrosis stages were F2 in 7 patients, F3 in 17, and F4 in 25, with a 72% concordance with FIB-4 (>3.25) and a significant Spearman correlation ($\rho = 0.50$, $p < 0.001$). During 3 years of follow-up, postoperative hepatic decompensation included portal venous axis thrombosis in 14.3% of cases, variceal bleeding in 10.7%, and ascites in 8.9%. Combined assessment of LSM and FIB-4 showed good diagnostic performance, with significantly higher FIB-4plus values in patients with a complicated postoperative course than in those with an uncomplicated course [3.9 (3.3-4.9) vs 0.98 (0.63-1.67)].

Conclusions. The FIB-4plus index may represent a practical, accessible, and non-invasive tool for fibrosis screening and monitoring of liver disease progression. Further studies are required to validate its reliability, particularly in surgically treated cirrhotic patients.

Keywords. Cirrhosis, hepatic fibrosis, screening, FIB-4plus.

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9. FRACTURE OF THE HUMERAL PALETTE

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Introduction. Fractures of the humeral epicondyle account for approximately 30% of all humeral fractures and are associated with a high potential for serious complications and severe disabilities in both young and elderly patients.

Aim of study. The aim of this study was to review the scientific literature in order to identify and analyze the current diagnostic and treatment approaches for humeral condyle fractures in elderly patients with osteoporosis.

Methods and materials. A bibliographic review of the scientific literature was conducted using databases such as PubMed and Google Scholar. Relevant articles related to the diagnosis, management, and outcomes of humeral condyle fractures in elderly patients with osteoporosis were analyzed. In addition, clinical protocols from the National Clinical Guidelines of the Republic of Moldova were reviewed to ensure alignment with current local standards of care.

Results. The analysis of the literature highlights the importance of early and accurate diagnosis using clinical examination and imaging methods such as X-ray and computed tomography. Treatment options include both conservative management and surgical interventions, such as open reduction and internal fixation or joint replacement, depending on the fracture type, bone quality, and patient condition. Osteoporosis significantly influences treatment decisions and postoperative outcomes.

Conclusions. Early diagnosis and appropriate management of humeral condyle fractures in elderly patients with osteoporosis are essential to reduce complications and improve functional outcomes. A multidisciplinary approach and individualized treatment strategies are recommended to optimize patient recovery and quality of life.

Keywords. Humeral condyle fracture Elderly patients Osteoporosis Diagnosis Treatment Surgical management Conservative management Complications.

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10. CELIAC TRUNK ANOMALY

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Introduction. The celiac trunk is the first arterial branch of the abdominal aorta, intended for vascularization of organs located in the supramesocolic floor of the abdominal cavity, respectively the abdominal portion of the esophagus, stomach, liver, bile ducts, spleen and part of the duodenum and pancreas. Traditionally, Haller's celiac or tripod trunk divides into 3 branches: the left gastric artery (LGA), the common hepatic artery (CHA), and the splenic artery (SA). However, in anatomical and imaging practice, variations are frequently described, such as the hepatosplenic trunk, hepatogastric trunk and gastrosplenic trunk, which are of major importance in surgical planning.

Aim of study. To examine the variability of the hepatosplenic, hepatogastric and gastrosplenic types of the celiac trunk based on bibliographic sources, with clinical involvement in hepatopancreatobiliary surgery.

Methods and materials. The study utilized materials based on anatomical, topographic, and angiographic studies found in databases such as PubMed, ResearchGate, etc.

Results. Systematic analysis conducted in 2007 by the Department of Anatomy of the UMF Timișoara reported the incidence of celiac trunk abnormalities of 19%. The main types of variations identified were: hepatosplenic trunk (common and splenic hepatic artery with common origin, and separate left gastric artery) – 3%; hepatogastric trunk (hepatic and gastric arteries together, splenic artery separate) – 5% and gastrosplenic trunk (left gastric artery and splenic joint, and separate hepatic) – 5%. The clinical significance of these anatomical variations lies in hemorrhage control and in performing arterial embolization procedures. For example, esophageal bleeding from varices may be supplied through arterial collateral, including from the left inferior phrenic artery, in which case the surgeon or interventional radiologist must identify all possible vascular communications. Additionally, in celiac trunk resections for pancreatic body tumors, the presence of variants such as the hepatosplenic or gastrosplenic trunk can alter the arterial flow to the liver and stomach, which can compromise postoperative infusion if these anatomical peculiarities are not recognized preoperatively.

Conclusions. The anatomical variability of the celiac trunk, including variants of the hepatosplenic and gastrosplenic variants, has a significant impact on the safety and results of abdominal surgery. Knowledge of these variations allows for accurate identification of vascularization, anticipates intraoperative risks and reduces complications, thus contributing to the optimization of surgical management for patients.

Keywords. celiac trunk, anatomical variation.

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11. THE IMPACT OF DRY EYE DISEASE ON THE PREOPERATIVE ACCURACY IN CATARACT SURGERY

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Introduction. Dry eye syndrome is a multifactorial ocular surface disease , characterized by disruption of tear film homeostasis, manifested by inflammation of the ocular surface, with ocular irritation and frequent discomfort. Its prevalence has increased in recent years, affecting approximately 5-50% in the general population, including patients scheduled for cataract surgery. Dry eye syndrome plays an important role in preparing the patient for cataract surgery, as it may influence the preoperative biometric measurements.

Aim of study. To determine the prevalence and effects of dry eye syndrome in patients scheduled for cataract surgery.

Methods and materials. Publications from PubMed, MDPI, Google scholar (2020-2026) were analyzed with the keywords: dry eye, cataract surgery, meibomian dysfunction, biometry, refractive errors, preoperative cataract tests. Following the inclusion criteria, 47 articles were selected.

Results. To determine the prevalence of dry eye syndrome in patients with cataract, several studies have been conducted, including objective clinical tests (Schirmer test, Tear Break-up Time (TBUT), corneal fluorescein staining (CFS), tear osmolarity , meibomian gland evaluation and corneal sensitivity tests) and symptom questionnaires (OSDI). Reported prevalence varies widely depending on diagnostic criteria and population studied. In the study Prevalence of Dry Eye Disease Among Individuals Scheduled for Cataract Surgery in a Norwegian Cataract Clinic (2023), it was demonstrated a prevalence of 55.5%, especially in elderly women. Multicenter studies from Japan (2020) reported prevalences between 20-55% of dry eye syndrome in preoperative patients. Several studies reported inconsistency of the results from symptom questionnaires and objective clinical tests. Dry eye syndrome affects the preoperative results. Data showed that tear film stability indices (TSRI, TSAI) significantly increased, confirming the irregularity of the ocular surface. Patients show fluctuations in keratometry, which leads to the need for multiple biometry exams in order to obtain stable and correct values to get the optimal postoperative outcomes.

Conclusions. The prevalence of dry eye syndrome is quite high in the population and affects the effectiveness of cataract surgery measurements. Thus, special attention is needed for these patients to achieve surgical success.

Keywords. dry eye, cataract surgery, meibomian dysfunction, biometry, refractive errors, preoperative cataract tests.

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12. COMPLEX MANAGEMENT OF BILATERAL CHRONIC DACRYOCYSTITIS ASSOCIATED WITH SINONASAL PATHOLOGY USING LASER-ASSISTED ENDONASAL DACRYOCYSTORHINOSTOMY: A CASE REPORT

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Introduction. Chronic dacryocystitis most often results from acquired nasolacrimal duct obstruction and may be aggravated by concomitant sinonasal disease. After failure of conservative measures, dacryocystorhinostomy is indicated to establish communication between the lacrimal sac and the nasal cavity. Laser-assisted endonasal DCR enables precise osteotomy creation with limited tissue trauma, reduced bleeding, and potentially shorter operative time, which may facilitate combined sinonasal procedures.

Case presentation. A 30-year-old man presented with bilateral epiphora, lacrimal sac discomfort, headache, intermittent nasal obstruction, and seromucous rhinorrhea. He had long-standing chronic rhinosinusitis with only transient improvement after repeated lacrimal irrigations. Computed tomography revealed bilateral subtotal maxillary sinus opacification, involvement of the left ethmoidal cells, right concha bullosa, septal deviation, inferior turbinate hypertrophy, and bilateral lacrimal sac dilatation with hypodense contents. The patient underwent functional endoscopic sinus surgery (bilateral maxillary antrostomy, left ethmoidectomy, right concha bullosa resection, septoplasty, and inferior turbinoplasty) combined with bilateral laser-assisted endonasal dacryocystorhinostomy without stent placement. Recovery was uneventful, and the patient was discharged on postoperative day 2 with significant symptom improvement.

Discussions. In complex inflammatory conditions requiring simultaneous endoscopic management of sinonasal disease, laser-assisted dacryocystorhinostomy offers several practical advantages. Precise osteotomy creation, reduced intraoperative bleeding, and improved visualization of the surgical field may facilitate efficient combined procedures and shorten operative time while minimizing tissue trauma. These features are particularly valuable in anatomically altered or inflamed nasal cavities, where conventional techniques may be technically challenging. The fully endonasal approach also enables concurrent treatment of sinonasal pathology without external incisions, thereby reducing surgical morbidity and preserving normal anatomical structures.

Conclusions. At 3 months, endoscopy demonstrated healthy mucosa, widely patent maxillary ostia, and a large epithelialized dacryocystorhinostomy stoma without pathological secretions; lacrimal irrigation confirmed functional patency. Findings remained stable at 6 months with no evidence of restenosis. These results indicate that laser-assisted endonasal dacryocystorhinostomy combined with functional endoscopic sinus surgery can provide effective minimally invasive management of complex bilateral disease.

Keywords. dacryocystitis; laser-assisted dacryocystorhinostomy; chronic rhinosinusitis; nasolacrimal duct obstruction.

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13. ZERO ISCHEMIA IN LIVER TRANSPLANTATION: NORMOTHERMIC MACHINE PERFUSION VS ISCHEMIA-FREE LIVER TRANSPLANTATION - REVOLUTIONARY CONCEPT OR TECHNOLOGICAL OVERKILL?

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Introduction. Liver transplantation is limited by ischemia-reperfusion injury (IRI) during graft preservation. Ischemia-free liver transplantation (IFLT) eliminates IRI entirely, while normothermic machine perfusion (NMP) still exposes grafts to limited ischemia. Both strategies aim to improve graft function but differ in complexity, logistics, and cost.

Aim of study. To compare IFLT and NMP in adult liver transplantation, focusing on early graft function, postoperative complications, patient survival, and economic impact, in order to determine whether complete ischemia avoidance offers significant clinical and practical advantages.

Methods and materials. PubMed, Scopus, and Embase were searched for studies published January 2021–March 2026 using keywords such as “liver transplantation”, “ischemia-free”, and “normothermic machine perfusion”. Inclusion criteria were peer-reviewed clinical studies on IFLT or NMP in adult deceased-donor transplants reporting early allograft dysfunction (EAD), patient or graft survival, complications, and costs. Excluded were animal studies, conference abstracts, non-liver applications, and narrative reviews. Two reviewers screened all abstracts and full texts. Key outcomes were extracted for qualitative synthesis, including graft function, complications, survival, and direct costs.

Results. From the initial 48 articles, 15 met the criteria. In direct comparisons, IFLT outperformed NMP. In a propensity-matched cohort (n=72 each), IFLT vs NMP showed lower EAD (15.3% vs 44.4%, $p<0.001$), lower 1-year comprehensive complication index (26.7 vs 38.7, $p=0.039$), higher 1-year patient survival (95.6% vs 86.1%; HR 0.273, $p=0.008$), and lower post-reperfusion syndrome incidence (8.0% vs 58.8%, $p<0.001$). Benefits persisted in extended-criteria grafts. Economically, NMP costs a median of $15,400 per graft ($7,700–$49,850) plus $64,000–$70,000 for device acquisition per center. IFLT adds an incremental €5,000 per case due to longer perfusion and additional personnel. Therefore, IFLT is more expensive than standard NMP, although it may reduce downstream healthcare burden through improved graft function and fewer complications.

Conclusions. IFLT consistently outperforms NMP in reducing IRI, enhancing early outcomes, and potentially decreasing downstream healthcare burden. Complete ischemia avoidance improves graft function and survival compared with NMP, but technical complexity and resource demands may limit widespread use. Larger prospective studies, including economic analyses, are warranted to validate these findings and guide implementation.

Keywords. ischemia-free liver transplantation, normothermic machine perfusion, liver transplantation, ischemia–reperfusion injury.

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14. SURGICAL REHABILITATION OF PATIENTS WITH TEMPORARY ILEOSTOMIES

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Introduction. The rehabilitation of patients with ileostomies remains a current and significant clinical issue. The increasing number of patients undergoing surgical treatment for colorectal cancer and colonic diverticulosis represents the main cause of temporary stoma formation. However, the considerable discomfort caused by the stoma (artificial anus), along with hydro-electrolytic, acid–base, and nutritional disturbances, necessitates early rehabilitation of these patients.

Aim of study. To optimize and individualize the diagnostic and treatment program for patients with temporary ileostomies.

Methods and materials. Between 2023 and 2025, a total of 107 patients with temporary ileostomies were admitted to the colorectal surgery department. In 84 cases (78.5%), ileostomies were performed in patients operated on for colorectal cancer, in 15 cases (14%) for colonic diverticulosis, in 5 cases (4.6%) due to destructive acute appendicitis with peritonitis; and in 4 cases (3.7%) for strangulated hernias complicated by peritonitis. The majority were double-barrel protective stomas - 99 cases (92.5%), while 8 cases (7.5%) were end ileostomies with complete exclusion of the distal bowel segment. As part of the standard evaluation protocol, contrast enema of the distal excluded or partially excluded bowel segments was routinely performed. The assessment of these segments allowed the prevention of adverse outcomes following colonic reintegration.

Results. All 107 patients underwent reconstructive surgical treatment. In 76 cases (70.6%), a paraileostomic approach was used. This local access significantly reduced the duration of the reconstructive procedure. In selected cases with suspected intra-abdominal pathology, a midline laparotomy with thorough peritoneal cavity exploration was performed (31 cases, 28.9%). A side-to-side anastomosis was preferred in 89 cases (83.2%), while end-to-end anastomosis was performed in 18 cases (16.8%). Postoperative complications included 8 cases (7.4%) of wound infection, 2 cases (1.8%) of adhesive bowel obstruction, 1 case (0.9%) of anastomotic dehiscence, 1 case of acute coronary insufficiency, and 1 death in the patient with anastomotic dehiscence.

Conclusions. The rehabilitation of patients with temporary ileostomies is generally considered a relatively straightforward procedure; however, it carries a significant operative risk. Severe complications can be prevented only through a detailed preoperative evaluation and preparation program. The experience of the surgical team represents a crucial and decisive factor in achieving favorable reconstructive outcomes.

Keywords. ileostomy, anastomosis, reconstructive surgery.

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15. FAILURE RATES OF INTERBODY SPINAL CAGES BASED ON MATERIAL: A COMPREHENSIVE MAUDE DATABASE STUDY

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Introduction. Although interbody cages are one of the most popular solutions for spinal fusion, implant failure has been observed as a recurring event throughout all stages of spinal surgery. These events are underreported worldwide due to the absence of a standardized database for implant malfunctions. Various interbody cage materials such as polyetheretherketone (PEEK), titanium, silicon nitride, and carbon fiber-reinforced polymer have been reported to have specific advantages across the literature. However, few studies to date have directly compared these materials in large samples extrapolated from nationwide databases, with current literature being limited to case studies.

Aim of study. This study aims to assess the failure rates of interbody cages by material type using a large-scale database, allowing spine surgeons to optimize implant selection for their patients.

Methods and materials. The Food and Drug Administration's (FDA) Manufacturer and User Facility Device Experience (MAUDE) database was queried to yield a comprehensive list of all interbody cage failures reported from 2012 to 2025. Subsequent analysis was performed to categorize the failure reports based on material and failure type. The reports were categorized by material (polyetheretherketone [PEEK], titanium, silicon nitride, and carbon fiber-reinforced polymer) and failure type (material deterioration, cage breakage, assembly integrity failure of both cage and instrumentation, and implant migration). Ultimately, the aggregated data was analyzed using descriptive statistics to determine the total prevalence of failure based on material type.

Results. A total of 2,455 interbody cage failure reports were analyzed. Cage breakage was the most common failure type, accounting for approximately two-thirds of all reported malfunctions. PEEK represented the majority of reported failures (90%), followed by titanium (4%) and silicon nitride (<1%). Instrumentation failure represented 13% of all reports, followed by cage migration (9%) and assembly integrity failure (8%). Titanium cages were involved in 58% of all cage migration reports, followed by PEEK (42%) and silicon nitride (1%). Carbon fiber-reinforced polymer showed no failure events.

Conclusions. PEEK interbody cages demonstrated the highest rates of breakage among all materials and comparable rates of migration to titanium cages. This is significant given the lower relative popularity of PEEK when compared to the gold standard, titanium. While titanium accounted for the highest net number and proportion of migrations, these rates are likely skewed by its widespread prevalence among the materials used for the manufacturing of interbody cages. Ultimately, the findings in this study highlight the importance of implant material selection before surgery to maximize patient outcomes and reduce revision rates.

Keywords. interbody cages, polyetheretherketone, PEEK, MAUDE, cage failure.

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16. EMERGENCY MANAGEMENT OF POSTERIOR STERNOCLAVICULAR DISLOCATION

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Introduction. Posterior sternoclavicular joint dislocation is a rare but potentially life-threatening injury, representing approximately 3–5% of all sternoclavicular dislocations and less than 1% of shoulder girdle injuries. Due to the anatomical proximity of the joint to vital mediastinal structures, posterior displacement of the medial clavicle may compress or injure important vascular, respiratory, or neural structures. The most frequently affected structures include the brachiocephalic trunk and subclavian vessels (≈30–40%), followed by the trachea (≈20–25%), esophagus (≈10–15%), and components of the brachial plexus (≈10–20%). Early diagnosis and prompt management are essential to prevent severe complications.

Case presentation. Patient Y, 46 years old, suffered a direct trauma after falling on the left lateral decubitus. The patient was transported by emergency medical services (AMU) to the Emergency Institute and admitted to the yellow triage zone. Initial imaging included chest and left shoulder radiography and cranial CT due to the head trauma. Clinical evaluation by the traumatologist revealed absence of peripheral pulse in the left upper limb, prompting CT evaluation of the sternoclavicular joints, which showed posterior sternoclavicular dislocation on the left side and subluxation on the right. Persistent paresthesia and cyanosis of the left hand required urgent angio-CT, which demonstrated complete compression of the brachiocephalic trunk. After multidisciplinary consultation, the patient was transferred urgently to the operating room. Under general anesthesia and intubation, closed reduction was attempted but proved unstable, with recurrent dislocation. Therefore, open surgical reduction was performed through a sternoclavicular approach. The joint was reduced and stabilized using stainless steel cerclage fixation. Hemostasis, layered closure, and sterile dressing were performed. Postoperative radiography confirmed proper reduction. The arm was immobilized in a sling. The postoperative period was uneventful, and the patient followed rehabilitation recommendations. At two-month follow-up, imaging showed stable osteosynthesis and preserved joint integrity.

Discussions. Urgent imaging allowed rapid identification of vascular compression, enabling timely surgical intervention. Open reduction and cerclage fixation successfully restored joint stability and vascular perfusion of the upper limb without postoperative complications.

Conclusions. Posterior sternoclavicular dislocation, although rare, represents a potentially life-threatening condition due to the risk of mediastinal vascular compression. Early recognition, advanced imaging such as CT and angio-CT, and multidisciplinary surgical management are crucial for preventing severe neurovascular complications and achieving favorable functional outcomes.

Keywords. Clavicula, Sternum, Manubrium, Dislocation.

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17. CLINIC DIAGNOSIS AND CONTEMPORARY METHODS OF TREATMENT OF TIBIAL DIAPHYSEAL FRACTURES

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Introduction. Diaphyseal fractures of the tibia represent one of the greatest challenges in modern traumatology. The importance of the topic is supported by the high incidence, reported in the specialized literature between 15.7 and 21.5 cases per 100,000 inhabitants annually. These injuries have a bimodal distribution, preferentially affecting young men exposed to high-energy trauma and elderly women, due to the decrease in bone mineral density. Considering the anatomical peculiarities of the tibia and the precarious vascular risk, choosing an optimal therapeutic strategy is essential for preventing complications and rapid reintegration of patients.

Aim of study. The paper aims to perform a complex analysis of etiopathogenesis, clinical and imaging diagnosis, as well as the evaluation of contemporary surgical treatment methods applied in cases of tibial shaft fractures. The central objective is to identify the optimal treatment algorithm to reduce the consolidation time and the rate of postoperative complications.

Methods and materials. The study is based on a systematic review of the specialized literature from international databases for the period 2016-2026. The retrospective part of the research was carried out within the Institute of Emergency Medicine, Department of Orthopedics and Traumatology, during 2024-2025. The sample included a group of 163 hospitalized patients with diaphyseal tibia fracture.

Results. The analysis of the group revealed a clear male predominance (66.26%), with a male/female ratio close to 2:1. The mean age of the patients was 46.3 years, confirming the major social impact on the economically active population. A slight prevalence was observed in rural areas (55.80%), associated with agricultural activities and accidents on rough terrain. The most common mechanism was falling from the same level (64.4%), while road accidents were the main cause for open fractures (22.09%). Osteosynthesis with a locked centromedullary rod was considered the “gold standard”, being applied in over 77% of cases, ensuring an average hospitalization of 8.1 days. The “Damage Control” strategy using an external fixator was reserved for complex cases (12.88%), requiring a longer hospitalization of 10.8 days.

Conclusions. Modern treatment of tibia fractures is decisively migrating towards minimally invasive techniques, emphasizing mechanical stability and vascular preservation. The study confirms that locked centromedullary osteosynthesis remains the method of choice, allowing early mobilization and reducing hospital costs. Therapeutic success directly depends on the adaptation of the surgical algorithm to the type of fracture and the patient's profile, with an overall average hospitalization of 8.4 days. diaphyseal fracture, centromedullary, osteosynthesis, consolidation.

Keywords. Diaphyseal tibial fracture, centromedullary osteosynthesis, locking rod, traumatological epidemiology.

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18. ASYMPTOMATIC BACTERIURIA IN PREGNANCY: A LITERATURE REVIEW COMPARING SCREENING, TREATMENT AND FOLLOW-UP PROTOCOLS ACROSS INTERNATIONAL GUIDELINES

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Introduction. Asymptomatic bacteriuria (ASB) in pregnancy is defined by the presence of ≥105 CFU/mL of a single uropathogen in a midstream urine culture, without any urinary symptoms. It remains clinically significant because untreated cases may lead to pyelonephritis, maternal sepsis, preterm birth and low birth weight. International societies have developed clinical practice guidelines for its management, but recommendations are not fully uniform.

Aim of study. The aim of this literature review is to conduct a systematic comparison of the current international guidelines for the management of ASB in pregnancy.

Methods and materials. A narrative review was performed using current guidelines from the European Association of Urology (EAU), the American College of Obstetricians and Gynecologists (ACOG), the Infectious Diseases Society of America (IDSA), and the National Institute for Health and Care Excellence (NICE). The comparison focused on the screening strategy, diagnostic criteria, antibiotic treatment, treatment duration, and post-treatment follow-up.

Results. Across guidelines, ASB in pregnancy is recognized as clinically relevant and treatment is recommended once diagnosed. The screening is recommended early in prenatal care, between 12 and 16 weeks of gestation. Diagnostic thresholds are broadly similar, being ≥105 CFU/mL, although EAU defines ASB in women using two consecutive positive urine samples. There is also a clear agreement on antibiotic selection, with all guidelines recommending nitrofurantoin (avoided near term) or beta-lactams as first-line options while avoiding agents with unfavorable fetal safety profiles when possible. The main differences concern treatment duration and post-treatment follow-up. IDSA recommends a range of 4-7 days, ACOG and EAU 5-7 days. Recommendations for repeat urine culture after treatment are less consistent, with EAU recommending a follow-up culture approximately 1-2 weeks after completing antibiotic, whereas ACOG and IDSA state that there is insufficient evidence to support routine repeat screening unless symptoms appear.

Conclusions. Although international guidelines agree on universal antenatal ASB screening and broadly similar safe antibiotic choices, they differ in diagnostic specifics, treatment duration, and especially post-treatment follow-up. These discrepancies show limited high-quality evidence rather than major disagreements in management. Further comparative studies are needed to determine whether routine follow-up urine culture improves maternal and neonatal outcomes and to support a more harmonized management approach.

Keywords. asymptomatic bacteriuria, pregnancy, urinary tract infection.

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19. 3D LAPAROSCOPIC RADICAL PROSTATECTOMY: INITIAL SHORT-TERM RESULTS

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Introduction. Prostate cancer is the most frequently diagnosed cancer in men, the second-leading cause of cancer death in Americans, and the third in Europeans. Radical prostatectomy is considered the standard of care for clinically localized prostate cancer. Over the years, the minimally invasive laparoscopic approach has gradually been replacing open surgical techniques. Contemporary 3D laparoscopes offer significant benefits over traditional 2D techniques.

Aim of study. To evaluate the perioperative outcomes of the first 3D laparoscopic radical prostatectomy cases performed at our institution.

Methods and materials. We conducted a prospective study based on the first 35 patients with prostate cancer who underwent 3D laparoscopic radical prostatectomy at the Oncological Institute, starting from April 2025. All cases were performed by the same surgeon. We used a preperitoneal approach, with five trocars placed in common anatomical sites and working hands positioned in parallel. The urethro-vesical anastomosis was performed in the Van Velthoven fashion, using a 2/0 polyglycolic acid suture. We evaluated: mean operative time, anastomosis time, blood loss, intraoperative blood transfusion, intra- and postoperative complications, conversion rate, pathological staging, surgical margin status, drainage tube retention, catheterization duration, and postoperative hospitalization time.

Results. The mean operative time was 210 ± 1.08 minutes. The mean anastomosis time was 39.14 ± 11.60 minutes. All surgeries in this series were completed with less than 50 ml of blood loss, except for a single case with 400 ml. No patient required intraoperative blood transfusion. There were no conversions to open surgery. Postoperative complications developed in 3 (8.57%) patients with no Clavien-Dindo grade >2 events. One patient presented urinary leakage that resolved spontaneously on postoperative day three, and two patients developed perineal hematomas. The distribution of pathological stage was as follows: pT2 – 17 (48.57%) and pT3 – 18 (51.43%) patients. The overall positive surgical margin rate was 8.57%, 1 (2.86%) patient with pT2 and 2 (5.71%) patients with pT3 disease. The mean drainage tube retention was 3.03 ± 0.82 days. Patients had an overall catheterization time of 15.60 ± 2.98 days. The mean length of hospital stay was 4.51 ± 1.56 days.

Conclusions. Our initial series of 3D laparoscopic radical prostatectomies shows promising results, comparable to those reported in similar studies.

Keywords. prostate cancer, 3D laparoscopic radical prostatectomy.

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20. POSTOPERATIVE COMPLICATIONS FOLLOWING SURGICAL INTERVENTIONS FOR BENIGN ANORECTAL PATHOLOGIES

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Introduction. Surgical pathologies of the anorectal region represent an important field of activity within specialized surgical departments. Mixed hemorrhoids, acute and chronic perirectal abscesses, and chronic anal fissures are nosological entities optimally managed through surgery. However, therapeutic failure, as well as early and late postoperative complications, remain clinically relevant issues requiring appropriate management. Postoperative hemorrhage, suppurative complications, strictures, and anal incontinence are among the complications that may occur after surgery, often having a more severe impact than the primary disease itself.

Aim of study. To develop a diagnostic and therapeutic management program for patients with anorectal pathology to reduce the incidence of early and late postoperative complications.

Methods and materials. During 2024-2025, 1437 patients with non-tumoral anorectal disease were operated in the Colorectal Surgery Department of the "Timofei Moșneaga" IMSP SCP* (*Public Medical-sanitary Institution Republican Clinical Hospital "Timofei Mosneaga"). Milligan-Morgan hemorrhoidectomy was performed in 745 cases, excision of chronic anal fissure in 310, and surgical treatment of acute and chronic perirectal abscesses in 372 cases. Postoperative complications included hemorrhage in 44 cases (3.1%), suppurative complications in 23 (1.6%), anal strictures in 56 patients (3.9%), and anal incontinence in 10 cases (0.7%).

Results. Of the 44 patients who developed postoperative hemorrhage, 18 required re-intervention to achieve hemostasis. Hemorrhagic complications occurred more frequently in patients who underwent hemorrhoidectomy, particularly in obese individuals and in cases with extensive surgical trauma. Postoperative strictures were mainly observed following surgery for hemorrhoidal disease, with most cases successfully managed through regular digital rectal dilation. Suppurative complications were more common after procedures performed for acute and chronic perirectal abscesses. Obesity, diabetes mellitus, and advanced inflammatory processes at presentation were among the main risk factors for unfavorable postoperative outcomes. These patients underwent thorough surgical revision with adequate drainage and sanitation of purulent collections. In patients with anal incontinence, physiotherapy and local sphincter training were applied, in three cases, sphincteroplasty was performed.

Conclusions. Prevention and effective management of complications after surgical treatment of anorectal pathologies are strictly correlated with adherence to a well-established diagnostic and therapeutic algorithm, as well as the experience of the surgical team performing the procedure.

Keywords. Postoperative complications, hemorrhage, anorectal surgery.

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21. ARTIFICIAL INTELLIGENCE IN PARATHYROID SURGERY: FROM VISUAL EXPERTISE TO SMART ALGORITHMS

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Introduction. Parathyroid surgery relies on subjective visual expertise, often hindered by anatomical variability and the morphological similarity of adjacent tissues. In complex cases such as secondary hyperparathyroidism and reoperations, the risk of accidental removal and consequent hypocalcemia is increased.

Aim of study. The study intends to find out the ways through which the combination of AI and computer vision can provide objective intraoperative data to avoid identification errors during parathyroid surgery.

Methods and materials. The current systematic review examines recent literature from 2023 to 2026, retrieved from prominent databases such as PubMed and ScienceDirect. The emphasis of this study is on the clinical use of NIRAF-guided surgery, which is enhanced by computer vision techniques using CNN. Performance metrics such as sensitivity and specificity were used to compare the effectiveness of these "smart algorithms" in differentiating parathyroid tissues from surrounding tissues in real-time.

Results. Analysis of the data revealed the superiority of the AI-assisted systems compared to the visual inspection method "the naked eye". Although the visual identification rate of parathyroid glands depends on the experience of the surgeon, the application of Deep Learning and CNN algorithms ensured the accuracy level of over 92-95%. In comparison with the standard methods, the application of the AI-optimized NIRAF technology reduced the rates of accidental hypocalcemia by 15-20% and ensured the detection sensitivity of 98% in complex operative fields. Additionally, the radiomics approach ensured the differentiation of parathyroid adenomas and lymph nodes with the specificity level of 89%, which is higher than the capacity of junior radiologists, whose average is 70-75%. The application of these "smart algorithms" reduced the average intraoperative exploration time by about 12 minutes per intervention, which validates the efficiency of the AI methods not only as an exactness tool but also as a means to optimize the workflow.

Conclusions. Artificial Intelligence is changing parathyroid surgery from a purely visual approach based on the surgeon's experience to one based on data. In addition to the assistance provided in the intraoperative localization of the parathyroid glands through the incorporation of smart vision algorithms, the optimization of the outcome is achieved by minimizing the incidence of complications. AI stands as the "essence" of the adjuvant tool of the "surgeon's eye" with the precision required in the era of personalized medicine.

Keywords. Artificial Intelligence, Parathyroid Surgery, Deep Learning, NIRAF, Computer Vision.

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22. OSTEOSYNTHESIS OF THE QUADRILATERAL SURFACE IN ACETABULAR FRACTURES

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Introduction. Osteosynthesis of the quadrilateral surface is performed in patients with unstable acetabular fractures, patients who often present with central fracture-dislocations of the femoral head. Osteosynthesis of the quadrilateral surface represents one of the most complex pelvic surgical interventions.

Aim of study. Analyzing the results of osteosynthesis of the quadrilateral acetabular surface.

Methods and materials. A total of 197 clinical cases of patients surgically treated at the Institute of Emergency Medicine with unstable pelvic ring fractures involving the acetabulum during the period 2019 – 2025 were analyzed. Internal osteosynthesis of the acetabulum was performed in 33 patients. In 19 patients, fixation of the quadrilateral surface was performed; among them, a reconstructive plate from the iliac wing was applied in 2 cases, an ilio-pubic reconstructive plate in 2 cases, and a suprapectineal plate in 15 cases. The surgical approach used in all cases was the modified Stoppa approach. The number of operating trauma surgeons was 4.

Results. No cases of osteosynthesis failure were recorded. The mean operative time was 240 minutes. Twelve patients developed post-traumatic coxarthrosis. Three patients required total hip arthroplasty 12 months after the trauma.

Conclusions. Osteosynthesis of the quadrilateral surface is a demanding traumatic surgical procedure that allows restoration of pelvic bony integrity and prevents central re-dislocation of the femur.

Keywords. quadrilateral surface, pelvis, femur.

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23. INFECTIOUS COMPLICATIONS ASSOCIATED WITH PELVIC OSTEOSYNTHESIS

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Introduction. Pelvic osteosynthesis represents the standard surgical treatment for unstable pelvic fractures and acetabular fractures, conditions that are frequently associated with polytrauma. The occurrence of postoperative septic complications represents a severe adverse event with a major impact on the patient's functional and vital prognosis, leading to prolonged hospitalization and increased treatment costs.

Case presentation. This retrospective study included 197 patients with pelvic fractures who were treated surgically at the Institute of Emergency Medicine between 2019 and 2025. Among patients who were managed with osteosynthesis maintained for more than 21 days, 39 cases developed inflammation and infection of the soft tissues surrounding the fixation pins. In the group treated with internal osteosynthesis of the pelvic ring, 5 cases of postoperative septic complications were recorded, while 1 case occurred after internal acetabular osteosynthesis. In cases of infection following external fixation, management consisted of removal of the external fixator. In the internal osteosynthesis group, negative pressure wound therapy (VAC therapy) was applied in 4 cases, where removal of the osteosynthesis implants was necessary in 2 cases.

Discussions. All septic complications were successfully managed through surgical intervention and appropriate antibiotic therapy in specialized septic trauma units. Clinical outcomes were favorable following the implementation of targeted treatment.

Conclusions. Postoperative septic complications are significantly more frequent following external pelvic osteosynthesis compared to internal fixation. These complications prolong hospital stay, aggravate the patient's clinical status, and require advanced therapeutic intervention. Optimal management imposes a multidisciplinary and individualized approach to call for the clinical characteristics and the type of osteosynthesis performed.

Keywords. Postoperative septic complications,infections,unstable pelvic fractures.

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24. THE MOLECULAR MINER: AUTONOMOUS MAGNETO-ACOUSTIC NANOROBOTIC SWARMS FOR TOTAL CORONARY PLAQUE DEBRIDEMENT

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Introduction. Current standard-of-care for Coronary Artery Disease (CAD) relies on Percutaneous Coronary Intervention (PCI) or Coronary Artery Bypass Grafting (CABG). While effective, the limitations of conventional percutaneous coronary intervention are most evident in the treatment of diffuse calcification and chronic total occlusions, where traditional catheters lack the reach and precision required for complete restoration. This study introduces the "Molecular Miner" system: a swarm of magnetically guided, ultrasound-activated nanobots designed to liquefy and remove atherosclerotic plaque, restoring the native vessel's architecture without the need for mechanical expansion or bypass.

Aim of study. The aim of this study is to evaluate the efficacy and safety of using autonomous magneto-acoustic nanorobotic swarms for the complete mechanical removal of atherosclerotic plaques.

Methods and materials. A comprehensive systematic review of the literature was performed across the PubMed and ScienceDirect databases for studies published between 2022 and 2026. The keywords included "Magneto-Acoustic Nanorobots" and "Coronary Artery Disease". The selection criteria targeted experimental and computational models that examine the combined effect of magnetic gradient navigation and acoustic cavitation in disrupting calcified atherosclerotic lesions. Studies not focused on the potential use of nanorobots in CAD and studies published outside the temporal frame were excluded.

Results. Out of the 142 identified articles, 11 met the inclusion criteria, specifically focusing on the application of autonomous magneto-acoustic swarms in calcified endovascular environments. Recent advances in magneto-acoustic microswarms demonstrate a transformative approach to intravascular debridement through synergistic actuation and high-precision navigation. In PAD, magneto-acoustic navigation allows nanorobots to reach distal limb arteries inaccessible to traditional catheters, where they locally break down plaques and thrombi to restore blood flow and reduce amputation risk with minimal systemic drug toxicity. Experimental models show that magnetically guided, retrievable tPA-coated nanobots can precisely dissolve clots while limiting systemic drug exposure.

Conclusions. Autonomous nanorobotic swarms mark a major turning point in treating coronary artery disease by overcoming the physical limitations that usually stop traditional catheters from working effectively. By integrating high-precision magnetic navigation with the mechanical potency of acoustic cavitation, this technology enables the thorough excavation of calcified lesions and total occlusions that are otherwise impassable.

Keywords. Magneto-Acoustic Nanorobots, Coronary Artery Disease.

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25. SURGICAL TREATMENT OF CHRONIC LIMB-THREATENING ISCHEMIA CAUSED BY THROMBOSED POPLITEAL ARTERY ANEURYSM

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Introduction. Popliteal artery aneurysm (PAA) is the most common type of peripheral arterial aneurysm, often remaining asymptomatic for a long period of time or being discovered incidentally during an imaging examination. The usual clinical presentation after the occurrence of aneurysm thrombosis is acute lower limb ischemia, while limb salvage can be achieved through urgent revascularization. Clinical evolution towards chronic ischemia is much less common, although restoring distal blood flow remains the primary goal of management in such clinical circumstances.

Aim of study. Assessment of the outcomes of surgical treatment for thrombosed PAA in patients presenting with chronic limb-threatening ischemia.

Methods and materials. A retrospective analysis was performed on a clinical series consisting of 8 male patients hospitalized over a four-year period at the Institute of Emergency Medicine (Chisinau, Moldova). The data of the physical exam, lab tests, and preoperative imaging examination were evaluated, along with aspects related to limb revascularization, as well as the early outcomes of the treatment.

Results. The age of patients ranged from 49 to 79 years; median value – 66.5 (25-75%IQR 51-75). Seven (87.5%) subjects presented with Fontaine stage III, and another with stage IV of chronic ischemia. None of individuals reported a previous medical history of PAA. Thrombosed aneurysm was located on the left side in 5 (62.5%) cases; while 2 patients had asymptomatic contralateral PAA. The diagnosis was established by computed tomography angiography (n=7) or digital subtraction angiography (n=1). Additional duplex scanning was indicated in 6 cases. The diameter of the thrombosed PAA ranged from 16 mm to 60 mm; median value – 24.5 (25-75%IQR 21-28). Chronic anemia at the admission was identified in one patient, leukocytosis – in 4 cases, and hyperfibrinogenemia – in 2 other patients. Revascularization of the extremity was accomplished by femorotibial bypass (n=4), distal femoropopliteal bypass (n=2), or graft interposition (n=2). In 7 (87.5%) cases, the ipsilateral reversed saphenous vein served as the conduit, and in one case, a 6 mm prosthetic PTFE graft was used. Wound complications (lymphorrhea and superficial infection) occurred in two (25%) patients and were treated by conservative measures. None of subjects required limb amputation at the 30-day postoperative follow-up. One patient (12.5%) died due to acute myocardial infarction.

Conclusions. Although it does not present an immediate threat, thrombosed PAA manifested by chronic limb-threatening ischemia is associated with elevated postoperative morbidity and mortality. Limb salvage in these patients can be achieved through technically complex revascularization procedures, mainly distal peripheral bypasses.

Keywords. thrombosed popliteal artery aneurysm, chronic limb-threatening ischemia, surgical treatment.

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26. HEMOPERITONEUM CAUSED BY PERFORATED SIGMOID COLON DIVERTICULUM: A RARE SURGICAL EMERGENCY

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Introduction. Diverticular disease is a common condition in developed countries, with most patients remaining asymptomatic. However, approximately 10–25% of individuals develop complications during their lifetime. The most frequent complications include diverticulitis (4–15%), diverticular bleeding (5–15%), perforation (8–10%), fistula formation (2%), and intestinal obstruction (7%). Perforation associated with hemoperitoneum is extremely rare, and reliable epidemiological data regarding its incidence remain limited. Due to its atypical presentation, this condition may represent a diagnostic and therapeutic challenge.

Case presentation. We report the case of a 45-year-old male who presented to the emergency department with diffuse abdominal pain predominantly in the left flank, general weakness, decreased appetite, and xerostomia. Symptoms began approximately five hours prior to admission following evacuatory enemas. Physical examination revealed moderate abdominal distension, diffuse tenderness, and signs suggestive of peritoneal irritation. Laboratory investigations were within normal limits. Abdominal and chest radiography showed no significant abnormalities. Abdominal ultrasonography revealed free fluid in all regions of the peritoneal cavity. Contrast-enhanced computed tomography demonstrated large amounts of intraperitoneal fluid with high density, suggestive of hemoperitoneum, without evidence of parenchymal organ injury. Due to clinical deterioration with increasing pain and hypotension, the patient underwent urgent diagnostic laparoscopy.

Discussions. Surgical exploration revealed approximately 1.5 liters of fresh blood and clots within the peritoneal cavity. Further inspection identified a perforated diverticulum in the distal third of the sigmoid colon, which was the source of bleeding. No other sources of hemorrhage were detected. A laparoscopic wedge resection of the diverticulum with primary closure of the defect was performed, followed by hemostasis, peritoneal lavage, and abdominal drainage. The postoperative course was favorable, with initial monitoring in the intensive care unit and subsequent transfer to the surgical ward with supportive therapy.

Conclusions. Perforation of a sigmoid diverticulum with hemoperitoneum is an uncommon but potentially life-threatening complication of diverticular disease. Early imaging, rapid diagnosis, and prompt surgical intervention are essential for a successful outcome. Additional clinical reports and studies are needed to improve understanding and optimize the diagnostic and therapeutic strategies for this rare presentation.

Keywords. Diverticular disease; Sigmoid diverticulum; Perforation; Hemoperitoneum; Laparoscopy.

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27. SURVIVAL AND CLINICAL SEVERITY PATTERNS IN EARLY- AND LATE-PRESENTING CONGENITAL DIAPHRAGMATIC HERNIA IN RESOURCE-LIMITED SETTINGS

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Introduction. Congenital diaphragmatic hernia (CDH) is a rare life-threatening congenital defect in which abdominal organs herniate into the thoracic cavity, compressing the lungs and heart leading to pulmonary hypoplasia and pulmonary hypertension. Newborns presenting shortly after birth usually develop severe respiratory distress and require urgent medical and surgical intervention. Despite advances in neonatal intensive care, mortality remains high in high-resource settings. In resource-limited healthcare systems, delayed diagnosis, limited access to specialized neonatal care, and late referral to tertiary centres influence outcomes. Reports describe better survival in patients diagnosed later in infancy, creating an apparent survival paradox suggesting delayed diagnosis yields better outcomes.

Aim of study. To compare survival rates and clinical outcomes between early- and late-presenting CDH and to identify factors that explain the apparently improved outcomes observed in late-presenting cases, particularly in resource-limited settings.

Methods and materials. Studies published between 1996-2024 were identified from PubMed, MEDLINE, Scopus, and Web of Science, with additional articles screened from references in the Journal of Paediatric Surgery.

Results. Across multiple studies, late-presenting CDH demonstrated survival rates between 56.3%-100%, whereas early-presenting neonatal cases showed lower survival ranging from 46% to 68%, even in resource-limited settings. Early presentation was associated with severe disease markers such as immediate respiratory distress, pulmonary hypertension, and the need for intensive respiratory support. Non-survivors were consistently symptomatic within 12 hours of life. In contrast, late-presenting patients often remain stable postnatally, survive the neonatal period and are presented with chronic gastrointestinal or mild respiratory symptoms. In developing country tertiary centres, survival ranged from 56.3% to 87%, largely because delayed presentation inadvertently selects for survivors as those with the most severe disease die before reaching referral centres.

Conclusions. Late-presenting CDH appears to have an apparent survival advantage not because delayed diagnosis is beneficial, but because presentation timing reflects underlying disease severity. Early presenters suffer from severe pulmonary hypoplasia and respiratory compromise, while late presenters represent a subgroup with milder pathology that allows survival past the immediate postnatal period. In resource-limited settings, delayed referral to tertiary centres and early mortality may further select for survivors among late-presenting cases. Clinical outcomes in CDH therefore depend primarily on disease severity rather than timing of diagnosis.

Keywords. Congenital diaphragmatic hernia; late-presenting CDH; disease severity; resource-limited settings; survival paradox.

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28. ADAMANTINOMA OF THE FRONTAL SINUS – DIAGNOSTIC CHALLENGES AND THERAPEUTIC APPROACH: A CASE REPORT AND LITERATURE REVIEW

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Introduction. Adamantinoma (ameloblastoma) is a rare benign odontogenic tumor characterized by locally aggressive behavior and a high recurrence rate. Its localization in the frontal sinus is extremely rare, making the diagnosis challenging and often delayed.

Case presentation. We report the case of a patient presenting with progressive swelling in the frontal region associated with local discomfort and mild headache. Clinical examination revealed a tumoral formation in the frontal area without significant neurological deficits. Imaging evaluation using computed tomography demonstrated a well-defined expansive lesion occupying the frontal sinus, with bone wall remodeling and extension toward adjacent structures. Laboratory investigations, including complete blood count and biochemical analysis, were within normal limits. The patient underwent surgical treatment with complete excision of the lesion. The excised specimen was subjected to histopathological examination, which confirmed the diagnosis of adamantinoma (ameloblastoma). The postoperative evolution was favorable, with resolution of symptoms and no immediate complications. The patient remains under periodic clinical and imaging follow-up in order to monitor for possible recurrence, considering the locally aggressive behavior and recurrence potential of this tumor.

Discussions. Adamantinoma, also known as ameloblastoma, is a rare benign odontogenic tumor characterized by slow growth but locally aggressive behavior and a significant potential for recurrence. Although it most commonly involves the mandible and maxilla, its occurrence in the frontal sinus is extremely uncommon, which makes the diagnosis particularly challenging. Clinical manifestations are often nonspecific and may include frontal swelling, headache, or local discomfort, which can delay diagnosis. Imaging techniques, especially computed tomography, play a crucial role in detecting the lesion, evaluating bone destruction, and determining the extent of involvement of adjacent anatomical structures. However, the definitive diagnosis is established only through histopathological examination. Due to the locally aggressive nature of the tumor and its tendency to recur, complete surgical excision remains the treatment of choice. Careful postoperative follow-up is essential in order to detect possible recurrences at an early stage.

Conclusions. Early imaging evaluation and histopathological confirmation are essential for accurate diagnosis and appropriate surgical management of frontal sinus adamantinoma. Complete excision reduces the risk of recurrence, and long-term clinical and imaging follow-up is crucial to ensure early detection of potential regrowth.

Keywords. adamantinoma, ameloblastoma, frontal sinus, orbital extension, odontogenic tumor.

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29. NEXT-GENERATION PERCUTANEOUS VERTEBROPLASTY: INTEGRATING ROBOTIC PRECISION, ARTIFICIAL INTELLIGENCE, AND BIOACTIVE MATERIALS IN THE MANAGEMENT OF VERTEBRAL HEMANGIOMAS

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Introduction. Vertebral hemangiomas (VH) are common benign vascular tumors, with an incidence of 10%–26% in the general population. While mostly asymptomatic, aggressive vertebral hemangiomas (AVH) represent a complex challenge, causing bone erosion, epidural invasion, and neurological deficits. Since the first vertebroplasty in 1987, the field has undergone a radical transformation. Modern management is shifting from simple structural consolidation with polymethylmethacrylate (PMMA) toward precision multimodal approaches that integrate artificial intelligence (AI), robotics, and regenerative biomaterials.

Aim of study. This study evaluates recent technological paradigms in percutaneous vertebroplasty (PVP). It focuses on the efficacy of robotic assistance, AI-driven navigation, and bioactive cements in improving safety and clinical outcomes for symptomatic hemangiomas.

Methods and materials. By synthesizing clinical data and recent literature (2023-2026), we analyzed advanced PVP techniques. The analysis included: 1) Navigation systems using augmented reality (AR) and AI for real-time visualization of the needle trajectory; 2) Robotic-assisted systems (e.g., TiRobot) for submillimeter accuracy; 3) Second-generation mechanical augmentation devices (e.g., SpineJack, Kiva); and 4) Innovations in bone chemistry, particularly bioactive PMMA and borosilicate glass (BSG)-reinforced magnesium phosphate cements.

Results. Current evidence shows that robot-assisted PVP significantly improves cement dispersion. Events and leakage rates are also reduced compared to traditional fluoroscopy (5.1% vs. 8%–22%). AI- and AR-based navigation (such as the VIPAR system) offers accuracy below 1.1 mm. At the same time, radiation exposure (DAP) is reduced by almost 50%. In terms of materials, borosilicate glass-modified cements allow for a biological reaction from the host bone. This promotes apatite nucleation and forms a biological interface instead of dense fibrous tissue. In addition, composite materials (PMMA/PLA/CNT) successfully reduce the modulus of elasticity by 50%. This reduces the potential risk of adjacent vertebral fractures.

Conclusions. Percutaneous vertebroplasty is evolving from an empirical procedure into a high-precision digital intervention. The integration of robotic guidance and AI-driven planning facilitates "precision medicine," while bioactive materials transform PVP from a palliative stabilization into a regenerative therapy. These innovations offer superior neurological recovery and long-term stability, establishing a new gold standard for treating aggressive spinal lesions.

Keywords. Augmented Reality; Artificial Intelligence; Robotic Vertebroplasty; Bioactive Bone Cement; Aggressive hemangioma.

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30. TRENDS IN SURGICAL TREATMENT OF A BLEEDING PEPTIC ULCER

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Introduction. Peptic ulcer bleeding (PUB) remains the most common etiology of upper gastrointestinal hemorrhage. Patients presenting with PUB are increasingly elderly and often have significant comorbidities that require treatment with antiplatelet agents, anticoagulants, or nonsteroidal anti-inflammatory drugs. Treatment of PUB is complex; modern guidelines recommend endoscopic hemostasis as first-line therapy for actively bleeding ulcers or high-risk stigmata, combined with PPI therapy, which significantly reduces rebleeding risk, transfusion requirements, and the need for surgery.

Aim of study. To evaluate current trends in the management of PUB, focusing on the role of surgical treatment.

Methods and materials. Recommendations from international societies for gastroenterology and emergency surgery were reviewed, along with recent population-based studies and meta-analyses comparing conservative versus surgical treatment for PUB.

Results. Historically, emergency surgery was the standard treatment for uncontrolled PUB, despite being associated with substantial postoperative mortality (8%-33%). Advances in endoscopic hemostasis techniques, PPI therapy, and interventional radiology, such as transcatheter arterial embolization (TAE), have reduced the need for surgical procedures. Procedure statistics indicate a decline in the number of surgeries performed worldwide: in the UK the operative rate for PUB decreased from 8% to 2% between 1993 and 2006, while in the USA, use of endoscopic hemostasis resulted in a 21.9% reduction in the need for surgery. For cases refractory to endoscopic therapy, TAE is a valuable alternative to surgery. Studies show higher rebleeding rates after TAE, but fewer complications and shorter hospitalization vs surgical treatment; it is frequently performed in older, more comorbid patients. The type of procedure performed has also changed over time: popular truncal vagotomy with antrectomy is now rare, since suppression of acid secretion is not the focus. Rapid control of the bleeding is achieved by ulcer oversewing via gastrotomy or duodenotomy, respectively, of the site of the lesion. For gastric ulcers, a wedge gastrectomy is recommended if malignancy is a concern.

Conclusions. Management of PUB has shifted from a surgery-centered strategy toward a stepwise minimally invasive approach based on endoscopic therapy and interventional radiology. Surgical treatment remains a fallback option for refractory hemorrhage, when endoscopic and radiologic methods fail or are unavailable. As such, contemporary surgical candidates are a smaller, higher-risk patient population.

Keywords. upper gastrointestinal hemorrhage, peptic ulcer bleeding, endoscopic hemostasis, transcatheter arterial embolization, surgical treatment.

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31. CHRONIC LIMB-THREATENING ISCHEMIA - SURGICAL REVASCULARIZATION VS ENDOVASCULAR REVASCULARIZATION AS THERAPEUTIC OPTIONS

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Introduction. Chronic limb-threatening ischemia (CLTI) is a severe form of peripheral arterial disease characterized by various symptoms including nonhealing wounds, ulcers and gangrene ultimately leading to a possible amputation. Therefore, revascularization either through endovascular revascularization(ER) or surgical revascularization (SR) is an important step in management.

Aim of study. The aim of this review is to compare the two therapeutic methods in terms of safety and efficacy concerning CTLI.

Methods and materials. A study was conducted on PubMed for articles from the last 7 years using as keywords: chronic limb ischemia, endovascular revascularization and bypass surgery. Studies that were concerning risk of major amputation, readmission rate, mortality and limb based patency(LBP), measuring skin perfusion pressure (SPP) and the ankle-brachial index (ABI), were included. The studies referring to patients presenting diabetes, aortic valve stenosis, past interventions and studies that presented overlap were excluded. Bias risk was not evaluated and PRISMA guidelines were used for data abstraction.

Results. From 12 initial studies 6 were selected, including observational studies, comparative studies and randomized controlled trials, summing 69835 patients. Monil Majmundar et al.(2022) showed that ER was associated with 9.9% of risk major amputation compared with SR 8,4% (95% CI, 1.08-1.29; P = .001), however, no difference was observed in major amputation risk when both procedures were performed in high-volume centers. Cassius Iyad Ochoa Chaar et al. (2019) presents that patients undergoing ER had significantly higher readmission rate (49 vs. 33.7, P < 0.01) and higher mortality (10.4 vs. 5.3, P < 0.01) after 1-year. Makoto Utsunomiya et al. (2020) reports SPP-based LBP rates at 3 months were 73.8% (95% CI) in the bypass group and 46.2% (95% CI) in the ER group, the corresponding ABI-based LBP rates were 71.5% (95% CI) and 44.0% (95% CI).

Conclusions. In conclusion the SR seems to be the better option regarding readmission rates, mortality and LBP at 3-months compared to ER and risk of major amputation depends on the center in which the revascularization is performed. The decision should be individualized based on the clinical profile of the patients and on the expertise of the medical center.

Keywords. chronic-limb threatening ischemia, endovascular revascularization, surgical revascularization limb-based patency.

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32. SUCCESS AND DURABILITY OF ALLOGRAFT RECONSTRUCTIONS IN PEDIATRIC BONE SARCOMAS: A SYNTHESIS OF RECENT EVIDENCE

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Introduction. Primary malignant bone tumors account for less than 1% of pediatric malignancies but represent a major challenge in orthopedic oncology because of their aggressive behavior and the need to preserve limb growth and function. Osteosarcoma and Ewing sarcoma most commonly affect the distal femur, proximal tibia, and proximal humerus. With survival rates approaching 80% due to advances in multimodal therapy, attention has shifted toward limb-salvage reconstruction and long-term functional outcomes, which remain difficult to achieve in skeletally immature patients.

Aim of study. The aim of this study was to evaluate the outcomes, functional results, and complication rates associated with allograft-based reconstruction techniques used in pediatric bone sarcoma surgery.

Methods and materials. The study was conducted using PubMed for articles published in the last 15 years using the keywords: pediatric bone sarcoma, allograft reconstruction, osteosarcoma, and limb salvage surgery. The inclusion criteria were allograft survival, functional outcomes and complications. Exclusion criteria included studies involving primary amputation, rotationplasty, adult-only populations, or incomplete clinical data. Bias risk was not evaluated and PRISMA guidelines were used for data abstraction.

Results. From 16 initial articles, 5 were selected including cohort studies, clinical series, and systematic reviews, comprising a total of 87 patients. Allograft survival rates were reported by Haudek et al. (2016), who found survival of 84% for vascularized fibular graft reconstructions and 87% for isolated massive allografts ($p>0.05$). Functional outcomes were evaluated by Jawa et al. (2019), who reported mean MSTS functional scores of 73.4% following proximal humerus osteoarticular allograft reconstruction ($p<0.05$). Regarding complications, Li et al. (2023) reported graft fracture rates of up to 27% and infection rates between 9% and 15% in distal femoral reconstructions ($p<0.05$). Long-term graft failure was described by Henderson et al. (2014), with failure observed in 39% of hemicortical reconstructions and reoperation required in 52% of patients ($p<0.05$).

Conclusions. Allograft-based reconstruction remains an effective limb-salvage option for pediatric bone sarcomas, providing satisfactory functional outcomes while preserving bone stock. However, the relatively high complication and reoperation rates highlight the need for careful patient selection and long-term follow-up.

Keywords. Pediatric bone sarcoma, allograft reconstruction, limb salvage surgery, osteosarcoma, orthopedic oncology.

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33. SURGICAL TREATMENT OF CALCANEAL FRACTURES

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Introduction. The management of calcaneal fractures represents one of the most complex and debated challenges in modern trauma and orthopedic surgery. The importance of this bone derives from its fundamental biomechanical role as the main structure supporting body weight and as an essential component of the subtalar joint complex, responsible for gait stability and adaptation to uneven surfaces. Any disruption of the anatomical integrity of the calcaneus leads to significant consequences for the entire kinetic chain of the lower limb. The relevance of this topic is further emphasized by advances in medical imaging, particularly computed tomography (CT) with multiplanar reconstruction, which has become the gold standard for accurately assessing fragment displacement and articular depression.

Aim of study. The main objective of this research was to evaluate contemporary surgical treatment methods for calcaneal fractures, focusing on the correlation between fracture type (according to the Sanders classification), the chosen surgical approach, and postoperative outcomes.

Methods and materials. The study was conducted through a retrospective analysis of 147 patients hospitalized with a diagnosis of calcaneal fracture. The methodology included preoperative clinical and imaging evaluation (radiography and CT), followed by postoperative monitoring of clinical evolution. In addition, a review of recent literature was performed to compare the outcomes of classical open reduction techniques with the advantages of newer minimally invasive technologies.

Results. The analysis revealed a predominance of male patients (78.9%), with a mean age of 45.9 years, mostly within the professionally active population. High-energy falls from height represented the primary injury mechanism in 73.5% of cases, explaining the severity of lesions and the high frequency of significant edema at admission (85%). Early presentation was noted in 69.4% of patients. Open reduction and internal fixation with plate and screws was performed in 69.4% of cases, while locked intramedullary nailing (12.2%) reduced mean operative time to 66 minutes. Hospitalization reached up to 35 days in complex cases.

Conclusions. The study confirms the validity of the Sanders classification as an essential tool in preoperative planning and clinical outcome prediction. The results highlight a clear transition toward minimally invasive techniques, such as intramedullary fixation, which provide improved biomechanical stability and better protection of soft tissues. Adapting the surgical strategy to soft-tissue condition and fracture type remains the key factor in reducing complications and ensuring faster socio-professional reintegration of patients.

Keywords. calcaneal fracture, Sanders classification, plate osteosynthesis, intramedullary nail, fall from height, computed tomography.

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34. INDICATION FOR PROPHYLACTIC VENTRICULO-PERITONEAL DRAINAGE WITH SEPTOSTOMY IN POSTERIOR CLINOIDAL MENINGIOMA: JUSTIFICATION IN A CONTEXT WITHOUT MANIFEST HYDROCEPHALUS

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Introduction. Clinoidal meningiomas are relatively uncommon, typically benign tumors that originate from the anterior clinoid process. Surgical removal is particularly challenging due to their proximity to critical structures such as the internal carotid artery, its branches, and the optic nerve, all of which increase the complexity of intervention. In very rare cases, these tumors may grow rapidly and compress the third ventricle, leading to symptoms of hydrocephalus. As a prophylactic measure in such scenarios, placement of a ventricular shunt could be considered.

Case presentation. A 67-year-old female presented to the Emergency Department at Constanta Clinical Emergency County Hospital with a two-week history of gait disturbance and diplopia. Neurological examination revealed the patient to be awake, slightly confused (GCS 14), no signs of meningeal irritation, with palpebral ptosis, but no other oculomotor nerve dysfunction, and demonstrating bradyphrenia and bradylalia, without motor, sensory, or sphincter deficits. Initial cerebral CT imaging identified an extra-axial lesion at the right posterior clinoid process, suggestive of meningioma. The patient was admitted to the Neurosurgery Department for further evaluation. A subsequent brain MRI, compared to the initial CT, revealed similar ventricular volumes (millimetric differences within measurement error). Importantly, there were no radiological signs of obstructive hydrocephalus to account for the presenting symptoms immediately. Given the risk of future obstructive hydrocephalus, prophylactic neurosurgical intervention was considered. After multidisciplinary discussion and thorough consultation with the patient and family regarding the risks and benefits, the decision was made to proceed with a left parietal VP shunt placement with endoscopic septostomy (GAV 2.0 5/30 valve). The postoperative course was favorable, with rapid resolution of bradylalia and bradyphrenia, persistence of brief confusional episodes, and successful mobilization. Follow-up CT one week postoperatively demonstrated slight regression in the right lateral ventricular size, a functional and appropriately positioned catheter, and no hemorrhagic complications.

Discussions. During surgery, three septostomy openings were created to facilitate cerebrospinal fluid flow between both ventricles, allowing effective drainage with a single catheter.

Conclusions. For tumors in challenging locations like the posterior clinoid process, where surgery poses a risk and hydrocephalus is likely, preventive CSF diversion with VP shunting and septostomy is a valuable alternative. This strategy helps avoid neurological decline and improves outcomes in high-risk cases.

Keywords. Clinoidal meningioma, VP drainage, septostomy.

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35. ROLE OF BONE ALLOGRAFT AUGMENTATION IN THE SURGICAL TREATMENT OF COMPLEX PROXIMAL HUMERUS FRACTURES

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Introduction. Proximal humerus fractures account for approximately 4–10% of all fractures in adults and represent the third most common fracture location after hip and distal radius fractures. Their incidence increases with age and predominantly affects women, particularly in the postmenopausal period. Complex fractures, especially three- and four-part fractures according to the Neer classification, are associated with mechanical instability and a high risk of loss of reduction.

Aim of study. To evaluate the role of bone allograft augmentation in the surgical treatment of proximal humerus fractures in elderly patients according to fracture complexity based on the Neer classification.

Methods and materials. A retrospective study was conducted on 128 patients (2023–2024) with a confirmed diagnosis of proximal humerus fracture who underwent surgical treatment at the Clinical Hospital of Traumatology and Orthopedics, Chișinău, Republic of Moldova. Surgical techniques included osteosynthesis with a T-plate, dynamic compression plate (DCP), angular-stable locking plate, plate fixation associated with bone allograft augmentation, Kirschner wires, and non-absorbable metallic wire.

Results. The study cohort included 128 patients (73% women – 93 cases; 27% men – 35 cases) with a mean age of 62.42 years. According to the Neer classification, two-part fractures accounted for 38.28% (49 cases), three-part fractures for 29.69% (38 cases), four-part fractures for 6.25% (8 cases), and fracture-dislocations for 26.56% (34 cases). T-plate osteosynthesis was performed in 90 patients (70.31%) and was predominantly used in two- and three-part fractures. Plate fixation associated with bone allograft augmentation was performed in 15 cases (11.72%) and was used more frequently in unstable fractures, particularly fracture-dislocations (8 cases) and Neer three-part fractures (7 cases). Most of these cases occurred in elderly patients, with a mean age of 66 years (range 54–74 years), with a predominance of women(11 women and 4 men).

Conclusions. Bone allograft augmentation was predominantly associated with unstable fractures and advanced patient age. Plate osteosynthesis combined with bone allograft represents a useful option in fractures with metaphyseal bone defects and poor bone quality. Allograft augmentation contributes to the restoration of medial support, reducing the risk of humeral head collapse and helping maintain fracture reduction.

Keywords. proximal humerus fracture, Neer classification, osteosynthesis, bone allograft augmentation.

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36. LYMPHATIC TISSUE ENGINEERING: EXPERIENCE OF THE LABORATORY OF TISSUE ENGINEERING AND CELL CULTURE AT NICOLAE TESTEMITANU SUMPh

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Introduction. Secondary lymphedema (SL) is a chronic and progressive disease that results from damage to the lymphatic vessels and/or lymph nodes (LN). Lymphatic tissue engineering (LTE), as part of regenerative medicine, focuses on the reconstruction and regeneration of lymphatic tissues and may represent a promising long-term solution for SL treatment.

Aim of study. (i) To analyze the scientific literature on LTE, with particular attention to studies based on preclinical research performed on small animal models; (ii) to present the experience of our laboratory in the field of LTE.

Methods and materials. A comprehensive review of the scientific literature was conducted, along with experimental insights from the Laboratory of Tissue Engineering and Cell Culture, focusing on LTE. Articles were selected from international databases such as PubMed, Google Scholar, and Scopus without time restrictions. The analysis focused on current strategies in LTE, such as decellularization methods, scaffolds, cells, and in vivo models. In addition, the study incorporates the laboratory's experimental experience in applying decellularization methods to LN in a small animal model.

Results. The literature review included 50 selected articles, 10 of which included in vivo studies. Experimental investigations of the lymphatic system in rats identified LNs suitable for research. Following experimental observations and the analysis of lymphatic structures, the axillary LN was identified as the most accessible structure due to its location and ease of manipulation during experimental procedures. A decellularization protocol using a low-concentration detergent was tested in the laboratory. This method allowed the removal of cellular components while preserving the integrity of the extracellular matrix architecture.

Conclusions. The reviewed literature highlights the increasing interest in LTE and the development of strategies for lymphatic tissue regeneration. Decellularization techniques and the use of ECM scaffolds represent promising approaches for reconstructing lymphatic structures. Experimental observations from the Laboratory demonstrated the feasibility of applying decellularization protocols to LN in a rat model while preserving extracellular matrix integrity. This research was supported by grants from Project No. 25.80012.8007.03TC within the Young Researchers Project Competition 2025–2026, Chișinău, Republic of Moldova.

Keywords. Secondary lymphedema, Tissue engineering, Lymph nodes, Decellularization, Regeneration.

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37. HYPERTENSIVE INTRACEREBRAL HEMORRHAGE - THE EFFICACY AND SAFETY OF NEUROENDOSCOPY VERSUS CRONIOTOMY

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Introduction. Hypertensive Intracerebral Hemorrhage (HICH) is a critical disease with a high mortality rate 30-40% with most survivors (61-88%) developing severe disabilities. Because of the fast progression, it is essential to recognize it early and adopt proper management to limit the complications.

Aim of study. The aim of this review is to compare the efficacy, safety and outcomes between Neuroendoscopy (NE) and Craniotomy (CR) for managing HICH.

Methods and materials. The study was conducted using articles on PubMed from the last 10 years, using the keywords: “intracerebral hemorrhage” , “neuroendoscopy” , “craniotomy” . The inclusion criteria were intraoperative blood loss, postoperative complications, surgery time, favorable functional outcomes rate. The exclusion criteria were patients associating cerebral tumor, aneurysm or arteriovenous malformation, small bone window craniotomy and overlap. Bias risk was not evaluated. PRISMA guidelines were used for data abstraction.

Results. From 16 initial articles, 6 remained including comparative studies, observational studies, meta-analysis and review, counting 11352 patients. Min Cui et al. (2024) showed that blood loss in the NE group was 50 mL and 450 mL in the CR group ($p<0,001$), also the surgery time was 140 minutes for NE and 205 minutes for CR. John Emmanuel Y Custodio et al.(2025) showed that good functional outcomes were seen in 54% patients who underwent CR and in 72% who underwent NE ($p=0,11$; 95% CI). Zengpanpan Ye et al. (2017) presented that 17% in the NE group had postoperative complications and 45% in the CR group ($p<0,001$; 95% CI).

Conclusions. In conclusion, the results suggest that NE leads to significantly less complications, less blood loss, shorter surgery time and better outcomes comparative cu CR. However, more studies are needed to strengthen the evidence and draw stronger conclusions.

Keywords. craniotomy, intracerebral hemorrhage, endoscopic surgery.

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38. TAILORED MANAGEMENT OF EPISTAXIS IN PATIENTS RECEIVING ANTICOAGULANT THERAPY: A COMPREHENSIVE REVIEW OF CONTEMPORARY CLINICAL GUIDELINES

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Introduction. Severe nosebleeds in individuals on oral anticoagulant medication pose a substantial challenge in the field of otorhinolaryngology. Effectively managing these cases demands a coordinated, multidisciplinary strategy to achieve reliable hemostasis, while simultaneously keeping the risks of thromboembolic events and massive hemorrhage to a minimum.

Aim of study. This research assessed the effectiveness of existing therapeutic protocols for treating epistaxis in anticoagulated individuals, with the primary objective of standardizing clinical practices to ensure better and safer patient outcomes.

Methods and materials. We performed a systematic review of the literature utilizing the Scopus and PubMed databases. The selection focused on recent publications that examined various hemostatic protocols. The gathered data underwent meta-analysis applying the Q test to assess heterogeneity, rigorously analyzing the relationship between the chosen treatment modality and the rate of hemostatic success.

Results. A total of 24 studies were analyzed, encompassing a combined population of 4,520 patients. Among these, 45.2% were treated with warfarin, whereas 54.8% received novel oral anticoagulants. The use of endoscopic cauterization significantly lowered the bleeding recurrence rate to 11.5%, in contrast to the 32.4% observed with traditional anterior nasal packing ($p=0.02$, Q test). Furthermore, the length of hospital stays was shortened by an average of 1.8 days for patients managed endoscopically. The incidence of severe complications, such as Staphylococcus aureus infections, was limited to just 1.2%. Additionally, the required volume of red blood cell transfusions saw a decrease of 250 mL per individual, substantially enhancing overall clinical recovery.

Conclusions. The initial research hypothesis was validated, showing that a multidisciplinary framework provides outstanding therapeutic efficacy. Closely aligning endoscopic interventions with established cardiological protocols led to a notable drop in complication rates, highlighting the urgent need to revise and standardize current clinical guidelines.

Keywords. epistaxis, hemostasis, cardiological protocols, oral anticoagulation, endoscopy.

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39. RUPTURED INTRACRANIAL ANEURYSMS IN CONTEMPORARY PRACTICE: CLINICAL PROFILE AND EARLY OUTCOMES FROM SINGLE-CENTER EXPERIENCE

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Introduction. Aneurysmal subarachnoid hemorrhage is one of the most severe emergencies in neurosurgical practice and is associated with significant morbidity and early mortality. Rupture of an intracranial aneurysm usually leads to sudden neurological deterioration and requires urgent diagnosis and treatment. In recent years, endovascular techniques have become increasingly used in the management of these patients. Clinical outcome depends on the condition at admission and on the development of secondary complications during hospitalization.

Aim of study. The aim of this study was to analyze the clinical characteristics, anatomical distribution and treatment strategies of patients with ruptured intracranial aneurysms treated in a tertiary neurosurgical center. In addition, we aimed to explore potential clinical and radiological factors associated with early clinical evolution and unfavorable outcomes.

Methods and materials. We performed a retrospective analysis of 89 consecutive patients diagnosed with ruptured intracranial aneurysms and treated in our department. Demographic data, vascular risk factors, aneurysm location, treatment modality and in-hospital evolution were reviewed using clinical records and radiological data. Aneurysms were classified according to anterior or posterior circulation. Treatment consisted of either endovascular therapy or microsurgical clipping depending on aneurysm characteristics and overall clinical status. Functional outcome at discharge was evaluated using the modified Rankin Scale (mRS) when available.

Results. A total of 89 patients with ruptured intracranial aneurysms were included in the study. The cohort consisted of 47 women and 42 men. Arterial hypertension was the most frequent vascular risk factor, present in 67 patients. Most aneurysms were located in the anterior circulation (77 cases), while 10 cases involved the posterior circulation. Endovascular therapy represented the main treatment modality and was performed in the majority of patients, whereas microsurgical clipping was used in selected cases. During hospitalization, 22 patients died, while 67 patients survived. Higher clinical severity at admission and the presence of vascular comorbidities appeared to be associated with a more complicated clinical course and unfavorable evolution.

Conclusions. In this single-center cohort, ruptured intracranial aneurysms were predominantly located in the anterior circulation and were frequently associated with arterial hypertension. Endovascular treatment represented the principal therapeutic strategy. Clinical severity at admission and the development of secondary complications appeared to play a central role in determining early clinical evolution.

Keywords. aneurysmal subarachnoid hemorrhage, ruptured intracranial aneurysm, endovascular treatment, clipping, hypertension, neurosurgery.

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40. PRESCHOOL AGE (2-6 YEARS) AS AN INDEPENDENT RISK FACTOR FOR POSTOPERATIVE SEPTIC COMPLICATION IN PEDIATRIC ACUTE APPENDICITIS

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Introduction. Acute appendicitis represents one of the most frequent surgical emergencies in pediatric practice. Young children constitute a particularly vulnerable subgroup, due to an atypical and polymorphic clinical presentation, delayed diagnosis and anatomo-physiological immaturity of the greater omentum, which favors rapid progression toward complicated forms and postoperative septic complications.

Aim of study. To evaluate the correlation between patient age and the incidence of postoperative septic complications following appendectomy, and to identify the age group at highest risk.

Methods and materials. A retrospective observational study was conducted over 14 months (November 2024 – December 2025) at the Mother and Child Institute, Chișinău. A cohort of thirty pediatric patients (aged 2-18 years) with a confirmed diagnosis of acute appendicitis was selected. Patients were divided into two groups: Lot 1 (n=15) with postoperative septic complications (peritonitis, sepsis, abscesses, wound infections) and Lot 0 (n=15) with a favourable postoperative course. Patients were further stratified into three age groups: preschool (2-6 years), school-age (7-12 years), and adolescents (13-18 years), with the distribution across lots analysed for each group.

Results. An inverse correlation was observed between pediatric patient age and the risk of postoperative septic complications. In the preschool group (2-6 years), 75% of patients developed septic complications and were included in Lot 1, supporting the proposed hypothesis. In the school-age group (7-12 years), the distribution was relatively balanced, with a slight predominance of complicated cases (53,3%). In contrast, among adolescents (13-18 years), 71,4% had an uncomplicated postoperative course, suggesting a lower susceptibility to septic complications. The mean age sample was 9,4 years, with a minimum value of 2 years, confirming the presence of the highest-risk group within the studied cohort.

Conclusions. Preschool age (2-6 years) constitutes a clinically significant risk factor for the development of postoperative septic complications in pediatric acute appendicitis. The rapid progression of the inflammatory cascade, atypical symptomatology, and immaturity of the defence mechanisms specific to this age group necessitate heightened clinical vigilance, early surgical intervention, and aggressive postoperative monitoring.

Keywords. acute appendicitis, pediatric surgery, septic complications, risk factors, preschool age.

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41. EXTERNAL VALIDATION OF AN ARTIFICIAL INTELLIGENCE MODEL FOR MRI-BASED BRAIN TUMOR CLASSIFICATION

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Introduction. Performing the differential diagnosis between a glial tumor and a meningioma represents an important challenge in clinical practice. This process involves a certain degree of subjectivity, and the outcome may vary depending on the specialist. In this context, artificial intelligence (AI) demonstrates significant potential in the analysis of medical images, becoming a valuable support in current clinical practice.

Aim of study. To evaluate the performance of an AI model for the classification of glioma versus meningioma using a proprietary clinical dataset.

Methods and materials. A YOLOv11 model was trained using transfer learning on an open-access MRI image dataset. External validation was performed on a proprietary clinical dataset of 110 cases (77 gliomas and 33 meningiomas), using T1-weighted contrast (T1c) scans. Model performance was evaluated using accuracy, sensitivity, specificity, and macro F1 score.

Results. The model demonstrated relatively good performance in the task of classifying the studied brain tumors. The overall accuracy obtained was 86.4%, with a sensitivity of 89.6% and a specificity of 78.8%. The macro F1 score reached 83.8% (95% CI: 75.8-90.8). For the glioma class, the F1 score was 90.2%, which was higher than for the meningioma class, where the F1 score was 77.6%.

Conclusions. The developed YOLOv11 model demonstrated solid performance under external validation on real clinical data. Thus, AI shows the potential to be used as an auxiliary support tool in the diagnostic process.

Keywords. Artificial intelligence, glioma, meningioma, MRI.

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42. CHARACTERISTICS OF DISTAL HAND EXTENSOR APPARATUS INJURIES: A RETROSPECTIVE STUDY

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Introduction. Injuries of the extensor apparatus of the hand are frequently seen in clinical practice and may significantly affect hand function, particularly when the distal segments are involved. Because extensor tendons play a crucial role in finger extension and coordinated hand movements, accurate diagnosis and timely surgical management are essential for achieving favorable functional outcomes.

Aim of study. The aim of this study was to analyze the clinical and therapeutic characteristics of distal hand extensor apparatus injuries, focusing on the distribution of injury mechanisms and the treatment approaches used in clinical practice.

Methods and materials. A retrospective clinical study was conducted on 125 patients with extensor tendon injuries of the hand treated between 2022 and 2025 at the Clinical Hospital of Traumatology and Orthopedics and the Emergency Medicine Institute in Chisinau. From the total cohort, a subanalysis was performed for injuries located in the distal extensor zones (Verdan I-II). Data regarding patient sex, age, injury mechanism, type of treatment, and anesthesia were extracted and analyzed using IBM SPSS Statistics software.

Results. Distal extensor apparatus injuries (Verdan zones I-II) were identified in 73 patients. The sex distribution was nearly equal, including 36 males (49.3%) and 37 females (50.7%). The mean patient age was 44.6 ± 13.9 years, ranging from 7 to 79 years. The most frequent injury mechanism was avulsion, observed in 65.3% of cases, followed by contusion (16.7%), laceration (11.1%), and crush injuries (6.9%). Surgical treatment most commonly consisted of tendon suturing (80.8%), while tendon reattachment procedures were performed in 11.0% of cases and tenoplasty in 8.2%. Local anesthesia was predominantly used (87.7%), whereas regional anesthesia accounted for 11.0% of cases and general anesthesia for 1.4%.

Conclusions. Distal extensor tendon injuries of the hand are predominantly associated with avulsion mechanisms and are typically treated through tendon suturing under local anesthesia. The predominance of these injury patterns highlights the importance of accurate diagnosis and timely surgical intervention in distal extensor zones. A better understanding of the clinical characteristics of these injuries may contribute to improved treatment planning and optimization of functional outcomes.

Keywords. extensor tendon injuries, distal extensor apparatus, Verdan zones I-II, tendon repair, hand surgery.

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43. ETIOLOGICAL AND EVOLUTIONARY FEATURES OF ACUTE KIDNEY INJURY IN PATIENTS TREATED WITH RENAL REPLACEMENT THERAPY

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Introduction. Acute kidney injury (AKI) is a condition characterized by a sudden deterioration of renal function, leading to the accumulation of nitrogenous waste products and the development of fluid and electrolyte disturbances. This condition is common in clinical practice and is associated with an increased risk of complications and mortality, especially in hospitalized patients. Renal replacement therapy plays a crucial role in the management of the disease, contributing to the correction of metabolic imbalances and stabilization of the patient's general condition. In this context, evaluating the causes that lead to the development of AKI and analyzing patient outcomes are important for optimizing therapeutic strategies.

Aim of study. To analyse the etiological characteristics of acute kidney injury and to evaluate the clinical evolution of patients treated with renal replacement therapy.

Methods and materials. The study included 48 patients with acute kidney injury hospitalized between 2024 and 2025 in the Dialysis and Renal Transplantation Department of the IMSP Republican Clinical Hospital ,,Timofei Moșneaga" and treated with hemodialysis. The causes that led to the development of AKI and the clinical course of patients during hospitalization were analyzed. According to the underlying mechanism, the etiology of AKI was classified into three categories: prerenal, renal and postrenal. Patient outcomes were analyzed using descriptive statistical methods.

Results. Etiological analysis showed that prerenal forms were the most frequent, accounting for 37,5% of all cases, followed by renal causes (33,3%) and postrenal causes (29,2%). The identified causal factors included severe infections such as sepsis, peritonitis, and pancreatitis, oncological conditions, intoxications, drug-related toxicity, as well as urinary tract obstruction caused by lithiasis or tumor processes. A comparative analysis of cases from 2024 and 2025 revealed an increase in the proportion of postrenal forms in 2025. Clinical outcome was favorable in most cases, with a survival rate of 85,4%, while mortality accounted for 14,6%.

Conclusions. Acute kidney injury has a diverse etiology and a heterogeneous clinical presentation, determined by multiple pathogenic mechanisms. In the studied group, prerenal mechanisms were the most frequent, followed by renal and postrenal forms. Renal replacement therapy played an important role in the management of these patients, contributing to the stabilization of renal function and favorable outcomes in the majority of cases. Early diagnosis and prompt initiation of treatment may positively influence the prognosis of patients with AKI.

Keywords. acute kidney injury, etiology, hemodialysis, renal replacement therapy, clinical outcome.

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44. ARTIFICIAL INTELLIGENCE FO MANAGING THE COMPLEXITY OF BRCA1/BRCA2 ALTERATIONS IN AGGRESSIVE PROSTATE CANCER

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Introduction. BRCA1/BRCA2 alterations, particularly BRCA2, define a clinically important criteria of prostate cancer characterized by increased hereditary risk, aggressiveness, and worse outcomes. BRCA2 mutations are reported in approximately 1.2–3.2% of prostate cancer cases and increase risk by 3–8.6-fold, whilst BRCA1 mutations may confer up to a 4 times increase in risk. A major challenge remains the interpretation of rare variants, variants of uncertain significance (VUS), and homologous recombination deficiency (HRD) beyond conventional mutation testing.

Aim of study. To evaluate how artificial intelligence can improve interpretation of BRCA1/BRCA2 alterations and detection of HRD-related aggressive prostate cancer phenotypes.

Methods and materials. There was performed a narrative synthesis of studies on BRCA-associated prostate cancer and AI-based tools for variant classification, mutational signature analysis, and ctDNA-based HRD detection. Search engines like PubMed Database, Google Scholar were used and were considered the terms: BRCA, Cancer, Artificial intelligence (AI), Machine learning (ML), Prostate cancer. 15 articles were found.

Results. AI models improved BRCA variant interpretation: BRCA-ML achieved, for BRCA2, an MCC of 0.73, 97.7% sensitivity, and 85.1% specificity, while a BRCA1-specific XGBoost model trained on 3,335 reviewed variants reached 99.9% accuracy, 100% sensitivity, and 99.8% specificity, and correctly prioritized 2,115 potentially pathogenic variants among 31,058 unreviewed BRCA1 variants. On an independent set of 213 BRCA1 VUS with functional data, the same model achieved 92.0–93.4% accuracy. In prostate cancer, HRD analyses of 311 whole genomes and 498 whole exomes showed that HRD-associated signatures also occur in tumors without detectable BRCA1/2 mutations, suggesting that 5–8% of localized prostate cancers may still be candidates for PARP inhibitor therapy. In metastatic disease, DARC Sign, developed on 155 ctDNA exomes including 129 metastatic prostate cancer cases, identified BRCA2 deficiency with an AUC of 0.99.

Conclusions. In BRCA-associated prostate cancer, AI has two major clinical utilities: improving the classification of rare BRCA1/BRCA2 variants and identifying functional HRD/BRCAness beyond conventional mutation testing. This may enhance risk stratification and help identify patients more likely to benefit from targeted therapies, particularly in the setting of aggressive BRCA2-driven disease.

Keywords. Artificial intelligence, Machine Learning, BRCA 1/2, Prostate Cancer.

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45. ARTIFICIAL INTELLIGENCE IN EQUIVOCAL PI-RADS LESION ASSESSMENT: SYSTEMATIC REVIEW AND META ANALYSIS

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Introduction. PI-RADS 3 and borderline PI-RADS 4 lesions account for 30-40% of mpMRI findings, creating substantial diagnostic uncertainty in urological practice. Inter-observer variability remains high (kappa 0.45-0.60), generating uncertainty and leading to biopsy recommendations in 60-80% of cases, with benign results in 40-60% and csPCa miss rates up to 25% in negative biopsies.

Aim of study. To systematically review the latest studies that are evaluating AI models for reclassification of equivocal PI-RADS lesions, quantifying diagnostic accuracy, negative predictive value, and reduction in unnecessary biopsies.

Methods and materials. A narrative review and meta-analysis were conducted. Analysis is based on 10 studies carried out between 2024-2026. Deep learning algorithms (CNN/transformer) analyzed T2-weighted, diffusion-weighted and dynamic contrast-enhanced MRI sequences. Primary outcomes included reclassification rates, negative predictive value for biopsy avoidance, diagnostic sensitivity/specificity, and biopsy reduction.

Results. In 65% of PI-RADS 3 lesions have been reclassified by AI algorithms: 61% have been downgraded to PI-RADS 2 or less (pooled NPV 95.8%, CI 95%) avoiding biopsy; on the other hand 39% upgraded to PI-RADS 4 or more, requiring biopsy. PI-RADS 4 lesions saw 27% downgrading (PPV 92.1%). Diagnostic performance reached sensitivity 94.2% (IQR 91- 97%) and specificity 86.7% (IQR 84-90%), surpassing radiologist baseline readings (78%/79%). Biopsy reduction averaged 39% (from 78% to 46% of equivocal cases; OR=0.61, 95% CI 0.52- 0.72), while csPCa detection remained stable at 51.2%. Inter-observer agreement improved from κ=0.59 to 0.87. Processing averaged 28 seconds per case.

Conclusions. Equivocal PI-RADS lesions remain a challenge for selecting the appropriate diagnosis and treatment strategy, but AI reassessment demonstrates superior precision and clinical efficiency, enabling avoidance of 39% unnecessary biopsies without compromising csPCa detection. Prospective multicenter validation will facilitate integration into standard urological protocols.

Keywords. prostate cancer, artificial intelligence, PI-RADS, mpMRI, equivocal lesions.

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46. CHRONIC DYSPHONIA IN ADULTS - AN ONCOLOGICAL WARNING SYMPTOM

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Introduction. Chronic dysphonia is defined as a persistent change in voice quality lasting more than 4 weeks. Although it is often associated with inflammatory conditions or laryngopharyngeal reflux, persistent dysphonia in adults may represent the first and sometimes the only clinical sign of laryngeal cancer.

Aim of study. Evaluation of chronic dysphonia in adults as an early oncological warning symptom and identification of associated risk factors.

Methods and materials. The research was conducted as a retrospective observational study, complemented by an analysis of the international specialized literature. Cases of persistent dysphonia lasting more than 3 weeks, investigated within ENT services, were evaluated.

Results. Persistent dysphonia lasting more than 4 weeks in adults, especially in smokers over 40–45 years, should be considered an oncological warning sign. Associated symptoms include progressive dysphagia, odynophagia, unilateral otalgia, dyspnea, hemoptysis, and cervical lymphadenopathy. Laryngeal cancer remains one of the most common head and neck malignancies worldwide, with a higher incidence in men (approximately 4:1 male-to-female ratio). Major risk factors include active smoking, chronic alcohol consumption, occupational exposure to harmful substances, chronic reflux, and HPV infection, with a synergistic effect of tobacco and alcohol significantly increasing carcinogenic risk. Population studies indicate that about 2–3% of adults with persistent dysphonia are subsequently diagnosed with laryngeal cancer, with higher rates in smokers and individuals over 45. In smokers over 50, the risk rises further, and prolonged empirical treatment without endoscopic evaluation may delay diagnosis. In the Republic of Moldova, the incidence of head and neck cancers is influenced by high smoking and alcohol prevalence. The estimated incidence of laryngeal cancer is 7–9 cases per 100,000 inhabitants annually, most diagnosed in stages III–IV (55–60%), negatively affecting prognosis and 5-year survival. International guidelines recommend ENT evaluation with laryngoscopy for any persistent dysphonia lasting more than 4 weeks or earlier in the presence of risk factors.

Conclusions. Chronic dysphonia in adults is often perceived as a minor or benign symptom, but it can have significant oncological implications, serving as an early warning sign of laryngeal or other head and neck cancers. In the context of the Republic of Moldova, where risk factors such as tobacco and alcohol use are prevalent, increasing awareness among both healthcare providers and the general population is critical. Early referral to an ENT specialist and timely laryngoscopic evaluation are essential for detecting malignancies at early stages.

Keywords. Chronic dysphonia, laryngeal cancer, risk factors, early diagnosis.

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47. ACUTE MESENTERIC ISCHEMIA: A RETROSPECTIVE COHORT STUDY OF DIAGNOSTIC CHALLENGES, THERAPEUTIC STRATEGIES, AND FACTORS ASSOCIATED WITH MORTALITY

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Introduction. The aim of this study was to evaluate the clinical and paraclinical characteristics, diagnostic challenges, the value of biological markers, and the therapeutic approaches used in patients with mesenteric ischemia. The assessed management strategies ranged from conservative treatment to interventional radiology, open surgery, and hybrid approaches.

Case presentation. A retrospective observational cohort study was conducted on 21 patients treated for acute intestinal vascular disorders between January 2025 and February 2026. The mean age of the patients was 71.8 years, with a male predominance (76.2%). The most common comorbidities were atherosclerosis (90.4%), heart failure NYHA II–III (71.4%), and atrial fibrillation (66.6%). Patients were classified into five groups according to the presumed underlying mechanism: acute arterial ischemia (42.8%), venous ischemia (14.2%), non-occlusive/microvascular ischemia (23.8%), secondary ischemia (9.5%), and cases with major diagnostic difficulties or initial diagnostic errors (9.5%). Delayed presentation was frequent, with 76.2% of patients seeking medical assistance more than 24 hours after symptom onset. The therapeutic modalities applied included conservative treatment (23.8%), endovascular procedures (9.5%), and open surgery (66.6%).

Discussions. The overall mortality rate in this cohort was 61.9%. Mortality appeared to vary according to etiology. Group I (arterial ischemia) had the highest mortality, reaching 100%, mainly in patients with extensive bowel necrosis, irreversible shock, and severe reperfusion-related deterioration. Groups IV and V also showed very high mortality, mainly in the context of septic shock. In contrast, Group II and Group III had more favorable outcomes in this small cohort, suggesting a potential benefit of earlier diagnosis and timely therapeutic intervention, including conservative management or staged surgery in selected cases. From a biological perspective, severe metabolic acidosis (pH< 7.25, BE< -8 mmol/L) was present in all patients who developed multiple organ dysfunction syndrome (MODS) and subsequently died. Markedly elevated D-dimer levels (>5.0 mg/L) were observed in cases with major arterial thrombosis or disseminated intravascular coagulation (DIC) during the septic phase.

Conclusions. Mesenteric ischemia remains a severe condition associated with high mortality, particularly in patients with delayed presentation. In this cohort, occlusive arterial ischemia was associated with the worst outcomes, whereas venous and non-occlusive forms had more favorable survival. These findings underline the importance of early recognition and timely therapeutic intervention in improving patient outcomes.

Keywords. Acute mesenteric ischemia, retrospective cohort study, mortality, endovascular treatment, metabolic acidosis.

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48. IMMUNE DYSFUNCTION IN INTERSTITIAL CYSTITIS: MOLECULAR MECHANISMS, PHENOTYPIC HETEROGENEITY, AND MODERN THERAPEUTIC IMPLICATIONS

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Introduction. Interstitial cystitis, or bladder pain syndrome, is a chronic condition marked by pelvic pain, urinary urgency, and frequency without infection. Its causes are unclear, but immune dysfunction, urothelial barrier disruption, and neuroimmune interactions drive inflammation and symptom variability.

Aim of study. Interstitial cystitis, also known as bladder pain syndrome, is a chronic condition characterized by persistent pelvic pain, urinary urgency, and frequency in the absence of documented urinary infection. Its etiology remains incompletely understood, but recent evidence suggests that immune dysfunction plays a central role in initiating and sustaining bladder inflammation. Urothelial barrier disruption, immune cell activation, and neuroimmune interactions contribute to symptom development and clinical variability in affected patients.

Methods and materials. A narrative review of PubMed, Scopus, and Web of Science was performed, including clinical studies, systematic reviews, and international urological guidelines relevant to interstitial cystitis pathophysiology and management. Keywords used included “interstitial cystitis,” “bladder pain syndrome,” “immune dysfunction,” “mast cells,” “cytokines,” and “Hunner lesions.” Studies assessing immune mechanisms, histopathological changes, and clinical correlations were included, while articles with unclear methodology or very small sample sizes were excluded.

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Results. Evidence indicates that immune dysfunction in interstitial cystitis involves mast cell, T- and B-lymphocyte activation, and the release of proinflammatory cytokines, which sustain chronic bladder wall inflammation. Concurrently, urothelial barrier disruption increases bladder permeability and enhances sensory nerve activation. Neuroimmune interactions mediated by nerve growth factor and vasoactive peptides contribute to pain amplification and bladder sensitization. Phenotypic heterogeneity is notable: patients with Hunner lesions exhibit marked inflammation and characteristic endoscopic findings, while non-Hunner forms show subtler inflammation with predominantly functional symptoms. Recognizing these phenotypes has therapeutic implications, enabling individualized treatment approaches, including endoscopic interventions, immunomodulatory therapy, or neuroimmune-targeted strategies.

Conclusions. Immune dysfunction is a key mechanism in interstitial cystitis pathogenesis and contributes to clinical variability. Identifying immune phenotypes and correlating them with clinical presentation may facilitate the development of personalized therapeutic strategies. Integrating immunological, clinical, and endoscopic data may improve diagnosis and treatment efficacy, optimizing patient management in this complex condition.

Keywords. Interstitial cystitis, cytokines, hunner lesions, bladder pain syndrome. **https://doi.org/10.66603/medespera2026.422**

49. HEPATIC CHOLANGIOCARCINOMA AND LIVER TRANSPLANTATION: FACTORS AND SUBTYPES AMENDABLE TO SURGICAL RESOLUTION

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Introduction. Cholangiocarcinoma (CCA) is a malignant epithelial neoplasm of the biliary tract and the second most common primary hepatic malignancy after hepatocellular carcinoma. Classified into intrahepatic (iCCA), perihilar (pCCA), and distal subtypes, each variant presents distinct biological behavior and resectability profiles. Historically contraindicated due to high recurrence rates, liver transplantation in CCA has been redefined by advances in staging protocols and neoadjuvant chemoradiotherapy.

Aim of study. To identify the oncological, anatomical, and clinical factors that determine resolution through orthotopic liver transplantation (OLT) in hepatic CCA, with emphasis on tumor subtype, staging criteria, and long-term survival outcomes.

Methods and materials. A narrative review was conducted using PubMed and Scopus, including peer-reviewed publications and consensus transplant guidelines addressing CCA and OLT, with outcomes assessed by 3- and 5-year overall and recurrence-free survival stratified by subtype.

Results. Perihilar CCA meeting Mayo Clinic criteria — unresectable lesions ≤3 cm confined to the porta hepatis, no extrahepatic metastases, no prior transperitoneal biopsy, and completion of neoadjuvant chemoradiotherapy (external beam radiation, brachytherapy, capecitabine) — demonstrated post-transplant 5-year survival of 65–70%. iCCA arising in primary sclerosing cholangitis (PSC) or as incidental lesions ≤2 cm on explanted livers achieved acceptable 3-year recurrence-free survival in patients lacking vascular invasion or nodal involvement, with biomarker profiling (CA 19-9, CEA) essential for selection. PSC-associated CCA offered a dual indication, addressing both malignancy and end-stage biliary disease through a single intervention. Key resolvability factors included unresectable tumor anatomy, absence of nodal or peritoneal dissemination, sustained neoadjuvant response, ECOG performance status ≤2, and absence of prior peritoneal seeding procedures.

Conclusions. Liver transplantation in CCA is no longer an absolute contraindication but a precisely defined option for patients meeting validated criteria. Resolvability through OLT depends on a convergence of anatomical, oncological, and clinical factors, with perihilar CCA under the Mayo Protocol holding the strongest evidence base and iCCA in PSC representing an emerging frontier. Multidisciplinary evaluation, early referral, and neoadjuvant optimization remain essential determinants of surgical resolution.

Keywords. cholangiocarcinoma, liver transplantation, perihilar CCA, Mayo Protocol, primary sclerosing cholangitis, neoadjuvant chemoradiotherapy, transplant candidacy.

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50. MANAGEMENT OF TRAUMA PATIENTS WITH HEPATIC INJURIES: EXPERIENCE OF A LEVEL III TRAUMA CENTER

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Introduction. Traumatic liver injuries (TLI) are associated with high morbidity and mortality. Latest guidelines favor non-operative management (NOM) for stable patients, while operative management (OM) remains essential for severe injuries.

Aim of study. To conduct a survey of therapeutic outcomes of non-operative vs operative management in TLI in a specialized trauma institution.

Methods and materials. A retrospective study included patients with TLI treated at the Institute of Emergency Medicine, 2021-2025. Data regarding demographics, clinical, imaging, curative approaches, and patient outcomes were collected and analyzed.

Results. A total of 19 patients met the including criteria. Mean age 40.1±15.7 years, M:F ratio 17:2. Blunt trauma-10(53%) [road traffic accidents 4, catatrauma 3, assaults 3]; open trauma–7(37%); 2-unknown mechanism (10%). On admission, 4(21%) were hemodynamically unstable; because of a positive FAST exam these patients went directly to the operating room for laparotomy. The stable patients (15, 79%) were examined by FAST (15, 100%), positive in 8(53.33%), X-ray 7(47%), CT 12(80%): native CT 2, CECT 10; and diagnostic laparoscopy 1(7%). According to AAST solid organ damage grading system injury grade I was recorded in 4 cases (21%), II–5(26%), III–5(26%), and IV–5(26%). In 10(53%) cases; initial management focused on NOM (group I), while 9(47%) patients required immediate surgical intervention (group II). In 1 case (10%) NOM failed, necessitating delayed laparotomy. Mean presentation-to-intervention time 1.74±0.71h; mean intervention time 1.85±0.61h. Complications were registered in 9 cases (47.37%), including 2(22.2%) from NOM group [pneumonia/atelectasis 1, abdominal abscess 1] and 7(77.8%) from OM group [pneumonia/atelectasis 6, hepatic/abdominal abscess 3, sepsis 2] ($p<0.05$). Length of stay in NOM group 5.4±3.4 days, including ICU 2.0±1.7 days; while in OM group 17.9±9.8 days [range 7-34 days], including ICU 9.1±7.6 days. Associated injuries were in 18 cases (94.34%): hemothorax 8(42%), pulmonary contusion 8(42%), rib fractures 5(26%), and pneumothorax 3(16%), diaphragmatic rupture 4(21%), spleen injury 4(21%), and pancreatic lesion 3(16%). Overall death rate for TLI was 2(11%), both after OM due to postoperative infectious complications leading to sepsis($p<0.05$).

Conclusions. Management of TLI is guided by injury severity, hemodynamic status, and associated injuries. OM was chosen in patients with hemodynamic imbalance and active intraperitoneal bleeding; however, it carried a higher risk of complications and longer hospital stay. NOM was safe in stable patients, with lower complication rates and shorter hospitalization.

Keywords. traumatic liver injury, FAST ultrasound, computed tomography, non-operative management, hepatorrhaphy.

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51. ULTRASOUND BIOMICROSCOPY IN ANTERIOR SEGMENT OCULAR TRAUMA: ANGLE RECESSION CILIOCHOROIDAL EFFUSION

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Introduction. Anterior segment ocular trauma can produce subtle structural lesions that are often undetectable on slit-lamp examination or gonioscopy, particularly in the presence of hyphema or media opacity. Blunt trauma may cause angle recession, while penetrating trauma can lead to ciliochoroidal effusion. These complications increase the risk of secondary glaucoma if not identified and monitored early. Ultrasound biomicroscopy (UBM) provides high-resolution imaging that allows detection of these hidden changes, supporting timely follow-up and intervention.

Aim of study. The aim of this study was to evaluate the role of UBM in detecting angle recession and ciliochoroidal effusion in patients with anterior segment trauma and to demonstrate its value in preventing secondary glaucoma.

Methods and materials. Six patients with anterior segment trauma were evaluated. Three patients with blunt trauma presented with hyphema, decreased visual acuity, and normal intraocular pressure, which limited gonioscopic assessment. Three patients with penetrating trauma, including two hypotensive males and one normotensive female, all had ciliochoroidal effusion. UBM was performed in all patients to assess the ciliary body and anterior chamber angle.

Results. UBM revealed angle recession in all patients with blunt trauma, which was not identifiable on slit-lamp examination due to hyphema. In the penetrating trauma group, UBM detected ciliochoroidal effusion in all three patients, associated with hypotony in the two male patients, while the female patient remained normotensive. Early identification of these complications allowed close monitoring and management, contributing to the prevention of secondary glaucoma in all cases.

Conclusions. UBM is a valuable, non-invasive tool for evaluating anterior segment trauma. By identifying hidden lesions such as angle recession and ciliochoroidal effusion, it enables early recognition and follow-up, supporting interventions that may prevent secondary glaucoma and improve patient outcomes.

Keywords. Ocular Trauma, Ultrasound Biomicroscopy, Hyphema.

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52. RESTORING CRANIAL ARCHITECTURE FOLLOWING LIFESAVING DECOMPRESSION: FRONTO-TEMPORO-PARIETAL PMMA CRANIOPLASTY IN SEVERE TRAUMATIC BRAIN INJURY

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Introduction. Cranioplasty following decompressive craniectomy is essential for restoring the skull's protective barrier, aesthetic architecture and normalising cerebrospinal fluid (CSF) dynamics. While traditionally performed 3 months post-injury, optimal timing remains disputable. This case aims to present a technically successful delayed polymethylmethacrylate (PMMA) cranioplasty overshadowed by a fatal, unrelated secondary trauma.

Case presentation. A 34-year-old female presented to the Emergency Department after a severe traumatic brain injury (TBI) from accidental blunt force trauma. Comatose on admission (GCS 3), intubated, with left anisocoria, her head CT revealed a left acute subdural haematoma (ASDH), marked cerebral oedema, 12 mm rightward midline shift (Marshall Scale IV), absent basal cisterns, left temporal and bilateral cerebellar haemorrhagic contusions with coronal suture dehiscence. An emergent left fronto-temporo-parietal (FTP) decompressive craniectomy was performed. The 24h postoperative CT confirmed successful decompression with a preserved midline and visible basal cisterns. Serial CTs over 4 weeks showed complete resorption of contusions. She required CPAP ventilation and a tracheostomy at two weeks. Under comprehensive medical management (antibiotics, cerebral depletives, anticonvulsants, neurotropics, thrombosis prophylaxis) and gradual mobilisation, she achieved a highly favourable neurological recovery with optimal wound healing. Readmitted for cranial reconstruction, she exhibited residual bradylalia and bradypsychia. A left FTP cranioplasty was successfully performed using a PMMA implant. The 24h postoperative CT confirmed correct anatomical positioning without haemorrhagic complications, leading to a favourable clinical evolution.

Discussions. The FTP bone defect was surgically reconstructed using PMMA. Although PMMA offers excellent biomechanical strength comparable to native bone and high adaptability for cranial areas, it is a non-viable synthetic material. This increases susceptibility to bacterial adherence due to fibrous encapsulation. The patient was strictly advised upon discharge to avoid physical exertion and severe weather exposure in order to prevent mechanical stress and prevent implant breakdown.

Conclusions. The two-stage surgical management was highly effective for anatomical reconstruction and neurological recovery. However, the long-term success of the implant heavily relies on strict adherence to postoperative lifestyle restrictions to prevent mechanical and infectious complications.

Keywords. „severe traumatic brain injury”, „decompressive craniectomy”, „polymethylmethacrylate implant”, „cranioplasty”.

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53. THE ROLE OF ARTIFICIAL INTELLIGENCE IN DETECTING CANCER CELLS IN URINARY CYTOLOGY TO REDUCE THE NUMBER OF CYTOSCOPIES

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Introduction. Urothelial carcinoma is the second most common urological malignancy. Cystoscopy is the primary method for diagnosing bladder cancer. Urine cytology is a non-invasive method for screening urothelial carcinoma.The use of artificial intelligence(AI) to detect abnormal cells in urine samples can improve the quality of cytological results.

Aim of study. Evaluation of the use of AI models in the analysis of urine samples for cytological examination as a non-invasive method for the early diagnosis of urothelial carcinoma with the aim of reducing the number of diagnostic cystoscopies.

Methods and materials. The research method used to identify aspects of the topic under study was analytical. The Pubmed, Google Scholar and Science Direct databases were used. Priority was given to publications based on clinical studies conducted in 2020-2025. All information was analyzed exclusively based on scientific journals in the field of urology.

Results. Urethrocystoscopy and urine cytology are recommended for any suspected upper urinary tract tumor. Cystoscopy as an invasive diagnostic method has certain complications and risks, but the use of AI in urine cytology can help avoid them for the diagnosis of urothelial carcinoma. AI models help pathologists standardise cellular atypia. Algorithms for the AI detection of pathological cells in urine sediment are mainly based on the Paris System classification. In studies, the sensitivity of AI models varies between 70% and 90%, while specificity varies between 60% and 80% in the detection of malignant cells. Compared to manual evaluation of cytological preparations, AI assisted cytology provided higher sensitivity in the evaluation of HGUC and carcinoma in situ, regardless of the pathologist's experience The use of AI is subject to a number of limitations, including the need for reliable training data sets and validation studies to ensure the accuracy of algorithms.The use of AI has made it possible to automate the stages of preliminary screening and sorting of cytological preparations, reducing the analysis time and workload for specialists. In most studies, AI was considered as a decision support tool rather than an independent diagnostic method.

Conclusions. The implementation of AI in urine cytology can improve diagnostic precision, standardize procedures, and increase their efficiency while reducing the need for invasive methods. Larger-scale prospective multicentre studies are needed to confirm these benefits as well as to develop standard clinical protocols.

Keywords. Cystoscopy, artificial intelligence, urothelial carcinoma, urine, cytology.

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54. SURGICAL APPROACH TO NASAL DEFECTS: CLASSIFICATION AND USE OF GRAFTS IN RECONSTRUCTIVE RHINOPLASTY

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Introduction. Reconstructive rhinoplasty restores nasal form and function after surgical excision, trauma, or congenital anomalies. Nasal defects may affect different subunits of the nasal pyramid and require individualized reconstructive strategies depending on defect size and location. Appropriate graft selection is essential for structural stability and optimal aesthetic outcomes.

Case presentation. Two clinical cases of structural nasal defects following surgical excision were analyzed. The first case involved bilateral alar defects with loss of cartilaginous support and distortion of the nasal contour. Reconstruction was performed using bilateral free cartilage grafts harvested from the auricular concha to restore alar support and external nasal valve stability. The second case involved a combined defect of the nasal tip and one alar region. Reconstruction was performed using a free cartilage graft harvested from the left auricular concha, sculpted to restore nasal tip projection and contour symmetry. Auricular cartilage was chosen due to its natural curvature, flexibility, availability, and low donor-site morbidity.

Discussions. Nasal reconstruction may involve grafts or vascularized flaps. Grafts include autologous grafts (auricular cartilage, costal cartilage, bone, dermis), allogeneic grafts, and alloplastic materials. Autologous grafts remain the gold standard because of their biocompatibility and low complication rates. Auricular cartilage is particularly useful for reconstruction of the nasal tip and alar structures. Local and regional flaps provide vascularized tissue coverage for larger or more complex nasal defects.

Conclusions. Post-ablative reconstructive rhinoplasty requires individualized surgical planning. Autologous cartilage grafts, particularly auricular cartilage, represent an effective option for moderate structural nasal defects, allowing restoration of nasal contour, structural support, and facial symmetry with a low risk of complications.

Keywords. nasal defect, cartilage graft, auricular concha, reconstructive rhinoplasty.

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55. SINONASAL CHONDROSARCOMA: A CASE REPORT AND DIAGNOSTIC-THERAPEUTIC CHALLENGES

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Introduction. Sinonasal chondrosarcoma is a rare malignant bone tumor characterized by the production of cartilaginous matrix. In the head and neck region, it represents a small proportion of sarcomas and most frequently involves the maxilla, paranasal sinuses, and skull base. Due to its deep anatomical location and proximity to critical structures such as the orbit and anterior skull base, diagnosis and treatment remain challenging and require detailed imaging evaluation and multidisciplinary management.

Case presentation. We report the case of a 42-year-old female patient presenting with headache, left-sided hemicranial pain, and progressive nasal obstruction. Nasal endoscopy revealed mucosal hypertrophy and a suspicious lesion in the sphenoid sinus region. Computed tomography of the paranasal sinuses demonstrated complete opacification of the left sphenoid sinus associated with bone remodeling and focal bone destruction, suggestive of an expansive lesion. The patient underwent endoscopic sinus surgery including sphenoidotomy and transnasal tumor resection. Histopathological and immunohistochemical examination confirmed the diagnosis of high-grade conventional chondrosarcoma (G3). Surgical management restored sinonasal drainage and nasal patency while providing adequate tissue for definitive diagnosis.

Discussions. Sinonasal chondrosarcoma is characterized by relatively slow growth but significant potential for local invasion. Because symptoms are often nonspecific, diagnosis may be delayed and requires correlation of clinical findings with imaging and histopathological examination. Computed tomography and magnetic resonance imaging play an essential role in evaluating tumor extension and in planning surgical treatment. Complete surgical resection remains the cornerstone of therapy. In selected cases, the endoscopic endonasal approach allows effective tumor removal with improved visualization and reduced surgical morbidity.

Conclusions. This case highlights the diagnostic challenges associated with sinonasal chondrosarcoma and emphasizes the importance of multidisciplinary management. Endoscopic surgical resection allowed complete tumor removal and histopathological confirmation of the diagnosis, enabling subsequent oncologic management and favorable early postoperative evolution.

Keywords. chondrosarcoma; sinonasal tumor; sphenoid sinus; endoscopic surgery; head and neck sarcoma.

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56. CONTEMPORARY TREATMENT OF DISTAL RADIUS METAEPIPHYSEAL FRACTURES

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Introduction. Distal radius fractures are the most common of the upper extremity fractures,occurring in 16.2/10,000 people.Although the incidence of distal radius fractures (DRF) is increasing in all age groups, they are most common in children and the elderly.Research indicates that the first peak in the rate of distal radius fractures occurs in adolescence.The second increase begins in adults over 50 years of age and reaches a peak in the seventh to eighth decade of life.Distal radius fractures represent approximately 25% and 18% of all fractures in children and the elderly, respectively.

Aim of study. To determine and highlight the current principles of diagnosis and treatment of distal radius fractures,emphasizing contemporary therapeutic methods,in order to determine the most effective treatment method with a significant impact on the functional prognosis of the patient.

Methods and materials. According to the proposed purpose and objectives,a descriptive study was conducted,which included a group of 300 patients diagnosed with distal radius fracture, hospitalized and treated in the hand surgery department of the Orthopedics and Traumatology Hospital,during the period 2020-2024.A series of research materials and methods were used in the research. Medical records were analyzed based on a specially developed questionnaire.The questionnaire used in the study was a tool for collecting and analyzing retrospective data of patients with distal radius fracture.

Results. The clinical evolution following a radius fracture (DRF) requires a multidisciplinary approach to management and is usually divided into 2 periods: the initial fracture treatment period and the rehabilitation management period. The rehabilitation management period involves a team of rehabilitation specialists such as physiotherapists and/or physiotherapists,which may include physiotherapy procedures and/or physiotherapy occupations,most of whom are usually specialized in hand rehabilitation,collaborating with the medical surgical team.

Conclusions. According to the study group,the female gender predominated(61.67%) and elderly patients aged 62 years(47.67%), which suggests a higher prevalence of distal radius fractures among the female population and the elderly, being frequently associated with osteoporosis. Most of the fractures were simple fractures(59.67%) produced by an indirect mechanism, by extension, supported under habitual conditions(68.33%).These data indicate that most distal radius fractures occur in contexts of trauma by precipitation and support on the hand in daily activity,especially in people of advanced age. A significant number of patients,63.21%,presented late,within 21-45 days of the trauma.This highlights a tendency for late presentation,which may influence the choice of treatment method,the difficulty of fracture reduction and functional outcomes.

Keywords. radius fractures, distal metaepiphysis of the radius, extension fractures, flexion fractures.

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57. MEDICAL-SURGICAL TACTICS IN THE TREATMENT OF PANCREATIC PSEUDOCYST.

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Introduction. According to current data, the most frequent complication of severe acute pancreatitis is the development of pancreatic pseudocyst (PPC), with a frequency of 10-25%, and a lethality below 10%. The most frequent causes of PPC formation are pancreatic necrosis of various etiologies, and depending on the term of formation they can be acute (up to 3 months) and chronic (over 3 months), and depending on the localization they can be intra- and extrapancreatic. The surgical management of PPC currently remains a difficult problem, the causes being the obscure pathogenesis, unpredictable evolution, high lethality due to the development of serious complications, as well as controversies in the diagnostic criteria and surgical treatment.

Aim of study. To evaluate therapeutic outcomes and medico-surgical management in patients with PPC.

Methods and materials. A retrospective study included 53 patients with PPC, treated between 2020 and 2025. Males predominated with 35 (66%) cases compared to 18 (34%) cases among females. Patient age ranged from 21 to 77 years, with a mean age of 47.3 years. Hospital stay varied by approach: 20.86 days for conventional surgery, 11.44 days for minimally invasive surgery and 5.52 days for conservative treatment..

Results. All PPC cases resulted from acute destructive pancreatitis. According to endoscopic ultrasound and computed tomography investigations, the sizes of the collections varied between 13 mm and 180 mm in diameter, with predominant localization at the level of the pancreatic head (43.4%), followed by multisegmental involvement (35.8%). The clinical picture was dominated by pain syndrome, persistent vomiting, mechanical jaundice and signs of partial duodenal stasis. Conservative management was adopted for 22 patients (41,5%), with the therapeutic strategy determined by the morphological characteristics of the PPC, clinical stability, and the absence of severe complications. The remaining 31 patients (58.5%) required surgical intervention: 9 patients (29.0%) underwent minimally invasive transgastric endoscopic drainage, while 22 patients (71.0%) were subjected to classical laparotomy for internal or external drainage. Postoperative complications occurred in 5 (9.43%) patients, consisting of postoperative hemorrhages, anastomotic dehiscences, residual collections and wound suppurations, of which 3 patients required reintervention. No mortality was recorded.

Conclusions. 1. The method and volume of PPC treatment needs to be individualized and depends on the morphological phenotype, dimensions, anatomical location and the presence of intracystic complications. 2. Minimally invasive techniques are the method of choice in the complex treatment of PPC, having increased efficiency in cases with gastric compression. 3. In the development of suppurative, mechanical and hemorrhagic complications, open surgical interventions remain the treatment method of choice.

Keywords. pancreatic pseudocyst, surgical treatment, complications.
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58. THE ROLE OF AI IN OPTIMIZING TOTAL HIP ARTHROPLASTY IN PATIENTS WITH FEMORAL HEAD AVASCULAR NECROSIS

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Introduction. Avascular necrosis of the femoral head represents an orthopedic disorder caused by disruption of the blood supply to the proximal femur, which progressively leads to bone tissue degeneration and collapse of the articular surface. As the disease advances, patients experience persistent hip pain, reduced mobility, and progressive functional impairment. In the last stages of the disease, THA is considered the most effective surgical intervention to restore joint function and improve quality of life. Although surgical techniques and prosthetic designs have evolved considerably, surgeons still face difficulties related to accurate preoperative planning, correct implant orientation, and prediction of postoperative outcomes. In recent years, in many very well developed countries, AI technologies have started to play an increasing role in orthopedic practice by supporting clinical decision-making and improving surgical precision.

Aim of study. The purpose of this study is to describe the necessity of the AI in THA and how it can ease and shorten the time in the operating block.

Methods and materials. A narrative literature analysis was performed to investigate the current role of artificial intelligence in the management of patients undergoing THA due to femoral head avascular necrosis. Relevant publications from the last ten years were identified through searches in scientific databases such as PubMed. The selected studies addressed various AI-based applications, including automated medical image interpretation, preoperative planning software, predictive algorithms for surgical outcomes, and robotic or navigation-assisted arthroplasty systems.

Results. AI-supported imaging analysis allows improved detection and staging of avascular necrosis by facilitating the interpretation of radiological examinations such as MRI and CT. In addition, machine learning tools may assist surgeons during the planning phase by recommending implant dimensions and optimal component alignment based on patient-specific anatomical data. Predictive AI models are also capable of integrating clinical and demographic information in order to estimate postoperative risks, functional recovery, and the probability of complications.

Conclusions. AI is under development as a valuable technological support in orthopedic surgery, particularly in the management of patients undergoing THA for avascular necrosis of the femoral head. By improving diagnostic accuracy, facilitating personalized surgical planning, and enabling predictive outcome assessment, AI-based systems may enhance surgical efficiency and patient outcomes.

Keywords. Total Hip Arthroplasty, Femoral Head Avascular Necrosis, Artificial Intelligence, Surgical Planning, Orthopedic Surgery.

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59. OSTEOSYNTHESIS OF THE CLAVICLE: APPROACH TO THE TREATMENT OF FRACTURES

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Introduction. Clavicle fractures are a fairly common injury in adults. They account for 12.5–26.1% of all fractures in outpatient patients. The largest number of fractures occurs in the diaphyseal and proximal parts of the clavicle. Clavicle fractures in adult patients with fragment displacement requiring reduction occur in 86.9% of cases. Clavicle fractures in 4.0–5.0% of cases may be accompanied by damage to the acromioclavicular joint and, to a lesser extent, the sternoclavicular joint.

Aim of study. Determination of the most frequently used osteosynthesis methods depending on the type of fracture.

Methods and materials. This study was conducted based on data from 65 patients aged 18 to 68 years who underwent exclusively surgical treatment during the period from 10.01.2021 to 15.10.2025 in the Traumatology Department No. 1 of the Institute of Emergency Medicine, Chisinau, Republic of Moldova. In 2021, 12 cases (18.46%) were registered, in 2022 – 15 cases (23.08%), in 2020 – 22 cases (33.85%), in 2025 (in the period from 01.01.2025 to 15.10.2025) – 16 cases (24.61%).

Results. Depending on the methods of surgical treatment applied to the patients in the studied group, we obtained the following data: •Osteosynthesis using a screw plate – 62 (95.4%) cases •Osteosynthesis using pins and wire – 3 (4.6%) cases. Analyzing the type of surgical treatment applied in clavicle fractures, we obtained an impressive frequency of use of the osteosynthesis method with a screw plate, which indicates a high degree of use of this method in the surgical treatment of clavicle fractures. After that, we analyzed the relationship between the parameter of the type of osteosynthesis used and the parameter of the established diagnosis. We obtained the following data: Treatment using the osteosynthesis method with a screw plate was applied in 62 cases (95.4%) of fractures of the middle third of the clavicle. In 3 (4.6%) cases of fracture of the middle third of the femur, treatment was carried out using the osteosynthesis method with pins (these patients had oblique fractures without fragment displacement).

Conclusions. The conducted study showed that clavicle fractures with displacement in adult patients in most cases require surgical treatment. Based on the analysis of data from 65 patients, it was established that the most frequently used and preferred method of osteosynthesis is fixation with a screw plate, which was used in 95.4% of cases, mainly in fractures of the middle third of the clavicle. This indicates the high effectiveness, versatility, and clinical justification of this method in modern traumatological practice. The use of alternative osteosynthesis methods (pins and wire) was limited and used only in individual cases of oblique fractures without displacement.

Keywords. Osteosynthesis, Clavicle, Treatment, Fractures.

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60. DIAGNOSIS AND TREATMENT OF COLONIC POLYPS

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Introduction. Colonic polyps are protruding lesions originating from the mucosal layer of the intestine. These lesions are considered precancerous and are associated with a lifetime malignant transformation risk of approximately 3,9%-4,3%. One of the main goals of colorectal cancer screening is to reduce the incidence of colorectal cancer through the detection and removal of precancerous epithelial colonic neoplasm, which are identified in up to 50% of screening examinations. Advances in endoscopic techniques have improved both diagnostic accuracy and therapeutic outcomes.

Aim of study. This literature review evaluates current evidence on the diagnosis and endoscopic and surgical treatment options for colonic polyps, with an emphasis on the role of endoscopic approaches, particularly narrow-band imaging (NBI) colonoscopy, in comparison with other diagnostic and therapeutic methods.

Methods and materials. A clinical synthesis of the scientific literature published between 2020 and 2025 was conducted using the PubMed, Scopus, Google Scholar databases and Research4Life platform. The selection of studies was based on clinical relevance, up-to-date evidence, and the description of modern endoscopic techniques, with a particular focus on narrow-band imaging(NBI) colonoscopy. Statistical data from patients who underwent colonoscopy in the Department of Colorectal Surgery of the Republican Clinical Hospital ”Timofei Mosneaga”.

Results. The literature analysis demonstrated that colonoscopy remains the reference method for the screening, diagnosis, and treatment of colonic polyps. The use of advanced imaging techniques, particularly narrow-band imaging(NBI), in combination with the NICE classification provides a diagnostic specificity ranging from 94,9% to 100%. A major advantage of this investigation lies in the ability to perform biopsy, polypectomy, and optical diagnosis, thereby contributing to the prevention of colorectal cancer through the excision of precancerous lesions. Surgical management remains indicated in selected cases, particularly when deep invasion is suspected or when technical limitations preclude endoscopic treatment.

Conclusions. Current evidence from the medical literature supports the role of colonoscopy as the gold standard for the diagnosis and treatment of colonic polyps. When combined with advanced imaging techniques, colonoscopy enables more accurate diagnosis and effective treatment with a lower incidence of complications compared to other invasive methods, playing a key role in colorectal cancer prevention.

Keywords. Colonic polyps, colonoscopy, colorectal cancer, narrow-band imaging.

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61. ASPECTS OF DIAGNOSIS AND SURGICAL TREATMENT OF ANAEROBIC SOFT-TISSUE INFECTIONS

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Introduction. Anaerobic soft-tissue infections are severe surgical conditions characterized by rapid tissue destruction, necrosis, fetid discharge and gas formation, frequently complicated by sepsis. Necrotizing soft-tissue infections have an estimated incidence of 0.4–15.5 cases per 100,000 population, while Fournier gangrene represents one of the most aggressive perineal forms with mortality rates up to 20–40%.

Aim of study. To identify the clinical and therapeutic aspects of anaerobic soft-tissue infections treated in septic surgery.

Methods and materials. This retrospective study included 16 patients with anaerobic soft-tissue infections identified among 815 medical records, hospitalized in the Septic Surgery Department of IMSP Spitalul Clinic Municipal "Gheorghe Paladi" from January 2024 to November 2025. The group consisted of 10 men and 6 women, aged 30–91 years. Clinical presentation at admission, intraoperative findings, associated comorbidities, surgical management and outcomes were analyzed. Microbiological data were not systematically evaluated because isolation of obligate anaerobic bacteria requires specific sampling and transport conditions and routine cultures frequently underestimate their presence.

Results. The most frequent infection sites were anorectal infections in 7 cases (43.8%), diffuse perineal or perianal infections from the Fournier spectrum in 6 cases (37.5%), and limb soft-tissue infections in 3 cases (18.7%). The interval from symptom onset to hospitalization was ≤3 days in 37.5%, 4–7 days in 31.3%, 8–14 days in 18.7%, and >14 days in 12.5%. At presentation the predominant symptoms were local pain (87.5%), edema (75%), hyperemia (62.5%), and fever (62.5%), while local necrosis was documented in 25% of patients. Intraoperative assessment revealed fetid secretions in 75%, devitalized tissue in 56.3%, gas formation or crepitus in 56.3%, and tissue necrosis in 50%; sepsis was identified in 25% of cases. The most frequent comorbidities were chronic heart failure (62.5%), arterial hypertension (56.3%), and type II diabetes mellitus (37.5%). Patients presenting more than three comorbidities had longer hospitalization (15 vs 6.1 days), while diabetic patients required longer inpatient treatment (17.5 vs 6.4 days). Surgical management included excisional debridement (43.8%), incision and drainage (31.3%), surgical wound revision (18.7%), and hip-level amputation (6.2%). Outcomes were recovery in 50%, clinical improvement in 25%, and death in 25%, all fatal cases being associated with sepsis.

Conclusions. Anaerobic soft-tissue infections remain a diagnostic and therapeutic challenge in septic surgery. Because microbiological confirmation is often limited, diagnosis relies mainly on clinical suspicion and intraoperative findings. Early surgical debridement and appropriate antimicrobial therapy are essential for improving prognosis.

Keywords. Anaerobic Infection, Soft-Tissue Infection, Septic Surgery.

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62. EARLY PRESENTATION OF PEUTZ-JEGHERS SYNDROME IN A 4-YEAR OLD PATIENT-MULTIDISCIPLINARY APPROACH OF A JEJUNAL POLYP INTUSSUSCEPTION

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Introduction. Peutz-Jeghers syndrome (PJS) is a rare autosomal dominant disorder characterized by gastrointestinal hamartomatous polyps, mucocutaneous pigmentation, and increased cancer risk. Although commonly diagnosed in adults, pediatric cases can present with significant manifestations. Polyps frequently affect the small bowel, causing abdominal pain, bleeding, anemia, or intussusception, sometimes requiring surgery. Characteristic hyperpigmented macules, often dark blue to brown, appear in childhood around the mouth, eyes, nostrils, fingers, and may precede GI symptoms. Early recognition in children is crucial to enable timely surveillance, prevent complications, and improve long-term outcomes.

Case presentation. A 4-year-old presented to the ED with abdominal pain, absent bowel movements, and vomiting for 48 hours. On clinical examination, she showed signs of severe dehydration, abdominal distension, hyperpigmented macules on the skin, and lesions on the buccal mucosa. An emergency abdominal ultrasound revealed a typical image of intestinal intussusception, prompting immediate management. An interventional radiologist first attempted hydrostatic reduction of the intussusception under ultrasound guidance, but the procedure was unsuccessful. The patient was taken to the OR for surgical intervention under general anesthesia, consisting of a median supra- and infraumbilical laparotomy to manually reduce the intussusception, but this failed because an intraluminal jejunal polyp was identified, then successfully resected, followed by a termino-terminal anastomosis. The specimen was sent for histopathological examination confirming a hamartomatous polyp. The presence of hyperpigmented macules in the oral mucosa and the jejunal polyp led to the diagnosis of PJS.The patient had a good recovery without notable complications being discharged after 5 days. She returned for follow-up 10 days later; genetic testing (STK11 mutation) was confirmed, establishing the diagnosis of PJS. She remains under ongoing gastroenterological surveillance to monitor her condition and prevent potential complications.

Discussions. This case demonstrates the multidisciplinary management of complex pediatric presentation of PJS, in which early recognition, timely intervention, and accurate diagnosis would have contributed to the patient's favorable outcome.

Conclusions. This case highlights the importance of clinical awareness and collaboration between pediatric surgeons, gastroenterologists, and pathologists to ensure appropriate management of rare genetic conditions. Screenings and coordinated follow-up are essential to prevent complications and optimize long-term prognosis in pediatric PJS patients.

Keywords. Peutz-Jeghers Syndrome; Intussusception; Jejunal polyp; Pediatric surgery; Intestinal obstruction.

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63. INFLUENCE OF ALIGNMENT TECHNIQUE IN TOTAL KNEE ARTHROPLASTY ON EARLY POSTOPERATIVE RECOVERY AND OPIOID CONSUMPTION

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Introduction. Total knee arthroplasty (TKA) is an effective treatment for end-stage knee osteoarthritis. Mechanical alignment (MA) has long been considered the standard technique, while kinematic alignment (KA) has emerged as a patient-specific alternative aimed at restoring native joint anatomy and biomechanics. Early postoperative recovery, pain control, and opioid consumption are clinically relevant outcomes that may be influenced by the alignment strategy.

Aim of study. To compare the impact of mechanical and kinematic alignment on early postoperative recovery, pain intensity, opioid requirements, and short-term complications after TKA.

Methods and materials. A retrospective comparative study included 70 patients with primary knee osteoarthritis who underwent TKA between 2024 and 2025. Patients were divided into two groups: MA (n=35) and KA (n=35). The following parameters were analyzed: postoperative range of motion (ROM), pain at discharge assessed by Visual Analogue Scale (VAS), cumulative opioid consumption expressed as morphine milligram equivalents (MME), day of first mobilization, length of hospital stay, and complication rate. Statistical analysis was performed using Student's t-test and chi-square test, with $p<0.05$ considered significant.

Results. Postoperative ROM was significantly higher in the KA group (118° ± 7°) compared to the MA group (112° ± 8°; p=0.01). Pain at discharge was lower in the KA group (VAS 2.1 ± 0.7) than in the MA group (VAS 3.1 ± 0.8), without reaching statistical significance (p=0.06). Total opioid consumption during hospitalization was significantly lower in the KA group (30 ± 3 MME) versus the MA group (56 ± 5 MME; $p<0.001$). Patients in the KA group were mobilized earlier (2.0 ± 0.5 vs 3.0 ± 0.6 days; $p<0.001$) and had a shorter hospital stay (5.6 ± 0.9 vs 6.2 ± 1.1 days; p=0.04). The complication rate was comparable between groups: 10.7% in KA and 11.4% in MA (p=0.39).

Conclusions. Both alignment techniques showed a similar short-term safety profile after TKA. However, kinematic alignment was associated with lower opioid consumption, earlier mobilization, improved postoperative ROM, and shorter hospitalization. These findings support the potential role of KA in enhancing early postoperative recovery after TKA.

Keywords. total knee arthroplasty, kinematic alignment, mechanical alignment, opioid consumption, postoperative recovery.

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64. THE ROLE OF GASTROESOPHAGEAL REFLUX IN CHRONIC PHARYNGITIS IN CHILDREN

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Introduction. Gastroesophageal reflux is a condition caused by the relaxation of the lower esophageal sphincter, allowing gastric contents to flow back into the esophagus and pharynx. The repeated contact of gastric acid and pepsin with the pharyngeal mucosa leads to chronic inflammation by damaging the protective barrier.

Case presentation. Patient A.C., 17 years old, was examined in May 2025 at the Mother and Child Institute in Chisinau. An interdisciplinary consultation was carried out involving both an otorhinolaryngologist and a gastroenterologist. Imaging investigations included abdominal ultrasound and barium swallow esophagography in the clinic.

Discussions. The patient presented with persistent symptoms of chronic pharyngitis: pain during swallowing, dryness, and local irritation over the last months. The barium swallow revealed involvement of the lower esophageal region and signs of pharyngeal irritation, while the abdominal ultrasound showed a dilated, hypotonic stomach, delayed gastric emptying with residual gastric fluid. Treatment was initiated with proton pump inhibitors, hygienic-dietary measures, elevation of the head of the bed, and local antacids. After 4 weeks, significant improvement in symptoms was observed, and clinical examination confirmed a reduction in pharyngeal inflammation.

Conclusions. Gastroesophageal reflux may represent a significant etiological factor in the etiopathogenesis of chronic pharyngitis in children. Its identification through imaging methods allows for effective etiological treatment, reducing the need for prolonged symptomatic therapy.

Keywords. Gastroesophageal reflux, chronic pharyngitis, children, treatment.

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65. THE HUMAN VOICE- VOICE DISORDERS

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Introduction. Voice is the primary means of human communication and plays an essential role in social and professional interaction. Voice disorders can significantly affect communication and quality of life. Understanding the anatomy, physiology, diagnosis, and treatment of voice disorders is essential for effective clinical management.

Aim of study. The aim of this study is to analyze voice disorders by describing the functional anatomy of the larynx, identifying common causes and clinical manifestations of dysphonia, and reviewing modern diagnostic and therapeutic approaches.

Methods and materials. This study is based on a narrative review of scientific literature, including clinical guidelines, textbooks, and peer-reviewed articles on voice disorders, focusing on anatomy, etiology, diagnostic methods, and treatment approaches.

Results. The analysis of the reviewed scientific literature highlights the complex anatomical, physiological, and functional mechanisms involved in normal voice production and the development of voice disorders. The larynx, vocal folds, respiratory system, and resonating cavities function as an integrated system responsible for sound generation. Epidemiological data indicate that dysphonia is relatively common in the general population and occurs more frequently among professional voice users such as teachers, singers, and public speakers. The most frequent causes include phonotrauma, inflammatory conditions, laryngopharyngeal reflux, structural lesions of the vocal folds, and neurological disorders. Modern diagnostic techniques, including videolaryngoscopy, videostroboscopy, acoustic voice analysis, and laryngeal electromyography, allow detailed evaluation of vocal fold structure and vibration. Therapeutic strategies involve behavioral voice therapy, medical management of underlying conditions, and surgical interventions when structural abnormalities are present, contributing to improved vocal function and quality of life.

Conclusions. Voice disorders arise from multifactorial causes including phonotrauma, inflammation, neurological conditions, and structural laryngeal lesions. Modern diagnostic methods such as videolaryngoscopy, stroboscopy, acoustic analysis, and laryngeal electromyography improve diagnostic accuracy. Treatment should be individualised and multidisciplinary, combining voice therapy, medical management, and surgical interventions when necessary to restore vocal function and quality of life.

Keywords. dysphonia, voice disorders, larynx, videostroboscopy, laryngeal electromyography, voice therapy.

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66. EPIDEMIOLOGICAL AND CLINICAL FEATURES OF ACHILLES TENDON RUPTURE: A RETROSPECTIVE STUDY OF 192 CASES

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Introduction. Achilles tendon rupture represents one of the most common tendon injuries of the lower limb and may lead to significant impairment of gait biomechanics and lower limb function. In recent decades, the incidence of this injury has increased, a phenomenon frequently associated with the rise in the level of physical activity in daily life as well as participation in recreational sports activities.

Aim of study. To analyze the epidemiological, seasonal, and clinical characteristics of Achilles tendon rupture, as well as to evaluate the types of treatment applied to patients diagnosed with this condition.

Methods and materials. A retrospective study was conducted including patients over 18 years of age who were hospitalized in the Clinic of Orthopedics and Traumatology of the Institute of Emergency Medicine between 2020 and 2024 with a diagnosis of Achilles tendon rupture. The following variables were analyzed: patient's age and sex, seasonal distribution of cases, mechanisms of injury, characteristics of the rupture (complete or partial), and the type of treatment applied. The total number of analyzed cases was 192.

Results. The highest incidence of Achilles tendon rupture was observed in patients aged 31–40 years (30.73%), followed by the 41–50 years group (23.44%) and the 18–30 years group (16.14%). The age groups 51–60 years and 61–70 years each represented 14.07% of cases, while patients over 70 years accounted for 2.60%. The majority of patients were male (161 cases; 83.85%). The seasonal distribution of cases was relatively uniform: summer (26.56%), autumn (26.56%), spring (26.05%), and winter (20.83%). Direct mechanisms of injury, represented by wounds, were recorded in 17 cases (8.85%), while indirect mechanisms predominated, most of them being associated with falls (145 cases; 75.52%). Injuries occurred mainly in domestic conditions (95 cases; 65.51%) or during sports activities (47 cases; 32.41%). Complete tendon rupture was identified in 116 patients (60.41%), while partial rupture was observed in 76 patients (39.59%). Surgical treatment was applied in 183 cases (95.31%), while conservative treatment was used in 9 patients (4.69%).

Conclusions. Achilles tendon rupture occurs predominantly in active men under the age of 50. The seasonal distribution of cases is relatively uniform, with a slight decrease during the winter period. Most injuries occur through indirect mechanisms and present as complete ruptures, with surgical treatment representing the main therapeutic option in clinical practice.

Keywords. Achilles tendon rupture, Epidemiology, Seasonal distribution.

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67. NEGATIVE PRESSURE WOUND THERAPY ON CLOSED SURGICAL INCISIONS

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Introduction. Customarily, conventional closure methods require postoperative wound care, and complications such as infection, seroma, hematoma, and dehiscence may occur, especially in high-risk patients. Negative pressure therapy (NPT) was originally used in open surgical wounds, but it has recently been found to be effective in treatment and risk reduction of complications in closed incisions.

Aim of study. This paper sets out to evaluate existing evidence on the effectiveness of NPWT in reducing postoperative complications in closed surgical incision.

Methods and materials. A structured literature review was conducted using electronic databases including PubMed and Google Scholar. Peer-reviewed articles published between 2015 and 2025 were considered. Search terms included combinations of the selected keywords. Studies were included if they: evaluated NPWT applied to primarily closed surgical incisions, reported clinical outcomes, were randomized controlled trials, cohort studies, or meta-analyses. Narrative reviews without clinical outcome data and studies focusing exclusively on open wounds were excluded. A total of 13 studies meeting inclusion criteria were analyzed, including randomized controlled trials and systematic reviews with meta-analysis.

Results. The majority of included studies demonstrated that NPWT applied immediately after surgical closure was associated with a reduction in postoperative wound complications compared with standard dressings. Meta-analyses published within the last decade report a relative reduction in SSI rates ranging from approximately 25% to 40%, depending on surgical specialty and patient risk profile. In addition to decreasing SSI incidence, NPWT has been associated with lower rates of wound dehiscence and reduced formation of seromas and hematomas. The proposed mechanisms underlying these effects include continuous removal of exudate, reduction of interstitial edema, improved local microcirculation, mechanical stabilization of wound edges, and decreased lateral tensile forces across the incision. Importantly, the most consistent and clinically meaningful benefits were observed in high-risk populations, particularly patients with obesity, diabetes mellitus, cardiovascular disease, and those undergoing orthopedic, vascular, and cardiothoracic procedures. In low-risk surgical populations, the magnitude of benefit appears less pronounced.

Conclusions. Current evidence suggests that closed-incision NPWT may significantly reduce postoperative wound complications, particularly in high-risk surgical patients. Further high-quality randomized controlled trials with standardized outcome reporting are warranted to better define long-term clinical and economic impact.

Keywords. Negative pressure therapy, surgical wounds, complications.

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68. CURATIVE CONDUCT IN ACUTE LACTOGEN MASTITIS

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Introduction. Lactational mastitis is a frequently encountered inflammatory complication during the breastfeeding period, most often triggered by milk stasis. This condition may be caused by contributing factors such as nipple microtrauma, improper infant latch, milk oversupply, or prolonged use of nipple shields.

Case presentation. Evaluation of the effectiveness of surgical and pharmacological treatment methods in acute lactational mastitis, in relation to the timing of patient presentation from the onset of symptoms.

Discussions. This study is based on a retrospective analysis of 14 patients diagnosed with acute lactational mastitis, who were treated as inpatients at IMSP SCM 'Gheorghe Paladi' during the year 2024. In 5 cases (35%), lactation was discontinued, while in the remaining 9 cases (65%) breastfeeding was continued throughout the course of treatment. Management of lactational mastitis aims to relieve symptoms, reduce inflammation, and address underlying causes, with strong emphasis on supportive care. Prophylactic antibiotics are discouraged because they disrupt the breast microbiome and promote antibiotic resistance. Surgery is reserved for persistent or severe cases, either as primary treatment or following medical therapy. Abscess drainage is more effective than limited resections in preventing recurrences but may cause cosmetic defects. Combined antibiotic and surgical treatment was applied in 6 cases (43%), while 8 patients (57%) were treated without antibiotics.

Conclusions. Effective management of all forms of acute mastitis requires a well-coordinated interprofessional approach that emphasizes patient-centered care, ensures safety, and improves clinical outcomes, while also enhancing communication and the overall performance of the healthcare team.

Keywords. Lactation, acute mastitis, treatment.

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69. TOTAL KNEE ARTHROPLASTY IN THE TREATMENT OF DEGENERATIVE KNEE DISEASES

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Introduction. Degenerative diseases of the knee joint represent the progressive erosion of the articular cartilage, leading to chronic pain, gradual reduction of lower limb mobility, and decreased quality of life. For a long time, these conditions were considered to affect predominantly the elderly population, however, they are currently being diagnosed more frequently in younger and middle-aged individuals (45–80 years). According to the latest international data, approximately 3.6 million total knee arthroplasties (TKA) are performed worldwide, which corresponds to about 9,800 procedures per day. This highlights the selectivity and effectiveness of this interventional method due to its remarkable clinical outcomes.

Aim of study. To evaluate the role of TKA in the treatment of degenerative knee diseases and to present the outcomes following surgical treatment in the Department of Traumatology and Orthopedics at IMSP Municipal Clinical Hospital ”Sfânta Treime”, during the period 2023–2025.

Methods and materials. The present study included 717 patients with degenerative knee pathologies, predominantly gonarthrosis in various advanced stages. Of the total number of hospitalized patients 717 in the Department of Traumatology and Orthopedics at IMSP SCM “Sfânta Treime”, 445 - women and 272 - men. Patients presented with severe pain refractory to NSAIDs, physiotherapy, and intra-articular injections, as well as severe knee deformities, stiffness, and significant functional disability. All patients underwent clinical and paraclinical evaluation, using the IKSS (Knee Society Score) for preoperative assessment and careful selection of the treatment strategy. This approach considered the functional status and existing comorbidities of the patients, aiming to minimize operative time and reduce the risk of postoperative complications.

Results. TKA demonstrated successful outcomes in 90–95% of patients, while 5–10% developed postoperative complications, most commonly surgical site infection. Postoperative patients were evaluated clinically using the IKSS score and paraclinically. The frontal plane deformity angle was assessed, and follow-up examinations showed resolution of the pain syndrome, improved joint stability, enhanced gait, and increased mobility of the knee joint.

Conclusions. Total knee arthroplasty represents a modern and preferred method in the treatment of degenerative knee diseases due to its favorable postoperative outcomes. However, considering the potential postoperative complications, the procedure is not without risks. Therefore, surgical success depends on careful patient selection, proper management of comorbidities, accurate surgical planning, and strict adherence to standardized surgical techniques and protocols.

Keywords. knee, degenerative , pain , arthroplasty , risks.

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70. INNOVATIONS IN EAR RECONSTRUCTION: FROM COSTAL CARTILAGE TO 3D PRINTING AND TISSUE ENGINEERING

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Introduction. Auricular defects encompass both congenital malformations and acquired defects secondary to trauma, burns and neoplasms. They compromise facial aesthetics and contribute to varying degrees of hearing impairment, with reconstruction remaining challenging due to the complex geometry of the auricle.

Aim of study. This presentation aims to review current techniques for auricular reconstruction outlining the respective advantages and limitations of each technique.

Methods and materials. A narrative review of the literature was performed using PubMed to identify studies published in the last 10 years. Keywords included auricular reconstruction, microtia, costal cartilage, 3D printing, bioprinting, and tissue engineering. Clinical and experimental studies reporting reconstructive techniques, biomaterial scaffolds, and tissue-engineered cartilage were included. Studies older than 10 years, and publications unrelated to external ear reconstruction were excluded. Selected studies were analyzed to assess trends from traditional autologous cartilage frameworks to emerging 3D-printed and tissue-engineered approaches.

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Results. Fifteen studies published in the last 10 years were included, comprising clinical and experimental research, with a total of 1,359 patients. Autologous costal cartilage reconstruction remained the most frequent approach, demonstrating reliable structural and aesthetic outcomes. Alloplastic reconstruction using porous polyethylene frameworks was reported in 145 patients, showing high satisfaction rates (80%) with low complication rates. Advanced strategies combining tissue expansion and cartilage scaffolds in 114 patients achieved favorable morphology, with no significant differences compared to contralateral ears ($p>0.05$). Experimental studies highlighted promising developments in 3D printing and tissue-engineered cartilage, enabling patient-specific auricular frameworks, though clinical translation remains limited. Overall, the literature reflects a transition from conventional cartilage techniques toward hybrid approaches with biomaterials and regenerative technologies.

Conclusions. Currently, surgical procedures based on autologous costal cartilage sculpting and transplantation remain the gold standard for total ear reconstruction. Over recent decades, significant advancements in auricular cartilage tissue engineering have shown promise for yielding more consistent outcomes in patients with microtia. Nevertheless, limited bioprinter accessibility and obstacles to clinical translation remain significant challenges to these potentially revolutionary alternatives.

Keywords. Microtia correction, aesthetic outcome, patient-specific, regenerative medicine, biometrical scaffold, custom 3D framework.

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71. GRAFT-BASED RECONSTRUCTION OF COMPLEX ACHILLES TENDON RUPTURES: THE ROLE OF TRANSPLANTATION AND ORTHOBIOLOGICS

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Introduction. The treatment of Achilles tendon injuries can be simple or complex and the surgical approach is determined by the nature of the injury and the patient's characteristics. Many acute ruptures are treated with standard surgical procedures or minimally invasive techniques, however, more complicated cases, such as chronic ruptures, re-ruptures or those presenting with significant tissue defects, often require reconstruction. Transplantology and advanced biological materials provide essential solutions for these situations.

Aim of study. The aim of this study is to analyze and evaluate the role and effectiveness of transplantology in the use of grafts, autografts and allografts, biological materials such as scaffolds and orthobiologics in Achilles tendon repair and reconstruction techniques.

Methods and materials. A review of the existing literature was conducted, including studies investigating the complex reconstruction of Achilles tendon ruptures. Emphasis was placed on the use of grafts and orthoplastic approaches, as well as on recent concepts in orthobiology and regenerative medicine.

Results. Grafting constitutes a central element in the orthoplastic approach to secondary Achilles tendon rupture. In the management of chronic ruptures, reconstruction using a dual semitendinosus tendon allograft has been shown to be effective. Additionally, reconstruction of an acute Achilles tendon rupture transversely anchored to the calcaneus has been successfully performed using a free semitendinosus tendon autograft. In addition to traditional graft-based surgical techniques, biological alternatives have also been investigated. A novel technique for the repair of a sub-acute Achilles tendon rupture utilized a recently developed bio-composite scaffold.

Conclusions. The use of transplantology, through autografting or allografting, together with advanced biological materials, proves to be crucial in the treatment of complex Achilles tendon injuries, whether it is chronic or secondary injuries. These methods provide effective reconstructive solutions when classical techniques are insufficient, making it necessary to adopt a therapeutic strategy tailored to each individual case.

Keywords. Achilles tendon rupture, transplantation.

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72. OPHTHALMOLOGICAL FEATURES OF CAROTIDOCAVERONOUS FISTULA – CLINICAL CASE PRESENTATION.

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Introduction. Carotid-cavernous fistula (CCF) represents an abnormal communication between the internal carotid artery or its branches and the cavernous sinus, manifesting with suggestive ophthalmological signs.

Case presentation. The case of a patient with ocular symptoms conclusive for CCF, investigated by complete ophthalmological examination and imaging (MRI, digital angiography), the diagnosis being confirmed angiographically. The treatment was performed by endovascular embolization.

Discussions. CCF should be suspected in patients with pulsatile exophthalmos associated with chemosis, visual disturbances, and increased intraocular pressure. Imaging is a priority for establishing the diagnosis.

Conclusions. Interdisciplinary management allowed for diagnosis and timely treatment. Endovascular embolization is a vital indication.

Keywords. Carotid-cavernous fistula, fistula, embolization, vision, visual acuity, ophthalmology, endovascular, exophthalmos.

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73. CLINICAL OUTCOMES OF GENETICALLY ENGINEERED PORCINE KIDNEY XENOTRANSPLANTATION-A SYSTEMIC REVIEW

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Introduction. The global lack of organ donors has pushed researchers into the exploration of kidney xenotransplantation as an alternative.

Aim of study. This systematic review aims to evaluate the clinical feasibility, hyperacute rejection prevention, and immunological challenges associated with the use of genetically engineered (GE) porcine kidney xenografts in human recipients.

Methods and materials. A research on PubMed and ScienceDirect databases for articles published between 2021 and 2026 was conducted. Inclusion criteria comprised clinical reports of living patients or brain-dead human models receiving GE porcine kidney transplants. Exclusion criteria eliminated in vitro studies, non-renal xenotransplants, opinion editorials lacking primary clinical data, and non-peer-reviewed preprints. The risk of bias was assessed using the ROBINS-I tool for non-randomized studies. Data synthesis focused on initial graft function, hyperacute rejection (HAR) incidence, and immunological or zoonotic events.

Results. Following the exclusion of overlapping literature regarding the same subjects, the final cohort comprised 9 human recipients (3 living patients and 6 brain-dead decedents). Genetic modifications demonstrated absolute efficacy in overcoming the initial immunological barrier. No cases of hyperacute rejection were reported (CI: 66.37% - 100%; $p<0.001$). All 9 xenografts restored initial urine production and clearance within 48 hours. Extended monitoring revealed secondary immunological challenges, including thrombotic microangiopathy and other antibody or T-cell-mediated rejection episodes, that require intensified immunosuppression and complement inhibition. Latent porcine cytomegalovirus reactivation is another challenge.

Conclusions. Porcine kidney xenotransplantation shows promising early clinical results, successfully overcoming the initial hyperacute rejection phase in reported cases. Nevertheless, current evidence remains limited by the extremely small number of recipients, heterogeneous genetic modifications of donor organs, and predominantly short-term follow-up. While CRISPR-mediated genetic engineering represents a promising strategy to address the global organ shortage, further research is required to standardize protocols and to control zoonotic and immunological risks before clinical implementation.

Keywords. renal transplant, porcine xenograft, CRISPR.

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74. MANAGEMENT OF URINARY STONES BY USING ARTIFICIAL INTELLIGENCE-BASED METHODS

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Introduction. Urinary stones is a common pathology characterized by different clinical variability and a high rate of recurrence. The introduction of artificial intelligence (AI) provides modern tools that optimize medical decision-making due to the integrated analysis of clinical and imaging data.

Aim of study. To evaluate the role and impact of artificial intelligence-based methods in the diagnosis, selection of therapeutic strategies, and in the prevention of stone recurrence.

Methods and materials. A review of recent literature on the application of machine learning algorithms and deep learning in the management of urinary stones was performed. The included studies were evaluating the use of AI in interpretation of CT images, the stone segmentation and quantification, correlation between stone composition and the density expressed in Houndsfield units and the development of predictive models for spontaneous elimination and the effectiveness of different treatment options.

Results. AI-based algorithms demonstrated increased accuracy in the automatic detection and segmentation of urinary stones compared to conventional evaluation methods. Predictive models allowed the estimation of the probability of spontaneous elimination of ureteral stones, depending on size, location, and clinical parameters. More than that, the AI integration in the metabolic analysis contributed to the identification of individual risk factors involved in the recurrence of urinary stones.

Conclusions. AI has the potential to improve the management of urinary stones by increasing diagnostic accuracy, optimizing treatment selection, and reducing the number of unnecessary therapeutic interventions.

Keywords. urinary stones, machine learning, artificial intelligence, segmentation, predictive models.

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75. CURRENT ADVANCES IN THE MANAGEMENT OF URETHRAL STRICTURES

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Introduction. Urethral stricture represents a pathological narrowing of the urethral lumen caused by spongiofibrosis of the anterior male urethra, with a significant impact on voiding function. The estimated incidence ranges between 0.3-0.9% in the adult male population, corresponding to 229-627 cases per 100,000 men annually, with an increasing trend over the past two decades, predominantly due to iatrogenic causes (>40% in Europe). Advances in reconstructive techniques and adjuvant therapies have significantly reshaped the modern therapeutic approach.

Aim of study. To highlight current advances and innovations in the management of urethral strictures, focusing on optimizing long-term outcomes and reducing recurrence rates.

Methods and materials. A narrative review of recent literature was conducted regarding endoscopic strategies, reconstructive techniques, and innovative therapies in the treatment of urethral strictures.

Results. Modern management is individualized according to stricture length, location, and etiology. For short bulbar strictures (<2 cm), urethral dilation and direct visual internal urethrotomy (DVIU) remain initial options; however, recurrence rates reach approximately 65% at 3 years. Current recommendations discourage repeated endoscopic procedures, as they increase stricture length and complexity, reducing the subsequent success of urethroplasty. A major innovation is the use of the paclitaxel-coated balloon (e.g., Optilume®), which combines mechanical dilation with a local antiproliferative effect. Studies report patency rates of 83.2% at 1 year and approximately 67% at 3 years, compared to around 21% after simple DVIU, representing a promising option for recurrent anterior strictures <3 cm. Urethroplasty remains the gold standard for recurrent or long strictures, with success rates exceeding 85–90%. Excision and primary anastomosis urethroplasty is indicated for bulbar strictures <2 cm, whereas substitution urethroplasty using grafts (preferably buccal mucosa) is recommended for longer or penile strictures. Two-stage techniques are reserved for complex cases (lichen sclerosus, hypospadias, extensive strictures). Robotic surgery represents an emerging direction, with potential to reduce morbidity and improve postoperative recovery, particularly in strictures associated with pelvic radiotherapy. Intermittent self-catheterization remains an adjuvant strategy to maintain urethral patency after endoscopic treatment, but it does not replace definitive reconstructive management.

Conclusions. Current advances in urethral stricture management highlight a shift from repeated endoscopic approaches toward definitive urethral reconstruction and innovative local therapies. Individualized treatment, limitation of repetitive procedures, and integration of modern technologies contribute to improved long-term success rates and reduced recurrence.

Keywords. urethral stricture, urethroplasty, urethrotomy, robotic surgery, reconstruction.

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76. SURGICAL MANAGEMENT OF PROXIMAL TIBIL METAPHYSEAL FRACTURE

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Introduction. Fractures occurring in the metaphyseal region of the tibia near the knee joint represent a frequent concern in orthopedic trauma practice. These injuries can compromise knee stability and limit weight-bearing ability. Low-energy fractures are more common in women with osteoporosis, whereas high-energy fractures predominantly affect young men. In many cases operative stabilization becomes necessary to restore anatomical alignment, preserve joint function and reduce the risk of long-term complications. In recent years, minimally invasive approaches have gained popularity, aiming to protect surrounding soft tissues, shorten recovery time and enhance functional outcomes.

Aim of study. The aim of this review is to compare modern surgical techniques for fractures to the upper part of the tibia, focusing on their effectiveness, complication rates and impact on functional recovery.

Methods and materials. A narrative literature review was conducted using PubMed, Google Scholar and BMC, examining studies published between 2020 and 2025. Three surgical strategies were analyzed: open reduction and internal fixation, minimally invasive plate osteosynthesis and arthroscopy-assisted reduction with internal fixation. The analysis considered preservation of surrounding tissues, occurrence of postoperative complications, recovery period and functional results.

Results. Recent publications indicate that minimally invasive techniques, in particular MIPPO and ARIF, provide superior soft tissue protection and allow patients to regain knee function more rapidly than traditional ORIF. Conventional open surgery remains valuable for complex fractures that require precise anatomical reconstruction but may be associated with a greater probability of tissue irritation and prolonged rehabilitation. External fixation may be beneficial for highly comminuted fractures with extensive soft tissue damage, though functional recovery is often slower. Taken together, these findings show that techniques involving limited surgical exposure may provide the most favorable balance between mechanical stability, biological preservation and early functional improvement. These approaches may reduce surgical trauma and clinical reports suggest that careful selection of the surgical strategy plays a key role in achieving stable healing while maintaining joint mobility.

Conclusions. Minimally invasive methods are increasingly preferred in the surgical treatment of fractures of the proximal tibial metaphysis. Among the available methods, MIPPO has shown stable and favorable outcomes in many clinical reports while minimizing soft tissue injury. Surgical approaches that ensure stable fixation with minimal tissue damage can contribute to faster recovery of knee function and patient mobility.

Keywords. proximal tibial fracture, MIPPO, ORIF, ARIF, surgical management, contemporary techniques.

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77. MODERN DIAGNOSIS OF PANCREATIC FISTULA.

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Introduction. Pancreatic fistula (PF) is a rare complication (<2%) of pancreatic diseases and surgical interventions, defined by an abnormal tract between the pancreatic duct and internal organs or skin, which allows the drainage of pancreatic secretions and represents a challenge in diagnostic and curative management.

Aim of study. The study aims to evaluate etiological factors and diagnostic standards (clinical, laboratory, imaging).

Methods and materials. The study included 32 patients treated at the Department of Surgery No. 2 of the USMF "Nicolae Testemițanu" (1990–2025). FP occurred after cephalic, corporal, and distal pancreatectomy—22 (68.8%) cases, after external drainage of suppurative pancreatic pseudocysts – 4 (12.5%) cases, post-traumatic – 2 (6.25%) cases, post-chystjejunostomy – 2 (6.25%) cases, after gastric resections – 2 (6.25%) cases.

Results. Symptomatology: abdominal pain – 32 (100.0%) cases, weight loss – 18 (56.3%) cases, diarrhea – 12 (37.5%) cases, stool changes –14 (43.8%) cases, presence of skin fistula–32 (100.0%) cases, steatorrhea–10 (31.3%) cases, creatorrhea–8 (25%) cases. Laboratory: complete blood count (leukocytosis and left shift of the leukocyte formula-22 (68.8%) cases, hyperglycemia-13(40.6%) cases, hypoproteinemia—17 (53.1%) cases, increased serum amylase and lipase—18 (56.3%) cases, electrolyte disturbances (hyponatremia, hypokalemia)—17 (53.1%) cases. Imaging methods: USG performed in 32 (100.0%) patients (sensitivity-65.0%, specificity-75.0%), barium radiography performed in 25 (78.1%) patients (sensitivity-55.0%, specificity-65.0%), fistulography performed in 30 (93.8%) patients (sensitivity-90.0%, specificity-90.0%), CT scan performed on 8 (25.0%) patients (sensitivity-80.0%, specificity-85.0%), contrast-enhanced CT scan performed on 15 (46.9%) patients (sensitivity-90.0%, specificity-95.0%), MRI performed in 10 (31.3%) patients (sensitivity-85.0%, specificity-90.0%), cholangiographic MRI performed in 20 (62.5%) patients (sensitivity-90.0%, specificity-90.0%).

Conclusions. Diagnostic management of PF combines clinical evaluation, laboratory tests, and imaging methods. Fistulography, CT, and MRI are the methods with the highest sensitivity and specificity, and the data obtained allow the fistula tract to be established and the elective curative tactics to be chosen.

Keywords. pancreatic fistula, diagnostic management.

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78. CURRENT TRENDS IN THE DIAGNOSIS OF RHINOSINUSITIS IN CHILDREN

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Introduction. Rhinosinusitis is one of the most common conditions encountered in childhood, having a significant impact on quality of life and overall health status. In the absence of an adequate diagnosis and treatment, it may lead to local or systemic complications, requiring prompt medical intervention.

Aim of study. Analysis of the clinico-epidemiological characteristics of rhinosinusitis in pediatric patients and the description of the role of modern diagnostic methods based on the specialized literature.

Methods and materials. The study was conducted based on a retrospective analysis of the medical records of patients admitted to the ENT Department of the Mother and Child Institute during the period January 2023 – May 2025. According to the European Clinical Protocol EPOS 2020, cases of children aged 1–18 years diagnosed with acute or chronic rhinosinusitis were selected.

Results. This study included 120 patients diagnosed with rhinosinusitis. Of the total number of patients analyzed, 62.5% were male and 37.5% were female. The majority of patients came from urban areas (51.6%), followed by those from rural areas (48.3%). Among the patients included in the study, 84.2% were diagnosed with acute rhinosinusitis, while 15.8% had chronic rhinosinusitis. In 63.3% of cases, rhinosinusitis occurred during the cold season, whereas in 36.7% of cases it occurred during the warm season. The diagnosis was based on ENT status examination, conventional radiography of the paranasal sinuses, computed tomography, nasal endoscopy, and acoustic rhinometry.

Conclusions. Rhinosinusitis continues to be a frequently encountered condition in pediatric patients. In current medical practice, diagnosis based on routine clinical and paraclinical methods has proven to be effective, contributing to the accurate identification of acute and chronic forms of rhinosinusitis.

Keywords. rhinosinusitis, diagnosis, radiography, paranasal sinuses.

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79. ADVANCES IN RENAL XENOTRANSPLANTATION: CURRENT PROGRESS,CHALLENGES, AND CLINICAL PERSPECTIVES

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Introduction. The global shortage of donor organs remains a major challenge in transplantation medicine, leading to significant mortality among patients with end-stage organ failure. Xenotransplantation, particularly the transplantation of genetically modified pig organs into humans, has emerged as a promising strategy to address this gap. Advances in genetic engineering and immunosuppressive therapy have significantly improved graft survival and compatibility. Among solid organs, kidney xenotransplantation has shown especially promising results, while early clinical experiences with cardiac xenotransplantation have further demonstrated the potential of this approach.

Aim of study. This study aims to review recent developments in xenotransplantation, focusing primarily on pig-to-human kidney transplantation, while also highlighting key developments in cardiac xenotransplantation.

Methods and materials. A narrative literature review was conducted using the PubMed and SpringerLink databases. A total of 23 peer-reviewed journals within the last five years were selected. Inclusion criteria comprised English-language studies focusing on solid-organ xenotransplantation, particularly renal and cardiac, addressing genetic engineering, immunological barriers, or clinical outcomes. Exclusion criteria included: duplicate publications, non-scientific articles, and studies not directly relevant to xenotransplantation.

Results. Recent studies demonstrate significant progress in overcoming immunological barriers through genetic modification of donor pigs. Strategies include deletion of major xenoantigens (GGTA1, CMAH, B4GALNT2) and the insertion of human complement-regulatory and anti-coagulation genes. These modifications have reduced hyperacute rejection and improved graft survival in experimental and early clinical settings. Several studies report functional pig kidney grafts in humans for extended periods, exceeding several months in some cases. In addition, the first clinical pig-to-human heart transplantation demonstrated short-term graft function, further supporting the potential of xenotransplantation as an alternative organ source.

Conclusions. Xenotransplantation represents a promising solution addressing the global organ shortage, particularly in the field of renal transplantation. Although recent advances have improved graft survival and clinical feasibility, further research is necessary to address long-term outcomes, immunological challenges and ethical considerations before routine clinical application.

Keywords. xenotransplantation; kidney transplantation; genetic engineering.

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80. THE ROLE OF MACHINE LEARNING ALGORITHMS BASED ON T2-WEIGHTED MRI IN PREDICTING BRCA MUTATIONS IN PROSTATE CANCER

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Introduction. Prostate cancer is one of the most common malignant diseases among men, and BRCA1 and BRCA2 germline mutations are associated with an increased risk of occurrence, early onset, and aggressive tumor progression. At the same time, multiparametric MRI has become an indispensable method for diagnosis and risk assessment, and T2 sequences are an important element in the morphological evaluation of the prostate. Radiomics techniques and machine learning algorithms represent a promising approach in the non-invasive identification of imaging biomarkers with important prognostic value.

Aim of study. To evaluate current evidence and assess the role of KNN (K-Nearest Neighbors) and Random Forest machine learning algorithms applied to T2-weighted MRI images for predicting BRCA mutations in prostate cancer.

Methods and materials. A structured review of recent medical literature from the last years and urological clinical guidelines was conducted, analyzing BRCA germline mutations in prostate cancer, the role of prostate MRI, and the application of machine learning in T2 image analysis. Studies on imaging features derived from T2-weighted sequences and on the use of KNN, Random Forest, and support vector machine algorithms for assessing tumor characteristics were analyzed.

Results. Current data confirm that BRCA1/2 mutations, especially BRCA2 alterations, are of major clinical relevance in prostate cancer and justify the growing interest in non-invasive methods for identifying patients at increased genetic risk. In this context, radiomics offers a promising approach by extracting imaging features related to tumor texture and heterogeneity that can be integrated into machine learning models. The KNN model supports classification based on similarities between imaging profiles, whereas Random Forest can simultaneously analyze multiple variables in order to identify the most informative features. Current evidence suggests that machine learning analysis of prostate MRI may provide information beyond conventional visual assessment and represents a promising direction for improving prostate cancer characterization.

Conclusions. Machine learning algorithms applied to T2-weighted MRI images represent a modern approach with potential for the development of non-invasive imaging biomarkers capable of estimating the presence of BRCA mutations in prostate cancer. Although this approach complements genetic testing, rapid advances in radiomics and machine learning support the prospect of future integration of such models into risk assessment and the selection of patients requiring additional molecular investigations.

Keywords. Prostate cancer, BRCA1, BRCA2, Prostate MRI, T2-weighted imaging, Radiomics, Machine learning, KNN, Random Forest.

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81. DIAGNOSTIC OPTIONS IN MECHANICAL JAUNDICE CAUSED BY CHRONIC PANCREATITIS.

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Introduction. Mechanical jaundice caused by chronic pancreatitis is a biliary-pancreatic pathology that usually occurs through compression or stenosis of the common bile duct(CBD) at the pancreatic head.

Aim of study. Sensitivity analysis of different diagnostic methods (clinical, laboratory and imaging) in mechanical jaundice caused by chronic pancreatitis.

Methods and materials. The study included 60 patients aged 42-70 years, with a gender distribution of 32(53,3%) men and 28(46,7%) women with mechanical jaundice caused by chronic pancreatitis, conducted between 2014 and 2024.

Results. The clinical picture was dominated by upper abdominal pain/epigastric pain-52(86,7%)patients, sclero-tegumentary jaundice-60(100,0%)patients, skin pruritus-41(68,3%)patients and acholia-37(61,7%)patients.Cholestatic syndrome in laboratory tests showed (mean total bilirubin of-148.6 ± 42.3 µmol/L, direct bilirubin -96.4 ± 31.8 µmol/L, alkaline phosphatase -412.8 ± 96.7 U/L and GGT- 356.4 ± 88.2 U/L, ALT 70-120U/L, AST 60-110U/L).Abdominal ultrasound performed on 60(100,0%)patients (sensitivity of 70,0%), CT performed on 32(53,3%)patients (sensitivity of 88%), MRI performed on 28(46,7%)patients (sensitivity of 95,0%), ERCP performed on 45(75,0%) patients (sensitivity of 94,0%).

Conclusions. Mechanical jaundice in chronic pancreatitis manifests clinically as sclero-tegumentary jaundice, epigastric pain, skin pruritus and acholia. Laboratory tests reveal cholestatic syndrome characterized by hyperbilirubinemia and increased cholestasis enzymes. The most sensitive diagnostic methods are MRI, ERCP, CT and abdominal ultrasound.

Keywords. Mechanical jaundice, chronic pancreatitis, biliary obstruction,diagnostic methods.

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82. DA VINCI ROBOTIC SURGERY IN THE TREATMENT OF UMBILICAL HERNIA

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Introduction. Umbilical hernia accounts for 5–10% of all abdominal wall hernias. Operative techniques for umbilical hernia repair have evolved from open interventions with primary suture to minimally invasive approaches. The development of robotic surgery and the implementation of the da Vinci surgical platform have led to advances in the treatment of umbilical hernias, offering three-dimensional visualization, optimized ergonomics, enhanced dexterity, and instruments that allow precise dissection and suturing of the hernia defect. This approach demonstrates advantages over conventional counterparts by minimizing postoperative complications and improving overall outcomes, significantly reducing human error.

Aim of study. To analyze the efficiency of da Vinci robotic surgery in the treatment of umbilical hernia by elucidating the technical particularities and clinical outcomes compared with classical surgical techniques.

Methods and materials. The study was conducted by reviewing articles published between 2016 and 2026, using the PubMed, NCBI, Medscape, and Mendeley databases, with the use of the following keywords: “umbilical hernia,” “robotic surgery,” “da Vinci system,” “treatment,” “laparoscopy,” as well as their combinations.

Results. Robotic da Vinci umbilical hernioplasty represents a feasible and effective alternative to laparoscopic and open techniques. The rate of postoperative complications is low (3–10%), compared with conventional techniques (5–12%). Rapid patient recovery and a short duration of hospitalization (1–2 days) prioritize ensuring quality of life and maintaining the recurrence rate below 5%. Despite the high procedural costs and the longer operative time (120–160 minutes), it combines superior 3D visualization with increased dexterity and control. This approach allows precise dissection and the possibility of suturing the parietal defect with articulated instruments, facilitating optimal positioning of the prosthetic material and reconstruction of the abdominal wall.

Conclusions. The da Vinci surgical system represents a modern minimally invasive method for optimizing the treatment of umbilical hernia. Intraoperative and postoperative advantages contribute to improved surgical outcomes and patients’ quality of life. However, high costs and the need for specialized training remain important limitations. The choice of the appropriate surgical technique, between classical and robotic methods, requires an individualized approach based on patient characteristics, surgeon experience, and resource availability, in the context of a balanced evaluation of the benefits and limitations of each method. Future advances in robotics, including the integration of artificial intelligence, promise improvements in umbilical hernia repair procedures.

Keywords. umbilical hernia, robotic surgery, da Vinci system, treatment, laparoscopy.

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83. CLINICAL OUTCOMES AND PROSPECTIVE RECOVERY IN SINGLE-PORT VERSUS CONVENTIONAL LAPAROSCOPIC CHOLECYSTECTOMY: A SYSTEMATIC REVIEW

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Introduction. Cholelithiasis is one of the most common digestive pathologies encountered by surgeons worldwide. Within the last few years, single-incision laparoscopic cholecystectomy (SILC) emerged as an alternative to multiport laparoscopic cholecystectomy (MLC).

Aim of study. This study aims to evaluate the efficiency of the two methods, emphasizing postoperative recovery and patient satisfaction.

Methods and materials. A study was conducted on PubMed and Google Scholar for articles published between 2018 and 2024 using as keywords “Laparoscopic cholecystectomy”, “Single incision”. Articles were included based on the following criteria: hospital stay, operating time, postoperative pain score and cosmetic satisfaction. Exclusion criteria were overlap of information and absence of inclusion criteria. The bias risk was not assessed and PRISMA guidelines were used for data synthesis.

Results. A total of 10 studies were selected out of 15 found, summing 3378 patients who participated in cohort studies and clinical trials. Ganchev et al. shows that the total mean operative time in SILC was longer than in MLC (43.63 ± 7.49 min. vs 37.95 ± 8.06 min.; p=0.002) while Klein et al. registers that the hospital stay (days) was significantly shorter in SILC (3.1±1.2 vs 4.2±2.4; p=0.001). According to Arijit Roy et al. the pain score at 6 hours (3.04±1.5 vs 4.14±1.33; p<0.001) and 24 hours (1.56 ± 0.76 vs 2.12 ± 0.99; p=0.003) were lower in SILC, as for cosmetic satisfaction, Jun-Wen Qu et al. presents better results in favour of SILC (4.94 ± 0.24 vs. 4.74 ± 0.54; p=0.031).

Conclusions. SILS presents better outcomes regarding hospital stay, postoperative pain and cosmetic satisfaction compared to the conventional multiport approach, being more beneficial for patients, although it requires a longer operating time. Further research is needed to explore all the differences between the two.

Keywords. Single-port cholecystectomy; Laparoscopic cholecystectomy; Single-incision surgery.

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84. INTRAAMPULAR CARCINOMA. DIAGNOSTIC AND TREATMENT METHODS. CASE STUDY.

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Introduction. Tumors of the pancreato-biliary region comprise neoplasms with diverse histopathology, treatment options, and poor prognosis. Tumors of the major duodenal ampulla are of particular interest due to histological heterogeneity and the need for differential diagnosis with other periampullary tumors (pancreatic ductal adenocarcinoma, distal cholangiocarcinoma, duodenal adenocarcinoma), which influence therapeutic strategy. This study compares ampullary tumors by histopathological type, treatment, and prognosis, and presents a clinical case.

Case presentation. A 57-year-old woman presented with recurrent nausea, vomiting, acid reflux, and episodic fever for one year, followed by jaundice in May 2024. Imaging showed bile duct dilation and stenosis at the Vater papilla. Initial biopsy revealed an adenomatous polyp with severe dysplasia; repeat endoscopy diagnosed intramucosal adenocarcinoma of the ampulla of Vater. CT confirmed a resectable lesion, and cephalic duodenopancreatectomy was performed. Histopathology showed G3 mucinous adenocarcinoma, pT2N1, R0, LV0, Pn0. Immunohistochemistry: CK7+, CK20+, CDX2+, IMP3+ (moderate), EMA+, MUC2+, MUC5AC+, pMMR. Postoperatively, a grade B pancreatic fistula occurred and resolved conservatively. Adjuvant FOLFOX (12 cycles) was administered, complicated by hematologic toxicity and severe peripheral neuropathy. Follow-up imaging showed no recurrence.

Discussions. Clear etiological factors for ampullary adenocarcinoma are lacking. By analogy with other periampullary cancers, a possible role of microbiota is suggested. Helicobacter pylori has been linked to duodenal pathology, while Porphyromonas gingivalis, Fusobacterium nucleatum, and Enterobacteriaceae are associated with pancreatic tumor progression and treatment resistance. The role of systematic molecular testing (KRAS, BRAF, TP53, APC for intestinal subtype; PIK3CA, EGFR, HER2; microsatellite instability) remains to be clarified.

Conclusions. Although rare, ampullary adenocarcinoma must be considered in obstructive jaundice. Immunohistochemistry is essential for subtype identification and therapeutic planning, given the limits of morphology alone. Pancreatoduodenal resection with negative margins remains the only curative option. The benefit of adjuvant therapy is not fully established, and the efficacy of immunotherapy and targeted therapies requires further research. Histological subtypes show greater biological and prognostic similarity to anatomically related tumors than to each other: the intestinal subtype resembles duodenal cancer, while the pancreaticobiliary subtype parallels distal cholangiocarcinoma and pancreatic ductal adenocarcinoma.

Keywords. Oncology, Ampulla of Vater, Whipple procedure.

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85. SIGMOID VOLVULUS: SEROLOGICAL MARKERS AS INDICATORS OF ISCHEMIA AND OUTCOME OF SURGICAL MANAGEMENT

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Introduction. Sigmoid volvulus is a life-threatening pathology resulting from the rotation of the bowel on its own axis, leading to large bowel obstruction, which consequently produces circulatory disorders causing congestion, ischemia and necrosis. Beside macroscopic changes, there are also biochemical markers that can confirm the presence of an ischemic process, that form as a result of the destruction of the gastrointestinal tract or due to protein disintegration.

Aim of study. To conduct a comprehensive search through the dataset and identify the most prevalent clinical laboratory findings that can be taken in consideration as predictors of ischemia and further complications of SV.

Methods and materials. To achieve the purposes of the topic of interest using PubMed and Google Scholar according to certain keywords as ”sigmoid volvulus” , ”surgery” , ”outcomes” , ”ischemia’’ , „markers” . The data from the last 5 years provided information about the most prevalent laboratory results that were observed in patients with an already started ischemic process of intestines.

Results. According to the analyzed data, in patients that had emergency surgery, laboratory results show a slight elevation of biochemical markers such as: d-dimers, lactate dehydrogenase, procalcitonin, leukocytes compared to patients that had a late surgery or recurrence. In their cases laboratory results showed a significant elevation level of d-dimers, lactate dehydrogenase, procalcitonin, leukocytes plus potassium and phospholipase A2. Also there was observed that the blood pH was decreased in patients with ischemia caused by the recurrence of SV. The morbidity and complications are directly proportional to the rising of ischemia markers.

Conclusions. Sigmoid volvulus, a condition that requires early recognition and management, is one of many pathologies that can lead to ischemia, potentially causing colon viability loss. This study reveals that the determination of ischemia predictors gives us the possibility to save the intestines of a patient or even his life. Considering these findings, it is of great importance to know these biochemical changes in order to prevent a further complication of ischemia to necrosis, gangrene, organ loss or death.

Keywords. Sigmoid volvulus, ischemia, markers, surgery, outcome.

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86. MULTI-STAGED MANAGEMENT OF SURGICAL COMPLICATIONS IN A BARIATRIC PATIENT-WEIGHING CORRECTIVE AND PROPHYLACTIC OPTIONS

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Introduction. Obesity represents a major public health problem in the Gulf region, with a prevalence of 37.1% among adult women in Oman. Bariatric surgery remains the most effective and durable treatment for severe obesity and its associated comorbidities. Laparoscopic sleeve gastrectomy(LSG) is the most commonly performed bariatric procedure in Oman. While generally safe, LSG may be complicated by GERD, hiatal hernia, or gastric sleeve stricture, which can significantly impair quality of life. This case report highlights the importance of a comprehensive approach for female bariatric patients and the need for strict long-term monitoring of their evolution.

Case presentation. A 42y.o. female patient presents with severe epigastric pain, dysphagia and vomiting. The patient's history includes LSG(2016), complicated with stricture and hiatal hernia, causing her frequent episodes of dysphagia, vomiting and GERD with inadequate response to PPI; in 2018, the patient was pregnant in ~24 weeks, but due to severe dehydration because of her symptoms, she suffered an IUFD. Three endoscopic balloon dilatations have been attempted, but none significantly improved her condition. Taking into consideration the frequency of the patient`s symptoms, a multidisciplinary team decides to perform a Roux-en-Y bypass. The bypass is connected above the stricture, and the hiatal hernia is reduced through the gravitational pull of the intestinal loops. The patient has a good recovery, with episodes of abdominal pain and vomiting, resumes bowel movement 1 day post-op and is discharged.

Discussions. As more patients turn towards bariatric surgery as treatment for obesity, it is essential to be aware of all possible complications and to be able to design multi-staged treatment options, in order to avoid life-threatening situations as well as to improve these patients' quality of life.

Conclusions. This case report supports the need for modern therapies for this kind of complications, that would reduce their impact on the patients' post-surgery socio-professional reintegration.

Keywords. bariatric surgery, gastric sleeve stricture, GERD, IUFD, Roux-en-Y bypass.

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87. DETERMINANT FACTORS FOR COMPLETE OCCLUSION IN THE ENDOVASCULAR TREATMENT OF CEREBRAL ARTERIOVENOUS MALFORMATIONS

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Introduction. Cerebral arteriovenous malformations (AVMs) are complex vascular lesions characterized by abnormal connections between arteries and veins, leading to significant risks of morbidity and mortality, primarily due to intracranial hemorrhage. Endovascular embolization is a therapeutic modality employed with curative intent.

Aim of study. This comprehensive literature review aims to systematically analyze and synthesize current evidence regarding the predictors influencing complete occlusion rates in the endovascular treatment of cerebral AVMs.

Methods and materials. This review synthesizes evidence from 30 relevant studies published between 2012 and 2026, systematically examining technical factors, patient-related factors, procedural factors, and outcome measures.

Results. 1.Technical Factors: Non-adhesive liquid embolic agents (Onyx, PHIL, Squid) demonstrate superior efficacy compared to cyanoacrylate-based adhesives, with higher complete occlusion rates (65.3% vs. 17.6%). Advanced techniques, such as the pressure cooker technique and anterograde drifting, improve nidus penetration and reduce complications. 2.Patient-Related Factors: AVM size is a strong predictor; lesions <3 cm show higher complete occlusion rates (OR: 50.9). Compact nidus architecture, a single feeding artery, superficial venous drainage, and non-eloquent location are consistently identified as favorable predictors. Conversely, eloquent location and deep venous drainage predict lower occlusion rates and a higher risk of complications. 3.Procedural Factors: Complete occlusion rates vary widely (18.3% to 100%). Single-session treatment is feasible for carefully selected small AVMs, whereas larger or more complex lesions often require staged or multimodal approaches. Operator experience and institutional volume also significantly influence outcomes. Predictive Models: Classification systems such as Spetzler-Martin, Buffalo, Tsinghua, and RBAS (Radiosurgery-Based 4.Arteriovenous Malformation Score) are used to forecast outcomes. Endovascular-specific systems (e.g., Tsinghua) demonstrate superior predictive utility. Smaller size, fewer feeding arteries, and non-eloquent location are consistent indicators of success.

Conclusions. Curative endovascular embolization is a viable option for selected cerebral AVMs. Optimal patient selection—favoring small, compact, superficial, and non-eloquent AVMs with few feeding arteries—combined with the use of non-adhesive liquid embolic agents and tailored technical approaches, significantly improves complete occlusion rates and safety. Continued research is required to address knowledge gaps in optimal embolic agent selection, long-term durability, and the impact of operator experience.

Keywords. Cerebral Arteriovenous Malformations (AVM), Endovascular Treatment, Predictors of Success.

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88. MACHINE LEARNING PREDICTION OF ACUTE KIDNEY INJURY FOLLOWING MAJOR NONCARDIAC SURGERY:INTEGRATING PREOPERATIVE INTERNAL MEDICINE BIOMARKERS INTO SURGICAL RISK STRATIFICATION

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Introduction. Postoperative acute kidney injury affects between 3% and 15% of patients undergoing major noncardiac surgery, depending on population risk and surgical complexity, a complication that significantly drives up mortality, extends hospital stays, and increases the long-term risk of permanent kidney damage. Surgeons typically rely on standard perioperative risk calculators before operating, but these tools often miss the subtler, more complex details of a patient's baseline kidney health and internal medicine history.

Aim of study. This review aims to evaluate how well machine learning models predict postoperative AKI compared to traditional surgical risk scores, and to highlight the critical role that routine preoperative internal medicine data plays in making these AI tools clinically effective.

Methods and materials. We reviewed literature from PubMed and Scopus (2019–2026), focusing on large retrospective cohorts and multicenter studies that used machine learning to predict AKI after major noncardiac surgery. To determine whether these AI models offer a genuine upgrade over what is currently used, we compared their predictive performance primarily using the Area Under the Receiver Operating Characteristic Curve (AUROC) against standard logistic regression and conventional surgical risk scores.

Results. Across datasets encompassing over 300,000 patients, machine learning algorithms consistently outperformed traditional tools. Tree-based models including LightGBM and gradient boosting decision trees achieved AUROCs of 0.83–0.85, higher than logistic regression restricted to preoperative variables alone (AUROCs 0.808–0.825). Key predictors included preoperative serum creatinine, eGFR, systolic blood pressure, ACE inhibitor or ARB exposure, and surgical duration. One multicenter study of 239,267 surgeries translated a LightGBM model into the CMC-AKIX clinical web interface, using 38 routine preoperative variables to flag high-risk patients preoperatively.

Conclusions. Machine learning models that analyze routine preoperative internal medicine data are far more accurate at predicting postoperative AKI than traditional surgical risk calculators alone. Embedding these AI-driven tools into standard preoperative workflows gives surgical teams the window they need to proactively adjust fluid strategies, withhold nephrotoxic medications, and genuinely bridge the divide between medical optimization and acute surgical care.

Keywords. acute kidney injury; major noncardiac surgery; machine learning; artificial intelligence; perioperative risk stratification; internal medicine biomarkers; postoperative complications.

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89. DIAGNOSIS OF CHRONIC MESENTERIC ISCHEMIA

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Introduction. Chronic mesenteric ischemia, also called intestinal angina, is a rare vascular disorder characterized by insufficient intestinal blood flow, leading to an inability to fulfill the metabolic demands of visceral organs. CMI diagnosis is often delayed because of the nonspecificity and the variability of clinical symptoms. Moreover, the clinical manifestations typically develop only after significant stenosis or occlusion of two or more of the three major arteries: the celiac artery, superior mesenteric, and inferior mesenteric artery, due to extensive collateral circulation. Therefore, a combination of clinical suspicion and pertinent vascular imaging is crucial for prompt and specific diagnosis.

Aim of study. The aim of this detailed literature review is to provide a synthesis of existing diagnostic approaches for chronic mesenteric ischemia.

Methods and materials. This research was performed by using data from PubMed, Medscape, and the National Library of Medicine, and guidelines from the Journal of Vascular Surgery.

Results. The diagnosis of CMI is frequently established late, and the condition is often recognized at advanced stages. The patients usually undergo various evaluations to rule out other gastrointestinal diseases or malignancies. The literature published shows extreme focus on enhancing the early diagnosis of CMI with a goal of emphasizing noninvasive imaging modalities. The diagnosis should be determined based on clinical symptoms; the most commonly reported are postprandial abdominal pain, unintentional weight loss, and food avoidance. Once these symptoms are present, the recent guidelines suggest proceeding to imaging techniques, with the computed tomography angiography used as the first-line imaging modality, as it provides high accuracy and visualization of mesenteric arterial anatomy. MRA with contrast is considered another alternative for CTA for identifying the disease and treatment planning, and it offers the benefit of no radiation exposure. Duplex Ultrasound is another screening tool usually used in outpatient settings. It demonstrates elevated peak systolic velocities in the Celiac artery and superior mesenteric artery, which correlate with high-grade stenosis; however, this technique remains operator-dependent and has certain limitations in specific patients. Digital subtraction angiography was formerly considered a gold standard, but now it mainly serves as a definitive diagnostic tool in cases of inconclusive results and to assist in therapeutic strategies, and it can be used in treatment in combination with interventional procedures.

Conclusions. Although advances in vascular imaging have been made, CMI is still diagnosed late due to the variability of the symptoms. Current evidence highlights the role of the CTA in confirmation of this disease, supported by duplex ultrasonography to facilitate early diagnosis and to prevent and reduce disease-related morbidity.

Keywords. CTA,MRA, duplex ultrasound, chronic mesenteric ischemia.

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90. HEPATOCELLULAR CARCINOMA: AN ANALYSIS OF PROGNOSIS FOLLOWING LIVER TRANSPLANT AND HEPATECTOMY

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Introduction. Hepatocellular carcinoma (HCC) accounts for approximately 90% of primary liver cancer cases. Its primary etiologies include liver cirrhosis, chronic hepatitis, Hepatitis B (HBV) or C (HCV) infections, and chronic alcohol abuse. While various treatment modalities exist, this pathology is characterized by a high recurrence rate. This review aims to evaluate the prognosis of different surgical approaches and highlight the clinical contexts in which specific procedures are selected.

Aim of study. This review aims to evaluate the prognosis of different surgical approaches and highlight the clinical contexts in which specific procedures are selected.

Methods and materials. The study was conducted by analyzing scientific articles from the last 5 years using PubMed and Google Scholar. The keywords used were "hepatocellular carcinoma," "mortality," "prognosis," "liver resection," and "liver transplantation - LT". It aimed to comply with the inclusion criteria: multiple HCC, HBV/HCV association, survival rate. Articles presenting overlap, with a patient count <50, and other associated pathologies followed for a period <12 months were excluded. Bias risk was not evaluated, and PRISMA guidelines were used for the synthesis.

Results. 12 studies were selected from a total of 24 analyzed, consisting of systematic review and clinical trials. The analyzed studies were predominantly conducted in Asia, where the incidence of HCC is high. Hepatectomy and LT have the same indications; however, LT is recommended for patients between 55 and 62 years (P=0.02), infected with HBV (80.8%), and with multiple neoplastic determinations (P=0.024), as a consequence of organ shortage (Aksoy et al. 2020). It was demonstrated that LT has an advanced curative effect, with a 5-year survival of 77.5% (95%CI:61.9–97.1%) (Mazzafero et al. 2020). The prognosis is lower for hepatectomy, with an average survival rate of 17 months and an increased chance of recurrence (Hao-Wen Shih et al. 2024).

Conclusions. In summary, liver transplantation presents a better survival rate, leading to favorable results compared to hepatectomy. This study draws attention to the topic and guides toward a more elaborate analysis of statistics to create a consensus on the surgical approach to HCC.

Keywords. hepatocellular carcinoma, liver transplantation, liver resection, prognosis.

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91. PROLONGED MOBILE PHONE USE AND POSTURAL CHANGES AMONG STUDENTS

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Introduction. Intensive mobile phone use has become an essential component of students' academic and social life. Repeated and prolonged maintenance of the head in forward flexion during smartphone use may lead to overloading of the cervical spine structures and the development of musculoskeletal symptoms.

Aim of study. To evaluate the relationship between duration of mobile phone use, head posture during use, and the prevalence of cervical symptoms among students.

Methods and materials. A cross-sectional observational study was conducted on a sample of 50 students using an anonymous online questionnaire. The daily duration of smartphone use, predominant posture during use, frequency of forward head flexion, intensity of cervical pain assessed on a numerical scale (1-10), associated symptoms, as well as ergonomic factors and physical activity level were analysed. Data were analysed descriptively.

Results. The study included 50 students, of whom 43 were female (86%) and 7 male (14%). Mobile phone use exceeding 4 hours daily was reported by 46 participants (92%), including 26 (52%) exceeding 6 hours per day. Frequent forward head flexion was reported by 32 students (64%). Cervical pain was present in 36 participants (72%), most describing mild to moderate intensity. Headache was reported by 27 students (54%), and cervical stiffness by 24 (48%). Symptoms occurred predominantly during or after mobile phone use. Only 12 participants (24%) reported using ergonomic support and 11 (22%) performed preventive exercises.

Conclusions. Prolonged mobile phone use is frequently associated with the adoption of improper cervical posture and increased prevalence of cervical pain and related symptoms among students. The duration of use and lack of ergonomic measures may contribute to the overloading of cervical spine structures. Increasing awareness of correct posture and implementing preventive measures may reduce the risk of developing cervical musculoskeletal disorders.

Keywords. smartphone use, posture, musculoskeletal pain, students, ergonomics.

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92. BRONCHIAL ARTERY EMBOLIZATION VERSUS SURGICAL RESECTION IN MASSIVE HEMOPTYSIS — A SYSTEMATIC REVIEW

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Introduction. Hemoptysis is defined as the expectoration of blood from the respiratory tract and can range from blood-tinged sputum to life-threatening haemorrhage. Initial workup begins with an ABC assessment, structured history and laboratory workup. While computed tomography angiography (CTA) is the preferred imaging modality in stable patients for hemorrhagic localisation, bronchoscopy is used in unstable patients for concurrent airway control. A multidisciplinary approach involving intensive care, interventional radiology, and thoracic surgery is needed. The selection between bronchial artery embolization (BAE) and surgical resection remains without consensus and is mostly dictated by institutional practice and personal expertise rather than evidence-based criteria.

Aim of study. The aim of this review is to compare outcomes of BAE versus surgical resection in massive hemoptysis as well as identify patient and disease factors that determine optimal treatment selection.

Methods and materials. A systematic search of PubMed, Embase, Cochrane Library, and Google Scholar for articles published between January 2010 - present was performed using the relevant keywords. Case reports and non-English studies were excluded.

Results. Aprile et al. reported technical success rates of 98.1% and clinical success rates of 94% across 32 studies, demonstrating high immediate efficacy with BAE. Fan et al. also confirms BAE's superiority over conservative management in terms of recurrence rates, mortality, and clinical success. Recurrence rates varied from 9.8% to 57.5% based on the underlying etiology and the type of embolizing agent used, with NBCA glue outperforming polyvinyl alcohol according to Tao et al. Surgical outcomes were significantly influenced by the operative timing: Andréjak et al. reported that with immediate emergency surgery, mortality rates went down from 34% to 4% after hemorrhagic control and the difference was 0% in elective resection with overall operative mortality of 17.1%. The PMC emergency resection series reported the fall in complication rates from 71% to 28% when surgery was delayed until haemorrhage was controlled. VATS was associated with significantly lower morbidity rates in comparison to open thoracotomy per Ayed et al. BAE is the preferred first-line intervention in bronchiectasis, tuberculosis and cryptogenic hemoptysis, while surgical resection is mostly reserved for BAE failure, pulmonary aspergilloma, iatrogenic pulmonary artery rupture, and penetrating thoracic trauma requiring definitive anatomical control.

Conclusions. High efficacy with acceptable recurrence and low mortality rates support BAE as a first-line therapy. Surgery is irreplaceable in a few specific scenarios, with operative timing being critical to outcomes. Standardized multidisciplinary protocols and prospective comparative data are needed.

Keywords. BAE, Massive Hemoptysis, Surgical resection.

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93. NAVIGATING ANATOMICAL COMPLEXITY IN AORTOILIAC OCCLUSIVE DISEASE: A RETROSPECTIVE ANALYSIS

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Introduction. The management of aortoiliac occlusive disease (AIOD) is fundamentally driven by lesion morphology and anatomical extension. While current international guidelines advocate for a minimally invasive "Endo-first" approach, navigating complex anatomies often requires tailored surgical strategies. The Trans-Atlantic Inter-Society Consensus (TASC II) classification remains the essential framework for defining this complexity in clinical practice.

Aim of study. To evaluate the morphological severity of AIOD lesions using retrospective TASC II classification and to analyze how anatomical complexity dictates the choice of revascularization strategy.

Methods and materials. A retrospective cohort study was conducted on 46 patients requiring revascularization for AIOD between January 2022 and December 2024. Due to the absence of routine TASC II documentation in standard operative protocols, a rigorous retrospective anatomical classification was performed using available imaging, such as CTA, DSA, and Doppler ultrasound. Revascularization strategies (endovascular vs. open surgery) were analyzed in correlation with anatomical extension and TASC II classes.

Results. The retrospective analysis revealed a remarkably high anatomical severity within the cohort, with 52.2% of patients exhibiting multisegmental arterial involvement . Overall, 54.3% of the lesions were classified as morphologically complex, falling into TASC II C (23.9%) and D (30.4%) categories. Even among patients with disease localized to a single anatomical segment, 75% met the criteria for severe TASC C and D classes. This high prevalence of morphological complexity justified the predominant utilization of open surgical bypass (65% of all interventions) to ensure safe and durable revascularization. Endovascular procedures (35%) were generally applied to less extensive disease, offering the advantage of a significantly shorter median hospital stay (4 days versus 11 days for open surgery).

Conclusions. The analyzed clinical cohort is heavily dominated by severe anatomical lesions (TASC C and D), which carry a high degree of technical difficulty and justify maintaining open bypass surgery as a primary therapeutic option. The mandatory integration of the TASC II anatomical score into routine preoperative imaging protocols is essential to allow for accurate internal auditing, appropriate risk stratification, and better alignment of local practices with modern international guidelines.

Keywords. Aortoiliac Occlusive Disease, TASC II Classification, Open Surgery, Endovascular Procedures, Critical Limb Ischemia.

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94. A 14-YEAR-OLD FEMALE WITH COMPLEX ORTHOPEDIC AND CRANIOFACIAL TRAUMA FOLLOWING AN INTENTIONAL HIGH ALTITUDE FALL

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Introduction. Pediatric trauma is of great concern as less data is available than in adult populations. Although the main cause of trauma in this subset of the population is connected to motor vehicle accidents, other causes such as falls from height and autolysis persist as major factors for high energy trauma. Paediatric bone physiology is of obvious concern in this field of work. Orthopedic trauma directly correlates with longer ICU stays.

Case presentation. A 14 year old female patient arrives under general anesthesia by ambulance from the Brasov pediatric hospital after a reported suicide attempt by jumping from 12 meters height. The general condition is markedly decreased. Pain and functional impairment, deformity, swelling and palpable bony discontinuities of both lower limbs are present. Complex craniofacial trauma is also present. To ensure hemodynamic and homeostatic stability the surgical treatment is performed in three operations over several days. Preoperative treatment includes prophylactic antibiotherapy, blood transfusions, hemostatic and antifibrinolytic agents. In the first operation a closed reduction and osteosynthesis with titanium elastic nails on the left femur, and an external fixation and osteosynthesis on the right femur were performed. Additionally, a left paramedian osteosynthesis of the mandible is completed simultaneously. Five days later the second operation was performed. This operation consisted of a removal of the external fixator, open reduction and osteosynthesis with a locking plate on the right femur. The third operation was performed another two days later. It involved reduction and minimally invasive osteosynthesis of the first left metatarsal. On follow-up, a good development and a favourable condition are given.

Discussions. This is an example of a complex multi disciplinary case in the field of pediatric orthopedics and traumatology. Crucial factors for the favourable outcome are the prompt transfer to a specialised hospital, well-timed staged surgical interventions and a structured follow-up regime. Spacing of the operations ensured that she was able to be operated on; a crucial decision to increase outcome quality.

Conclusions. The team was led by the department of pediatric surgery and orthopedics and included also oromaxillofacial surgeons. Complex cases like this should stand as an example of teamwork to decrease the patient's mortality and morbidity. More research for techniques is to be done to elevate medical approaches in cases like these.

Keywords. Pediatric surgery, Pediatric traumatology, Polytrauma, Suicide attempt.

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95. CONTEMPORARY APPROACHES TO ADULT POLYTRAUMA MANAGEMENT IN THE PREHOSPITAL SETTING

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Introduction. Polytrauma remains a leading cause of mortality and disability worldwide, demanding rapid and standardized prehospital interventions. The complexity of managing multi-system injuries in the field requires a shift from purely anatomical assessments to physiological-based triage to ensure survival during the "Golden Hour."

Aim of study. To evaluate the epidemiological trends, mechanisms of injury, and the effectiveness of prehospital management protocols specifically for adult polytrauma patients in the Republic of Moldova between 2023 and 2025.

Methods and materials. A retrospective, descriptive, and analytical study was conducted using data from the National Center for Prehospital Emergency Medical Assistance (CNAMUP). The study population included adult patients (≥18 years) assisted by emergency medical services (EMS) between 2023 and 2025. Statistical analysis was performed using Epi Info™ and Microsoft Excel.

Results. Out of the total 44,105 severe trauma emergencies (Grade I) assisted in the adult population between 2023 and 2025, our study cohort targeted the most critical subset, consisting of 721 patients with critical polytrauma and 4,256 patients with associated trauma. The etiological analysis of these cases confirms a major incidence of high-energy kinetic mechanisms, with road traffic accidents representing the primary causal factor (accounting for over 9,200 adult patients overall). All study cases presented a major physiological burden (e.g., GCS ≤ 8, Systolic BP ≤ 90 mmHg), categorizing them as high-priority (Grade I / Code Red). A strong statistical correlation ($p < 0.001$) was found between physiological instability and the necessity of hospitalization; critical patients had a significantly higher probability of being transported to Emergency Departments (OR=2.31; 95% CI), with the transport rate approaching 100% for viable damage-control cases.

Conclusions. Prehospital management of true polytrauma is strictly dictated by high-energy mechanisms and life-threatening physiological instability. The near-absolute hospitalization rate underscores that prehospital interventions must focus exclusively on "damage-control" resuscitation and rapid transfer. Optimizing operational times and strictly adhering to modern trauma life support protocols remain the decisive factors in reducing prehospital mortality.

Keywords. Polytrauma, Prehospital Emergency, High-Energy Trauma, Physiological Burden, EMS.

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96. RENO-URETERAL LITHIASIS AS A DETERMINING FACTOR IN URINARY INFECTIOUS COMPLICATIONS.

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Introduction. Reno-ureteral lithiasis is a common condition of the upper urinary tract characterized by the formation and presence of calculi within the kidneys and/or ureters, which may lead to urinary tract obstruction, acute pain and infectious complications. It affects 2–20% of the population, with a recurrence rate of 30–50% within 5 years. Calcium stones are the most prevalent (70–80%), mainly calcium oxalate and calcium phosphate. Struvite stones account for 10–15% and are linked to recurrent infections with urease-producing bacteria. Urinary obstruction promotes urinary stasis and bacterial proliferation, with potential progression to pyonephrosis, urosepsis or acute obstructive renal failure.

Aim of study. To evaluate the impact of reno-ureteral lithiasis on the occurrence and severity of infectious complications through the analysis of clinical, paraclinical and imaging data, as well as the therapeutic methods applied.

Methods and materials. The study had a retrospective design and was conducted in the Urology Department of IMSP Spitalul Clinic Republican „Timofei Moșneaga” , during the period 2024–2025. The medical records of 20 hospitalized patients with reno-ureteral lithiasis complicated by infection and urinary obstruction were retrospectively analyzed. The patients' age ranged from 41 to 75 years, with a predominance of those over 60 years old (70%). The sex distribution showed a slight female predominance, representing 55% compared to 45% male patients. The following aspects were evaluated: clinical and paraclinical characteristics, presence of urinary obstruction, severity of infection, need for urinary drainage or surgical interventions, and the clinical course of the patients.

Results. At admission, the mean leukocyte count was 8.82 $\times 10^9$/L, with values $>10\times10^9$/L recorded in 35% of patients. Imaging evaluation revealed grade II–III hydronephrosis in 55% of cases. To restore urinary tract patency, individualized therapeutic interventions were performed, including JJ ureteral stenting (40%), percutaneous nephrostomy (25%), open surgical interventions (15%), ESWL (10%) and other methods (10%), which resulted in significant postoperative clinical improvement.

Conclusions. The significant post-interventional clinical improvement confirms the role of urinary obstruction in the onset and progression of infectious complications in patients with reno-ureteral lithiasis. The applied procedures, such as JJ ureteral stenting, percutaneous nephrostomy, open surgical interventions, and ESWL, represent the therapeutic methods of choice.

Keywords. reno-ureteral lithiasis, infectious complications, ureteral stenting.

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97. CLINICAL AND PATHOLOGICAL DETERMINANTS OF CUTANEOUS MELANOMA: A RETROSPECTIVE STUDY OF 127 CONFIRMED CASES

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Introduction. Cutaneous melanoma remains a major public health challenge due to its aggressive nature and increasing incidence. While early detection significantly improves survival rates, clinical presentation varies widely based on anatomical location and patient demographics. Understanding these patterns is crucial for optimizing screening and surgical strategies.

Aim of study. This study aims to evaluate the correlation between the anatomical site of the primary tumor, histopathological severity (Breslow thickness and Clark level), and surgical outcomes (resection margins) in a specialized oncological department.

Methods and materials. A retrospective analysis was conducted on a cohort of 377 patients admitted to the "Skin Tumors, Melanoma, and Musculoskeletal Tumours" department with the presumptive diagnosis of melanoma. From the total group, 127 cases (33.7%) were histopathologically confirmed as melanoma. Statistical analysis focused on gender distribution, age, residence, and tumor characteristics.

Results. The mean age of confirmed patients was 58.4 years, with a peak incidence in the 60-69 age group (29.1%). Although women showed a higher proactive health-seeking behavior (representing 64% of total consultations), the malignancy confirmation rate was proportionally higher in men. Anatomically, the back (24.4%) and lower limbs (26.8%) were the most frequent sites. Tumors located on the back were associated with advanced stages (pT3-pT4) and a mean Breslow thickness > 3.2 mm, likely due to reduced self-visibility. Conversely, anterior trunk lesions were detected earlier (mean Breslow 1.1-1.5 mm). Acral (plantar) melanomas presented the highest diagnostic challenge, often identified at late stages (e.g., Breslow 5.5 mm). Surgical radicality (R0) was achieved in 89.76% of cases, while R1 margins (10.24%) were predominantly linked to pT4 stages and complex anatomical areas like the scalp or digits.

Conclusions. The study underscores the critical impact of anatomical "blind spots" on melanoma prognosis. Enhanced screening for truncal and acral lesions is necessary to reduce the prevalence of late-stage diagnoses. Despite the high surgical success rate, the significant proportion of pT3-pT4 cases highlights the urgent need for improved public health education regarding screening the population with pigmented skin lesions.

Keywords. Cutaneous Melanoma, Breslow Thickness, Surgical Radicality, Clark Level.

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98. SURGICAL MANAGEMENT OF POST-BURN SEQUELAE

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Introduction. Burns represent complex traumatic injuries of the skin and underlying tissues, most frequently caused by thermal agents. The etiology also includes exposure to radiation, electrical current, chemical agents, and mechanical trauma. Thermal burns result from contact with high-temperature sources, leading to protein denaturation and irreversible cellular damage, commonly associated with hot liquids, overheated surfaces, or open flames. Post-burn scarring may develop through a dysregulated reparative process characterized by persistent inflammation and excessive fibrous proliferation. Although re-epithelialization may occur relatively rapidly, dermal remodeling often remains incomplete, resulting in functional and aesthetic sequelae. Surgical management of post-burn scars includes various reconstructive techniques such as tissue expansion, elliptical excision, Z-, S-, or W-plasty, geometric broken-line closure, V-Y and Y-V advancement procedures, flap reconstruction, skin grafting, and application of the amniotic membrane.

Aim of study. Analysis of post-burn sequelae and the reconstructive surgical methods used in their management.

Methods and materials. The study presents four clinical cases of patients with post-burn cutaneous sequelae, as well as their surgical treatment. The clinical cases include: (I) massive keloid scar in the elbow region; (II) ulcerated scar of the foot;(III) traction keloid scar in the neck region; (IV) massive soft tissue defect in the frontal region. The surgical methods of treatment varied depending on the type of lesion and the therapeutic indications, being classified into two categories: (I) autoplasty methods, represented by the use of local tissue flaps and skin grafts; (II) alloplastic methods–the use of the amniotic membrane.

Results. After treatment, favorable functional and aesthetic outcomes were achieved. The keloid scar treated with plasty and amniotic membrane showed a reduction in volume and tension. The ulcerated scar achieved complete epithelialization after amniotic membrane application. The traction keloid scar in the neck demonstrated improved mobility and reduced retraction following Z-plasty. The frontal soft-tissue defect was successfully covered with an autologous skin graft, restoring skin continuity and providing a satisfactory aesthetic result.

Conclusions. Surgical treatment of post-burn sequelae requires adaptation of the operative technique to the lesion type—keloid, retractile, or ulcerative scars, as well as extensive soft-tissue defects—and their location, in order to select the optimal reconstructive method, such as autoplasty or alloplastic procedures, thereby improving functional and aesthetic outcomes and enhancing quality of life.

Keywords. burns, post-burn scars, amniotic membrane, management of post-burn scars.

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99. SURGICAL TREATMENT OF PROXIMAL HUMERUS FRACTURE-DISLOCATIONS IN ADULTS

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Introduction. Proximal humerus fractures are prevalent in the elderly population, particularly among women, most commonly due to osteoporosis and an increased risk of falls. They account for approximately 5–6% of all fractures and are considered the most common type of humeral fracture. More than 70% of cases occur in patients aged 60 years and older, with women representing about 75% of this group.

Case presentation. A 71-year-old female patient sustained a traumatic injury as a result of a fall in the street on December 17, 2025. She was transported to the Emergency Medicine Institute , where clinical and radiographic evaluation established the diagnosis of a three-part proximal humerus fracture-dislocation according to the Neer classification. Surgical treatment was performed by shoulder hemiarthroplasty. During postoperative follow-up at different intervals, the patient was evaluated clinically and radiographically, demonstrating favorable outcomes. Functional assessment using the Constant–Murley Score improved from 32 points preoperatively to 68 points at the current follow-up. Active range of motion revealed anterior flexion of 100°, abduction of 60°, external rotation of 20°, and internal rotation to the level of L3. No signs of infection or prosthetic instability were observed.

Discussions. Among the available surgical treatment options for proximal humerus fracture-dislocations, arthroplasty represents a more advantageous method compared to osteosynthesis.

Conclusions. Shoulder hemiarthroplasty is an effective treatment option for fracture-dislocation of proximal humerus in elderly patients, providing significant pain relief and improvement of joint function. Postoperative outcomes depend on appropriate patient selection, accurate surgical technique, and adherence to a structured rehabilitation program.

Keywords. Proximal humerus fracture; shoulder hemiarthroplasty;.

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100. OPPORTUNITIES IN THE TREATMENT OF ACUTE LITHIAZIC CHOLECYSTIS IN THE ELDERLY, THE ROLE OF ARTIFICIAL INTELLIGENCE IN MANAGEMENT

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Introduction. Surgical treatment of acute cholecystitis (AC) accounts for 17-18% of all urgent interventions. In elderly patients, AC is the prevalent surgical emergency, which in 38-50% of cases is presented by sluggish evolution. The tactics, timing and extent of surgical intervention for AC in these patients are quite controversial. Multiple studies advocate conservative treatment, which, however, in 80% of cases is ineffective, resulting in surgical intervention.

Aim of study. Evaluation of clinical features, diagnostic methodology and medical-surgical management in elderly patients with acute lithiasis cholecystitis. Evaluation of the predictive possibilities of AI in management.

Methods and materials. This study included 50 patients, women -28 and men -22 aged > 65 years, treated in IMSP SCM "Saint Archangel Michael" for acute lithiasis cholecystitis between 2022-2025. Mean age 71.2±2.6.

Results. The diagnosis of AC was based on the criteria of the Tokyo 2018 guidelines: Local signs and symptoms: pain in the right hypochondrium - 100%, nausea and vomiting - 60.6%, fever - 26.1%, jaundice syndrome - 12%. positive Murphy sign - 39 (78%), Mandel sign - 26 (52%), Blumberg sign - 19 (38%). Systemic inflammatory signs: leukocytosis in 38 patients (76%), neutrophilia - 50 (100%), increased ESR - 42 (63.6%), serum urea - 38 (57.5%), C-reactive protein - 42 (84%). Imaging signs: USG- thickened, doubled wall - 50 (100%), perivesicular fluid - 20 (50%). The use of AI in the USG assessment allowed the selection of conservative, laparoscopic treatment and classical intervention from the start. Treatment options in the group: classical cholecystectomies - 6 (12%), laparoscopic cholecystectomies 28 (56%), diagnostic laparoscopy + conversion 5 (10%), conservative treatment 11 (22%). It was found - 29 (58%) destructive forms and 21 (42%) simple forms. Morbidity - 9 (18%), mortality -6 (12%).

Conclusions. The increased frequency of acute lithiasis cholecystitis in the elderly with a blurred clinical picture requires the comparison of the complaints and objective examination with the results of the laboratory examination, instrumental investigations, USG being the method of choice in diagnosis. AI support in the evaluation of investigation data and the selection of the method and operating times will contribute to the improvement of treatment results in this age group.

Keywords. acute cholecystitis, diagnosis of gallstones, surgical treatment.

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101. RENAL XENOTRANSPLANT

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Introduction. End Stage Renal Disease (ESRD) represents a major global health problem with high mortality and morbidity. Kidney transplantation is the most effective treatment for patients with ESRD, providing better survival and quality of life compared with dialysis. However, the number of patients who need a kidney transplant is much higher than the number of organs available. This results in long waiting lists and increased mortality among patients awaiting transplantation. Because of this growing gap between demand and supply, researchers have been exploring alternative solutions such as xenotransplantation. Xenotransplantation refers to the transplantation of organs between different species. In recent years, pigs that have been genetically engineered have become the most perfect donor source because their organs are similar in size and function to human organs and can be modified to improve compatibility with the human immune system.

Aim of study. To analyze the scientific basis, immunological barriers, technological advancements, and future prospects of Renal Xenotransplantation as a potential solution to the global shortage of donor kidneys.

Methods and materials. A literature review was conducted using scientific databases including PubMed, MEDLINE ,Scopus, Web of Science and Google Scholar. Relevant peer-reviewed articles focusing on renal xenotransplantation were selected using keywords such as pig-to-human kidney transplantation, xenograft rejection, genetic engineering, CRISPR-Cas9. Studies published within the last decades were analyzed to evaluate immunological mechanisms, genetic modification strategies, experimental outcomes, and ethical considerations.

Results. The advances in genetic engineering have significantly improved the capability of renal xenotransplantation. Gene edited pigs lacking major xenoantigens and expressing human complement-regulatory proteins reduce antibody mediated rejection and improve graft survival. Experimental pig-to-human studies have demonstrated prolonged graft function and recent clinical trials have shown that genetically modified kidneys can maintain physiological activity in human recipients. Despite these advances, still major challenges remain, including immune rejection, coagulation disturbances and the potential risk of zoonotic infections.

Conclusions. Renal xenotransplantation is a promising approach to help reduce the global shortage of donor organs. Recent advances in genetic engineering and improved immune suppressive therapies have brought this field more effective to clinical use. However, additional research is still needed to overcome immunological challenges, improve long-term graft survival and establish ethical and regulatory guidelines for its safe application in clinical practice.

Keywords. Renal xenotransplantation, Kidney transplantation, Genetic engineering, CRISPR-Cas9, Xenograft rejection.

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102. INTESTINAL MALROTATION AND THE MANAGEMENT OF LADD SYNDROME: A RETROSPECTIVE STUDY OF 52 PATIENTS

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Introduction. Intestinal malrotation is a congenital malformation caused by incomplete rotation and fixation of the intestine during embryogenesis, associated with the development of Ladd`s bands and major risk of volvulus. Ladd syndrome represents a clinical manifestation of this malformation and may present from asymptomatic forms to surgical emergencies complicated by peritonitis, intestinal necrosis, and mesenteric ischemia. Early diagnosis and appropriate therapeutic management are essential to reduce morbidity and mortality.

Aim of study. To evaluate the epidemiological profile, surgical indications, and postoperative outcomes in newborns with intestinal malrotation.

Methods and materials. The study was conducted retrospectively at the Institute of Mother and Child, National Scientific and Practical Center of Pediatric Surgery "Natalia Gheorghiu". A total of 52 newborns and infants up to 6 months of age diagnosed with intestinal malrotation between 2020-2026 were included. 47 patients (90.4%) out of the total were admitted on an emergency basis, presenting clinical signs suggestive of intestinal obstruction. Sex distribution showed a predominance of males (33 cases-63.5%) compared to females (19 cases-36.5%). Regarding the area of origin, 30 patients (57.7%) were from urban areas and 22 (42.3%) from rural areas. Clinical data, surgical indications, types of surgical interventions performed, postoperative outcomes, the length of hospital stay, associated complications were analyzed.

Results. Out of the total cohort, 33 patients (63.5%) underwent surgical intervention, while 19 patients (36.5%) were treated conservatively, with a favorable response and no clinical signs of intestinal obstruction or transit disorders. The surgical procedures performed dissection of peritoneal adhesions and correction of malrotation in 31 cases (59.6% of the total; 93.9% of those operated), and reduction of small bowel volvulus in 2 cases (3.8%). The mean length of hospital stay for the entire cohort was 17.6 ± 10 days, ranging from 0 to 49 days. Among operated patients, the mean hospital stay was significantly longer (21.9 ± 9 days) compared to those treated conservatively (9 ± 5 days). Intestinal volvulus was identified in 2 patients (3.8%), both with unfavorable outcomes, resulting in a postoperative mortality rate of 3.8% (n=2).

Conclusions. The clinical course of intestinal malrotation in newborns was variable, with more than one-third of cases being managed conservatively. Surgical intervention was required in clinical forms refractory to conservative treatment. Although intestinal volvulus was rarely encountered, it was associated with increased mortality.

Keywords. Ladd Syndrome.

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103. MODERN APPROACHES TO THE MANAGEMENT OF CHRONIC ANAL FISSURE: FROM PHARMACOLOGICAL THERAPY TO SURGICAL TREATMENT

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Introduction. Chronic anal fissure is a common benign anorectal condition manifested by intense pain during defecation, minor bleeding and persistent anal discomfort. The main pathogenetic mechanism is hypertonia of the internal anal sphincter, leading to reduced anodermal perfusion and delayed healing. Current therapeutic strategies aim to decrease sphincter pressure and promote tissue repair through pharmacological or surgical treatment.

Aim of study. The aim of the study was to evaluate modern treatment methods for chronic anal fissure and compare the effectiveness of conservative therapy with surgical treatment outcomes.

Methods and materials. A literature review was conducted using international databases (PubMed, NCBI, Google Scholar and ResearchGate). Randomized trials, meta-analyses and observational studies evaluating medical and surgical treatment outcomes in chronic anal fissure were analyzed, focusing on healing rates, recurrence and functional complications.

Results. Clinical studies show that pharmacological relaxation of the internal anal sphincter can lead to healing in a significant proportion of patients. Topical calcium channel blockers such as diltiazem and nifedipine demonstrate healing rates of approximately 67-75% with good tolerability. Topical nitrates show similar efficacy but are frequently associated with headache and other adverse effects. Botulinum toxin injection induces temporary sphincter relaxation and results in healing in about 70% of cases, although recurrence may occur more often than after surgery. Lateral internal sphincterotomy remains the most effective treatment, with high healing rates. Nevertheless, long-term studies report occasional mild continence disturbances, mainly flatus incontinence, which requires careful patient selection.

Conclusions. Conservative therapy is an effective therapeutic option in the initial stages of chronic anal fissure, especially by using topical preparations that reduce sphincter tone. However, in cases resistant to medical treatment, surgery offers the best results in terms of healing and symptom control. The choice of therapeutic method should be made individually, taking into account the severity of symptoms and risk of functional complications.

Keywords. Chronic anal fissure; conservative treatment; calcium channel blockers; botulinum toxin; lateral internal sphincterotomy.

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104. MANAGEMENT OF OTOMYCOSIS: BETWEEN DIAGNOSTIC CHALLENGES AND ANTIFUNGAL RESISTANCE

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Introduction. Otomycosis is a superficial fungal infection of the external auditory canal (EAC), with a global prevalence ranging from 9% to 30% among patients presenting with symptoms of otitis externa. The most frequently implicated pathogens are molds of the Aspergillus genus, particularly the A. niger complex and yeasts of the Candida genus, especially C. albicans. Timely initiation of treatment is essential, particularly in immunocompromised individuals, to prevent complications. Delayed or inadequate therapy often results in recurrence, and the increasing incidence of antifungal resistance further complicates management. Therefore, appropriate drug selection, early intervention, and consistent follow-up are critical to achieving favorable outcomes.

Aim of study. This review aims to raise awareness about otomycosis and provide an updated overview of its clinical management.

Methods and materials. A comprehensive literature search was conducted using databases such as Scopus, PubMed, and Medline. Keywords included "otomycosis," "fungal infections of the external auditory canal," and "antifungal treatment of otomycosis." Relevant articles were identified through abstract screening and manual citation tracking.

Results. The lack of standardized treatment guidelines has led to divergent expert opinions regarding optimal management strategies and treatment duration. Clinical decisions are often based on physician judgment, available evidence, and patient factors. While some authors advocate pathogen identification and antifungal sensitivity testing, others support empirical treatment guided by the efficacy and pharmacological profile of antifungal agents. Early diagnosis and intervention remain pivotal. Given the overlap in symptoms between fungal and bacterial otitis externa, microbiological testing is recommended before initiating therapy. Initial management includes suction-assisted debridement and meticulous cleaning of the EAC, avoiding syringing to prevent tympanic membrane perforation. Maintaining ear dryness is essential. Topical antifungal agents are the mainstay of treatment, with systemic therapy reserved for severe or refractory cases. Discontinuation of topical antibiotics is advised to preserve the natural microbial balance. Rising antifungal resistance and inadequate treatment contribute to recurrence, highlighting the importance of individualized therapy and follow-up.

Conclusions. Aspergillus and Candida species remain the predominant etiological agents in otomycosis. Effective management requires a tailored approach based on pathogen identification and host factors. Empirical therapy should be avoided when possible, and patient education on ear hygiene is vital to reduce recurrence and complications.

Keywords. Otomycosis, Aspergillus, Candida species.

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105. USE OF 68Ga PSMA PET/CT IMAGING IN PROCESSING OF PROSTATE CANCER LESIONS ASSISTED BY ARTIFICIAL INTELLIGENCE

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Introduction. 68Ga PSMA PET/CT has significantly improved prostate cancer detection and staging due to its high tumor specificity. However, image interpretation remains complex and time-consuming. Artificial intelligence has emerged as a promising tool for automating lesion detection, segmentation, and quantitative analysis, potentially enhancing diagnostic precision and workflow efficiency.

Aim of study. To evaluate the role of artificial intelligence in processing 68Ga PSMA PET/CT images for prostate cancer lesions and to summarize its impact on diagnostic accuracy and automated image analysis.

Methods and materials. A narrative synthesis of published studies investigating artificial intelligence applications in 68Ga PSMA PET/CT imaging was performed. Original research and systematic reviews describing machine learning and deep learning algorithms for lesion segmentation, tumor characterization, radiomic feature extraction, and automated quantification were analyzed. Reported performance metrics such as area under the curve (AUC), segmentation accuracy, and diagnostic sensitivity were reviewed.

Results. Artificial intelligence models demonstrated high performance in automated lesion segmentation and tumor classification, with several studies reporting AUC values above 0.80 for diagnostic tasks. Deep learning algorithms improved reproducibility of tumor volume assessment and reduced interobserver variability. Radiomic models derived from 68Ga PSMA PET/CT images showed potential in predicting tumor aggressiveness and biochemical recurrence. Integration of imaging features with clinical parameters further enhanced prognostic accuracy.

Conclusions. Artificial intelligence–assisted processing of 68Ga PSMA PET/CT images has shown promising results in improving lesion detection, segmentation accuracy, and quantitative tumor assessment. Although further multicenter validation is required, AI integration into PSMA PET/CT analysis may contribute to more precise and personalized prostate cancer management.

Keywords. 68Ga PSMA PET/CT; artificial intelligence; prostate cancer; lesion segmentation; radiomics.

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106. ALLERGIC NASAL POLYPOSIS IN CHILDREN: CURRENT EVIDENCE FROM THE MEDICAL LITERATURE

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Introduction. Nasal polyposis is a chronic inflammatory disorder of the nasal and paranasal sinus mucosa characterized by the formation of benign edematous polypoid lesions. In pediatric patients, nasal polyposis is frequently associated with allergic inflammation and may lead to persistent nasal obstruction and other upper airway symptoms, significantly affecting the quality of life.

Aim of study. The aim of this study was to analyze the current medical literature regarding the role of allergic mechanisms in the development of nasal polyposis in children and to identify the main pathogenetic and clinical features of this condition.

Methods and materials. A narrative review of the literature was conducted using data from international medical databases, including PubMed, PubMed Central, EMBASE, Google Scholar, Europe PMC and ScienceDirect. Relevant review articles and clinical studies focusing on pediatric nasal polyposis and its association with allergic inflammation were selected and analyzed.

Results. The analyzed studies indicate that nasal polyposis in children is frequently associated with allergic inflammation of the nasal mucosa. Allergic rhinitis affects up to 40% of children and represents a major risk factor for chronic inflammation of the upper airways. Histopathological studies reveal eosinophilic infiltration in approximately 80–90% of pediatric cases of nasal polyposis, highlighting the dominant role of Th2-mediated inflammation in the pathogenesis of the disease. Pro-inflammatory cytokines such as interleukins IL-4, IL-5, and IL-13 promote eosinophil recruitment, IgE production, and amplification of the local inflammatory response. These mechanisms lead to mucosal edema, hyperplasia of mucous glands, and progressive remodeling of connective tissue, ultimately facilitating the formation of nasal polyps. Clinically, children most frequently present with persistent nasal obstruction, chronic rhinorrhea, mouth breathing, and hyposmia. In some cases, nasal polyposis may coexist with other atopic conditions, including bronchial asthma or atopic dermatitis. Diagnosis is based on clinical examination, nasal endoscopy, and imaging investigations, particularly computed tomography of the paranasal sinuses.

Conclusions. Pediatric nasal polyposis is an uncommon but clinically significant condition strongly associated with allergic inflammation of the nasal mucosa. Th2-mediated immune mechanisms, characterized by eosinophilic infiltration and elevated IgE levels, play a central role in its pathogenesis. Improved understanding of these mechanisms may contribute to earlier diagnosis and the development of more effective therapeutic strategies in children.

Keywords. Nasal polyposis, Children, Allergic rhinitis, Th2 inflammation, Eosinophilic inflammation, Chronic rhinosinusitis.

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107. NEW PERSPECTIVES IN PROSTATE BIOPSY: THE CONTRIBUTION OF ARTIFICIAL INTELLIGENCE

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Introduction. Nowadays, artificial intelligence (AI) is increasingly integrated not only into clinical practice, but also to a great extent in imaging-based specialties and histopathological interpretation. For instance, biopsy remains the cornerstone of prostate cancer (PCa) diagnostics. Even so, both systematic transrectal ultrasound guided biopsy and mpMRI-targeted biopsy are associated with clinically relevant false-negative rates and interobserver variability. False-negative rates range between 10% and 34%, with standard 12-core systematic biopsy potentially missing up to 30–40% of PCa in specific contexts. Also, a proportion of patients with an initially negative biopsy are subsequently diagnosed with PCa under repeated samples, drawing attention to the fundamental limitations embedded in current diagnostic procedures. Within this context, AI has emerged as a potential tool to strengthen diagnostic performance in lesion detection and improve procedural accuracy.

Aim of study. The aim of this review is to assess current scientific evidence that refers to the contribution of AI in order to improve the diagnostic performance of prostate biopsy.

Methods and materials. A comprehensive narrative survey of recent literature (2019–2025) was conducted using PubMed, Web of Science, and Google Scholar databases.

Results. Large international validation data (PI-CAI study) demonstrated that an MRI-based AI system achieved an area under the receiver operating characteristic curve (AUROC) of 0.91 compared with 0.86 for radiologists, detecting 6.8% more Grade Group ≥2 cancers at matched specificity. AI reduced false-positive findings by approximately 50% and decreased detection of indolent tumors by about 20% when sensitivity was matched. A meta-analysis including over 7,000 patients reported higher pooled sensitivity (86.5% vs 82.6%) and specificity (57.8% vs 50.0%) for AI-assisted MRI interpretation compared with unassisted readings in detecting clinically significant PCa. At lesion level, AI improved sensitivity from approximately 40% to 59%, and increased patient-level specificity from about 58% to 72%, while maintaining overall sensitivity near 94%. In digital pathology, AI-based systems have demonstrated high accuracy in automated cancer detection and Gleason grading, reducing interobserver variability.

Conclusions. Current scientific evidence supports incorporating AI across multiple stages of the prostate biopsy pathway. AI has demonstrated potential to improve the accuracy of lesion detection, enhance targeting precision, establish standardized criteria for histopathological interpretation, and ultimately optimize detection of clinically significant disease. AI-assisted biopsy marks a meaningful advancement toward more precise, safer, and more efficient PCa diagnostics.

Keywords. Artificial Intelligence; Prostate Biopsy; mpMRI–TRUS Fusion; Transperineal; Digital Pathology.

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108. CONTEMPORARY MANAGEMENT OF ACOUSTIC NEUROMA

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Introduction. Acoustic neuromas are benign tumors of the Cerebellopontine Angle that arise from the inferior division of the vestibular nerve. Although the presentation of this slow growing tumor is silent initially, due to its anatomical position, it compresses the surrounding cranial nerves and the brainstem, resulting in symptoms of hearing loss and imbalance. The annual incidence has risen from 0.3 to 3.4 cases per 100,000 population over recent decades. This rise is due to enhanced sensitivity and accuracy in imaging methods, such as MRI and CT, higher clinical awareness, and improved detection in older patients, rather than an increase in the occurrence of tumors.

Aim of study. To review contemporary approaches in the diagnosis and treatment of acoustic neuroma.

Methods and materials. This literature review on contemporary management of acoustic neuroma is based on an extensive and systematic review of various articles published on open databases including PubMed, Google Scholar, Springer Nature, Elsevier, Library Genesis, and some sections from textbooks.

Results. T1-weighted MRI with Gadolinium is the gold standard for the diagnosis of Acoustic neuroma. It is used for initial diagnosis, detecting residual tumor after surgery, and for checking recurrence. DWI (Diffusion Weighted Imaging) is mandatory to rule out acoustic neuroma from other brain stem diseases like multiple sclerosis and Glioma. Histological examination is essential for definitive diagnosis because it shows the presence of Antoni A and Antoni B areas with verocay bodies and strong S100/SOX10 positivity, which establishes that it is a schwannoma cell origin. For incidental, small, and asymptomatic tumors ,wait and scan complying with regular MRI and audiological follow-up is recommended. Surgery is indicated for large tumors. Gross total or near total resection is recommended. In large tumors it is mandatory to do microsurgery instead of radiologic treatment. For small to medium-sized tumors, stereotactic radiosurgery using gamma knife or linear accelerator systems is used.

Conclusions. Contemporary management of acoustic neuroma focuses on preserving the neurological function, increasing the quality of life, and long-term tumor control. The management of acoustic neuroma begins with screening using audiological assessment, while the gold standard for diagnosis is thin-slice gadolinium-enhanced T1-weighted MRI. After confirming the diagnosis, various treatments are available, ranging from observational wait and scan, stereotactic radiosurgery, microsurgery, or a combination of both. Advancements in the field of molecular biology, epigenetics, and neuroimaging may open new directions for managing acoustic neuroma in the future.

Keywords. Acoustic neuroma, Vestibular Schwannoma, Neuroma.

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109. HYDRONEPHROSIS IN CHILDREN

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Introduction. The most frequent congenital malformation of the urogenital system diagnosed by fetal ultrasound is hydronephrosis, which has a frequency of 2.8 cases per 1000 newborns, representing approximately half of all congenital anomalies of the upper urinary tract. The increase in the number of these patients is caused by the higher frequency of urinary system malformations and, at the same time, by the improvement of antenatal diagnosis.

Aim of study. Analysis and synthesis of contemporary data regarding the clinical, imaging, therapeutic aspects and the medical-surgical management of children up to 18 years of age diagnosed with congenital hydronephrosis.

Methods and materials. The study is based on the analysis of a group of pediatric patients diagnosed with congenital hydronephrosis and treated medically and surgically in the pediatric urology, neonatal surgery and surgical intensive care units of the Pediatric Surgery Clinic of the National Scientific-Practical Center of Pediatric Surgery "Natalia Gheorghiu", Chișinău.

Results. By analyzing the statistics of contemporary literature, we can state that a significant number of cases of congenital hydronephrosis in children progress asymptomatically or with minor clinical manifestations; therefore, their actual incidence is much higher, reaching up to 48% of the total congenital reno-urinary malformations of the upper urinary tract. Research in the field of congenital hydronephrosis in children is directed towards studying etiopathogenesis, early diagnosis both ante- and postnatal, complications, and the search for new reconstructive-plastic surgical techniques (invasive, laparoscopic and endoscopic) that would improve the quality of life of these patients.

Conclusions. The rate of congenital hydronephrosis in children has increased in recent years due to the frequency and severity of complications. In addition to traditional diagnostic techniques, correct clinical examination with the use of paraclinical methods both in the antenatal and postnatal period allows adequate diagnosis of hydronephrosis, especially in asymptomatic forms. Surgical correction at the optimal time with the application of appropriate conservative treatment makes it possible to reduce the number of severe complications, decrease disability and ultimately save the child's life.

Keywords. congenital hydronephrosis, ante- and postnatal diagnosis, reconstructive-plastic surgical techniques.

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110. CONGENITAL CHOLEDOCHAL CYST IN CHILDREN: SURGICAL APPROACH IN THE PREVENTION OF HEPATOBILIARY COMPLICATIONS

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Introduction. Congenital choledochal cyst (CCC) is a severe congenital malformation of the biliary tree, characterized by segmental or diffuse dilatation of the extrahepatic and/or intrahepatic bile ducts. Its etiopathogenesis is multifactorial, most frequently involving intrauterine viral injury of the biliary tract followed by chronic inflammation, destructive degenerative changes, sclerosis, and progressive ductal remodeling. Secondary biliary stasis may lead to hepatic fibrosis, portal hypertension, and biliary cirrhosis. CCC is predominantly diagnosed before the age of 10, with female predominance (3:1). Clinical manifestations are variable; the classical triad—abdominal pain, palpable mass, and jaundice—is uncommon in pediatric patients, contributing to delayed diagnosis and increasing the risk of complications such as cholangitis, cholelithiasis, pancreatitis, and malignant transformation, which is more frequently observed in adults. Abdominal ultrasonography is the first-line imaging method, while magnetic resonance cholangiopancreatography (MRCP) is the gold standard for diagnostic confirmation and surgical planning.

Case presentation. An 18-month-old female patient was admitted for progressive sclero-cutaneous jaundice, intermittent acholic stools, and abdominal distension. At 21 weeks of gestation, prenatal ultrasound detected a cystic lesion at the hepatic hilum suggestive of biliary tract dilatation. Postnatal ultrasound confirmed progressive enlargement. Evolution showed increasing cyst size and worsening liver parameters. At admission: hyperbilirubinemia (TBIL 80 µmol/L, DBIL 60 µmol/L), transaminases twice the upper limit of normal, ESR 12 mm/h, CRP 7 mg/L. Ultrasonography revealed a 50×42 mm cystic formation in continuity with the biliary tree, without vascular compression on Doppler. MRCP demonstrated a thin-walled oval cystic lesion consistent with type I CCC. Given the cholestatic syndrome and risk of complications, complete cyst excision, cholecystectomy, and biliary-enteric reconstruction through Roux-en-Y hepaticojejunostomy with liver biopsy were performed. Postoperative evolution was favorable, with normalization of liver tests and discharge on day 10. At 8-month follow-up, the patient remains in good condition, without signs of recurrence.

Discussions. Early diagnosis and complete surgical excision are essential to prevent hepatobiliary complications and reduce the long-term risk of malignant transformation.

Conclusions. CCC in children is severe due to its progressive and oncologic potential. Complete surgical resection with biliary-enteric reconstruction is the optimal treatment. Early intervention ensures favorable prognosis; long-term follow-up remains mandatory.

Keywords. choledochal cyst, jaundice, MRCP.

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111. NUTRITIONAL DISORDERS IN PATIENTS WITH CHRONIC LIMB-THREATENING ISCHEMIA

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Introduction. Chronic limb-threatening ischemia (CLTI) is a severe condition associated with significant morbidity and mortality, wherein nutritional status represents a frequently underestimated prognostic factor.

Aim of study. The present study aimed to evaluate the prevalence of nutritional disorders and their association with revascularization outcomes in patients with CLTI.

Methods and materials. A prospective study was conducted, including 80 patients with CLTI. Nutritional status was evaluated using the PNI (Prognostic Nutritional Index), GNRI (Geriatric Nutritional Risk Index), CONUT (Controlling Nutritional Status) indices, and BMI (Body Mass Index). Associations with wound complications, reinterventions, and both early and late secondary amputations were established as the primary endpoints.

Results. Increased nutritional risk (PNI <40) was identified in 4 patients (5%); 11 (14%) had a severe risk (GNRI <92). According to CONUT, 31 patients (38.8%) had mild malnutrition and 4 (5%) had moderate malnutrition. Overweight (42 patients, 52.5%) and obesity (12 patients, 15%) were prevalent according to BMI. Moderate/severe malnutrition (according to CONUT) was associated with higher rates of wound complications at 1/4 (25%) vs 10/76 (13.1%) (p=0.453), early amputations at 0/4 (0%) vs 1/76 (1.3%), and late amputations at 0/4 (0%) vs 21/76 (27.6%) compared to patients without malnutrition. Severe GNRI malnutrition risk was also associated with a higher rate of early amputations at 1/11 (9%) vs 0/69 (0%) and late amputations at 4/11 (36.3%) vs 17/69 (24.6%) (p=0.048). Moderate/increased PNI risk was associated with a rate of early amputations at 1/16 (6.2%) vs 0/64 (0%) and late amputations at 5/16 (31.2%) vs 16/64 (25%) (p=0.044).

Conclusions. 1. Nutritional disorders are frequently encountered in patients with CLTI and correlate with an unfavorable prognosis following revascularization procedures. 2. The PNI and GNRI indices are more sensitive in determining amputation risk, whereas the CONUT score correlated with the severity of the immediate postoperative course, highlighting the importance of nutritional assessment in the clinical management of these patients.

Keywords. Chronic limb ischemia, malnutrition, nutritional index, postoperative complications.

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112. RISK FACTORS IN STAGED ENDOSCOPIC–SURGICAL MANAGEMENT OF BENIGN OBSTRUCTIVE JAUNDICE

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Introduction. ERCP is the gold-standard first step in staged management of benign obstructive jaundice. In a subset of patients, local anatomy and baseline clinical–laboratory severity limit endoscopic access and definitive endoscopic resolution. Careful appraisal of these risk factors is essential to define a standardized combined endoscopic–surgical strategy and to select the appropriate timing of operative escalation.

Aim of study. To quantify risk factors associated with limited definitive endoscopic resolution and the need for surgical escalation in benign obstructive jaundice treated with ERCP as first-line therapy.

Methods and materials. In 2024–2025, 543 admissions with diagnoses compatible with benign obstructive jaundice were screened at Clinic No. 1, Department of Surgery No. 2 (USMF); 80 benign-etiology ERCP-first cases were included after selection and exclusion of malignancy. Surgical escalation was defined as definitive operative management required for durable resolution after ERCP-first. Assessment domains were endoscopically documented anatomical impediments (difficult ampullary anatomy; long distal CBD stricture) and baseline laboratory indices (total bilirubin, WBC). Cholangitis was assessed clinically per Tokyo Guidelines 2018. Associations were estimated by univariable logistic regression and reported as odds ratios (OR) with 95% confidence intervals (CI).

Results. Surgical escalation was required in 13.8% (11/80). Total bilirubin was higher in escalated patients (median 225.9 vs 37.7 µmol/L) and associated with escalation (OR 1.88 per +100 µmol/L, 95% CI 1.22–2.89). WBC was higher (median 8.0 vs 6.6 $\times 10^3/\mu L$), suggestive of an inflammatory (cholangitic) profile. In escalated cases, difficult ampullary anatomy and long distal CBD stricture were documented in 7/11 and 6/11, respectively. Escalation causes: CBD cannulation failure 36.4% (4/11), incomplete stone therapy 27.3% (3/11), failure to reach/access the papilla 18.2% (2/11), persistent distal CBD stricture 9.1% (1/11), major post-ERCP adverse event 9.1% (1/11). Definitive procedures: Roux-en-Y hepaticojejunostomy 54.5% (6/11) and CBD exploration with biliary drainage 45.5% (5/11).

Conclusions. In an ERCP-first staged approach, ~1 in 7 patients required definitive surgery, most often due to limited endoscopic control in the setting of severe cholestasis and a profile suggestive of cholangitis. Higher baseline bilirubin together with higher WBC and documented anatomical impediments may support earlier endoscopy–surgery coordination and differentiated risk appraisal in routine practice. Clinically complex cases with difficult endoscopic access to the CBD represent a distinct surgical domain and require a comprehensive, standardized endoscopic–surgical approach. These findings support further studies to refine escalation criteria and operative timing.

Keywords. ERCP, benign obstructive jaundice, cholangitis, CBD stricture, hepaticojejunostomy.

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113. PREHEPATIC PORTAL HYPERTENSION IN CHILDREN

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Introduction. Portal hypertension represents a pathological increase in pressure within the portal venous system, clinically defined by a hepatic venous pressure gradient (HVPG) > 5 mmHg, with clinically significant portal hypertension occurring at values ≥ 10–12 mmHg. The prehepatic form is most commonly caused by portal vein thrombosis, congenital anomalies of the portal vein, severe intra-abdominal infections, and postoperative stenosis. Clinically, it is characterized by hepatosplenomegaly, hypersplenism, gastroesophageal varices, and upper gastrointestinal bleeding. The treatment of choice is surgical, consisting of the creation of a portosystemic shunt, such as a mesoportal shunt or a proximal/distal splenorenal shunt, depending on vascular anatomical considerations.

Case presentation. Male patient, 6 years old, complaints of: abdominal pain in the epigastric region, progressive abdominal distension, fatigability, physical and psychoemotional delay. Considered ill since 2022, being admitted to the hematology department with findings of hepatosplenomegaly, grade II iron deficiency anemia. Paraclinical findings: pancytopenia. Color duplex Doppler ultrasound of the portal venous system: prehepatic portal hypertension. Abdominal CT with vascular reconstruction: severe splenomegaly, cavernous transformation of the portal vein, prehepatic portal hypertension with multiple collaterals in the splanchnic vascular bed. On upper gastrointestinal endoscopy: grade II–III esophageal varices. Endoscopic variceal band ligation in 2023 and 2025. Perinatal history: born to a G1P1 mother, cesarean section, 38 weeks, Apgar score 5/7. Due to vital indications, umbilical vein catheterization was performed. Final diagnosis: prehepatic portal hypertension, grade II–III esophageal varices, hepatosplenomegaly, portal vein thrombosis, cavernous transformation of the portal vein. Considering the severe course of the disease, it was decided to perform surgical intervention in June 2025: creation of a splenorenal shunt. Favorable postoperative course. At 8 months postoperatively, the patient is asymptomatic, with regressing hepatosplenomegaly, normal laboratory parameters, and no evidence of esophageal varices or portal hypertension.

Discussions. This case highlights the clinical and imaging features of prehepatic portal hypertension, a rare condition in pediatric practice,associated with severe complications and potential life-threatening events. It also underscores the importance of early diagnosis and timely surgical management.

Conclusions. Prehepatic portal hypertension is a significant clinical entity in children due to the severity of its manifestations and its potentially fatal course. Surgical management remains the treatment of choice in appropriately selected cases.

Keywords. prehepatic portal hypertension, esophageal varices, portal vein thrombosis.

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114. THORACIC TRAUMA IN THE EMERGENCY DEPARTMENT: A RETROSPECTIVE OBSERVATIONAL STUDY

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Introduction. Thoracic trauma represents a major public health problem and is frequently encountered in emergency medical services, including Emergency Departments (ED), being associated with high rates of morbidity and mortality, particularly in the context of poly-trauma. Injury to the thoracic structures can rapidly lead to respiratory failure and hemodynamic instability, requiring prompt assessment and appropriate management. Early recognition of severe thoracic injuries and the correct application of standardized evaluation protocols, such as the ABCDE approach, are essential for preventing complications and optimizing patient outcomes. The aim of this study was to evaluate the clinical characteristics, injury mechanisms, types of thoracic lesions, and management of patients presenting with thoracic trauma to the ED.

Aim of study. The aim of this study was to assess the clinical profile and injury characteristics of patients presenting with thoracic trauma to the Emergency Department, with particular emphasis on early recognition of life-threatening conditions, implementation of standardized trauma protocols (ABCDE approach), and timely diagnostic and therapeutic interventions.

Methods and materials. This retrospective observational study includes 68 patients with thoracic trauma evaluated in the Emergency Department over a 12-month period. Demographic variables (age, sex), mechanism of injury, vital signs at presentation, types of thoracic injuries, and therapeutic interventions were analyzed. Clinical assessment was performed according to the ABCDE protocol, and diagnosis was supported by imaging investigations, including chest radiography, E-FAST ultrasound, and computed tomography, depending on the patient's hemodynamic stability.

Results. Of the 68 patients included in the study, the mean age was 35.69 ± 1.431 years (95% CI: 32.83-38.55), with a predominance of male patients (52 patients 76%). The main mechanism of injury was road traffic accidents, accounting for 35 patients (52%), followed by falls from heights (19 patients 28%) and assault-related injuries in 14 patients (20%). The most frequent thoracic injuries were rib fractures (41 patients 61%), pulmonary contusion (26 patients 38%), pneumothorax (20 patients 29%), and hemothorax (15 patients 22%). Pleural drainage was required in 21 patients (31%), while mechanical ventilation was necessary in 12 patients (18%).

Conclusions. Thoracic trauma is a major and frequently encountered emergency in the Emergency Department and is associated with a significant risk of complications and mortality. Rigorous application of standardized assessment and treatment protocols in the ED enables rapid identification of severe injuries, prompt initiation of appropriate therapy and contributes to improved clinical outcomes and patient prognosis.

Keywords. Thoracic trauma, emergency medicine, Emergency Department, ABCDE protocol.

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115. POSTOPERATIVE COMPLICATIONS IN PATIENTS WITH LUNG TUMORS

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Introduction. Postoperative complications constitute a determining factor of the clinical course in patients with lung tumors treated surgically. During the postoperative period, they may influence patient recovery, length of hospitalization, and the need for additional therapeutic measures. The systematic analysis of complications occurring after surgical interventions for lung tumors allows the establishment of their profile in the postoperative period, the implementation of prophylactic measures, and the assessment of the necessity of patient preparation for surgery.

Aim of study. Evaluation of the frequency and spectrum of postoperative complications in patients operated on for lung tumors.

Methods and materials. A retrospective observational study was conducted based on the analysis of 158 medical records of patients operated on for lung tumors who were hospitalized in the Thoracoabdominal Surgery Department of the IMSP Oncological Institute during the year 2025. The types of surgical interventions and postoperative complications in patients with lung tumors were evaluated.

Results. Among the 158 patients who underwent surgery for lung tumors, 82 were men (51.9%) and 76 were women (48.1%), with ages ranging from 27 to 83 years and a mean age of 62 years. According to the area of residence, 93 patients (58.9%) originated from urban areas, while 65 (41.1%) were from rural areas. The surgical procedures performed included lobectomy in 68 patients (43.0%), atypical (wedge) resection in 55 cases (34.8%), segmentectomy in 33 patients (20.9%), and pneumonectomy in 2 cases (1.3%). Postoperative complications were identified in 16 patients (10.1%). Among these, pulmonary fistulas and subcutaneous emphysema were the most frequent findings, recorded in 6 cases (37.5%), followed by respiratory failure (type II, mixed, or grade I) in 3 patients (18.8%) and renal dysfunction in 2 patients (12.5%). Less frequent complications included postoperative wound hematoma, partial wound dehiscence, wound seroma, pneumothorax, and pneumonia, each observed in one patient (6.3%).

Conclusions. Postoperative complications in patients with lung tumors developed in 16 patients (10.1%). Pulmonary fistulas and subcutaneous emphysema were more frequently identified, recorded in 6 cases (37.5%), followed by respiratory failure (type II, mixed, or grade I) in 3 patients (18.8%).

Keywords. lung tumors; surgical treatment; postoperative complications.

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116. AI IN DRY EYE DISEASE DIAGNOSIS AND MANAGEMENT: A LITERATURE REVIEW

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Introduction. Dry eye disease (DED) affects millions worldwide, characterised by tear film instability that leads to ocular discomfort, blurred vision, and surface damage, significantly impairing quality of life due to chronic pain and limitations in daily activities. There is availability of traditional diagnostic tests, such as the Schirmer test and tear break-up time (TBUT), imaging, such as meibography, and biomarkers, such as MMP-9. However, these struggle with subjectivity, weak symptom alignment and factors like humidity and patient anxiety. AI using machine learning for predictive diagnosis and AI-driven imaging techniques, such as convolutional neural networks (CNNs), process multimodal data, including meibomian gland imaging, tear metrics, and patient symptoms, to deliver patient subjective assessments, predict progression, and tailor individualised therapies.

Aim of study. This literature review explores the potential of artificial intelligence (AI) for diagnosing and facilitating early detection of DED, aiming to enhance the accuracy of treatment plans based on available resources.

Methods and materials. The literature review was conducted using peer-reviewed articles from PubMed, Scopus, PMC, and Google Scholar databases. These articles included in this study are those published in English and focused on clinical trials and AI in DED. Excluded articles are those that are not related to AI and animal studies. The articles included in this study focused on symptom tracking and machine learning.

Results. Recent advances in convolutional neural networks have significantly improved diagnostic accuracy. CNN models (DenseNet169) achieved 97.8% accuracy in distinguishing between obstructive and atrophic MGD types, reducing analysis time to 8.2 seconds. Random forests achieved 87.6% accuracy in predicting disease progression after 12 months. Gradient Boosting Machine achieved an AUC of 0.943 in predicting the risk of developing dry eye disease based on demographics and lifestyle factors. All AI models had faster processing times compared to manual assessment.

Conclusions. Artificial Intelligence shows a new era in the management of dry eye disease. It introduces a new diagnostic dimension that goes beyond the limitations of conventional assessment. It will aid in early diagnosis with high accuracy, with gland imaging analysis showing an accuracy rate of over 97%. It will also aid treatment by employing predictive models to address issues of variability and poor symptom-dry eye disease correlation. However, it is crucial to address future efforts in large-scale validation and an ethical framework for integrating AI into clinical practice.

Keywords. Dry eye disease, Individualized treatment, Machine learning, Artificial intelligence.

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117. ROLE OF IMAGING METHODS AND ARTIFICIAL INTELLIGENCE IN GIANT POSTOPERATIVE HERNIA MANAGEMENT

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Introduction. Often associated with high recurrence (14.5- 27.7%) and morbidity (3-10%), giant postoperative hernia poses a formidable challenge in general surgery. Accurate diagnosis and appropriate selection of treatment strategies are essential for optimal outcomes.

Aim of study. Studying and consolidating contemporary strategies in the management of giant hernias, evaluating the role of artificial intelligence (AI) in diagnosis and treatment.

Methods and materials. A narrative review of the literature was performed using PubMed, Google Scholar, and Cochrane Library databases. A total of 35 reviewed articles published in the last 15 years were analyzed. Diagnostic accuracy, sensitivity, and effectiveness of imaging modalities were compared. Inclusion criteria encompassed clinical studies on giant incisional hernia methods of diagnosis and studies involving the role of AI in diagnostic imaging.

Results. USG presented sensitivity < 90%. Computed tomography (CT) is the gold standard diagnostic tool, with reported sensitivity from 94–98% for defect characterization. CT allows accurate measurement of defect size, hernia contents, and abdominal wall anatomy, which is crucial for surgical planning. Recent studies show that AI-assisted image analysis improves segmentation accuracy, volumetric assessment, and preoperative planning, reducing observer variability and improving treatment strategies. Modern strategies such as: preoperative progressive Pneumoperitoneum, and botulinum toxin-A injection, component separation techniques, synthetic or biological mesh reinforcement, reported to reduce the recurrence compared to traditional repair methods.

Conclusions. Advanced imaging techniques, particularly CT, combined with AI-based diagnostic tools enhance diagnostic accuracy and surgical planning in giant ventral hernias. Modern surgical approaches tailored to individual patient anatomy significantly improve outcomes and reduce complications.

Keywords. Giant ventral hernia; computed tomography; artificial intelligence; component separation.

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118. MINIMALLY INVASIVE SURGICAL TREATMENT OF SCAPHOID BONE FRACTURES THROUGH PERCUTANEOUS OSTEOSYNTHESIS.

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Introduction. Scaphoid bone fractures are the most frequent fractures of the carpal bones that appear after a fall on an outstretched hand. The most frequent mechanism of injury is axial load on a wrist that is hyperextended, pronated, and ulnar deviated. Due to the retrograde type of blood supply, fractures at the level of the bone body or at the proximal pole massively increase the risk of avascular necrosis and pseudoarthrosis. For this reason, the Mayo classification is widely used, which is based on the anatomical localization of the fracture line, and for therapeutic conduct, the Herbert Classification is used, which divides fractures based on stability.

Case presentation. A 37-year-old male patient, presented to the emergency department following a road accident (motorcyclist) on 21.06.2022 with the following complaints: intense, persistent pain and functional impotence of the left hand. The traumatic mechanism consisted of a direct fall on the left hand in extension. Upon examination, the patient presents sensitivity in the "Anatomic Snuffbox," swelling of the region, pain on palpation on the palmar face of the wrist, at the base of the thenar eminence. Following the clinical and imaging examination, the diagnosis was established as: scaphoid bone fracture in the left hand, with displacement. Considering the instability of the fracture site confirmed by the displacement of the fragments, specialized urgent-delayed surgical treatment was indicated. On 21.06.2022, under anesthesia, the minimally invasive surgical intervention was performed, consisting of closed reduction and percutaneous osteosynthesis of the left scaphoid bone. Internal fixation was achieved with a compression screw, ensuring the necessary stability for consolidation. Postoperative evolution was positively dynamic, under analgesic and anti-inflammatory treatment. The patient was discharged on 22.06.2022 with a wrist brace for 2-3 weeks. At the 8-week follow-up, bone consolidation is observed.

Discussions. The treatment of scaphoid fractures remains a challenge due to retrograde vascularization, which predisposes to avascular necrosis or pseudoarthrosis. The use of the compression screw ensured immediate mechanical stability, shortening the immobilization period to only 2-3 weeks and allowing for rapid post-operative discharge. The effectiveness of the treatment was monitored through the use of the DASH score, post-traumatic period – 75 points, at the 8-week evaluation – 15 points.

Conclusions. Percutaneous osteosynthesis represents the current "gold-standard" for displaced scaphoid fractures, offering a superior alternative to conservative treatment.

Keywords. Scaphoid fracture, Percutaneous osteosynthesis.

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119. XANTHOGRANULOMATOUS CHOLECYSTITIS: DIAGNOSTIC CHALLENGES AND THE EMERGING ROLE OF ARTIFICIAL INTELLIGENCE

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Introduction. Xanthogranulomatous cholecystitis (XGC) is a chronic granulomatous inflammation of the gallbladder reported in a minority of cases. This benign disease closely resembles gallbladder carcinoma (GBC) and is often misdiagnosed. Studies report prevalence of 1.3%-1.9%, mainly in individuals aged 60-70 with female predominance. Pathology stems from rupture of Rokitansky-Aschoff sinuses due to increased intraluminal pressure from cystic duct obstruction, commonly by cholelithiasis or choledocholithiasis. Bile leaks into the intramural layer, triggering granulomatous inflammation, fibrosis, and adhesions affecting liver, duodenum, stomach, and pancreas.

Aim of study. To investigate the efficiency, accuracy, and effectiveness of AI-based machine learning (ML) models for differentiating xanthogranulomatous cholecystitis (XGC) from gallbladder cancer (GBC), considering LIDGAX, deep learning models, and other tools to improve preoperative diagnosis.

Methods and materials. Literature review via PubMed, supplemented by high-impact articles on XGC and AI in hepatobiliary diagnostics. Reviewed studies covered: Histopathology (lipid-laden foamy histiocytes, multinucleated giants, inflammatory cells, mucosal ulceration); radiology (gallstones, US: wall thickening/hyperechogenicity/nodules; CT: hypoattenuating intramural nodules; MRI-DWI: elevated ADC); paraclinical markers (elevated tumor markers/bilirubin). These mimic GBC, requiring invasive frozen biopsy/FNA prone to error. AI-based model reviews have examined the following areas: a retrospective study of patients over 11 years with complete clinical and imaging data, excluding incomplete or metastatic cases, in which six ML models (LR, RF, SVM, XGB, LGB, MLP) were developed and compared for XGC/GBC differentiation.

Results. Twelve independent predictors were identified via multivariate logistic regression and LASSO. Additionally, a single-center review compared state-of-the-art DL models, including GBCNet (CNN) and RadFormer (transformer). LIDGAX achieved the highest performance with sensitivity (1.2–8.5%), specificity (0.0–4.6%), balanced accuracy (1.8–6.6%); reduced time 30–36 s/patient. ML and DL models demonstrated diagnostic performance comparable to or superior to radiologist assessment in selected studies.

Conclusions. Diagnosing xanthogranulomatous cholecystitis presents a challenge for clinicians due to its similarities to gallbladder cancer. Understanding histopathology, laboratory parameters, and imaging is key, but traditional methods are often time-consuming and error-prone. Literature shows that AI/ML/deep learning (e.g., LIDGAX) can be used to improve diagnosis and treatment prognosis.

Keywords. Xanthogranulomatous Cholecystitis, Gallbladder Carcinoma, Machine learning, LIDGAX, Deep learning.

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120. CURRENT ASPECTS IN THE DIAGNOSIS AND TREATMENT OF MIRIZZI SYNDROME

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Introduction. Mirizzi syndrome (MS) is a rare but severe complication of gallstone disease, with a reported incidence of 0.1–0.5%, and is associated with significant preoperative diagnostic difficulties and an increased risk of intra- and postoperative complications. The implementation of a standardized diagnostic algorithm, based on the correlation of clinical, biological, and imaging data, is essential for optimizing surgical management.

Aim of study. To evaluate the clinical and imaging criteria relevant for the preoperative diagnosis of Mirizzi syndrome and to analyze the surgical approach according to the morphological type of cholecystobiliary fistula.

Methods and materials. The study included 79 patients diagnosed and treated for MS in the Clinic of the Department of Surgery No. 2. Preoperative evaluation was performed according to a multimodal algorithm, integrating clinical, biological and imaging data. Clinically, predominated: cholestatic jaundice (82.2%), pain in the right hypochondrium (76.9%) and acute cholangitis (28.3%), associated with inflammatory, hepatoprival and cholestatic biological changes. Abdominal ultrasonography, performed in all patients (100%), revealed in 74.6% of cases dilatation of the common bile duct (>6 mm), thickening of the gallbladder wall (>4 mm), encased calculus at the infundibular level and extrinsic compression of the common hepatic duct. MRCP, performed in 22 patients (27.8%), provided additional information regarding the anatomy of the biliary tree, the location of the obstruction and the degree of parietal damage to the common bile duct. ERCP, performed in 71 patients (89.8%), allowed the identification of extrinsic compression and cholecystobiliary fistulas in 68.7% of cases, and was also used for therapeutic purposes. Computed tomography with contrast, selectively applied in 14 patients (17.7%), was used to exclude neoplastic pathology and evaluate inflammatory complications. In all cases, at least two imaging methods were used.

Results. The preoperative diagnosis of Mirizzi syndrome was established in 31 patients (39.2%), based on the association of clinical and imaging criteria. The correlation of imaging methods allowed a more accurate assessment of the extension of biliary lesions and an adequate surgical planning.

Conclusions. The application of a standardized diagnostic algorithm, based on the integration of clinical, biological and imaging criteria, allows to increase the preoperative diagnosis rate of Mirizzi syndrome up to 39.2%, contributing to the choice of an optimal surgical strategy and to the reduction of the risk of complications.

Keywords. Mirizzi syndrome, preoperative diagnosis, biliary imaging, surgical treatment.

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121. MINIMALLY INVASIVE SURGICAL TREATMENT OF ACROMIOCLAVICULAR DISLOCATION USING A CORTICAL BUTTON FIXATION SYSTEM AND UHMWPE SUTURES

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Introduction. Acromioclavicular joint dislocation represents one of the most frequent locations of shoulder girdle trauma. The basic mechanism of this injury consists of direct mechanical force or a fall on the shoulder with the arm in abduction, leading to the infero-medial displacement of the acromion relative to the clavicle. It is most frequently encountered among young athletes, in bicycle falls, contact sports, road accidents, etc. The Rockwood classification, consisting of 6 grades, is a gold standard in the imaging of acromioclavicular dislocations. The current trend in the treatment of acromioclavicular dislocations is moving from invasive open surgery with rigid fixation to minimally invasive techniques aimed at the anatomical reconstruction of the acromioclavicular ligaments with suspensory stabilization techniques, which provide biomechanical resistance similar to native ligaments.

Case presentation. A 47-year-old male patient presents with the following complaints: chronic pain, visible deformity and limitation of left shoulder mobility. Anamnesis: In May 2024, the patient suffered a trauma through a fall and impact from an ATV, resulting in a left acromioclavicular dislocation. Dislocation reduction and arthrosynthesis with Kirschner wires were performed. In July 2024, the wires were removed. The aforementioned complaints appeared in August 2024. Clinical examination: A marked deformity is observed in the left acromioclavicular region with the presence of the "piano key sign." Left shoulder movements are limited. X-ray confirmed the diagnosis of recurrent acromioclavicular dislocation, grade II-III according to the Rockwood classification. Taking into account the failure of rigid stabilization with Kirschner wires and the persistence of instability, dynamic stabilization was performed using the Ortolog suspensory fixation system with the use of cortical buttons and high-resistance (UHMWPE) sutures, which allowed for anatomical reconstruction and early functional recovery without the need for a new intervention for material extraction.

Discussions. The UHMWPE type suture presents extreme tensile strength and biocompatibility, minimizing the risk of breakage or inflammatory reaction. Unlike classical methods, this system from Ortolog allows physiological micromovements in the joint. This method does not require a second intervention for material extraction. The DASH score decreasing from 65 points initially to 12 points indicates the restoration of superior functionality.

Conclusions. The use of UHMWPE systems is an optimal solution for active patients. This method ensures early functional recovery and superior aesthetic results.

Keywords. Acromioclavicular Dislocation.

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122. DIAGNOSIS AND SURGICAL TREATMENT OF GASTROINTESTINAL STROMAL TUMORS

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Introduction. Gastrointestinal stromal tumors (GISTs) represent the most frequent mesenchymal tumors of the gastrointestinal tract, with an estimated incidence of 10–15 cases per million annually. They arise from interstitial cells of Cajal and are characterized by KIT (CD117) or PDGFRA mutations. Malignant potential is mainly determined by tumor size and mitotic index. Clinical presentation is often nonspecific and depends on tumor location, growth pattern and complications. Although surgery remains the main curative treatment, the introduction of tyrosine kinase inhibitors, particularly imatinib, has significantly improved outcomes in high-risk and advanced disease.

Aim of study. To analyze the clinical presentation, diagnostic approach and surgical outcomes of patients with GIST treated in a single surgical center.

Methods and materials. Between 2006 and 2025, 22 patients (10 males/12 females) with a mean age of 55.4 years (range 25–81) were surgically treated for GISTs. Tumor localization, size, clinical presentation, imaging findings, histopathological and immunohistochemical characteristics, type of surgery and postoperative evolution were evaluated.

Results. The most frequent clinical presentation was obstruction/stenosis (36.4%), followed by gastrointestinal bleeding (31.8%), intra-abdominal mass (18.2%) and asymptomatic cases (13.6%). Tumors originated from the stomach in 45% of cases, small intestine in 40.9% and colon in 13.6%. Mean tumor size was 6.45 cm for gastric GISTs and 3.75 cm for intestinal tumors. Abdominal CT and endoscopy played a decisive role in elective diagnosis, while in emergency settings diagnosis was established intraoperatively. Complete tumor resection (R0) was achieved in all cases, without routine lymphadenectomy. The mean hospital stay was 10.6 days. Postoperative complications were rare and did not adversely influence short-term outcomes. All patients were referred to a specialized oncology institution for risk assessment based on Fletcher and Miettinen classification, and for initiation of adjuvant imatinib therapy according to established indications.

Conclusions. GIST remains a constant pathology in surgical practice, with variable clinical expression depending on size and localization. Radical surgical resection represents the cornerstone of treatment, while adjuvant targeted therapy further improves oncological outcomes in selected patients.

Keywords. Gastrointestinal Stromal Tumors, Surgical Treatment, Imatinib Mesylate

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123. STAGED HYBRID REVASCULARIZATION IN BILATERAL CHRONIC LIMB-THREATENING ISCHEMIA: A TAILORED APPROACH TO MULTILEVEL DISEASE.

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Introduction. Chronic limb-threatening ischemia (CLTI) is the most severe stage of peripheral arterial disease and is associated with high risks of amputation and cardiovascular mortality. Elderly patients frequently present with multilevel arterial disease and significant comorbidities, requiring individualized strategies based on lesion anatomy, durability and patient risk profile. We report a case of bilateral CLTI treated by staged hybrid revascularization.

Case presentation. A 79-year-old male smoker with multiple cardiovascular risk factors and comorbidities, including ischemic heart disease, heart failure (NYHA II), hypertension, dyslipidemia, obesity and mild chronic obstructive pulmonary disease, presented with bilateral rest pain, more severe in the left lower limb. Physical examination revealed cold lower limbs, a palpable right femoral pulse with a vascular bruit, absent right popliteal pulse, absent left femoral and popliteal pulses and absent distal pulses bilaterally. The ankle–brachial index was 0.48 on the right and 0.40 on the left. The patient was classified as Fontaine stage III and Rutherford category 4. The chronic course, ABI and imaging excluded acute limb ischemia and inflammatory arterial diseases. Angiography demonstrated a short TASC B occlusion of the right common iliac artery and a long TASC C occlusion of the left superficial femoral artery, confirming atherosclerotic peripheral arterial disease. Endovascular angioplasty and stenting of the right common iliac artery were performed. One month later, open revascularization of the left lower limb was performed, consisting of endarterectomy followed by femoropopliteal bypass using a Dacron graft. Postoperative evaluation showed warm, well-perfused limbs, restored distal flow and complete resolution of rest pain.

Discussions. The staged hybrid strategy allowed progressive revascularization while reducing perioperative risk in a high-risk patient. Endovascular therapy was initially preferred to avoid iliac endarterectomy. Autologous saphenous vein was unavailable due to chronic venous insufficiency, requiring prosthetic grafting. Combined antiplatelet and anticoagulant therapy was selected because of the prosthetic conduit and limited distal runoff.

Conclusions. The applied strategy enabled bilateral limb salvage and prevention of major amputation. Open and endovascular techniques are complementary, with treatment guided by lesion anatomy, ischemia severity and patient risk profile. The favorable outcome reflects adherence to contemporary therapeutic algorithms and individualized patient-centered decision-making.

Keywords. Chronic limb-threatening ischemia, hybrid revascularization.

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124. THE ROLE OF PLASTIC SURGERY IN THE MANAGEMENT OF SEVERE BURNS: CURRENT PERSPECTIVES AND THERAPEUTIC INNOVATIONS

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Introduction. Over the past decade, substantial advances have been achieved in burn care. With the significant improvement in survival rates among patients with severe burns, the focus has progressively shifted toward optimizing wound management strategies. Autologous skin grafting has long been considered the gold standard for the treatment of deep partial-thickness and full-thickness burns; however, its applicability remains limited, particularly in patients with extensive total body surface area involvement.

Aim of study. The aim of this study was to determine and analyze the importance of plastic surgery in the assessment and management of burns of varying degrees, and to demonstrate the continuous evolution of the field toward modern therapeutic perspectives and innovative approaches.

Methods and materials. A total of ten bibliographic sources were reviewed from databases including PubMed, Medline, Google Scholar, and Medical News Today, in addition to advanced clinical references, thereby supporting the contemporary relevance of the topic.

Results. Skin grafting represents one of the cornerstones of modern burn management and reconstructive surgery, combining surgical precision, biological understanding, and multidisciplinary collaboration. Early excision and grafting of burn wounds have been shown to significantly improve patient survival, reduce infection rates, and shorten hospitalization.Autografts remain the gold standard due to their superior immunologic compatibility and healing properties, with split-thickness skin grafts (STSGs) being the most frequently utilized for extensive burns. The evolution of tissue engineering has introduced allografts, xenografts, biosynthetics, and cultured epithelial autografts as valuable adjuncts, particularly in cases with limited donor availability. The biological phases of graft take — imbibition, inosculation, and neovascularization — are critical determinants of graft success, influenced by local wound conditions, systemic metabolic factors, and surgical technique.

Conclusions. The evolution of burn management through excision, grafting, and reconstruction underscores the balance between surgical science, tissue biology, and care. Early excision and grafting have transformed a once-fatal injury into a survivable and often recoverable condition. Interprofessional collaboration — among surgeons, anesthetists, intensivists, nurses, and rehabilitation specialists — is essential for optimizing outcomes. Through collective expertise, individualized care, and innovation, burn reconstruction continues to advance, prioritizing survival and patient quality of life.

Keywords. Burn surgery, Autograft, Skin substitute, Reconstruction, Management.

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125. MANAGEMENT OF DISTAL FEMUR FRACTURES

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Introduction. Distal femur fractures represent complex injuries, frequently associated with high-energy trauma in young patients or bone fragility in the elderly. The primary objectives of treatment are restoration of axial alignment, rotation, and limb length, anatomical reconstruction of the articular surface, and early mobilization to reduce the risk of complications and long-term morbidity.

Aim of study. To analyze current therapeutic options and modern principles of surgical management in distal femur fractures, highlighting the indications, advantages, and limitations of each method.

Methods and materials. A narrative review of the literature was conducted focusing on contemporary surgical techniques, implant types, and complications associated with distal femoral fractures.

Results. Current management is predominantly surgical and includes temporary external fixation, internal osteosynthesis using conventional or locking plates, antegrade or retrograde intramedullary nailing, augmentation with bone cement or grafts, and distal femoral replacement in selected cases. External fixation is primarily used as a temporary method in unstable patients or those with severe soft tissue injuries. Open reduction and internal fixation aim at anatomical articular reconstruction and metaphyseal stability; locking plates provide superior angular stability and favorable biomechanical outcomes. Intramedullary nails, particularly retrograde nails, allow minimally invasive fixation with physiological load distribution and are indicated in extra-articular fractures and selected simple intra-articular patterns. Type C fractures require anatomical articular reduction with absolute stability, combined with relative metaphyseal stability. In cases of severe medial comminution or osteoporotic bone, additional medial support or polymethylmethacrylate (PMMA) augmentation may be necessary. In non-reconstructible fractures or periprosthetic fractures without adequate bone stock, distal femoral replacement may allow early weight-bearing. The main complications include nonunion (≈6%), malalignment, deep infection (≈2–3%), and knee stiffness. Risk factors for failure include inadequate reduction, extensive medial comminution, poor bone quality, and premature weight-bearing without radiological evidence of consolidation.

Conclusions. The treatment of distal femur fractures requires an individualized approach based on fracture type, bone quality, and the patient's biological status. Minimally invasive techniques and the use of modern angular-stable implants have significantly improved functional outcomes and reduced complication rates. Appropriate selection of fixation methods and strict adherence to biomechanical principles are essential for achieving optimal functional recovery.

Keywords. distal femur fracture, locking plate, intramedullary nail, osteosynthesis, distal femoral replacement.

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126. CURRENT ADVANCES IN THE MANAGEMENT OF MALLEOLAR FRACTURES: MINIMALLY INVASIVE SURGICAL TECHNIQUES

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Introduction. Malleolar fractures are among the most common traumatic injuries of the ankle, with a significant impact on locomotor function and patients' quality of life. Over recent decades, their management has evolved considerably with the development of minimally invasive surgical techniques aimed at achieving anatomical stability, preserving soft tissues, and promoting rapid functional recovery.

Aim of study. To analyze recent specialized literature, highlighting the advantages and limitations of the main modern treatment methods, such as percutaneous osteosynthesis, fixation with cannulated screws, and surgical approaches associated with minimal soft tissue trauma.

Methods and materials. A narrative review of the specialized literature was conducted using PubMed, ResearchGate, Scopus, and SAGE Journals databases. Publications from the last 10-15 years addressing the management of malleolar fractures were analyzed, with a focus on minimally invasive techniques, indications, clinical outcomes, and associated complications.

Results. Data from the reviewed literature suggest that minimally invasive techniques may contribute to a reduction in postoperative complications, decreased pain levels, shorter hospital stays, and earlier restoration of joint function, without compromising stability or long-term outcomes.

Conclusions. Minimally invasive techniques represent an essential component of modern approaches to the management of malleolar fractures, offering clinically relevant advantages in reducing postoperative morbidity and optimizing functional recovery. Their application is recommended in carefully selected cases, with strict adherence to the biomechanical and anatomical principles of the ankle joint to ensure durable outcomes.

Keywords. minimally invasive techniques, malleolar fractures.

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127. MANAGEMENT OF CHRONIC VASOMOTOR RHINITIS

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Introduction. Chronic vasomotor rhinitis (CVR) represents the most common subtype of non-allergic rhinitis, characterized by persistent nasal congestion and rhinorrhea in the absence of an IgE-mediated mechanism or infectious etiology. Its pathogenesis involves autonomic and neurogenic dysfunctions leading to nasal hyperreactivity to nonspecific stimuli.

Aim of study. To evaluate the clinical and demographic characteristics, as well as the management principles applied to patients diagnosed with chronic vasomotor rhinitis over a three-year period at "T. Moșneaga" Republican Clinical Hospital.

Methods and materials. A retrospective study was conducted on a cohort of 40 patients diagnosed with CVR, selected from the SIAAMS information system of "T. Moșneaga" Republican Clinical Hospital over the past three years. Demographic variables (age and sex) and age group distribution were analyzed.

Results. The patients' age ranged between 20 and 74 years, with a mean age of 38 ± 0.32 years. Age group distribution revealed predominance in the 20–40 years category (62.5%), followed by 41–60 years (27.5%) and 61–80 years (10%), with no patients older than 80 years. Regarding sex distribution, a slight female predominance was observed (55%) compared to males (45%). Clinically, CVR manifested predominantly through persistent nasal congestion and rhinorrhea, without signs of atopy or infection. The therapeutic management was stepwise and individualized, including avoidance of triggering factors, pharmacological treatment with intranasal corticosteroids and topical antihistamines, and in selected cases, anticholinergic therapy for rhinorrhea control. Favourable outcomes were observed in the majority of patients, with symptom improvement and enhanced quality of life.

Conclusions. Chronic vasomotor rhinitis predominantly affects young adults, with a slight female predominance. Modern management, based on an individualized and stepwise approach, allows effective symptom control and reduces the impact on life quality. The study highlights the importance of accurate diagnosis and differentiation of CVR from other forms of rhinitis to optimize therapeutic strategies.

Keywords. chronic vasomotor rhinitis, non-allergic rhinitis, diagnosis, therapeutic management.

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128. RISK FACTORS OF SURGICAL SITE INFECTION IN ABDOMINAL SURGERY

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Introduction. Surgical site infection (SSI) remains a major concern among hospital-acquired infections, exacerbated by antibiotic resistance, increased surgical interventions, and the presence of comorbidities. Therefore, identifying risk factors and applying effective prophylactic strategies is essential. The alarming rise in multidrug-resistant microorganisms highlights the need to carefully evaluate all available therapeutic interventions.

Aim of study. To identify risk factors associated with SSI in patients undergoing abdominal surgery.

Methods and materials. Studies published between 2019–2024 were reviewed in databases such as PubMed, ScienceDirect, and MDPI, using keywords like risk factors, surgical site infection, and wound infections. Included were observational studies and meta-analyses involving adult and pediatric patients. Reviews and non-observational studies were excluded. The initial search yielded 309 results, with relevant studies selected for analysis.

Results. Identified risk factors were classified as intrinsic and extrinsic. In a prospective study by Alkaaki et al., 337 patients undergoing abdominal surgery were evaluated over one year; 55 developed SSIs (16.3%). Infection rates were higher in open surgery (35%) compared to laparoscopic procedures (4%). Key extrinsic risk factors included open surgical approach, emergency interventions, and prolonged operating time. Male gender was the most significant non-modifiable intrinsic factor. The most common bacteria were Escherichia coli (ESBL-producing) and Enterococcus spp. Only 23% of the isolated strains were sensitive to the prophylactic antibiotic administered preoperatively.

Conclusions. SSIs are influenced by various risk factors, with surgical approach, urgency, and procedure duration being key elements. Understanding the etiological profile of SSIs is crucial for optimizing therapeutic strategies, reducing infection rates, shortening hospital stays, and lowering healthcare costs.

Keywords. surgical site infection, risk factors, surgical intervention.

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129. THE ROLE OF ARTIFICIAL INTELLIGENCE IN THE MULTIMODAL TREATMENT OF THE DIABETIC FOOT

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Introduction. Diabetic foot is one of the most severe and economically burdensome complications of diabetes mellitus, being associated with a high risk of infections, lower-limb amputations and increased mortality rates. In the context of the rising global prevalence of diabetes and the growing need for early and personalized interventions, Artificial Intelligence (AI) has emerged as a promising tool for enhancing diagnostic accuracy, risk prediction and therapeutic management of diabetic foot pathology.

Aim of study. Assessing the impact of integrating artificial intelligence algorithms into multimodal diabetic foot management.

Methods and materials. A bibliographic review of relevant scientific publications over the last 10 years was conducted using PubMed, Google Scholar, Medscape and ScienceDirect databases. The analysis focused on evaluating the advantages and clinical applicability of AI technologies in the management and treatment strategies of diabetic foot.

Results. Recent studies indicate that machine learning algorithms integrating clinical and imaging data can facilitate the detection and segmentation of diabetic foot ulcers, enabling early identification of necrotic processes. The application of AI in tissue transcriptomic analysis allows for the identification of molecular targets associated with wound healing, representing a promising direction toward individualized therapeutic strategies. The implementation of predictive systems in revascularization planning has improved the accuracy of patient selection for endovascular or surgical interventions and has been associated with higher patency rates at 6–12 months. In addition to reducing healthcare costs and the incidence of severe complications, the use of AI-based telemedicine and remote monitoring systems enhances continuity of care. These findings support the clinical value of integrating AI into the multimodal management of diabetic foot disease, highlighting its potential to transform traditional treatment paradigms into predictive and personalized care models aimed at preventing severe complications.

Conclusions. The implementation of artificial intelligence in the treatment of diabetic foot holds substantial potential for improving early diagnosis, risk stratification and therapeutic personalization, ultimately reducing the incidence of major complications. Nevertheless, widespread clinical adoption remains constrained by challenges related to data standardization, prospective clinical validation, ethical and regulatory compliance, and integration into multidisciplinary clinical workflows.

Keywords. Diabetic foot, artificial intelligence, treatment strategies.

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130. ARTIFICIAL INTELLIGENCE IN BARIATRIC SURGERY

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Introduction. The gold standard intervention of morbid obesity is bariatric surgery, with 50-70% excess weight loss and 60-80% type 2 diabetes mellitus remission. The outcomes after the operation, however, differ significantly because of the patient factors and the risk of the surgery like the venous thromboembolism and anastomotic leaks. Conventional risk stratification using body mass index and comorbidities has had low predictive value, which has led to the use of artificial intelligence (AI)-based predictive models.

Aim of study. To present an overview of the use of artificial intelligence in bariatric surgery, to pay attention to outcome prediction, intra-operative support, analysis of surgical video, and postoperative monitoring and rehabilitation.

Methods and materials. A literature review systematically was carried out according to PRISMA guidelines based on PubMed, EMBASE, Web of science, and Cochrane Library. Articles published through to 2025 carrying out the evaluation of the AI and machine learning applications in adult bariatric surgery comprised the inclusion criteria. The information on predictive accuracy, clinical outcomes, and implementation issues was examined.

Results. The model machine learning showed better performance than conventional statistical models on predicting postoperative complications and long-term outcomes, with reported area under the curve values as high as 0.98. Robotic systems with AI enhanced the accuracy of the intraoperative period and shortened the duration of operations. Deep learning analysis of surgical videos improved the detection of complications, quality of video, and surgical training. In remote monitoring platforms that included AI, the adherence, early recognition of complications, and weight loss outcomes after the operation were enhanced. Nevertheless, the absence of external validation and retrospective designs of study was a common limitation.

Conclusions. Artificial intelligence plays an important part in streamlining perioperative decision-making, surgical accuracy, education, and postoperative care in bariatric surgery. The implementation of tested and ethically regulated AI systems into clinical practice can potentially decrease the number of complications and enhance long-term outcomes, which are in favor of a more individualized treatment of obesity.

Keywords. artificial intelligence, bariatric surgery, machine learning, outcome prediction, robotic assistance.

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131. THE EFFICACY OF THE SERRATUS ANTERIOR PLANE BLOCK (SAPB)

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Introduction. The Serratus Anterior Plane Block (SAPB), introduced by Blanco in 2013, is a regional anaesthesia technique in which local anaesthetic is injected into the fascial plane of the serratus anterior muscle to provide analgesia of the anterolateral thoracic wall. The block covers the Th2–Th9 dermatomes, intercepting the lateral cutaneous branches of the intercostal nerves through anaesthetic diffusion to provide complete hemithoracic analgesia.

Aim of study. The objective of this study is to evaluate the clinical efficacy and standardised ultrasound-guided technique of the Serratus Anterior Plane Block as a cornerstone of regional anaesthesia. Furthermore, this research analyzes the extent of sensory blockade across the Th2–Th9 dermatomes and investigates the versatility of the SAPB in managing acute pain trajectories and enhancing perioperative outcomes in thoracic wall surgeries.

Methods and materials. To achieve the proposed objectives, a comprehensive review was conducted using data from 2016 to 2025. Literature was synthesised from major medical repositories - including PubMed, Scopus, and Google Scholar - utilising targeted search terms such as “thoracic wall analgesia” and “SAPB.” The resulting analysis focuses on the block’s dermatomal reach and its practical applications in pain management.

Results. The Serratus Anterior Plane Block (SAPB) serves as a robust analgesic intervention for managing acute pain in Herpes Zoster, multiple rib fractures, VATS, and S-ICD implantations. The procedure is performed under real-time ultrasound guidance with the patient in a supine or lateral decubitus position. A high-frequency linear probe is oriented transversely at the fifth intercostal space along the mid-axillary line, allowing for clear sonographic identification of the serratus anterior muscle overlying the ribs. Using an in-plane approach, an 18 G needle is advanced until the tip is positioned precisely beneath the superficial fascia of the muscle. Following negative aspiration, a 30 mL volume-expanded solution (20 mL of 0.5% bupivacaine and 10 mL of sterile saline) is administered. This high-volume injectate is essential for promoting extensive longitudinal spread within the fascial plane, ensuring a consistent blockade of the lateral cutaneous branches of the intercostal nerves across the targeted dermatomes.

Conclusions. The serratus anterior plane block represents an innovative and safe regional anaesthesia technique, offering a viable alternative to conventional methods. Due to the precision of ultrasound guidance and the extensive diffusion of the anaesthetic agent, the SAPB ensures effective and widespread analgesia of the thoracic wall. Consequently, it remains an essential tool in the multimodal management of both perioperative and post-traumatic pain, significantly enhancing patient recovery and clinical outcomes.

Keywords. SAPB, local anaesthesia, ultrasound guidance, fascial planes, thoracic wall analgesia.

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132. THE IMPORTANCE OF OPTICAL COHERENCE TOMOGRAPHY (OCT) AND RETINAL NERVE FIBER LAYER (RNFL) ASSESSMENT IN GLAUCOMA

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Introduction. Glaucoma is a progressive, chronic optic neuropathy marked by gradual loss of the retinal nerve fiber layer (RNFL), structural alterations of the optic disc, and corresponding visual field defects. Because early stages are often asymptomatic and vision loss is irreversible, timely detection and continuous monitoring are essential. Standard automated perimetry is the gold standard for functional assessment in glaucoma, but defects often appear only after significant structural changes. Optical coherence tomography (OCT) provides a precise and reproducible evaluation of RNFL thickness, allowing earlier detection of axonal loss and improving diagnostic accuracy.

Aim of study. This study aims to evaluate the role of OCT in early glaucoma detection and monitoring, to investigate the usefulness of RNFL assessment as an early structural marker and indicator of disease progression and to examine the correlation between structural and functional changes at different stages of the disease.

Methods and materials. A systematic review of literature published from 2015 to 2025 was performed, including 54 selected articles from international databases such as PubMed, ScienceDirect. Clinical and observational studies were examined to compare OCT findings with perimeter metrics, including mean deviation, pattern deviation, and visual field index.

Results. The reviewed studies indicate that OCT can detect RNFL thinning before visual field defects are clinically apparent, providing a major advantage for early diagnosis and timely initiation of glaucoma treatment. Sectoral RNFL analysis shows stronger correlations in the superior and inferior regions, corresponding to arcuate bundles, which are preferentially affected in glaucoma, explaining OCT's higher sensitivity in these regions. In early glaucoma, OCT-detected structural changes strongly correlate with functional deficits, as axonal loss precedes visual field impairment. As the disease progresses, structural and functional damage align, while in advanced stages, further RNFL thinning may be limited by the "floor effect", making perimetry a better indicator of functional loss. Technological improvements, including higher resolution, faster scanning and 3D imaging, enhance diagnostic precision, although interpretation may be influenced by individual anatomical variations and myopia.

Conclusions. OCT is an essential tool for diagnosing and monitoring glaucoma. RNFL assessment provides sensitive information on structural damage to the optic nerve, enabling early detection. The correlation between structural and functional changes is stronger in early glaucoma, and integrating OCT with perimetry supports accurate evaluation of progression and guides personalised treatment decisions.

Keywords. Glaucoma, OCT, RNFL, perimetry, early diagnosis.

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133. CHRONIC HYPERTROPHIC RHINITIS IN CHILDREN: FUNCTIONAL ASSESSMENT OF NASAL OBSTRUCTION AND PATIENTS' QUALITY OF LIFE AFTER SURGICAL TREATMENT

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Introduction. Chronic hypertrophic rhinitis represents the increase in volume of the nasal mucosa and nasal turbinates. It is a pathology frequently diagnosed in children and adolescents, with an estimated prevalence ranging from 20–55% and a continuously increasing trend.

Aim of study. The aim of this study is to evaluate the efficiency of surgical treatment by comparing nasal obstruction before and after the surgical treatment and its impact on patients quality of life.

Methods and materials. The study was conducted between January 2025 to December 2025, at the Pediatric Otorhinolaryngology Department of the "Emilian Coțaga" Clinic, Chișinău, Republic of Moldova. Inclusion criteria are: children aged between 13 and 18 years old, presence of characteristic symptoms (difficult nasal breathing, mouth breathing, excessive nasal discharge, failed drug treatment), confirmed diagnosis of chronic hypertrophic rhinitis, and signed informed consent. The Scale questionnaire NOSE was distributed to the patients during their first visit and repeated at three months after the treatment.

Results. The study included 30 patients, the age range of the patients was between 13 and 18 years old, who were hospitalized with the confirmed diagnosis of chronic hypertrophic rhinitis, the method of treatment applied was electrocoagulation of the nasal turbinate hypertrophy. The gender distribution was 12 (40 %) females and 18 (60%) males. The mean age was 15.3 ± 1.5 years. The patients completed the Scale questionnaire NOSE on the first visit and at three months after the treatment. Before the treatment, the average NOSE score was 73.33 ± 11.6, indicating a moderate to severe nasal obstruction. Three months after the treatment, the average NOSE score was 24.16 ± 8.6, indicating mild nasal obstruction. The correlation between the NOSE score and quality of life is directly proportional, the higher the score, the more affected the quality of life. So, we observe that the NOSE score values are significantly lower at three months after surgical treatment, which speaks to a marked effectiveness of the surgical treatment.

Conclusions. Electrocoagulation of the inferior nasal turbinate is an effective method in the treatment of chronic hypertrophic rhinitis in children, ensuring rapid recovery of nasal obstruction, with a favorable impact on the quality of life of patients.

Keywords. Chronic hypertrophic rhinitis, electrocoagulation, nasal turbinate, children.

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134. PATIENT SELECTION CRITERIA IN REFRACTIVE LENS SURGERY FOR HIGH MYOPIA

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Introduction. Over the past decades, continuous technological progress in lens surgery has significantly enhanced both the safety profile and refractive precision of the procedure. As a result, the indications for refractive lens exchange (RLE) have expanded substantially. The use of contemporary presbyopia-correcting intraocular lenses (IOLs) enables reliable recovery of uncorrected visual acuity at both distance and near.

Aim of study. This article aims to review the existing literature on patient selection criteria for refractive lens exchange.

Methods and materials. Relevant articles were analyzed using PubMed, with the following keywords: “refractive surgery”, “refractive lens exchange”, “clear lens extraction”, “presbyopia-correcting surgery”, and “surgical treatment of myopia”.

Results. In high myopia, refractive lens exchange outcomes strongly depend on patient characteristics. Patients over 50 years with axial lengths under 26 mm and no retinal risk factors achieved predictable uncorrected distance and near vision. Myopic eyes under 50 years or with extensive retinal changes showed higher complication rates, particularly vitreoretinal issues. Preoperative assessment of posterior vitreous detachment and retinal status proved essential for identifying suitable candidates. Overall, carefully selected patients reported high visual satisfaction and minimal need for enhancement procedures.

Conclusions. The success of refractive lens surgery in high myopia relies on rigorous patient selection. Age, axial length, and retinal health should guide surgical decisions. For patients with higher risk profiles, alternative refractive strategies may be safer. Applying structured selection criteria ensures both visual improvement and safety, supporting ethical and evidence-based practice. Clear communication with patients regarding potential risks is essential for informed consent and optimal outcomes.

Keywords. myopia, refractive lens exchange, phacoemulsification, intraocular lens.

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135. TREATMENT STRATEGIES IN HUMERAL SHAFT FRACTURES

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Introduction. Humeral shaft fracture presents a common injury in both high-energy trauma in younger patients and low-energy falls in the elderly with a rate of 1-3%. While many fractures can be managed non-operatively, surgical treatment is usually indicated for displaced, unstable, or complex fracture patterns allowing early mobilization, and improving functional outcomes. Understanding the incidence and predictors of the complications is essential for optimizing treatment strategies and patient outcomes.

Aim of study. To study the modern methods for the management of humeral shaft fractures.

Methods and materials. The data was collected from literature searches of Pubmed, Google Scholar, Medscape and Cochrane Library for studies published up to January 2026 using selected keywords.

Results. Contemporary management emphasizes individualized, minimally invasive fixation. Locking plate osteosynthesis and intramedullary nailing are the mainstays for unstable fractures of proximal and shaft humerus, offering improved biomechanical stability and earlier mobilization. Functional bracing remains effective for selected shaft fractures, such as closed, minimally displaced, without vascular or radial nerve injury etc. Distal humerus fractures are increasingly treated with dual-plate fixation and, in elderly patients with comminution, total elbow arthroplasty. Radial nerve palsy is managed expectantly in closed injuries, with serial clinical and electromyographic monitoring, while early exploration is reserved for open fractures or persistent deficits. Besides the modern surgical approaches, postoperative complications are common like radial neuropathy (5-12%) which usually recovers spontaneously, infection (1-5%), nonunion and delayed union (up to 15%), implant failure (2-6%).

Conclusions. Modern management of humeral fractures focuses on patient-specific, minimally invasive, and stable fixation techniques. Locking plates and intramedullary nails provide excellent outcomes in young, active patients, while functional bracing remains suitable for selected shaft fractures. In elderly patients with osteoporotic, comminuted fractures, arthroplasty offers pain relief and early functional recovery. In conclusion, individualized treatment based on age, bone quality, and fracture pattern is the modern approach for treating humerus fracture.

Keywords. Humeral shaft fracture, Open reduction and internal fixation (ORIF), Intramedullary nailing (IMN), Radial nerve injury.

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136. DIAGNOSIS AND SURGICAL TREATMENT OF COMPLICATED DIVERTICULAR DISEASE OF THE COLON

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Introduction. Diverticular disease of the colon is a common condition in developed countries, with prevalence increasing with age. Although most individuals with diverticulosis remain asymptomatic, approximately 10–20% develop acute diverticulitis, and a subset of these patients progress to complicated disease. Complicated diverticular disease includes abscess formation, perforation, fistulas, obstruction, and generalized peritonitis, conditions associated with significant morbidity and mortality. Accurate diagnosis and appropriate surgical management are therefore essential for optimal outcomes.

Aim of study. The aim of the study is to evaluate the role of modern diagnostic methods in guiding surgical management of complicated diverticular disease of the colon, using the modified Hinchey classification as a decision-making framework.

Methods and materials. A bibliographic synthesis of 52 scientific articles was carried out, addressing diagnostic methods, CT-based Hinchey classification, surgical indications, and operative strategies in complicated diverticular disease of the colon, published in the last six years in the MEDLINE, PubMed, and EMBASE databases.

Results. Contrast-enhanced computed tomography (CT) is the primary diagnostic modality in complicated diverticular disease, allowing precise assessment of disease severity and classification according to the modified Hinchey system. Patients with Hinchey stage I (Ia–Ib) demonstrate localized inflammatory changes or small pericolic abscesses on CT and are predominantly managed conservatively with antibiotic therapy. Hinchey stage II, characterized by distant or pelvic abscesses, is effectively treated by CT-guided percutaneous drainage combined with antibiotics, while surgery is reserved for treatment failure or clinical deterioration. In Hinchey stage III, CT findings indicate purulent peritonitis, necessitating urgent surgical intervention, most commonly sigmoid resection with primary anastomosis in stable patients. Hinchey stage IV, defined by fecal peritonitis and free perforation, requires emergency surgery, with Hartmann's procedure remaining the preferred option in critically ill patients.

Conclusions. The management of complicated diverticular disease of the colon is strongly influenced by CT-based diagnosis and Hinchey staging. This approach enables tailored surgical decision-making, minimizing unnecessary interventions while ensuring timely surgery in severe cases. Individualized treatment strategies based on disease severity and patient condition lead to improved clinical outcomes.

Keywords. colonic diverticulosis, diverticular disease, acute diverticulitis.

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137. DECISION MAKING IN INTESTINAL ANASTOMOSIS: CHOICES, TECHNIQUES AND TRAPS

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Introduction. Intestinal anastomosis is a pivotal step in gastrointestinal surgery, directly influencing postoperative morbidity and mortality. Despite technical progress, complications such as anastomotic leak, bleeding, and stricture remain clinically significant. Successful outcomes depend not only on technique but on surgical judgment integrating patient condition, tissue characteristics, and intraoperative findings.

Aim of study. To assess how evidence-based data and patient-specific risk factors support personalized surgical decisionmaking in intestinal anastomosis, guiding technique selection and intraoperative strategy.

Methods and materials. This scientific review is founded on the examination of specialized literature retrieved from reputable databases such as: PubMed, Bioscientifica, and ScienceDirect over the last four years. Literature addressing single versus double layer sutures, configuration choices, and risk factors for anastomotic failure was analyzed, emphasizing outcomes such as leak rates, morbidity, and mortality.

Results. Outcomes of intestinal anastomosis are determined primarily by tissue perfusion, absence of tension, and bowel viability rather than by a single superior technique. Proper mucosal apposition and preservation of blood supply consistently correlate with improved healing in both stapled and hand sewn anastomoses. Patient related factors significantly modify risk: malnutrition, hypoalbuminemia, sepsis, steroid therapy, chemotherapy, immunosuppression, and poor tissue quality are strongly associated with anastomotic leakage and septic complications. In high risk settings, diversion, staged reconstruction, or damage control strategies show safer profiles than primary anastomosis. Technical aspects remain important but secondary. Suture material and configuration influence local tissue response and precision, yet cannot compensate for ischemia or tension. Intraoperative perfusion assessment, including fluorescence angiography, improves selection of viable bowel segments and supports anastomotic integrity. Preventable causes of failure are: inadequate blood perfusion, excessive tension, and technical inaccuracies. Evidence supports tailoring the type, configuration, and timing of anastomosis to individual biological and clinical risk profiles rather than applying uniform operative strategies.

Conclusions. Decision making in intestinal anastomosis is multifactorial. No technique guarantees superiority; outcomes depend on appropriate selection tailored to patient status, pathology, and surgeon expertise. Meticulous handling, preservation of blood supply, and avoidance of technical pitfalls are key to reducing complications. Sound surgical judgment remains the most critical determinant of success.

Keywords. Intestinal anastomosis; surgical decision making; stapled vs hand sewn;.

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138. ARTIFICIAL INTELLIGENCE IN CURRENT IMAGING CRITERIA FOR SURGICAL MANAGEMENT OF GALLBLADDER POLYPS

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Introduction. Gallbladder polyps (GBP) are abnormal growths or benign lesions that arise from the mucosa lining and protrude into the lumen of the gallbladder. About 95% of GBPs are non-cancerous and harmless while the remaining 5% with diameter > 10mm - malignant. The incidence in adults is 4-7%.

Aim of study. The evaluation of the effectiveness of imaging methods and artificial intelligence (AI) assistant in diagnosis and surgical prognosis of gallbladder polyps.

Methods and materials. This study is a review of literature of GBP from 54 sources in Pub Med Central, Cleveland Clinic, Science Direct focusing mainly on the imaging methods and 5 studies using artificial intelligence (AI) in medical image recognition.

Results. GBP - mostly asymptomatic, are detected by chance during USG. Non-neoplastic polyps include: Cholesterol GBP (50-70%), Inflammatory GBP and Hyperplastic polyps. Major risk factors and signs for malignancy are: size > 10mm, sessile morphology with wall thickening > 4mm, age > 60years. USG has sensitivity (Se) 80%, specificity (S) 85.7%, and precision (P) 82.2% for GBP and less for neoplasia. Endoscopic ultrasound (EUS) scoring system helps in predicting neoplastic polyps and is based on tumor maximum size, internal echoic pattern and hyperechoic spotting. EUS score > 6, shows risk of neoplasia. EUS score > 12, help in detecting neoplasia with: Se 78%, S 83%, and P 83%. MRI/MRCP helps to detect mural thickening and differentiates gallbladder carcinoma from GA by the “pearl necklace” sign also known as “string bead sign”. MRI/MRCP have a S 99% and Se 100% for GA. CT has limited role and usually cannot detect small GBP < 10mm, is helpful in detecting metastases of ganglia and is used in staging of malignancy. In malignant polyps, CT have Se 72% and S 44.4%. AI has achieved satisfactory sensitivity, specificity, or accuracy in the differential diagnosis of GB polypoid lesions. According to ESGAR guidelines for polyp size > 10mm, cholecystectomy is recommended even if it is asymptomatic.

Conclusions. Ultrasound is done for screening and follow-up. EUS is more accurate than USG. If the size of polyp increases > 2mm within a year, then CT, EUS, MRI/MRCP and tumor markers should be done, to rule out malignancy. In the near future, the AI has the potential to become a breakthrough in the diagnosis of GBP, supporting doctors in improving the diagnostic ability of GBP with USG.

Keywords. Artificial intelligence (AI), Gallbladder Polyps, Malignancy.

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139. CLINICAL CORRELATION BETWEEN ENTERIC INNERVATION AND COLONIC MOTOR DYSFUNCTION

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Introduction. Colonic motility disorders represent the result of a complex imbalance between the components of the intestinal neuromuscular axis, including the enteric nervous system (ENS), the interstitial cells of Cajal (ICC), and the smooth muscle of the colonic wall. The enteric nervous system, often referred to as the "brain of the gut", regulates motility through the myenteric (Auerbach) plexus, responsible for controlling muscular activity, and the submucosal (Meissner) plexus, involved in the regulation of secretion and vascularization. Research shows that overlooking neuromuscular dysplastic pathologies, especially congenital anomalies, leads to the development of multiple complications in patients, which might evolve into chronic conditions with functional disabilities.

Aim of study. To highlight the nosological structure of enteric neuronal lesions in children with congenital colon malformations associated with intestinal transit and evacuation dysfunction.

Methods and materials. The results of histomorphological examinations were analyzed in 47 children with congenital colon anomalies suspected of enteric neuronal alterations. This group was selected from a cohort of 159 patients with organic colorectal malformations refractory to conservative treatment. Tissue specimens were obtained through full-thickness rectal biopsy. The study included 33 boys and 14 girls, ranging in age from 2 months to 16 years. Tissue samples were stained using hematoxylin-eosin.

Results. Histomorphological analysis revealed that patients with aganglionosis accounted for 25.5% (12 children). In 74.5% (35 children), both intramural ganglionic chains were present; however, their morphological structure showed signs of secondary degenerative-destructive processes of varying degree and extent. The examination revealed that 19.1% of the children were carriers of intestinal neuronal dysplasia type B. Hypoganglionosis was identified in 12.7% of cases. Immaturity of the enteric neuronal system was observed in 6.6% of patients. The histomorphological examination performed in this group of patients revealed that within the neuronal plexus chains, in addition to normal ganglia, there were also secondarily altered ganglia in which neurons presented degenerative-destructive lesions. The rate of these degenerative-destructive changes, which we consider secondary, increased directly in proportion to the patients' age.

Conclusions. Histomorphological examination of colonic biopsies obtained from patients with organic colorectal malformations confirmed congenital colonic neuronal lesions in 63.9% and secondary lesions in 36.1% of cases. These findings support the indication for surgical treatment.

Keywords. enteric nervous system, dysplasia, histomorphology, malformations.

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140. REVIEW OF DEEP LEARNING FOR FETAL ANOMALY DETECTION VIA ULTRASOUND AND MRI IN MATERNAL-FETAL SURGERY PLANNING

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Introduction. Fetal anomalies remain an important contributor to global perinatal morbidity and mortality. Early and accurate prenatal detection is essential for appropriate counselling, pregnancy monitoring, and planning of maternal–fetal interventions. Ultrasound and fetal MRI are the main imaging techniques used in prenatal diagnosis. However, interpretation of fetal imaging can be challenging because it is highly operator-dependent and influenced by variations in image quality and fetal anatomy. Recent advances in artificial intelligence, particularly deep learning, have enabled automated image-analysis systems that may support clinicians during diagnostic evaluation. Deep learning models, especially convolutional neural networks (CNNs) can recognise complex imaging patterns and assist in identifying structural abnormalities that are difficult to detect.

Aim of study. This review aims to evaluate current deep learning approaches for detecting fetal anomalies using ultrasound and MRI and to highlight their potential clinical impact on prenatal diagnosis and maternal–fetal surgical planning.

Methods and materials. A structured search was performed using PubMed, Scopus, and Google Scholar. Studies published between 2020 and 2025 investigating deep learning applications for fetal anomaly detection using ultrasound or MRI were included. After removing duplicates, titles and abstracts were screened for relevance, followed by full-text evaluation. 23 original studies were included on deep learning for detecting and predicting were qualitatively analysed with a focus on imaging modality, model architecture, and diagnostic performance.

Results. Recent studies demonstrate considerable progress in applying deep learning to prenatal imaging analysis. Most systems rely on convolutional neural network architectures designed to automatically detect structural abnormalities in fetal ultrasound or MRI images. These models have shown promising performance up to 95% in identifying anomalies in fetal anatomical structures. Ultrasound-based approaches are the most widely studied due to their routine use in prenatal screening, while MRI-based methods provide complementary information in complex cases. These technologies may improve early diagnostic accuracy and help clinicians identify abnormalities during prenatal evaluation.

Conclusions. Deep learning technologies show strong potential to enhance prenatal imaging and support earlier detection of fetal abnormalities. By assisting clinicians in analysing ultrasound and MRI data, these systems may improve diagnostic accuracy and contribute to more effective planning for maternal–fetal surgery. Further large multicenter studies are required before clinical implementation.

Keywords. Deep learning; fetal abnormalities; prenatal ultrasound; MRI; surgery.

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141. INTERNAL OSTEOSYNTHESIS WITH INTRAMEDULLARY SCREW FOR PUBIC RAMUS FRACTURES

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Introduction. The treatment of pubic ramus fractures has evolved from conservative management to surgical stabilization, alongside a better understanding of pelvic ring biomechanics. Internal osteosynthesis of the pubic rami is performed in unstable pelvic fractures type B and C according to the classification of Marvin Tile. The introduction of the minimally invasive intramedullary screw technique has enabled effective stabilization of the anterior pelvic semi-ring, with reduced soft tissue trauma and postoperative complications.

Case presentation. 23 clinical cases (2021–2025) were analyzed and evaluated, which benefited from intramedullary osteosynthesis with screw of the superior pubic rami in unstable pelvic fractures, 15 clinical cases of percutaneous placement, 8 of open placement, both unilateral and bilateral, preacetabular as well as supraacetabular.

Discussions. In the analyzed group of 23 patients treated with intramedullary screw osteosynthesis of the superior pubic ramus in unstable pelvic fractures type B and C according to the Marvin Tile classification, a 100% fracture consolidation rate was achieved. The screw migration rate was 8.69% (2/23 cases), while the septic complication rate was 4.35% (1/23 cases). The overall complication rate was 13.04%. These findings support intramedullary osteosynthesis as an effective and safe method, with an acceptable complication profile for anterior pelvic ring stabilization.

Conclusions. The efficacy of intramedullary osteosynthesis consists in its ability to convert an unstable fracture into a structure capable of supporting early physiological loading. By respecting the anatomical axis of the pubic ramus, this method minimizes disruption to local vascularization, accelerating the natural healing process and drastically reducing the risks associated with prolonged immobilization, such as deep vein thrombosis.

Keywords. Pubic ramus, screw.

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142. CHRONIC CALCULOUS CHOLECYSTITIS: MEDICAL MANAGEMENT AND CLINICAL APPROACH

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Introduction. Chronic calculous cholecystitis (CCC) is a common inflammatory disease of the gallbladder caused by gallstone obstruction and recurrent low-grade inflammation. It often presents with episodic biliary pain, dyspepsia, and complications such as biliary colic, cholangitis, or pancreatitis. While cholecystectomy remains definitive, appropriate medical assessment and perioperative optimization are essential to reduce morbidity and guide management in patients unfit or unwilling to undergo surgery.

Aim of study. To summarize the clinical presentation, diagnostic workup, conservative medical management strategies, and indications for surgery in patients with CCC, and to highlight risk stratification and follow-up recommendations.

Methods and materials. Narrative review and synthesis of current guidelines and recent literature on CCC focusing on diagnostic imaging, laboratory evaluation, pain control, infection management, bile acid therapies, and non-surgical alternatives. Emphasis placed on tailoring care to comorbidities and surgical risk.

Results. Diagnosis relies on clinical history and imaging—ultrasound as first-line, with HIDA scan, CT, or MRI as adjuncts when needed. Acute symptom control includes analgesia (NSAIDs, opioids when required) and antiemetics; antibiotics are indicated for suspected superimposed infection (e.g., acute cholecystitis) guided by severity and local protocols. Ursodeoxycholic acid may reduce cholesterol stone formation and alleviate biliary symptoms in selected patients but has limited efficacy for established calcified stones. Percutaneous cholecystostomy provides definitive temporizing drainage in high-risk surgical patients with acute exacerbation. Elective laparoscopic cholecystectomy is recommended for symptomatic CCC to prevent recurrent episodes and complications; preoperative optimization and risk assessment (e.g., ASA score, cardiopulmonary status) inform timing and approach. Long-term follow-up should monitor symptom recurrence, nutritional status, and complications.

Conclusions. Medical management of CCC focuses on symptom control, treating infection when present, and optimizing patients for elective cholecystectomy when appropriate. Non-surgical options are primarily temporizing or palliative in high-risk individuals. Multidisciplinary evaluation and individualized care plans improve outcomes and reduce complication rates.

Keywords. chronic calculous cholecystitis, gallstones, medical management, cholecystectomy, percutaneous cholecystostomy, ursodeoxycholic acid.

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143. MYOPIA WITH ASTIGMATISM, CONTEMPORARY TREATMENT METHODS

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Introduction. Myopia is among the most widespread refractive errors worldwide, showing a sharp rise in prevalence over recent decades. It mainly results from excessive axial lengthening of the eyeball, causing the focal point to form in front of the retina and leading to reduced distance vision. Astigmatism, another prevalent refractive issue, comes from uneven curvature of the cornea or lens, producing two separate focal lines rather than a single point and resulting in distorted, blurred vision at all distances. Numerous studies consistently report that myopia and astigmatism frequently manifest together, suggesting possible bidirectional interactions that shape ocular development and influence the process of refractive evolution.

Aim of study. The objective is to investigate the association between myopia and astigmatism, to review modern therapeutic approaches for their correction and for managing the progression of myopia.

Methods and materials. A narrative review of literature was performed using electronic scientific databases such as PubMed, Google Scholar, and Medline. Relevant studies discussing the epidemiology, underlying pathophysiological mechanisms, and modern treatment methods for myopia and astigmatism were examined. Research focusing on optical, drug-based and surgical treatments was included in this review.

Results. The reviewed literature indicates that the progress of myopia is affected by an interplay between genetic factors and environmental influences, especially spending too much time doing close work and not enough time outside. Astigmatism often occurs alongside myopia and can affect how the eye develops and grows. Current treatment options include using glasses or contact lenses, orthokeratology and multifocal lenses that help create peripheral myopic defocus and slow axial elongation. Pharmacological treatments, particularly low-dose atropine, have shown a remarkable efficacy in slowing down myopia progress. Additionally, surgical techniques like LASIK, PRK, and small incision lenticule extraction (SMILE) represent effective options for the correction of refractive errors in suitably selected patients.

Conclusions. Astigmatism and myopia often coexist, and they may have similar mechanisms related to refractive development and ocular growth. Modern therapeutic strategies, including optical, pharmacological and surgical approaches, considerably improve visual results and may contribute to slowing the progression of myopia. Early diagnosis and tailored management remain crucial for minimizing the risk of long-term ocular complications and vision loss.

Keywords. myopia; astigmatism; refractive surgery; management; current approaches.

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144. GIANT PAPILLARY CONJUNCTIVITIS IN CONTACT LENS WEARERS: CAUSES, SYMPTOMS, AND SOLUTIONS

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Introduction. Giant papillary conjunctivitis (GPC) occurs when the inside of the eyelid becomes red, swollen, and irritated. Large bumps appear on the underside of the eyelid instead of it being smooth. The primary cause of GPC development in contact lens wearers is prolonged lens wear, usually more than 3–4 weeks. Compliance with the lens-wearing and replacement regimen plays a key role, although other factors—such as edge design, surface properties, fitting characteristics, and replacement cycle also contribute.

Aim of study. To analyze and convey the real causes,symptoms and solution of giant papillary conjunctivitis caused by contact lenses.

Methods and materials. This literature research was based on evaluation of 30 abstract and articles from the PubMed database published in the last 10 years, also verified documents from the American Academy of Ophthalmology.

Results. According to literature data, the highest risk for developing giant papillary conjunctivitis (GPC) is observed in individuals who wear contact lenses for prolonged periods without adequate replacement. Studies indicate no significant correlation between the onset of GPC and patient age or sex. The primary triggers include ocular allergies, improper lens hygiene, and the specific material of the lenses. In particular, allergens and tear film proteins—such as lactoferrin, lysozyme, and albumin—accumulate on the lens surface over time. Once deposited, these proteins undergo denaturation, becoming antigenic and triggering the immune response central to GPC pathogenesis. These deposits facilitate GPC development through two synergistic mechanisms: persistent antigenic stimulation of the conjunctiva and mechanical irritation caused by friction during blinking. Depending on clinical severity, the recommended management involves suspending contact lens use for 2–4 weeks. To control inflammation and alleviate symptoms, the use of artificial tears, antihistamines, and anti-inflammatory medications is indicated.

Conclusions. The multitude of studies examined demonstrate that silicone-hydrogel contact lenses and disposable contact lenses have a very low risk of depositing deposits on their surface, for this reason they are the most recommended for the prevention and post-treatment of giant papillary conjunctivitis.Therefore, educating patients on strictly following lens replacement schedules remains the most effective way to prevent the recurrence of this condition.

Keywords. contact lenses, contact lenses chemistry, giant papillary conjunctivitis, papillae.

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145. FEASIBILITY OF COMBINED TREATMENT FOR EXOPHORIA ASSOCIATED WITH CONVERGENCE INSUFFICIENCY

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Introduction. Convergence insufficiency (CI) is one of the most common binocular vision disorders associated with near exophoria. It is characterized by reduced ability to maintain adequate convergence during near visual tasks, leading to symptoms such as asthenopia, intermittent blurred vision, diplopia, headaches, and decreased reading performance. In recent years, increasing attention has been given to the relationship between binocular vision anomalies and refractive errors, particularly myopia. In myopic patients, the imbalance between accommodation and convergence may contribute to binocular instability during near work. Therefore, therapeutic approaches combining refractive correction strategies and binocular vision therapy are gaining increasing interest.

Aim of study. To evaluate the feasibility of a combined treatment approach for exophoria associated with convergence insufficiency through a review of current scientific literature, focusing on the integration of orthoptic therapy and orthokeratology.

Methods and materials. A narrative literature review was performed using the PubMed, Web of Science, and Cochrane Library databases. Publications addressing the diagnosis and management of convergence insufficiency were analyzed, with particular attention to studies evaluating combined therapeutic strategies involving orthoptic therapy, optical correction, and orthokeratology. Outcomes related to binocular function, symptom reduction, and visual performance were considered.

Results. Current evidence indicates that orthoptic therapy remains the primary treatment modality for convergence insufficiency, demonstrating significant improvements in near point of convergence, positive fusional convergence, and reduction of asthenopic symptoms. Orthokeratology, widely used for myopia control, has been shown to modify accommodative demand and peripheral retinal defocus, which may indirectly influence binocular visual balance during near tasks. The literature suggests that integrating orthokeratology with orthoptic therapy may enhance binocular stability, reduce visual fatigue, and improve overall visual efficiency in myopic patients presenting with convergence insufficiency.

Conclusions. A combined therapeutic strategy incorporating orthoptic therapy and orthokeratology appears to be a feasible and promising approach in the management of exophoria associated with convergence insufficiency, particularly in myopic children and adolescents. This integrated approach addresses both refractive and binocular aspects of visual function. Further clinical studies are required to establish standardized protocols and to evaluate long-term outcomes.

Keywords. convergence insufficiency, exophoria, orthokeratology, orthoptic therapy, myopia.

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146. ARTIFICIAL INTELLIGENCE IN OTORHINOLARYNGOLOGY – TECHNOLOGICAL REVOLUTION OR COMPLEMENTARY TOOL?

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Introduction. Artificial intelligence (AI) is increasingly integrated into modern medical practice, offering new possibilities for data analysis, diagnostic support and treatment planning. In otorhinolaryngology (ENT), AI technologies are being used to analyze medical images, endoscopic findings and audiological data. These systems can identify patterns and abnormalities that may not always be easily recognized by clinicians. The rapid development of machine learning and deep learning algorithms raises important questions regarding the role of AI in clinical practice and its potential impact on diagnostic accuracy and patient care.

Aim of study. The aim of this study is to evaluate the current role of artificial intelligence in otorhinolaryngology and analyze whether AI represents a revolutionary change in medical practice or a complementary tool that supports clinical decision-making.

Methods and materials. A narrative review of recent scientific literature was conducted, focusing on studies published in the fields of artificial intelligence and otorhinolaryngology. Scientific articles indexed in major medical databases were analyzed, with emphasis on AI applications in diagnostic imaging, endoscopic analysis, audiology and head and neck oncology. The collected data were evaluated to identify the main areas where AI technologies are currently implemented in ENT practice.

Results. Recent studies demonstrate that artificial intelligence can significantly improve the analysis of endoscopic images, CT scans and audiological tests. AI-based algorithms have shown promising results in detecting nasal polyps, chronic sinusitis, vocal cord lesions and early signs of head and neck malignancies. In audiology, AI systems can assist in interpreting audiograms and identifying different types of hearing loss. Despite these advances, most systems are currently used as diagnostic support tools rather than independent decision-making systems.

Conclusions. Artificial intelligence has significant potential to enhance diagnostic accuracy and efficiency in otorhinolaryngology. However, current evidence suggests that AI should be considered a complementary instrument that assists physicians rather than replacing clinical expertise. The integration of AI into ENT practice may contribute to more precise diagnostics and improved patient outcomes, provided that these technologies are used alongside medical judgment and ethical standards.

Keywords. Artificial intelligence, diagnostic imaging, machine learning, ENT diagnostics.

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147. PEDIATRIC CRANIOPLASTY: ANATOMO-CLINICAL PARTICULARITIES AND SURGICAL IMPLICATIONS

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Introduction. Pediatric cranioplasty represents a complex neurosurgical procedure due to the unique anatomical and biological characteristics of the developing skull. Increased osteogenic activity, incomplete diploic bone formation, and ongoing cranial growth contribute to higher complication rates compared with adults, particularly bone flap resorption. Cranial defects in children may result from trauma, infection, tumor resection, or decompressive craniectomy, and reconstruction is required to restore cerebral protection, correct cranial deformities, and improve intracranial physiological conditions.

Aim of study. To evaluate the main anatomo-clinical characteristics of pediatric cranioplasty and to identify factors influencing surgical outcomes, including patient age, defect size, timing of reconstruction, and the type of reconstructive material used.

Methods and materials. A narrative review of contemporary literature on pediatric cranioplasty was performed, including clinical studies, systematic reviews, and meta-analyses focusing on outcomes of autologous and alloplastic reconstruction. The analysis emphasized mechanisms of dural osteogenesis, age-related patterns of bone flap resorption, biomaterial performance, and predictors of postoperative complications.

Results. Current evidence indicates that autologous bone flap resorption remains the most frequent complication after pediatric cranioplasty, with reported rates reaching up to 50% following cryopreserved bone reconstruction. The risk is significantly higher in younger children, particularly under 2–5 years of age, due to accelerated bone metabolism and incomplete diploic bone development. Alloplastic materials such as hydroxyapatite, calcium phosphate ceramics, and titanium implants have demonstrated improved structural stability and lower failure rates in selected cases. Additional factors influencing surgical success include dural integrity, presence of hydrocephalus, infection status, and the size of the cranial defect. The pediatric skull also exhibits a remarkable capacity for remodeling during periods of active dural osteogenesis.

Conclusions. Successful pediatric cranioplasty requires an individualized surgical strategy that considers anatomical, biological, and clinical factors. Appropriate material selection and optimal timing of reconstruction are essential to reduce complications and improve long-term outcomes. Advances in biomaterials and a better understanding of cranial growth and dural osteogenesis may contribute to more reliable reconstruction strategies and support the development of standardized treatment protocols.

Keywords. pediatric cranioplasty, cranial defect reconstruction, bone flap resorption, biomaterials, skull reconstruction.

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148. THE ROLE OF ARTIFICIAL INTELLIGENCE IN DECISION SUPPORT FOR THE PLANNING AND TREATMENT OF PATHOLOGICAL FRACTURES

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Introduction. Pathological fractures are a frequent clinical consequence of bone pathologies that compromise the structural strength of the bone and affect the quality of life of patients. Mirels' scoring system is widely used in clinical practice to estimate the risk of pathological fracture, but it has important limitations related to the subjective nature of some criteria and the lack of integration of advanced imaging data. Artificial Intelligence allows for a more precise assessment of osteolytic lesions, biomechanical estimation of bone strength and personalized prediction of fracture risk, thus contributing to the optimization of surgical indication.

Aim of study. The aim of this study is to analyze the applicability of Artificial Intelligence in the planning and treatment of pathological fractures, in relation to the Mirels score.

Methods and materials. A narrative review of the specialized literature on the use of Artificial Intelligence in the assessment and treatment of pathological fractures was conducted, based on international scientific literature (PubMed, Scopus), as well as relevant articles published in specialized journals in the fields of orthopedics, oncology and medical imaging.

Results. The integration of Artificial Intelligence in the assessment of pathological fractures offers the possibility of creating a structured decision-making algorithm to simultaneously analyze a large number of clinical and imaging variables. Artificial Intelligence-based models are not intended to replace the Mirels score, but to complement it. In clinical practice, the use of AI as a decision-making support tool can contribute to a more accurate risk stratification, to the optimization of surgical indication, and to the avoidance of both unnecessary prophylactic interventions and the delay of surgical treatment in cases with increased risk of fracture.

Conclusions. Pathological fractures represent a major challenge to this day. Mirels' scoring system remains a useful and accessible tool for fracture risk assessment, but its combination with Artificial Intelligence offers the possibility of an integrated approach, through advanced analysis of imaging and clinical data, biomechanical estimation of bone strength and individualized prediction of fracture risk.

Keywords. Pathological fractures, Artificial Intelligence, Mirels' scoring system.

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149. ALTERNATIVE RECONSTRUCTION AFTER ONCOLOGIC GASTRIC RESECTION: FUNCTIONAL AND NUTRITIONAL IMPACT

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Introduction. Gastric cancer remains one of the leading causes of cancer-related mortality worldwide. Surgical resection represents the cornerstone of treatment for resectable disease. Reconstruction of the digestive tract after gastrectomy is essential for restoring gastrointestinal continuity and has a major impact on postoperative recovery, nutritional status, and long-term quality of life. Several reconstructive techniques have been proposed to improve functional outcomes and reduce postoperative complications.

Aim of study. To comparatively analyze alternative digestive reconstruction techniques following oncologic gastric resections and to evaluate their impact on postoperative complications, functional outcomes, nutritional status, and patients' quality of life.

Methods and materials. A narrative review with descriptive and comparative characteristics was conducted focusing on alternative digestive reconstruction techniques following gastrectomy for gastric cancer. Relevant studies published between 2016 and 2025 were identified in PubMed, Scopus, and Web of Science databases using keywords related to gastric cancer, gastrectomy, and digestive reconstruction. Original studies, systematic reviews, meta-analyses, and international clinical guidelines reporting postoperative complications, nutritional status, and quality of life were included. Data regarding types of gastrectomy, reconstructive techniques, postoperative outcomes, and functional parameters were comparatively analyzed.

Results. The analyzed studies indicate that the choice of reconstructive technique significantly influences postoperative functional outcomes, including gastroesophageal reflux, weight loss, anemia, and quality of life, without substantially increasing the risk of major surgical complications. Modern reconstruction techniques showed functional and nutritional advantages. Double-tract reconstruction was associated with better preservation of nutritional status due to maintained duodenal passage, while jejunal pouch reconstruction improved food tolerance and reduced postoperative weight loss. Double-flap reconstruction and jejunal interposition demonstrated favorable results in controlling reflux and maintaining a more physiological digestive pathway.

Conclusions. Alternative reconstruction techniques after gastrectomy for gastric cancer may provide important functional and nutritional benefits compared with conventional methods. Techniques preserving duodenal passage or creating a reservoir, such as double-tract reconstruction and jejunal pouch, are associated with improved nutritional status, reduced reflux symptoms, and better postoperative quality of life. The reconstructive strategy should therefore be individualized according to tumor characteristics, surgical procedure, and patient-related factors.

Keywords. Gastric cancer, gastrectomy, digestive reconstruction.

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150. RECENT ADVANCES IN THE MANAGEMENT AND TREATMENT OF CALCANEAL FRACTURES

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Introduction. Displaced intra-articular fractures represent one of the most complex challenges in orthopedic traumatology, due to the specific anatomy of the calcaneus, the increased risk of soft tissue complications, and the significant impact on lower limb function. In recent decades, the management of these injuries has evolved considerably, driven by technological advances, refinement of therapeutic indications, and the development of modern surgical techniques.

Aim of study. This study aims to review recent advances in the management of calcaneal fractures, with a focus on surgical treatment, minimally invasive approaches, modern fixation materials, and current postoperative rehabilitation strategies.

Methods and materials. A systematic literature review was conducted by consulting the PubMed, Hinari, SpringerLink, NCBI, and Medline databases, with a comprehensive analysis of articles published between 2011 and 2026. Original studies, review articles, meta-analyses, and clinical guidelines relevant to the treatment of calcaneal fractures were included.

Results. The literature highlights a clear trend toward individualized treatment, depending on fracture type, soft tissue condition, associated comorbidities, and the patient's functional demands. Minimally invasive techniques, computer-assisted surgery, locking intramedullary devices, and modern biocompatible implants are associated with reduced postoperative complications and improved functional outcomes. Modern rehabilitation strategies, including telerehabilitation and digital technologies, further contribute to optimizing functional recovery and socio-professional reintegration.

Conclusions. Current management of calcaneal fractures is based on an integrated approach that combines modern surgical techniques with minimally invasive solutions and personalized rehabilitation programs, with the primary goal of improving functional outcomes and reducing associated morbidity.

Keywords. Calcaneal fractures, minimally invasive surgery, fixation materials, postoperative rehabilitation, functional outcomes.

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151. UTERINE TRANSPLANTATION – SURGICAL INNOVATION IN REPRODUCTIVE MEDICINE

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Introduction. Absolute uterine factor infertility (AUFI) affects approximately 1 in 4,500 women and is defined by the inability to carry a pregnancy due to uterine absence or dysfunction. One of the main causes is Mayer-Rokitansky-Küster-Hauser (MRKH) syndrome. In contexts where surrogacy or artificial uterus technologies are inaccessible or legally restricted, uterine transplantation (UTx) has emerged as a groundbreaking reproductive option for women wishing to achieve biological motherhood.

Aim of study. The aim of this review is to analyze the evolution of uterine transplantation as a therapeutic option for women with absolute uterine factor infertility, highlighting both the surgical aspects of the procedure and the ethical challenges related to donor risk, reproductive autonomy, and access to this innovative treatment.

Methods and materials. This review analyzes the development of uterine transplantation from early clinical attempts to its current surgical protocols. It focuses on key surgical steps—including uterus retrieval (from living or deceased donors), vascular anastomosis, graft implantation, and postoperative management—alongside IVF strategies, immunosuppression, pregnancy monitoring, and delivery outcomes.

Results. As of 2024, over 100 uterine transplants have been performed globally, resulting in approximately 40 live births. Success rates are significantly higher in specialized centers, with manageable complications such as rejection and vascular thrombosis. Living donor UTx remains more frequent, though deceased donor transplantation is gaining momentum. Pregnancy is only achievable via IVF, with cesarean section as the standard delivery method. Most recipients undergo hysterectomy after childbirth to discontinue immunosuppression.

Conclusions. Uterine transplantation represents a major advancement in reproductive medicine, bridging solid organ transplantation and assisted reproductive technologies. Although still considered experimental in many countries, UTx offers new hope for women with AUFI. Future developments—including robotic surgery and bioengineered uteri—may eventually shift UTx from a pioneering intervention to a routine therapeutic option.

Keywords. Uterine transplantation, medical ethics, MRKH, live births.

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152. FEATURES OF SCAPULAR FRACTURES IN POLYTRAUMA PATIENTS

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Introduction. Scapular fractures are rare, accounting for a small proportion of all fractures. However, in high-energy trauma, typically polytrauma, their incidence increases. In patients with severe general conditions, these injuries are often overlooked during initial assessment due to priority given to life-threatening traumas. Scapular fractures in polytrauma frequently occur in combination with injuries to the ribs, clavicle, and spine that require a comprehensive diagnostic and therapeutic approach.

Aim of study. To analyse the clinical and diagnostic features of scapular fractures in polytrauma patients and to determine optimal treatment strategies depending on the type and severity of the injury.

Methods and materials. A retrospective analysis was conducted on 28 cases of scapular fractures in trauma patients treated at the Emergency Medicine Institute, Chisinau. The study included 15 men and 13 women, with a mean age of 52.9 years.

Results. The primary mechanism of the injuries was high-energy trauma. Fractures were classified according to the AO classification and anatomical criteria. The majority were scapular body fractures (14 cases), followed by glenoid cavity fractures (6), displaced neck fractures (6), and isolated cases of spine and acromion fractures (1 each). Associated injuries were found in 61% of patients, including fractures of the ribs, clavicle, spine, traumatic brain injury, and shoulder dislocation. Diagnostic evaluation included clinical examination, radiography, ultrasound, and computed tomography, which allowed detailed assessment of intra-articular injuries. Initial management included regional anesthesia and immobilization using a Desault bandage. Surgical intervention was indicated for displaced intra-articular fractures, shoulder girdle instability, or failure of conservative treatment. In the acute period, patients predominantly presented with severe pain and limited chest excursion due to associated injuries. Regional anesthesia helped to reduce pain and improve respiratory function. Conservative treatment was sufficient for most scapular body fractures. Surgical intervention was performed in 8 cases, including open reduction and internal fixation (ORIF) using plates or Kirschner wires. In cases of “floating shoulder”, additional clavicle fixation was performed. Long-term follow-up showed restoration of full shoulder joint mobility without neurovascular complications.

Conclusions. Scapular fractures in polytrauma present diagnostic challenges and are often associated with concomitant injuries. Treatment depends on the patient’s overall condition, fracture type, and shoulder girdle stability. Surgery is indicated in selected cases, mainly in displaced intra-articular fractures and “floating shoulder”. Early stabilization with ORIF improves functional outcomes and reduces rehabilitation time and treatment costs.

Keywords. Scapular fractures, polytrauma, trauma surgery.

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153. COMPREHENSIVE EVALUATION AND MANAGEMENT OF PATIENTS WITH PANCREATIC NEUROENDOCRINE TUMORS

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Introduction. Pancreatic neuroendocrine tumors (PNETs) represent a biologically heterogeneous group of neoplasms originating from the endocrine cells of the pancreas, characterized by variable proliferative potential and clinical course. From a clinical standpoint, PNETs are divided into functioning and non-functioning subtypes, according to their capacity for hormonally active secretion, a distinction that has significant implications for clinical presentation, diagnostic algorithms, and therapeutic decision-making.

Aim of study. The aim of this study is to analyze the clinical features, diagnostic approach, and therapeutic strategies in PNETs, highlighting factors that influence prognosis and management decisions.

Methods and materials. A systematic review of the literature from 2016 to 2026 was performed using the PubMed, Cochrane Library, and Scopus databases. The search strategy included the keywords: PNETs, management, and evaluation. Eligible studies were selected based on their focus on diagnostic approaches, therapeutic strategies, and prognostic factors, including original research, clinical trials, and review articles, providing a comprehensive synthesis of current evidence on PNET evaluation and management.

Results. The diagnosis of PNETs integrates serum biomarkers, advanced imaging techniques, and guided biopsy for histopathological confirmation. Localized tumors are primarily managed through surgical resection, while lesions under 1 cm may be monitored under active surveillance. In cases of advanced disease, somatostatin analogs effectively control hormonal symptoms and delay tumor progression, whereas molecularly targeted agents such as Everolimus and Sunitinib have been shown to improve survival outcomes. Peptide receptor radionuclide therapy (PRRT) with 177Lu-DOTATATE provides objective tumor responses and prolongs survival, complemented by systemic chemotherapy, hepatic embolization, and local ablative procedures as additional therapeutic options. Long-term prognosis is largely determined by tumor grade, functional status, and therapeutic responsiveness, underscoring the necessity of a multidisciplinary approach and early prognostic assessment to optimize clinical outcomes.

Conclusions. Optimal management of PNETs relies on individualized strategies shaped by tumor stage, functional status, and therapeutic response. Surgical resection remains the primary approach for localized disease, whereas advanced cases benefit from targeted therapies, somatostatin analogs, and PRRT. Early prognostic evaluation and a coordinated multidisciplinary approach are essential to maximize clinical outcomes.

Keywords. PNETs, management, evaluation.

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154. ORTHOPEDIC-SURGICAL MANAGEMENT OF SKELETAL COMPLICATIONS IN MULTIPLE MYELOMA

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Introduction. Multiple Myeloma (MM) is a systemic hematological malignancy with major skeletal involvement. Between 1990 and 2016, global incidence increased by over 120%, with mortality rising by nearly 90%. Bone pain is the first reported symptom in approximately 70% of patients. Osteolytic lesions are present in nearly 80% of newly diagnosed symptomatic cases and develop in up to 90% during disease progression. Pathological fractures frequently represent the first clinical manifestation of MM.

Aim of study. To analyze the epidemiology, anatomical distribution, and orthopedic implications of myeloma-related bone disease, emphasizing the importance of prophylactic surgical stabilization in preventing pathological fractures.

Methods and materials. A literature-based review of epidemiological and clinical data regarding skeletal involvement in MM was conducted. The anatomical distribution of osteolytic lesions and their biomechanical consequences were analyzed, focusing on their surgical relevance and impact on functional prognosis.

Results. Myeloma bone disease is characterized by persistent bone pain, osteolytic lesions, pathological fractures, and localized plasmacytomas. The most frequently affected sites include the vertebral column (49-70%), ribs and sternum (45-50%), skull (35-50%), pelvis (30-40%), and long bones (13-35%), particularly the proximal humerus and femur. Structural instability of weight-bearing bones significantly increases the risk of fracture and loss of autonomy. In many cases, fractures occur as a consequence of delayed orthopedic intervention rather than inevitable disease progression.

Conclusions. Skeletal complications represent the principal source of functional morbidity in MM. Pathological fractures are often preventable events. Early orthopedic assessment and prophylactic stabilization of high-risk lesions reduce morbidity, preserve functional independence, and improve overall prognosis. Effective management requires early integration of the orthopedic surgeon within the multidisciplinary team.

Keywords. Multiple Myeloma, Pathological Fracture, Osteolytic Lesions, Prophylactic Stabilization, Orthopedic Oncology.

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155. LACTATION PRESERVATION IN THE SURGICAL TREATMENT OF ACUTE LACTOGENIC MASTITIS: PREDICTORS OF LACTATION SUPPRESSION

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Introduction. Acute lactogenic mastitis is a common inflammatory complication during the postpartum period. In most cases, timely diagnosis and appropriate therapy allow preservation of lactation, which is considered an important component of treatment because continued milk drainage reduces intraductal pressure and promotes resolution of inflammation. However, in purulent forms requiring surgical intervention, the management of lactation remains controversial. Persistent milk production may complicate postoperative wound care or contribute to the formation of lactiferous fistulas. Identifying situations in which lactation can be safely preserved and those requiring suppression remains an important clinical challenge.

Aim of study. To evaluate the feasibility of lactation preservation in the surgical treatment of acute lactogenic mastitis and to identify clinical factors associated with the need for lactation suppression.

Methods and materials. Between 2022 and 2025, 28 postpartum women with a mean age of 24.8 years (range 19–38) underwent surgical treatment for acute lactogenic mastitis at the Department of Septic Surgery, Municipal Clinical Hospital "Gheorghe Paladi", Chișinău, Moldova. A retrospective clinical analysis was performed. The majority of patients were treated between the 2nd and 8th postpartum weeks (75.0%), and 22 patients (78.6%) were primiparous. The mean duration of symptoms before hospital admission was 8.4 ± 5.2 days. Clinical variables analyzed included abscess localization, size and depth of purulent collections, presence of lactiferous fistulas, and the chosen lactation management strategy.

Results. Among the 28 patients included in the study, lactation was preserved in 20 patients (71.4%), pharmacological suppression was required in 8 cases (28.6%). All abscesses were unilateral, with a predominance of right breast involvement (64.3%). The mean abscess diameter was 6.5 ± 3.0 cm, with the largest measuring 12.5 cm. Among patients requiring lactation suppression, 6 of 8 (75.0%) had abscesses larger than 6 cm. All six of these patients also presented with lactiferous fistulas and delayed presentation exceeding one week from symptom onset. Large abscess size (>6 cm) was strongly associated with the need for lactation suppression ($p \approx 0.03$; OR = 9.0; 95% CI: 3.09 to 35.7). Pharmacological suppression was achieved using bromocriptine or cabergoline.

Conclusions. Preservation of lactation is feasible in most patients undergoing surgery for acute lactogenic mastitis. However, large abscess size (>6 cm), delayed presentation (>1 week), and lactiferous fistulas appear to be major predictors of lactation suppression. Recognition of these factors may help guide individualized management in patients with purulent lactogenic mastitis.

Keywords. Mastitis, Lactation Suppression, Postpartum Period.

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156. SURGICAL MANAGEMENT FOR PERIPROSTHETIC FEMORAL FRACTURES

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Introduction. Over 10 million hip arthroplasty surgeries are performed worldwide each year, with numbers steadily increasing. The continuous rise in demand for hip endoprostheses is due to improved life expectancy, enhanced access to healthcare, routine screening programs, advances in surgical techniques, and the integration of innovative technologies such as robotic surgery and artificial intelligence. Periprosthetic femoral fractures occur at rates between 0.1% and 18%, which can also happen due to several risk factors including gender, age, BMI, associated diseases, bone morphology, that altogether emphasize the need to develop a guided management algorithm based on clinical institutional medical cases.

Aim of study. This study aims to outline a surgical treatment algorithm for periprosthetic femoral fractures, evaluate method effectiveness, and show their clinical significance.

Methods and materials. The article reviews pertinent literature from databases like PubMed, Scopus, BioMed Central, eLibrary, Google Scholar, and Hinari. It employs a descriptive design integrating quantitative and qualitative analyses, incorporating clinical cases from our institution.

Results. Literature shows that a structured algorithm using the Vancouver classification improves surgical choices and outcomes. Success depends on precise implant stability evaluation and technique customization to fracture pattern and bone stock. Therefore there is a common Vancouver classification for postoperative and intraoperative femoral fracture and the surgical treatment is selected based on type of the periprosthetic fracture. Conservative treatment is rarely used due its low efficiency level. Type A fractures are better treated with ORIF using claw plate or cerclage. Type B fractures should be treated either with ORIF, if the femoral stem is stable or revision arthroplasty in case of an unstable prosthesis. Type C fractures have better outcomes if treated with ORIF via MIPO surgical approach. Prompt standardized protocols cut complications, hospital stays, and boost long-term function while fostering team coordination. Treatment of most periprosthetic fractures around the hip involves either open reduction and internal fixation (ORIF) or revision arthroplasty, with or without autografts or allografts. ORIF options include locking plates, cables, or intramedullary nails. General objectives mirror those for any fracture: restoring bone continuity, limb alignment and length, and pain-free function. Each and every type of fracture has its own recommended treatment plan.

Conclusions. Periprosthetic femoral fractures should be treated as any other fracture. A Vancouver-based algorithm offers consistent, patient-specific care for periprosthetic femoral fractures, minimizing risks, refining surgery, and yielding strong functional results.

Keywords. Periprosthetic femoral fracture, surgical management, Vancouver classification.

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157. A SMALL GLAND, A BIG IMPACT: THE CHALLENGE OF PARATHYROID ADENOMA

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Introduction. Parathyroid adenoma is a benign tumor of the parathyroid glands and the leading cause of primary hyperparathyroidism, which can be associated with anxiety attacks, due to the hormonal imbalance. It is highly recommended to run all the necessary tests in order to diagnose and treat it, especially when it is in the context of autoimmune Hashimoto's thyroiditis.

Case presentation. This case presents a 32-year-old woman with a medical history of Hashimoto's thyroiditis and a left superior parathyroid adenoma which was diagnosed 18 months prior. The preoperative procedures revealed the following: thyroid ultrasound did not show any problem in the right lobe. However, the upper posterior pole of the left thyroid lobe, close to the trachea, presented intense hypoechoic and heterogeneous lesions, with a regular outline, which is suggestive of a parathyroid adenoma, with no suspicious cervical lymphadenopathy. Moreover, the parathyroid scintigraphy confirmed a hyperfunctioning nodular lesion at the same location with persistent radiotracer retention. Laboratory tests showed elevated parathyroid hormone (97.4 pg/mL), hypercalcemia (total calcium 11.5 mg/dL), ionized calcium (1.59 mmol/L) and normal thyroid function with borderline low vitamin D. In addition, the patient presented episodes of anxiety attacks, correlated with the hyperparathyroidism. Considering the aspects mentioned, the patient underwent surgical treatment with left superior parathyroidectomy. The postoperative period was favorable, with a significant decrease in serum calcium (7.90 mg/dL), on the first postoperative day, indicating effective removal of the source of excessive parathyroid hormone. According to her mental state, the panic attacks stopped showing so often, this being another sign of a successful procedure. The surgical wound is healing appropriately and we are waiting for the histopathological results of the excised tissue.

Discussions. The challenge to diagnose parathyroid adenomas in patients with Hashimoto's thyroiditis is well known due to the thyroid inflammation which can obscure imaging findings, making correlation with biochemical markers essential.

Conclusions. To conclude, careful integration of imaging, labs, and clinical context is key in complex endocrine cases. Precise localization enables effective parathyroidectomy, even with coexisting thyroid disease.

Keywords. Hashimoto's Thyroiditis, Primary Hyperparathyroidism, Parathyroid Adenoma.

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INTERNAL MEDICINE SECTION

1. CASE REPORT: DIAGNOSTIC ERRORS IN A CHILD WITH TUBERCULOSIS

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Introduction. According to the WHO Global Tuberculosis Report 2024, the epidemiological situation of tuberculosis (TB) remains concerning worldwide. Early diagnosis and prompt treatment of contagious cases are key priorities of TB control programs. However, diagnostic errors—both over- and under-diagnosis—remain frequent, particularly in pediatric populations. TB in children often presents with non-specific clinical features and lacks pathognomonic signs, while microbiological confirmation is challenging. A common clinical "mask" of pediatric TB is pneumonia. In such cases, empirical antibacterial therapy and clinical-paraclinical monitoring are frequently applied before TB is suspected.

Case presentation. A 15-year-old girl with autoimmune thyroiditis on L-thyroxine therapy (0.25 µg daily for 6 years) was admitted to the Municipal Children's Clinical Hospital "Valentin Ignatenco" with fever (39°C), moderate dyspnea, productive cough, anorexia, and fatigue. The disease had an insidious onset over 15–20 days. Initial outpatient treatment with amoxicillin-clavulanate showed no clinical improvement. Chest radiography revealed, in the right lung (S2–S3), a heterogeneous consolidation with areas of hypertransparency and adjacent nodular opacities. During hospitalization, repeated courses of non-specific antibacterial therapy were administered according to sputum culture and sensitivity results, with partial remission of fever but persistence of bronchopulmonary symptoms. Due to torpid clinical-paraclinical evolution, a detailed history identified close household contact with a contagious TB patient. Microbiological testing confirmed Mycobacterium tuberculosis with rifampicin resistance (GeneXpert MTB/RIF positive, RIF-resistant). The patient received a regimen for drug-resistant TB for 11 months, achieving clinical and radiological cure.

Discussions. This case highlights key risk factors for pediatric TB: possible immune dysregulation, close household exposure to a contagious TB case, and lack of response to non-specific antibacterial therapy. Clinical manifestations in children at risk are often non-specific, leading to delayed suspicion and diagnostic errors. Early microbiological testing for Mycobacterium tuberculosis is essential in children with risk factors and persistent pneumonia-like presentations.

Conclusions. In children with pneumonia and epidemiological risk factors for TB, heightened clinical vigilance and early microbiological testing are mandatory to avoid diagnostic delays and ensure timely initiation of appropriate therapy.

Keywords. tuberculosis, pediatric TB, diagnostic errors, risk factors.

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2. CASE REPORT: TUBERCULOSIS IN AN INFANT WITH LAMELLAR ICHTHYOSIS

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Introduction. Pediatric tuberculosis (TB) represents an important epidemiological indicator of TB control in the community. According to the WHO Global Tuberculosis Report 2024, children account for approximately 11% of all TB cases worldwide, with an estimated 1.3 million new pediatric cases reported in 2024. Risk factors for active TB in children include genetic susceptibility (inborn errors of immunity), absence of BCG vaccination, immune system immaturity, malnutrition, and co-infections. Effective innate and adaptive immune responses are crucial in controlling Mycobacterium tuberculosis. Primary immunodeficiencies, also referred to as inborn errors of immunity, are heterogeneous genetic disorders affecting immune function. Lamellar ichthyosis is a rare hereditary disorder caused by genetic mutations that impair epidermal barrier formation and regeneration.

Case presentation. A 9-month-old boy with antenatally diagnosed lamellar ichthyosis was admitted to the Municipal TB Hospital for Children with clinical signs of infectious intoxication and bronchopulmonary syndrome. He was transferred from a pediatric hospital, where he had been treated for severe bilateral pneumonia refractory to antibacterial therapy. The child was born from the third pregnancy (second delivery); a 15-year-old sibling has the same form of ichthyosis. One previous pregnancy ended in miscarriage at 30–32 weeks. BCG vaccination was contraindicated. The QuantiFERON-TB Gold test was positive, indicating infection with Mycobacterium tuberculosis. Chest computed tomography revealed right mediastinal lymphadenopathy associated with right upper lobe atelectasis. Epidemiological investigation identified close household TB contact. Microbiological confirmation was obtained: GeneXpert MTB/RIF positive (rifampicin-sensitive), smear microscopy positive for acid-fast bacilli, and culture positive on both liquid (BACTEC) and solid (Lowenstein–Jensen) media for Mycobacterium tuberculosis. The child received standard first-line anti-TB therapy for 9 months, resulting in clinical and radiological cure.

Discussions. This case underscores the high risk of severe TB in infants with underlying genetic disorders, absence of BCG vaccination, and documented household exposure. The positive QuantiFERON test supported infection and aided diagnostic clarification. Microbiological confirmation allowed timely initiation of appropriate therapy. The case highlights the importance of early TB screening in vulnerable pediatric populations with persistent pneumonia unresponsive to antibiotics.

Conclusions. Infants with genetic disorders, unvaccinated with BCG and exposed to TB contacts, represent a high-risk group for active TB. Early microbiological testing and comprehensive evaluation are essential for prompt diagnosis and favorable outcomes.

Keywords. tuberculosis, infant, lamellar ichthyosis, primary immunodeficiency, BCG vaccination.

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3. THE GUT MICROBIOME AS A DETERMINANT OF CANCER DEVELOPMENT AND RESPONSE TO IMMUNOTHERAPY

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Introduction. The gut microbiome has emerged as a key regulator of host metabolism, immune homeostasis, and inflammatory pathways. Increasing evidence indicates that alterations in gut microbial composition, commonly referred to as dysbiosis, may contribute to tumor initiation and progression. In addition to its role in carcinogenesis, the gut microbiome has been recognized as an important determinant of variability in patient response to oncological therapies, particularly immune checkpoint inhibitors.

Aim of study. This study aimed to synthesize recent evidence regarding the role of the gut microbiome in cancer development and to evaluate its potential impact on therapeutic response, with a particular focus on immunotherapy.

Methods and materials. A narrative review of scientific literature published between 2020 and 2025 was conducted using major biomedical databases. Clinical and experimental studies investigating host–microbiome interactions in cancer were analyzed. Particular attention was given to molecular mechanisms linking microbiota alterations to carcinogenesis, as well as to therapeutic approaches targeting microbiome modulation, including fecal microbiota transplantation, probiotics, and immune checkpoint inhibitor therapy.

Results. Accumulating evidence demonstrates significant differences in microbial diversity and composition between healthy individuals and patients with cancer. Dysbiosis has been associated with increased intestinal permeability, systemic inflammation, and immune dysregulation, factors that may facilitate tumor development. Several microbial species have been implicated in tumorigenesis; notably, increased abundance of Fusobacterium nucleatum has been consistently reported in colorectal cancer and associated with unfavorable prognosis and increased recurrence risk. Conversely, depletion of butyrate-producing bacteria, such as Faecalibacterium prausnitzii, may promote pro-inflammatory signaling and tumor progression. Importantly, multiple studies indicate that patients with higher gut microbial diversity exhibit significantly improved responses to immune checkpoint inhibitors targeting PD-1/PD-L1 pathways. Emerging data further suggest that fecal microbiota transplantation may restore responsiveness to immunotherapy in selected non-responder patients.

Conclusions. The gut microbiome represents a critical interface between environmental factors, host immunity, and cancer biology. Modulation of the intestinal microbiota may become an important strategy for improving therapeutic outcomes and enabling personalized oncological treatment.

Keywords. gut microbiome, dysbiosis, immunotherapy, carcinogenesis, microbiota modulation.

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4. OPIOID FREE ANESTHESIA IN TOTAL KNEE ARTHROPLASTY: EFFICACY OF COMBINED SPINAL ANESTHESIA AND ADDUCTOR CANAL BLOCK

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Introduction. Total knee arthroplasty (TKA) is the definitive treatment for advanced knee osteoarthritis, significantly improving mobility and quality of life. However, postoperative pain remains a major barrier to early rehabilitation. Opioid-based analgesia has traditionally been used for pain control but is associated with adverse effects such as nausea, vomiting, sedation, respiratory depression, and potential dependence. Consequently, modern perioperative strategies increasingly promote opioid-free or opioid-sparing approaches. Regional anesthesia techniques combined with multimodal analgesia offer effective pain management while reducing systemic complications. The combination of spinal anesthesia and adductor canal block provides targeted sensory analgesia while preserving quadriceps muscle strength, thereby supporting early mobilization.

Aim of study. To synthesize current evidence regarding the efficacy and safety of opioid-free anesthesia in elective TKA using spinal anesthesia combined with ultrasound-guided adductor canal block.

Methods and materials. A literature search was conducted in PubMed, Scopus, and Web of Science for peer-reviewed studies published within the last decade. Keywords included "opioid-free anesthesia," "spinal anesthesia," "adductor canal block," "total knee arthroplasty," and "postoperative analgesia." Outcomes analyzed included postoperative pain scores, rescue analgesia requirements, mobilization timing, patient satisfaction, and opioid-related adverse effects.

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Results. Studies show that spinal anesthesia combined with adductor canal block provides effective postoperative analgesia with reduced need for opioids. Patients demonstrated lower pain scores, fewer opioid-related complications, and early mobilization within 12-24 hours, facilitating faster recovery and physiotherapy initiation.

Conclusions. Opioid-free anesthesia using spinal anesthesia and adductor canal block is a safe and effective strategy for TKA, promoting improved recovery and reduced opioid exposure.

Keywords. opioid free anesthesia, total knee arthroplasty, spinal anesthesia, adductor canal block, postoperative analgesia, multimodal pain management.

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5. ALTERNATIVE MEDICINE METHODS IN THE TREATMENT OF EATING DISORDERS

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Introduction. Eating disorders currently represent a major public health problem, distinguished both by their historical evolution and by their current epidemiological magnitude. They are characterized by neuroendocrine, psychological, and metabolic imbalances, which limit the effectiveness of conventional treatments and increase the risk of relapse. In this context, complementary therapies have gained increasing interest as therapeutic adjuvants capable of improving clinical outcomes and patient compliance.

Aim of study. The comparative analysis and systematization of clinical evidence regarding the use of complementary therapies such as acupuncture and phytotherapy as adjuvants in the treatment of eating disorders.

Methods and materials. The research was conducted as a systematic analysis of the scientific literature using international databases (PubMed, Cochrane Library, Science Direct, and Google Scholar). Randomized clinical trials, double-blind placebo-controlled studies, and meta-analyses published in the last 20 years were included. These studies evaluated standardized phytotherapeutic interventions and acupuncture protocols in patients diagnosed with anorexia nervosa, bulimia nervosa, and binge eating disorder. The analyzed outcome indicators included validated clinical scales (EDE-Q, HAM-A, STAI), hormonal and metabolic parameters (cortisol, leptin, ghrelin), and the statistical significance of results ($p<0.05$).

Results. Phytotherapy, through the use of plants such as Crocus sativus, Lavandula angustifolia, and Withania somnifera, contributes to reducing prandial anxiety, compulsive eating behavior, and serum cortisol levels. Acupuncture demonstrates rapid neuromodulatory effects, influencing the hypothalamic-pituitary-adrenal axis and the hormones involved in appetite regulation. The integration of these methods was associated with significant improvement in eating disorder symptomatology, good tolerability, and increased therapeutic compliance. Statistical data analysis from the reviewed clinical studies ($p<0.05$) validates the superior efficacy of integrative approaches that represent promising adjuvant therapeutic options with the potential to optimize the clinical management of eating disorders.

Conclusions. Developing a multidisciplinary protocol that combines phytotherapy (to stabilize the underlying biochemical balance) with acupuncture (to control impulsivity and acute stress) offers a personalized therapeutic strategy capable of increasing remission rates and reducing relapse episodes in patients with anorexia and bulimia nervosa.

Keywords. eating disorders, acupuncture, phytotherapy, complementary therapies, hypothalamic-pituitary-adrenal axis.

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6. SLEEP APNEA AND ONCOLOGIC RISK: CORRELATIONS AND CLINICAL PERSPECTIVES

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Introduction. Obstructive sleep apnea (OSA) is a common sleep-related breathing disorder characterized by recurrent upper airway collapse during sleep, with intermittent hypoxia, sleep fragmentation, oxidative stress, inflammation, and immune dysregulation. Beyond its cardiovascular and metabolic consequences, OSA has been increasingly investigated as a possible contributor to carcinogenesis and poorer cancer outcomes. Although studies from the Republic of Moldova have addressed OSA management and CPAP adherence, local data on the association between OSA and oncologic risk are still lacking.

Aim of study. To review the current evidence on the association between obstructive sleep apnea, nocturnal hypoxemia, and oncologic risk, with emphasis on biological mechanisms and clinical relevance.

Methods and materials. A narrative literature review was performed using peer-reviewed PubMed-indexed articles, including systematic reviews, meta-analyses, cohort studies, and translational studies on OSA, intermittent hypoxia, cancer incidence, cancer mortality, and CPAP therapy. Priority was given to studies assessing OSA severity and hypoxic burden.

Results. Available evidence suggests that nocturnal hypoxemia may be more strongly associated with oncologic outcomes than the diagnosis of OSA alone. Large meta-analyses have shown that moderate and severe nocturnal hypoxemia are associated with increased overall cancer risk, while severe hypoxemia is linked to higher cancer mortality. Cohort studies also reported independent associations between severe OSA, hypoxic burden, and incident cancer after adjustment for major confounders. Proposed mechanisms include activation of hypoxia-related pathways, angiogenesis, impaired immune surveillance, and tumor progression under intermittent hypoxic stress. However, results remain heterogeneous across populations and cancer types, and current evidence does not yet confirm a clear protective effect of CPAP on cancer outcomes.

Conclusions. Obstructive sleep apnea, especially when associated with significant nocturnal hypoxemia, may increase oncologic risk and worsen cancer outcomes. Hypoxic burden appears to be a more relevant marker than the apnea-hypopnea index alone. Further prospective studies are needed to clarify causality, tumor-specific risk, and the long-term impact of treatment. In the Republic of Moldova, this remains an insufficiently explored but clinically important field of research.

Keywords. Obstructive sleep apnea; nocturnal hypoxemia; cancer risk; intermittent hypoxia; CPAP.

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7. IMMUNOLOGICAL BIOMARKERS IN ANTIPHOSPHOLIPID SYNDROME: PERSPECTIVES OFFERED BY OMICS TECHNOLOGIES FOR DIAGNOSIS AND RISK STRATIFICATION

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Introduction. Antiphospholipid syndrome (APS) is a systemic autoimmune disease in the presence of persistent antiphospholipid antibodies that leads to arterial or venous thrombosis and obstetric complications. Various clinical manifestations denote the complex pathogenetic mechanisms involved in antiphospholipid syndrome. The laboratory markers currently used help us to establish the diagnosis, but do not provide sufficient information about clinical variability or the occurrence of complications. In recent years, there is growing interest in biomarkers identified through omics technologies as they provide new insights into the molecular mechanisms involved in APS.

Aim of study. The purpose of the paper was to analyze the data on immunological biomarkers identified by omics technologies and to evaluate their usefulness in the diagnosis, risk and individualized management of patients with APS.

Methods and materials. The scientific literature was reviewed using the databases PubMed, Scopus and Web of Science, The Scientific Library of the Nicolae Testemitanu State University of Medicine and pharmacy. Included are studies published in the period 2015-2026, selected on the basis of relevance, methodological quality and clinical applicability. In total, 29 studies were analyzed.

Results. The studies analyzed show that biomarkers identified by omics technologies can help us better differentiate the clinical subgroups of APS. A genomic study of 5,485 individuals showed associations in the HLA-DRA and STAT1–STAT4 regions, as well as 34 additional loci involved in susceptibility to the disease. Transcriptomic analysis in 112 patients identified three Type I interferon activation profiles that show an important role of interferon-mediated immune response in APS. Also, 39 Altered circulating microRNAs were found in patients with APS. A group of ten reports of microRNAs was associated with thrombosis, obstetric complications and inflammatory activity. The Proteomic profile identified up to 6,398 proteins and revealed patterns of complement activation, thromboinflammation and endothelial lesions, more characteristic in severe clinical forms of the disease.

Conclusions. Immunological biomarkers identified by omics technologies provide new insights for determining the biological heterogeneity of APS. The introduction of these data helps us in clinical research, diagnostic improvement and more accurate risk assessment and, in the future, the development of personalized management strategies for patients with APS disease.

Keywords. APS, antiphospholipid syndrome, immunological biomarkers, omics technologies, risk stratification.

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8. THE ROLE OF THE NURSE IN THE CARE OF PALLIATIVE PATIENTS

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Introduction. Palliative care has become a central pillar of the global public health agenda, driven by the rapid aging of the population and the increasing prevalence of chronic diseases such as cancer and cardiovascular conditions. The relevance of this topic has also been highlighted by the lessons of the COVID-19 pandemic, which demonstrated the necessity for every healthcare professional to possess competencies in managing suffering and making difficult end-of-life decisions.

Aim of study. The main objective of the research is to conduct a multidimensional analysis of the nurse's role in palliative care by evaluating the level of knowledge, professional attitudes, daily clinical practices, and the main difficulties encountered in this sensitive field.

Methods and materials. The study was conducted during the period 09–11.2025 and included a sample of 96 respondents consisting of nurses from the Oncological Institute in Chișinău, the Municipal Clinical Hospital No. 4, and graduating students of the Nicolae Testemitanu State University of Medicine and Pharmacy. The methodology involved both quantitative and qualitative analysis, complemented by a systematic review of specialized literature from international databases covering the period 2015–2025.

Results. Data analysis shows that palliative care is a constant activity, with 84.4% of nurses interacting with palliative patients daily or weekly. The level of training is considered "very good" by 74% of respondents, with the majority (92.7%) having received specific training, mainly at the workplace (85.4%). In pain assessment, nurses use a combination of methods: clinical observation (84.4%), direct conversation with the patient (80.2%), and standardized scales (97.9%), among which the Visual Analogue Scale is the most commonly used (92.7%). Although their role is considered "very important" by 93.8% of participants, nurses face barriers such as lack of time (20.8%) and the need to manage the emotional impact of their work. The emotional profile is dual: on one hand, positive feelings such as empathy (65.6%) and professional fulfillment (63.5%) prevail, while on the other hand, sadness (51%) and stress (43.8%) are also present. An absolute consensus (100%) was recorded regarding the importance of palliative care as a fundamental ethical responsibility.

Conclusions. The study confirms that nurses play a central role in the multidisciplinary palliative care team, acting as "case managers" at the patient's bedside who provide not only technical treatment but also essential emotional support. The results indicate an urgent need for standardization through clear institutional protocols and psychological support for healthcare staff. There is also almost unanimous support (98.9%) for the mandatory inclusion of palliative care in the basic training curriculum for nurses.

Keywords. Palliative care, nurse, pain management, emotional support, family education, ethics.

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9. ARC PROTEIN DYSREGULATION AND SYNAPTIC PLASTICITY IN ALZHEIMER'S DISEASE

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Introduction. Alzheimer's disease (AD) is widely recognized as a progressive neurodegenerative condition and is regarded as the most common cause of dementia worldwide. In addition to β-amyloid accumulation, tau pathology represents another key hallmark of Alzheimer's disease. Hyperphosphorylation of the tau protein leads to the formation of neurofibrillary tangles, which disrupt neuronal cytoskeletal stability, impair axonal transport, and contribute to synaptic dysfunction as well as neuronal degeneration. As a result, Alzheimer's disease is characterized by a gradual decline in cognitive functions and impairments in synaptic plasticity mechanisms, including long-term potentiation (LTP). Among the molecular factors involved in these processes, the immediate-early gene Arc is widely considered to link neuronal activity with synaptic plasticity. Arc gene expression is tightly regulated at multiple levels, such as mRNA transport, post-translational modifications, subcellular localization, and protein degradation. In this context, examining the role of the Arc protein in synaptic plasticity may help to better explain the synaptic dysfunction observed in Alzheimer's disease.

Aim of study. This study aims to examine the relationship between Arc protein function, synaptic plasticity, and synaptic dysfunction in Alzheimer's disease.

Methods and materials. The materials and methods were based on a literature review of studies published between 2000 and 2025, which was conducted using PubMed, Scopus, and Google Scholar databases, with keywords such as "Arc protein," "Arc/Arg3.1," "synaptic plasticity," "long-term potentiation," and "Alzheimer's disease." These selected studies were analyzed to evaluate the important role of Arc in synaptic plasticity and its potential involvement in synaptic dysfunction associated with Alzheimer's disease.

Results. Previous studies have shown that the Arc protein plays a critical role in synaptic plasticity and in the activation and maintenance of long-term potentiation (LTP). Arc also regulates AMPA receptor trafficking at excitatory synapses. Dysregulation of synaptic signaling may therefore contribute to alterations in AMPA receptor dynamics and impair synaptic plasticity. In addition, several studies suggest that β-amyloid accumulation may influence or increase Arc expression, indicating a potential interaction between amyloid pathology and Arc-dependent synaptic mechanisms in Alzheimer's disease.

Conclusions. These findings may suggest that dysregulation of Arc signalling may contribute to synaptic dysfunction observed in Alzheimer's disease. Further studies on Arc-related synaptic pathways may provide new insights into the molecular mechanisms underlying cognitive decline in Alzheimer's disease.

Keywords. Arc Protein, Arc/Arg3.1, Arc protein synaptic plasticity, Long- term potentiation, Alzheimer's disease.

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10. PARTICULARITIES OF INSIGHT AND DECISION-MAKING CAPACITY IN AGGRESSIVE BEHAVIOUR AMONG PSYCHIATRIC INPATIENTS UNDER INVOLUNTARY ADMISSION

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Introduction. Aggressive behaviour in patients with mental disorders represents a significant challenge in psychiatric practice and raises important questions regarding the patient's decision-making capacity and ability to control their actions. In many cases, aggression occurs in the context of severe psychopathology, including psychotic symptoms, impaired reality testing or heightened impulsivity. Assessing decision-making capacity and insight in such situations is essential not only for clinical management but also for medico-legal considerations. Understanding the clinical circumstances in which aggressive behaviour emerges may contribute to improved risk assessment and therapeutic strategies.

Aim of study. The aim of this study was to analyze the particularities of decision-making capacity and insight in patients presenting aggressive behaviour who required involuntary psychiatric hospitalization.

Methods and materials. This observational study included 12 patients admitted involuntarily to a psychiatric inpatient unit due to aggressive behaviour over a six-month period. Data were retrospectively collected from clinical records and psychiatric assessments. The analysis included demographic characteristics, psychiatric diagnosis, type of aggressive behaviour (verbal or physical), psychopathological features at admission and the level of insight and decision-making capacity observed during the psychiatric evaluation.

Results. Aggressive behaviour was most frequently associated with acute psychotic episodes, severe mood disorders and substance-related conditions. In many cases, aggression occurred in the presence of delusional ideas, hallucinations or significant impairment of reality testing. Patients presenting severe psychotic symptoms often demonstrated markedly reduced insight and diminished capacity to evaluate the consequences of their actions. Impulsivity and emotional dysregulation were additional factors contributing to aggressive manifestations.

Conclusions. The assessment of decision-making capacity in patients displaying aggressive behaviour requires a comprehensive psychiatric evaluation that considers the underlying psychopathology and contextual factors. Impaired insight and altered reality perception appear to play a significant role in the emergence of aggression. Recognizing these clinical patterns may improve both patient management and the understanding of medico-legal aspects related to aggressive behavior in psychiatric settings.

Keywords. Psychiatry; aggressive behaviour; insight; decision-making capacity; involuntary hospitalization; psychosis.

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11. SYSTEMIC LUPUS AT 93:THE OLDEST DOCUMENTED ONSET PRESENTING WITH POLYSEROSITIS

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Introduction. Systemic lupus erythematosus (SLE) is a chronic autoimmune disorder characterized by a wide spectrum of clinical manifestations and involvement of multiple organ systems. The condition most commonly affects women of reproductive age, whereas disease onset in the elderly is relatively rare and often associated with atypical presentations. In older patients, manifestations such as serositis and generalized fluid retention are frequently attributed to more common conditions, including heart failure, malignancy, or infection, which may lead to delayed recognition of an underlying autoimmune disease.

Case presentation. We report the case of a 93-year-old woman admitted with progressive fatigue, exertional dyspnea, abdominal discomfort, and bilateral lower limb edema. Imaging studies revealed bilateral pleural effusions and pericardial effusion consistent with polyserositis. Considering the patient's advanced age and underlying comorbidities, several potential causes were initially considered, including decompensated heart failure, renal pathology, hepatic cirrhosis, hypothyroidism, infectious etiology, and malignancy. Comprehensive clinical assessment and paraclinical investigations allowed exclusion of these potential etiologies. Subsequent immunological assessment revealed markedly elevated antinuclear antibodies and anti-double-stranded DNA antibodies, together with reduced complement levels, findings consistent with SLE. Treatment with corticosteroids was initiated, leading to significant clinical improvement and a decrease in the volume of serous effusions.

Discussions. Late-onset SLE accounts for a minority of cases and often presents with atypical clinical features compared with early-onset disease. Manifestations such as serositis and nonspecific constitutional symptoms may predominate, whereas classical mucocutaneous findings are less common. In elderly patients with multiple comorbidities, these presentations may mimic more prevalent conditions, contributing to delayed diagnosis.

Conclusions. This case illustrates that SLE may rarely present at very advanced age with atypical manifestations. Recognition of this possibility is important when common causes of serosal effusions have been excluded, as delayed diagnosis may occur in elderly patients with multiple comorbidities.

Keywords. systemic lupus erythematosus; late-onset SLE; polyserositis; serositis; elderly.

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12. ACUTE ISCHEMIC STROKE IN YOUNG ADULTS: CLINICAL CHARACTERISTICS AND OUTCOMES AT A TERTIARY STROKE CENTER IN THE REPUBLIC OF MOLDOVA

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Introduction. Acute ischemic stroke (AIS) is a major cause of mortality and long-term disability worldwide, more common condition for elderly population. However, a gradual decrease in the age at onset of stroke is recorded in the last period, accompanied by an increase of incidence and hospitalization rates among young adults (under the age of 50), with significant medical, social, and economic consequences.

Aim of study. The aim of this study was to analyze the clinical features, risk factors, treatment strategies, and short-term outcomes of acute ischemic stroke in young adults treated at a tertiary stroke center in the Republic of Moldova.

Methods and materials. We conducted a retrospective observational study including young adults (<50 years) hospitalized with AIS at the Diomid Gherman Institute of Neurology and Neurosurgery between 2019 and 2025. Of 400 AIS admissions, 42 patients were under 50 years. Clinical data, vascular imaging, risk factors, acute treatments, and functional outcomes were analyzed. Stroke severity was assessed using the NIHSS at admission and after revascularization, and functional outcome at discharge using the modified Rankin Scale (mRS).

Results. A total of 42 young adults (mean age 36–50 years) were identified, with a 37.5% increase in cases in 2025 compared with previous years (18 patients during 2019 - 2024, and 24 patients registered in 2025). Major risk factors included cardiac pathology associated with obesity (73.8%), smoking (66.7%), long-term oral contraceptive use (11.9%), autoimmune disorders (7.1%), and malignancy (7.1%). Large vessel occlusion was present in 90.5% of patients, with a mean admission NIHSS of 14. Revascularization included intravenous thrombolysis, mechanical thrombectomy, or both. Combined therapy resulted in greater neurological improvement, achieving mTICI 2b/3 in 92.9% of cases. NIHSS improved from 14 to 5, and 76.2% achieved favorable outcome (mRS <2) at discharge. The mortality rate by complications (hemorrhagic transformation) was 7,12%.

Conclusions. Acute ischemic stroke in young adults is an increasing clinical concern in the Republic of Moldova. The findings highlight the importance of targeted risk factor assessment, early diagnosis, and access to advanced reperfusion therapies in young stroke patients, that would lead to significant neurological improvement and favorable functional outcomes.

Keywords. Acute Ischemic Stroke, young adults, thrombolysis.

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13. IMMUNOSUPPRESSIVE THERAPEUTIC STRATEGIES IN SYSTEMIC SCLERODERMA: REALITIES AND CHALLENGES IN THE REPUBLIC OF MOLDOVA

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Introduction. Systemic scleroderma is a rare autoimmune disease characterized by vascular injury, immune dysregulation, and progressive fibrosis of the skin and internal organs. Its management is complex and primarily involves immunosuppressive therapies to control inflammation and limit the progression of organ involvement, especially cutaneous and pulmonary manifestations, according to current international guidelines.

Aim of study. To evaluate the immunosuppressive therapeutic strategies used in patients with systemic scleroderma in the Republic of Moldova according to the clinical phenotype of the disease and to analyze their concordance with current international guideline recommendations.

Methods and materials. A total of 119 patients with systemic scleroderma hospitalized in rheumatology departments in the Republic of Moldova between 2024 and 2025 were evaluated clinically and paraclinically. The study group included 113 women (95%) and 6 men (5%), with a mean age of 59.7 ± 0.87 years. Most cases presented the limited form of the disease (73.9%) while diffuse form 26.1%. Among the studied cohort, 52.1% of patients presented inflammatory arthritis, while 42% had pulmonary involvement. The types of immunosuppressive therapies administered were also analyzed. The obtained data were compared with current international guideline recommendations for the management of systemic scleroderma.

Results. The analysis of clinical data showed that in patients with an inflammatory clinical phenotype characterized by arthritis, the most frequently used immunosuppressive therapies were methotrexate in 39 patients (32.8%), corticosteroids in 26 patients (21.8%), and hydroxychloroquine in 24 patients (20.2%). Azathioprine was rarely prescribed - 3 patients (2.5%). In cases with pulmonary involvement, treatment mainly included mycophenolate mofetil (18 patients; 15.1%), while cyclophosphamide and tocilizumab were each used for 3 patients (2.5%). No patients received rituximab (0%).

Conclusions. The study showed that immunosuppressive therapy used in the management of systemic scleroderma in the Republic of Moldova generally follows international guideline recommendations. However, optimizing treatment requires a more individualized approach based on the clinical phenotype. Mycophenolate mofetil is an important option for pulmonary involvement, while biological therapies such as tocilizumab and rituximab may improve the management of inflammatory or severe cases, contributing to better patient outcomes. A broader implementation of these strategies may contribute to optimizing the management of systemic scleroderma and improving therapeutic outcomes in rheumatology practice in the Republic of Moldova.

Keywords. systemic scleroderma, immunosuppressive therapy, biological treatment.

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14. DEPRESSION AND TYPE 2 DIABETES MELLITUS: A BIDIRECTIONAL ASSOCIATION MEDIATED BY INFLAMMATION AND THE BRAIN-GUT AXIS

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Introduction. Major Depressive Disorder (MDD) and Type 2 Diabetes Mellitus (T2D) are chronic disorders affecting around 3.89% and 11.1% of the global population, respectively. They often coexist, with approximately 30% of diabetic patients presenting depressive symptoms, while patients with MDD are at a higher risk of developing diabetic complications such as nephropathy and cardiovascular disease. Growing research suggests a bidirectional link, with each illness increasing the risk and progression of the other. MDD has been shown to increase hospitalization risk in comorbid patients by around 1.71 to 1.89-fold, showing the importance of understanding their joint mechanisms to establish integrated clinical approaches.

Aim of study. This study aims to review current evidence on the role of inflammation and the Brain-Gut axis in the bidirectional development of MDD and T2D, and to explore pharmacological interventions for their integrated treatment.

Methods and materials. This is a narrative review of meta-analyses and literature reviews published between 2020 and 2026 on research databases such as PubMed, Medscape, and endocrinology journals.

Results. MDD and T2D are defined by chronic low-grade inflammation, leading to slightly increased levels of inflammatory markers like C-Reactive Protein (CRP) and Interleukin-6 (IL-6), which can cause insulin resistance and dyslipidemia. Diabetic patients with elevated CRP levels (>3mg/l) are found to have a 90% higher chance of developing depression. These inflammatory reactions further disrupt the brain-gut axis, causing gut microbiota imbalance. This leads to increased intestinal wall permeability and microbial toxins enter circulation, causing inflammation of neural tissue. This exacerbates depressive symptoms. Anti-diabetic medications such as Metformin have hypoglycemic and anti-inflammatory effects, and studies have proven its effectiveness against depression in diabetic patients by stimulating neurogenesis and protection against oxidative stress. Glucagon-Like Peptide-1 Receptor Agonists (GLP-1RAs), another important diabetes medication, have beneficial effects on depression symptoms, according to a recent study on their antidepressant effects. However, some studies point out their harmful effects on mental health.

Conclusions. Chronic inflammation and brain-gut axis dysregulation are key factors in understanding the bidirectional link between T2D and MDD. Understanding their shared pathogenic chains is central to exploring protocols for their collaborative treatment. While anti-inflammatory and anti-diabetic medications are effective treatments for comorbid patients, more research on their safety index is highly essential.

Keywords. Bidirectional, Brain-gut Axis, Depression, Diabetes, Inflammation.

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15. IMAGING DIAGNOSIS OF EMPHYSEMATOUS NECROTIZING PANCREATITIS

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Introduction. Emphysematous necrotizing pancreatitis (ENP) represents a fulminant, hyper-aggressive variant of infected necrosis, pathophysiologically described as a “Beger-type” enzymatic explosion followed by "pancreatic gas gangrene". Characterized by the pathognomonic presence of gas within the parenchyma or retroperitoneal spaces, it triggers a massive systemic inflammatory response (SIRS) and rapid multiple organ dysfunction (MODS), with mortality rates reaching 35–50%. Contrast-enhanced computed tomography (CT) serves as the definitive "gold standard" for identifying the extent of necrosis and gas formation, essential for urgent clinical stratification.

Aim of study. To demonstrate the clinical decisiveness of contrast-enhanced CT in diagnosing emphysematous changes, assessing morphological severity indices, and predicting survival outcomes.

Methods and materials. A retrospective descriptive study included 34 patients with imaging-proven ENP hospitalized at the “Timofei Moșneaga” Republican Clinical Hospital (2024–2026). All patients underwent contrast-enhanced multidetector CT (64–128 slice scanners). Severity was stratified using the Balthazar score and the Computed Tomography Severity Index (CTSI), with an emphasis on the optimal diagnostic window of 3–5 days after symptom onset.

Results. The study included 34 patients aged 24–85 years (mean 51.0±14.4). Females represented 52.9%; biliary etiology was the primary trigger (58.8%). Laboratory evaluation revealed marked "enzymatic dissociation": only 38.2% (n=13) presented serum amylase >3× limit, suggesting extensive parenchymal depletion in advanced stages. Computed tomography enabled morphological stratification via Balthazar scores: Grade C in 11.7%, Grade D in 29.4%, and Grade E (pathognomonic gas) in 58.8%. Parenchymal necrosis (density <30 HU) was: 0% (32.4%), <30% (20.6%), 30–50% (11.7%), and extensive >50% (35.3%). Extraluminal gas localization indicated severity: 29.4% showed local foci, while 29.4% exhibited systemic extension (fermentative pleuropneumonia, intestinal pneumatosis). Microbiology confirmed Escherichia coli (35%) and Klebsiella spp. (20%) as primary gas-formers. The CTSI score was a definitive predictor: mortality reached 50% for scores 7–10 (n=18), whereas the 0–3 group had 100% survival ($p<0.05$). Timely multiplanar CT reconstructions 3–5 days post-onset provide essential anatomical landmarks for the "step-up" strategy, ensuring an objective assessment of life-threatening MODS.

Conclusions. Contrast-enhanced CT remains the imaging modality of choice and the radiological gold standard for emphysematous necrotizing pancreatitis, providing the highest sensitivity for detecting intra- and extrapancreatic gas and accurately defining the extent of pancreatic necrosis, which is essential for severity stratification and therapeutic planning.

Keywords. Emphysematous necrotizing pancreatitis, computed tomography, Balthazar score, CT severity index.

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16. LOW LEVELS OF MUSCLE MASS AMONG LOCAL STUDENTS AT THE NICOLAE TESTEMITANU STATE UNIVERSITY OF MEDICINE AND PHARMACY-IMPLICATIONS FOR METABOLIC HEALTH

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Introduction. Body composition represents a key indicator of overall health status and metabolic risk. It is influenced by genetic, metabolic, and lifestyle factors, therefore, a family history of obesity and diabetes may directly affect the distribution of body tissue.

Aim of study. To evaluate muscle mass among local students of the Nicolae Testemitanu State University of Medicine and Pharmacy by analyzing body composition using bioelectrical impedance analysis. The study comparatively assessed muscle mass according to sex and examined its association with a family history of obesity and diabetes mellitus in order to highlight the risk of sarcopenia among young adults.

Methods and materials. A cross-sectional descriptive study was conducted on a sample of 100 students randomly selected from the Nicolae Testemitanu State University of Medicine and Pharmacy. The analyzed variables included: age, sex, height, muscle mass, and family history of obesity and diabetes mellitus.

Results. The study included 100 students aged 19-26 years (average age 22.6 ± 0.70). Among the participants, 53(53%) were female and 47(47%) were male. Body composition was assessed using bioelectrical impedance analysis, and muscle mass was expressed as the Skeletal Muscle Index (SMI). The mean SMI value was 17.97kg/m2(±5.68). Sex-based analysis showed lower SMI values in females (15.89kg/m2 ±1.71) compared with males (20.22 kg/m2 ±3.97). A family history of obesity was reported in 61(61%) participants, diabetes mellitus in 31(31%), and both conditions in 25(25%). Participants with a family history of obesity had significantly lower SMI values ($p=0.0012$), whereas no significant association was found between SMI and a family history of diabetes mellitus ($p=0.284$). The distribution of SMI also showed significant sex-related differences ($p<0.001$), with higher mean values observed in males (28.6 ± 2.45 kg/m2) compared with females (17.8 ± 1.92kg/m2), confirming sexual dimorphism in muscle mass.

Conclusions. The results indicate a significant association between a family history of obesity and lower SMI values among young adults, while a family history of diabetes mellitus did not show a significant relationship. Additionally, sexual dimorphism in muscle mass was confirmed, with higher SMI values observed in males. These findings highlight the importance of monitoring muscle mass in order to prevent the development of sarcopenia in young populations.

Keywords. Bioelectrical impedance, muscle mass, body composition, metabolic risk.

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17. THE ROLE OF INFLAMMATORY BIOMARKERS IN ASSESSING THE SEVERITY OF OBSTRUCTIVE SLEEP APNEA SYNDROME

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Introduction. Obstructive sleep apnea (OSA) is characterized by intermittent airway collapse and systemic inflammation. Elevated inflammatory cytokines-particularly interleukin 6 (IL-6), C reactive protein (CRP), and tumor necrosis factor-α (TNF-α)-have been implicated in OSA pathophysiology. However, their relationship with disease severity remains variably defined.

Aim of study. To evaluate the association between systemic levels of IL-6, CRP, and TNF-α and OSA severity, assessed by apnea–hypopnea index (AHI) and oxygenation parameters, independent of obesity.

Methods and materials. A systematic search of PubMed indexed studies focusing on IL-6, CRP, and TNF-α in adult OSA patients was conducted. Meta analysis and case control studies were included. Data extracted included biomarker levels, AHI, BMI, and SpO_2 indices. Key studies include a meta analysis of 51 studies, a 80-patient case-control study, and a 128-patient observational cohort.

Results. Pooled data show significantly increased concentrations of IL-6 (standardized mean difference [SMD] ≈ 2.16), CRP (≈ 1.77), and TNF-α (≈ 1.03) in OSA patients vs. controls. The case control study reported approximately 2 fold higher IL-6 and CRP, and 1.3–1.7 fold higher TNF-α in moderate-to-severe OSA patients, with ROC curve performance for disease prediction. However, some cohorts found no independent correlation between biomarker levels and AHI after adjusting for BMI. In contrast, a TNF-α meta-analysis showed increases proportional to OSA severity across mild to severe stages.

Conclusions. IL-6, CRP, and TNF-α are consistently elevated in OSA and correlate with severity in many studies, though obesity remains a significant confounder. TNF-α levels, in particular, rise progressively from mild to severe OSA, suggesting its potential as a severity biomarker. Further prospective studies controlling for adiposity are recommended to validate their role in monitoring disease progression and guiding treatment.

Keywords. Obstructive Sleep Apnea, IL-6, C-reactive Protein, TNF-α, Inflammatory Biomarkers.

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18. DIAGNOSTIC VALUE OF TRANSTHORACIC ECHOCARDIOGRAPHY IN CHEST PAIN: DIFFERENTIATING AORTIC STENOSIS FROM ANGINA PECTORIS

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Introduction. Chest pain is a common clinical symptom that may reflect a cardiac cause and is frequently associated with coronary artery disease. However, valvular heart diseases, such as aortic stenosis, may present with similar symptoms and mimic angina pectoris. Because these conditions produce comparable clinical symptoms, distinguishing between myocardial ischemia and valvular obstruction is essential for establishing an accurate diagnosis and selecting the appropriate therapeutic approach. Transthoracic echocardiography (ECHO) plays an important role by providing information about cardiac structure, valve morphology and the hemodynamic consequences of valvular disease.

Case presentation. A 67-year-old female patient was admitted with retrosternal chest pain during moderate effort, suggestive of stable angina pectoris. Physical examination revealed a systolic ejection murmur in the aortic area radiating to the carotid arteries. Electrocardiography showed signs of left ventricular hypertrophy. Further evaluation with ECHO was performed to assess cardiac structure, aortic valve morphology and hemodynamic parameters. The examination included measurement of peak aortic jet velocity (Vmax), transvalvular pressure gradient, calculation of aortic valve area (AVA) and evaluation of left ventricular systolic function.

Discussions. Echocardiographic evaluation revealed severe calcific aortic stenosis characterized by thickening and calcification of the aortic valve cusps with reduced mobility. Vmax was 4.6 m/s, while maximum and mean transvalvular pressure gradients were 85 mmHg and 45 mmHg respectively. The calculated AVA was 0.8 cm^2, confirming severe stenosis. Aortic valve opening amplitude was reduced to 6 mm. Concentric left ventricular hypertrophy was present with interventricular septum thickness of 14 mm and posterior wall thickness of 13 mm. Left ventricular dilation was evident with an end-diastolic diameter of 58 mm and an end-diastolic volume of 180 ml, while ejection fraction was moderately reduced to 45%. These findings suggest that the patient's chest pain was related to severe aortic valve obstruction rather than coronary artery disease.

Conclusions. Transthoracic echocardiography is essential in the differential diagnosis of chest pain by identifying structural and hemodynamic abnormalities associated with valvular heart disease. Accurate echocardiographic evaluation allows differentiation between aortic stenosis and angina pectoris, guiding appropriate diagnostic and therapeutic strategies. Early recognition of severe aortic stenosis is essential for risk stratification and timely management.

Keywords. Echocardiography, aortic stenosis, chest pain, angina pectoris.

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19. LIPID METABOLISM ALTERATIONS AND CARDIOVASCULAR RISK IN PATIENTS WITH RHEUMATOID ARTHRITIS

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Introduction. Rheumatoid arthritis (RA) is a chronic autoimmune inflammatory disease associated with increased cardiovascular morbidity and mortality. Persistent systemic inflammation contributes to lipid metabolism alterations, endothelial dysfunction and accelerated atherosclerosis, even when lipid levels appear normal.

Aim of study. To evaluate lipid metabolism alterations and their association with inflammatory activity in patients with rheumatoid arthritis.

Methods and materials. A retrospective cross-sectional observational study included 83 patients diagnosed with rheumatoid arthritis. Clinical and laboratory data were analyzed from medical records. The parameters evaluated included demographic characteristics, inflammatory markers (ESR and C-reactive protein), lipid profile components (total cholesterol, LDL-cholesterol, HDL-cholesterol and triglycerides), anti-CCP antibodies and vitamin D levels. Correlation analysis between inflammatory markers and lipid fractions was performed using Pearson statistical analysis.

Results. The mean age of the patients was 58.33 years, with an average disease duration of 15.57 years. The mean CRP level was 20.22 mg/L, indicating persistent systemic inflammation in a significant proportion of patients. Lipid profile assessment was available in a limited subgroup of patients, revealing dyslipidemia in the majority of evaluated cases. Statistical analyses demonstrated a moderate positive correlation between CRP and HDL-cholesterol ($r = 0.526$; $p < 0.001$), suggesting a relationship between inflammatory activity and lipid metabolism alterations. The mean anti-CCP level was 214.13 U/mL, indicating active autoimmune involvement. In addition, the mean vitamin D level was 19.88 ng/mL, reflecting vitamin D insufficiency in the studied group.

Conclusions. The study highlights the interaction between systemic inflammation and lipid metabolism in patients with rheumatoid arthritis. These findings support the concept that cardiovascular risk assessment in RA should include not only lipid profile evaluation but also inflammatory markers, autoimmune activity and vitamin D status. Early identification of metabolic alterations may contribute to improved cardiovascular prevention strategies in patients with RA.

Keywords. rheumatoid arthritis, dyslipidemia, cardiovascular risk, inflammation, lipid metabolism.

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20. MICROBIOLOGY OF CATHETER-ASSOCIATED URINARY TRACT INFECTIONS

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Introduction. Catheter associated urinary tract infection is a frequent healthcare related infection caused by bacteria that colonize urinary catheters and form biofilm on their surfaces especially in patients with long term catheterization. These infections increase patient suffering, prolong hospital stay and raise treatment costs. They are difficult to treat because many strains show resistance to antibiotics.

Aim of study. The aim of the study is to describe the microbiology of catheter associated urinary tract infection with the focus on bacterial causes, their antimicrobial resistance patterns and the prevalence in hospital settings worldwide and in India .

Methods and materials. A narrative review of recent research on catheter associated urinary tract infection was performed. Articles from the last 10 years that reported bacterial spectrum, antimicrobial susceptibility and prevalence in intensive care units and general wards were selected. Studies from India and other countries were included to show the global situation.

Results. The most frequent bacteria in catheter associated urinary tract infection are Escherichia coli, which accounts for twenty to thirty percent of cases, followed by Klebsiella species, Pseudomonas aeruginosa , Acinetobacter species, Proteus species ,Enterococcus species and Candida species. Many isolates show multidrug resistance patterns, with high rates of extended spectrum beta lactamase producing Enterobacterales and carbapenem resistant non fermenting gram negative bacteria, so treatment often requires reserve antibiotics such as aminoglycosides, nitrofurantoin or colistin. Studies from intensive care units report that catheter associated urinary tract infections account for an important proportion of healthcare related infections, with significantly higher prevalence in intensive care units, in patients with prolonged catheter usage exceeding seven days and in settings with limited infection control resources and inadequate catheter care protocols.

Conclusions. Catheter associated urinary tract infection is mainly caused by gram negative bacteria that form protective biofilm on catheter surfaces and frequently demonstrate multidrug resistance patterns, leading to persistent infection and limited therapeutic options. Knowledge of local bacterial patterns, specific antimicrobial resistance profiles and prevalence is essential for rational antibiotic selection, effective infection control policies and reduction of this preventable healthcare burden.

Keywords. Catheter associated urinary tract infections, microbiology, bacterial pathogens, antimicrobial resistance, biofilm ,prevalence, Escherichia coli.

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21. DEMOGRAPHIC PROFILE OF PATIENTS HOSPITALIZED WITH HYPERTENSIVE NEPHROPATHY: A RETROSPECTIVE ANALYSIS

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Introduction. Hypertension is one of the leading causes of chronic kidney disease worldwide and represents a major contributor to nephrology–related hospitalizations. Hypertensive nephropathy develops as a consequence of long-standing uncontrolled blood pressure and remains an important cause of progressive renal impairment.

Aim of study. To analyze the demographic characteristics of patients hospitalized with hypertensive nephropathy in a tertiary nephrology center.

Methods and materials. A retrospective, descriptive study was conducted in the Nephrology Department of the Republican Clinical Hospital "Timofei Moșneaga" between 2022 and 2025. Patients discharged with a diagnosis of hypertensive nephropathy were included. Demographic variables, including age, sex, and area of residence were analyzed to identify potential patterns among hospitalized patients. In addition, laboratory investigations including serum creatinine, urea, electrolytes, estimation glomerular filtration rate (eGFR), and urinalysis for the detection of proteinuria were evaluated to characterize renal involvement.

Results. During the study period, a total of 6,305 hospitalizations were recorded in the nephrology department. Among these, 1,723 patients were diagnosed with hypertensive nephropathy, representing 27.33% (95% CI, 46.9%-51.7%) of all nephrology admissions. A predominance of female patients was observed, with 1,040 women (60.36%) compared with 683 men (39.64%). The mean age at hospitalization was similar between sexes, with a mean age of 61±8 years in males and 62.5±9.3 years in females, indicating that hypertensive nephropathy mainly affected older adults. Analysis of the area of residence showed that 1,059 patients originated from rural regions (61.47%), while 664 patients were from urban areas (38.53%). The relatively high proportion of patients from rural settings may reflect disparities in hypertension control, delayed diagnosis, and limited access to specialized nephrology care. Overall, hypertensive nephropathy represented a substantial proportion of nephrology hospitalizations and was predominantly observed in patients over 60 years of age.

Conclusions. Hypertensive nephropathy represents an important cause of nephrology hospitalization in our center. The predominance of female patients and the considerable proportion of individuals from rural areas highlight potential disparities in hypertension management and access to early nephrological care. These findings underline the need for improved blood pressure control and early identification of kidney damage in high-risk populations.

Keywords. hypertensive nephropathy, chronic kidney disease, hypertension, nephrology hospitalization, epidemiology.

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22. CORRELATION BETWEEN CLINICAL SCORES, APNEA-HYPOPNEA INDEX, AND QUALITY OF LIFE IN OSA: A MULTIDIMENSIONAL APPROACH

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Introduction. Obstructive sleep apnea (OSA) is a common chronic condition leading to excessive daytime sleepiness and impaired quality of life (QoL). Although disease severity is classically assessed using the apnea–hypopnea index (AHI), numerous studies have shown that AHI correlates poorly with patient-reported outcomes, including daytime sleepiness, subjective sleep quality and health-related QoL scores (ESS, PSQI, SF-36). Therefore, a multidimensional assessment integrating clinical scores and QoL instruments is crucial for an accurate evaluation of disease impact.

Aim of study. This paper aims to analyze the correlation between clinical scores, AHI and QoL in patients with OSA, as well as to underline the weight of patient-centered appraisal in assessing disease severity and therapeutic response.

Methods and materials. The paper is based on a review of clinical and observational studies using validated QoL questionnaires (SAQLI, FOSQ, SF-36) and correlated them with clinical parameters such as AHI, daytime sleepiness (Epworth Sleepiness Scale), subjective sleep quality, depressive symptoms and cognitive function. It also includes studies that assessed patient-reported outcomes before and after CPAP treatment, as well as papers that address limitations of AHI and the variation of hypopnea scoring criteria.

Results. The studies reviewed show a weak to moderate correlation between AHI and QoL scores, with correlation coefficients frequently reported below $r=0.30$. SF-36, FOSQ and SAQLI scores are significantly lower in patients with OSA compared with the general population ($p<0.01$), but the differences between the severity grades defined by AHI are relatively small. Conversely, daytime sleepiness shows a stronger link with impaired QoL ($r\approx0.40–0.60$; $p<0.001$) being an independent predictor of functional scores in multivariate analyses. Subjective sleep quality and depressive symptoms explain the proportion of the variability in QoL scores, independent of AHI ($p<0.01$). In patients with moderate and severe OSA, cognitive impairment is associated with significant decrease in mental and functional domains of QoL ($p<0.05$). CPAP treatment results in statistically noteworthy improvements in patient-reported scores and QoL ($p<0.001$), even when the reduction in AHI is not proportional to perceived clinical improvement.

Conclusions. The results suggest that AHI, used as a sole marker of severity, has limited value in assessing the clinical impact of OSA. Combining clinical scores and QoL assessment tools allows a more precise assessment of the disease, being essential for individualizing therapeutic management and monitoring treatment efficacy.

Keywords. Obstructive Sleep Apnea, AHI, Quality of life.

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23. COMORBID DEPRESSION IN CHRONIC SOMATIC DISEASES (DIABETES MELLITUS, ARTERIAL HYPERTENSION AND CHRONIC RESPIRATORY CONDITIONS)

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Introduction. Depressive disorder (also known as depression) is a common mental health condition. It is characterized by a persistently depressed mood or a loss of interest and pleasure in usual activities for an extended period of time, accompanied by a range of emotional, cognitive, physical, and behavioral symptoms. Depression is frequently associated with chronic somatic diseases such as diabetes mellitus and arterial hypertension. The prevalence of depression among patients with diabetes is generally estimated at 10–15%, which is almost double compared to the population without diabetes. This comorbidity has a significant impact on quality of life and on adherence to medical treatment. The interaction between physical suffering and affective disorders often creates a vicious cycle, potentially worsening the overall prognosis of the patient.

Aim of study. The aim of the study was to evaluate the prevalence and severity of depressive symptoms in patients with chronic somatic diseases and to analyze their association with several socio-demographic and clinical factors.

Methods and materials. The study was designed as a cross-sectional observational research conducted over a three-month period in the Internal Medicine Department of Dnestrovsk Municipal Hospital. A total of 121 adult patients diagnosed with chronic diseases such as diabetes mellitus, arterial hypertension, and chronic obstructive pulmonary disease (COPD) were included in the study. Depressive symptoms were assessed using validated instruments: the Patient Health Questionnaire (PHQ-9), the Beck Depression Inventory (BDI-21), and the Hamilton Depression Rating Scale (HAM-D-17). In addition, relevant socio-demographic and clinical data were collected and analyzed.

Results. The results indicated that depressive symptoms are frequently observed among patients with chronic somatic diseases. Mild depression was identified in 37.19% of patients, moderate depression in 34.71%, and severe depression in 9.92%, while 18.18% of participants did not present significant depressive symptoms. Most participants were over 60 years of age, with a predominance of male patients. The analysis suggests that depressive symptoms are commonly present in patients with long-standing chronic diseases.

Conclusions. Depression represents a frequent comorbidity among patients with chronic somatic diseases. In the studied sample, mild and moderate forms of depression were the most prevalent. These findings highlight the importance of early screening and timely identification of depressive symptoms in patients with chronic illnesses in order to optimize treatment outcomes and improve quality of life.

Keywords. depression, chronic diseases, diabetes mellitus, arterial hypertension, COPD, comorbidity.

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24. BULBAR CONJUNCTIVAL VASCULAR ARCHITECTURE IN TYPE 1 DIABETES MELLITUS

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Introduction. Type 1 diabetes mellitus (T1DM) is linked to microvascular complications that affect multiple organs, including the eye. Although retinal involvement has been extensively documented, vascular alterations in the bulbar conjunctiva remain less well characterized.

Aim of study. The aim of the study is to quantify changes in conjunctival vascular architecture in individuals with T1DM using a self-developed semi-automated system.

Methods and materials. This ongoing study investigates conjunctival microcirculation in patients with type 1 diabetes mellitus. A slit-lamp biomicroscope equipped with a high-resolution camera was used to capture images and short video sequences for subsequent analysis. Using open-access formulas and algorithms, custom software was developed to enable semi-automated evaluation of the recorded video material in order to establish presence of conjunctival vasculature changes. Quantitative microcirculatory parameters such as vessel diameter, tortuosity, blood flow velocity, and wall shear stress were obtained. Data extracted from twenty eyes (ten T1DM patients) was analyzed and compared with findings reported in limited similar publications.

Results. The numbers obtained are similar to data from international research. Average numbers for vessel diameter based on vessel type (arteriole or venule) 17.42±15.05 nm, tortuosity ranging from 1 to 1.39, blood velocity of 0.47±0.07 mm/s, and blood flow 53.39±85.12 pl/s (varying corresponding to vessel diameter).

Conclusions. Microvascular dysfunction may reflect a range of systemic pathological processes, including those associated with type 1 diabetes mellitus. These findings suggest that assessment of conjunctival microcirculation may have potential as a non-invasive, point-of-care biomarker. The semi-automated original workflow developed by the team is efficient in obtaining replicable and comparable datasets. Further studies are required to clarify its clinical utility in the monitoring and management of diabetes.

Keywords. diabetes mellitus type 1, bulbar conjunctiva.

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25. TUBERCULOSIS WITH MULTIPLE LOCALIZATION – THE CHALLENGES FOR PROMPT DIAGNOSIS

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Introduction. Tuberculosis (TB) with multiple localization (TBML) is a severe form of TB characterized by the simultaneous involvement of pulmonary and extrapulmonary sites. It is frequently associated with delayed diagnosis and an increased risk of unfavorable treatment outcomes.

Aim of study. This study was aimed to assess the demographic profile, social, clinical and radiological characteristics, and particularities of diagnosis of patients diagnosed with TBML.

Methods and materials. A retrospective descriptive study was conducted on 70 TBML patients admitted in Municipal TB Hospital, Chisinau in 2022-2024. Demographic data, socio-economic status, TB risk factors, imaging findings, diagnostic methods were analyzed using descriptive statistical methods.

Results. Males were predominate, 57 (81.4%) cases, compared to 13 (18.6%) females, $p<0,05$, with a Male/Female Ratio of 4.38/1. Most patients (92.8%) were working-age population and originated from rural area (75.7%), $p<0,05$. Socio-economic vulnerability was evident, as 64.3% of patients were unemployed and lacked stable income $p<0,05$. A history of contact with a person with active TB disease was identified in 34.3% cases. Patients (87.1%) who had 1-4 comorbidities among them infection HIV 8 (11.4%), diabetes 11 (15.7%), cachexia 10 (14.3 %) were predominate. Harmful habits were frequently registered, particularly smoking (65.7%) and excessive alcohol consumption (45.7%). Patients identified by symptomatic screening were predominate (71.4%), whereas through systematic screening only 21.4% cases were identified, $p<0,05$. Lung imaging fined disseminated 26 (37.1%) and infiltrative 42 (60%) TB with bilateral extended process (100%). Polymorphism of pulmonary lesions was presented by lobular consolidation, centrilobular small nodules and tree-in-bud sign (92.8%) and cavitation (70%). Extrapulmonary involvement most commonly affected a single organ (68.6%), particularly the intestine (58.6%), followed by the urinary tract (25.7%), larynx (20%), lymph nodes (10%), meninges 2 (2.9%). Diagnosis was established through a comprehensive assessment including clinical and laboratory exams, most commonly molecular genetic testing (Xpert) 53 (75.7%), sputum smear 36 (51.4%), the conventional culture and BACTEC methods 51 (72.9%).

Conclusions. MLTB predominantly affected working-age males from rural areas, who belong to socioeconomically vulnerable groups and have multiple comorbidities, harmful habits. The prevalence of detection through symptom screening and the high incidence of extensive lung lesions indicate advanced stages of TB and delayed diagnosis of disease. These findings highlight the need for improved active case detection and increased use of modern diagnostic methods for timely diagnosis.

Keywords. Tuberculosis with multiple localization, medico-social determinants, diagnosis.

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26. ADVANCED CYSTIC FIBROSIS COMPLICATED BY MULTIDRUG-RESISTANT PULMONARY INFECTIONS AND SEVERE RESPIRATORY FAILURE

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Introduction. Cystic fibrosis (CF) is a multisystem genetic disorder caused by mutations in the CFTR gene, characterized by thick airway secretions and recurrent respiratory infections. Progressive pulmonary damage represents the main cause of morbidity and mortality, particularly in patients colonized with multidrug-resistant pathogens, where therapeutic options are limited and management becomes particularly challenging in advanced stages of the disease.

Case presentation. We report the case of a 26-year-old non-smoking patient diagnosed in childhood with CF (positive sweat test and genetic confirmation), with a history of recurrent pulmonary exacerbations and chronic colonization with Pseudomonas aeruginosa and Staphylococcus aureus. The patient was admitted to the intensive care unit with worsening dyspnea and productive cough. Clinical examination revealed severe cachexia (BMI 15), digital clubbing, tachypnea, oxygen saturation of 94% under oxygen therapy, and bilateral crackles. Chest CT demonstrated cylindrical and varicose bronchiectasis with mucus plugging and areas of consolidation. The clinical course was complicated by right-sided pneumothorax requiring drainage, suspected bronchopleural fistula, and progressive subcutaneous emphysema. Sputum cultures identified MRSA and multidrug-resistant Acinetobacter baumannii with limited antibiotic susceptibility. The PaO_2/FiO_2 ratio progressively decreased to 87%, indicating severe respiratory failure. Despite intensive treatment including targeted antibiotic therapy, ventilatory support, bronchodilators, bronchial lavage, and hemodynamic support, the patient developed multiple organ failure and died on the 13th day of hospitalization due to acute cardiorespiratory failure.

Discussions. This case illustrates the severity of advanced CF characterized by progressive lung destruction and infections caused by multidrug-resistant pathogens. Chronic colonization contributes to recurrent exacerbations, declining respiratory function, and complications such as pneumothorax and bronchopleural fistula. Limited antimicrobial options significantly worsen prognosis and increase the risk of sepsis and multiorgan failure, highlighting the complexity of managing advanced CF in critical care units.

Conclusions. Advanced cystic fibrosis complicated by multidrug-resistant infections represents a major challenge in pulmonary and intensive care practice. Early recognition of severe complications, individualized antimicrobial therapy, and timely evaluation for lung transplantation may be crucial for improving survival in patients with advanced disease.

Keywords. cystic fibrosis, bronchiectasis, multidrug-resistant infections.

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27. THE INFLUENCE OF COVID-19 ON THE EVOLUTION OF MIGRAINE

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Introduction. Migraine is one of the most common and disabling neurological disorders. Headache affects approximately 40% of the global population (about 3.1 billion people in 2021) and is more prevalent in women. In Eastern Europe, migraine represents a major cause of neurological disability. Recent studies suggest that COVID-19 infection may contribute to migraine chronification by increasing the frequency and intensity of attacks and by triggering secondary headaches that may persist after recovery, potentially influencing the course of migraine.

Aim of study. To evaluate the influence of COVID-19 infection on the evolution of migraine five years later by analyzing changes in attack frequency, pain intensity, associated psycho-emotional factors, and the impact of migraine on quality of life using the Headache Disability Index.

Methods and materials. The study included 32 patients with migraine. Data for the pre-pandemic period and during SARS-CoV-2 infection were obtained from the national survey "Headaches in the Context of the COVID-19 Pandemic" conducted in 2021. The post-pandemic period (2025) was assessed using a Google Forms questionnaire.

Results. All 32 participants were women aged 27–65 years, with a mean age of 39.78±8.78 years. Before the pandemic, the most common attack frequency was once per month (34.4%). During SARS-CoV-2 infection, 70% of patients reported daily headache episodes. Five years later, the predominant frequency was 1–2 times per week (67.7%). The proportion of severe headache intensity was 62.5% before the pandemic, 80% during infection, and 38.7% in the post-pandemic period with no cases of mild pain reported. Despite the predominance of moderate pain after the pandemic, patients more frequently selected a value of 6 within the 4–6 range and 9–10 within the 7–10 range, whereas before the pandemic the predominant values were 4 and 7, respectively. The main psychosocial factors influencing migraine in the post-pandemic period remained chronic stress (33.96%) and anxiety (24.52%). According to the Headache Disability Index, no disability was observed in 3.1% of patients; mild disability in 28.1%; moderate disability in 34.4%; severe disability in 21.9%; and complete disability in 12.5%.

Conclusions. Migraine characteristics improved in the post-pandemic period compared with the acute infection phase but did not return to pre-pandemic levels, indicating persistent changes in disease evolution. More than half of the patients (56.3%) had moderate or severe disability, highlighting the substantial impact of migraine on quality of life and the need for further research.

Keywords. Migraine, SARS-CoV-2, headache.

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28. THE CORRELATION BETWEEN GENDER, AGE AND HIGHER BRAIN FUNCTIONS IN PATIENTS WITH AUTOIMMUNE HYPOTHYROIDISM

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Introduction. Autoimmune hypothyroidism affects over 100 million people worldwide. Its wide clinical presentation is due to multiple functions exerted by thyroid hormones, including those on the central nervous system. Thyroid hormone deficiency in the brain manifests as psychiatric and cognitive manifestations that compromise an individual's quality of life. Both hypothyroidism and psychiatric or cognitive disorders predominantly affect the female gender. Cognitive impairments increase in frequency and intensity with age.

Aim of study. To establish the link between the gender and age of patients with autoimmune hypothyroidism and their levels of anxiety, depression, cognitive impairment and attention performance, as well as to compare the results with data from a control group.

Methods and materials. A cross-sectional study was conducted based on data collected from 40 patients with autoimmune hypothyroidism from the Endocrinology Department of the ”Timofei Moșneaga” Republican Clinical Hospital and 40 control subjects. Subjects in both groups were classified according to age and gender. Psychiatric and cognitive status were assessed using the MMSE, the HADS and the Landolt test.

Results. The highest prevalence of clinical anxiety was recorded in the 20-29 age group (60%, n=3) and among men (60%, n=3). The highest prevalence of clinical depression was also recorded in the 20-29 age group (60%, n=3) and among men (80%, n=4). The highest proportion of patients with mild cognitive impairment was recorded in the 20-29, 40-49 and 60-69 age groups (40%, n=2 each, respectively). Mild cognitive impairment prevailed in the female group – 37.14% (n=13), compared to 20% (n=1) in men. The highest proportion of patients with a low level of attention concentration was recorded in the 40-49 and 60-69 age groups (40%, n=2 each, respectively). 40% (n=2) of the men and only 14.29% (n=5) of the women had a low level of attention concentration.

Conclusions. Psychiatric and cognitive manifestations show a significant dependence on age and sex. Clinically manifest anxiety and depression in patients with autoimmune hypothyroidism have a higher prevalence among young people, compared to the elderly, and among men, compared to women. Cognitive impairments predominate among women and are directly dependent on advancing age. Our results contradict existing literature due to the small sample sizes and the underrepresentation of men within the samples.

Keywords. hypothyroidism, anxiety, depression, memory, attention.

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29. METABOLIC PROFILE IN INDIVIDUALS WITH RESISTANT HYPERTENSION

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Introduction. Resistant hypertension represents one of the major challenges in modern cardiology, blood pressure remaining uncontrolled despite appropriate treatment with multiple antihypertensive drugs. Studies suggest that it is frequently linked to metabolic abnormalities, including obesity, diabetes and lipid metabolism disorders. The coexistence of these factors contributes to endothelial dysfunction, vascular remodeling and difficulty in achieving adequate blood pressure control. Understanding the metabolic profile of patients with resistant hypertension is essential for improving treatment strategies and reducing cardiovascular morbidity and mortality.

Aim of study. The aim of the study was to evaluate the metabolic profile of patients with resistant hypertension and to determine the prevalence of components related to metabolic syndrome in this population.

Methods and materials. A retrospective cross-sectional study including 50 patients with resistant hypertension, of whom 25 underwent renal denervation and 25 received pharmacological treatment only, was conducted between February and December 2025 at the IMSP Institute of Cardiology.

Results. The analyzed data revealed a high prevalence of metabolic abnormalities among patients with resistant hypertension. Impaired glucose metabolism was highly prevalent in both subgroups: in the group with pharmacological treatment only 32% of patients had normoglycemia, 24% prediabetes, and 44% diabetes, while in the group with renal denervation 20% were normoglycemic, 32% had prediabetes, and 48% had diabetes. Dyslipidemia was also common, with mean lipid values of total cholesterol- 5.34 mmol/L, triglycerides- 1.71 mmol/L, HDL-cholesterol-1.15 mmol/L, and LDL-cholesterol-3.44 mmol/L, indicating an atherogenic lipid profile. Metabolic risk indices showed comparable distributions between groups, with median TyG index values of 4.87 vs. 4.81 (p=0.600), TG/HDL-C ratios of 1.73 vs. 1.45 (p=0.771), and AIP values of 0.24 vs. 0.16 (p=0.771) in the pharmacological and renal denervation groups, respectively. A significant association was observed between glycemic status and AIP (p=0.009). Hyperuricemia was identified in 20% of patients, and serum uric acid showed a negative correlation with renal function ($\rho = -0.325$; $p = 0.021$), suggesting an association between hyperuricemia and renal impairment in this population.

Conclusions. The high prevalence of these metabolic disturbances indicates a complex cardiometabolic profile that may contribute to increased cardiovascular risk and difficulty in achieving optimal blood pressure control in the population with resistant hypertension.

Keywords. resistant hypertension, metabolic profile, renal denervation.

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30. SARCOPENIA IN ELDERLY PATIENTS AFTER STROKE

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Introduction. Stroke is a major cause of disability in elderly patients. Post-stroke sarcopenia is characterized by loss of muscle mass, decreased strength, and impaired physical performance. It develops due to immobilization, neurological deficits, inflammation, and malnutrition. The combination of sarcopenia and neurocognitive decline frequently contributes to poor functional recovery.

Aim of study. To evaluate the impact of neurocognitive decline and its association with sarcopenia on functional recovery in elderly patients after stroke.

Methods and materials. This literature review is based on 35 scientific articles published between 2015 and 2024, identified through PubMed, Scopus, MEDLINE, and ScienceDirect. This time frame was selected to reflect recent advances in the understanding, diagnosis, and management of sarcopenia, particularly following the updated EWGSOP2 criteria (2018). The selection focused on studies addressing sarcopenia, neurocognitive impairment, and functional recovery after stroke.

Results. The prevalence of sarcopenia after stroke ranges from 30% to 50%. Patients with sarcopenia have a 1.5–2-fold higher risk of poor functional recovery and increased dependency in activities of daily living. Sarcopenia is associated with a significant reduction in muscle strength and physical performance, leading to impaired mobility and an increased risk of falls. Studies report that patients with sarcopenia demonstrate lower scores in functional assessment scales, including the Barthel Index, Functional Independence Measure, and Berg Balance Scale, compared to non-sarcopenic patients. Neurocognitive decline further worsens outcomes by reducing participation and adherence to rehabilitation. Patients with combined sarcopenia and cognitive impairment show a markedly worse prognosis compared to those without these conditions. In addition, sarcopenia is linked to prolonged hospitalization (by 3–5 days) and increased rehabilitation costs (by 20–30%), reflecting its clinical and socioeconomic burden. Early identification of sarcopenia allows the implementation of targeted interventions, including resistance training, nutritional support, and multidisciplinary rehabilitation, which are associated with improved functional outcomes.

Conclusions. Sarcopenia significantly impairs functional recovery after stroke, especially when associated with neurocognitive decline. Integrated assessment of physical and cognitive status and early multidisciplinary interventions may improve outcomes and reduce long-term disability.

Keywords. sarcopenia, stroke, elderly, rehabilitation, muscle strength, cognitive impairment, functional recovery.

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31. PROGRESSIVE HEART FAILURE IN THE CONTEXT OF POST-INFLAMMATORY DILATED CARDIOMYOPATHY (POST-URTI). A CLINICAL CASE.

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Introduction. Dilated cardiomyopathy is characterized by left ventricular or biventricular enlargement and diffuse global systolic dysfunction. The prevalence is 1 in 250 individuals, with a global annual incidence of 5–8 cases per 100,000 patients. In the USA, DCM accounts for 10,000 deaths and 46,000 hospitalizations annually.

Case presentation. A 44-year-old male patient presented with progressive dyspnea and marked fatigue on mild physical exertion. In January 2025, he was diagnosed with right basal pneumonia following an acute respiratory viral infection (URTI), for which he received inpatient treatment, though he was discharged with only minor clinical improvement. The patient continued antibiotic therapy and the peroral energizer was administered intravenously twice daily. His clinical status worsened rapidly over several weeks. The patient had no prior cardiac history. Laboratory data revealed: anemia (Hb 93 g/l, Hct 32.8%), systemic inflammation (WBC 15.5x10⁹/L, ESR 30 mm/h, fibr 1.65 g/l ,kidney damage (urea 12.30 mmol/L, creatinine 113.9 µmol/L), severe hepatic cytolysis (ALT 812 U/L, AST 722 U/L), LDH 1321.7 U/L, D-dimers 4.81 mg/L, CK-MB 42.9 U/L, Troponin I 0.097 ng/ml. Liver viral markers were negative. Echo confirmed DCM with LVEF 20-25% and moderate PHT. The patient was evaluated by ECG, CT, abdominal ultrasound and repeated X-rays. The diagnosis was established: Postinflammatory dilated cardiomyopathy. Valvular insufficiency: VM gr II-III, VTr gr II-III. Heart failure III NYHA, st D ACC/AHA, with reduced EF. Bilateral pneumonia. PHT. Toxic hepatitis. Toxic renal injury. G2A1 KDIGO. Chronic anemia. Treatment was initiated with Levosimendan, Sacubitril/Valsartan, SGLT2 inhibitors, a beta-blocker, antibiotic therapy, detoxifiers, hepatoprotectors, gastroprotectors, vitamins. The patient's condition remains grave. LVEF decreased to 18% and a 16x12 mm floating apical thrombus was detected. The management was intensified with plasmapheresis, targeted antibiotics, and anticoagulants. Following this complex intervention, the patient showed slight clinical improvement, although the cardiac prognosis remained reserved (LVEF 18%).

Discussion. Viral infection is the predominant etiology of myocarditis leading to the development of post-inflammatory DCM, as demonstrated in this case. The clinical course illustrates the rapid progression of HF when specialized intervention is delayed. The case highlights critical complications of DCM, such as apical thrombosis, which significantly impact the patient's prognosis.

Conclusions. Acute viral respiratory infections can cause and promote the progression to dilated cardiomyopathy and heart failure with reduced ejection fraction. DCM carries a poor prognosis and high mortality rates, making early diagnosis and prompt therapeutic intervention essential.

Keywords. hheart failure,postviral dilated cardiomyopathy.

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32. POSTMENOPAUSAL OSTEOPOROSIS - A CHALLENGE FOR WOMEN

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Introduction. Postmenopausal osteoporosis represents a major public health problem, characterized by a reduction in bone density and an increased risk of fractures.

Aim of study. To estimateBMD changes and evaluation of fracture risk in women in the menopausal period.

Methods and materials. 98 women aged between 49 and 74 years were analyzed. The evaluation was performed based on the anamnesis. BMD was determined by the DXA method. Results. The average age of the patients is 62 ± 5.4 years, 87% with menopause at 50 ± 5.2 years, 13% - early menopause. In 73% the pain localized in the spinal region, lumbar pain being a common symptom. According to the DXA results, the mean T-score = -2.62 SD. A significant number of patients present a risk of osteoporotic fractures.

Results. The average age of the patients is 62 ± 5.4 years, 87% with menopause at 50 ± 5.2 years, 13% - early menopause. In 73% the pain is localized in the spinal region, lumbar pain being a common symptom. According to the DXA results, the mean T-score = -2.62 SD. A significant number of patients present a risk of osteoporotic fractures.

Conclusions. The clinical approach, which includes periodic assessment of fracture risk by FRAX, measurement of bone mineral density and identification of risk factors, ensures efficient and individualized management of postmenopausal osteoporosis.

Keywords. Osteoporosis, Bone mineral density, Fracture risk, Menopause.

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33. HEPATITIS B REACTIVATION AFTER TENOFOVIR DISCONTINUATION IN LYME DISEASE

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Introduction. Hepatitis B virus (HBV) reactivation is considered a complication in patients with chronic hepatitis B infection, especially when the antiviral treatment is discontinued or during immunosuppression therapy. We report a case of chronic HBV reactivation due to sudden cessation of Tenofovir and corticosteroid therapy during Lyme disease evolution in a patient who had sustained HBV for more than one year.

Case presentation. A 44-year-old male was admitted to the hospital with prolonged fever, fatigue, dark urine, and severe joint pain with swelling of the right shoulder and knee joints. Two months earlier he was diagnosed with a late disseminated stage of Lyme disease manifested by arthritis, myocarditis and neuroborreliosis, treated with high doses of corticosteroids, as antibiotic therapy proved to be ineffective. The patient also had a history of chronic hepatitis B infection that remained virologically suppressed for more than one year under treatment with Nucleoside analogue therapy. However, during Lyme disease treatment with corticosteroids and multiple intensive care admissions, the antiviral therapy was interrupted. Laboratory investigations revealed a severe cytolytic and inflammatory syndrome with mild cholestasis, characterized by markedly elevated transaminases (ALT 1500 U/L, AST 684 U/L), increased inflammatory markers (CRP 32 mg/L, ESR 36 mm/h), and mild hyperbilirubinemia (total bilirubin 2 mg/dL, direct bilirubin 1.4 mg/dL). Further serological tests, hepatitis A, C and D, autoimmune markers and bacterial infection were negative. Following this HBV DNA testing revealed significantly elevated viral levels (6,464,285 IU/mL). Treatment with nucleoside analogue therapy was initiated immediately resulting in near-complete normalization of transaminase level at the time of discharge.

Discussions. A sudden discontinuation of Nucleoside analogue therapy without monitoring can cause significant relapse of chronic hepatitis B. Simultaneously, corticosteroid treatment is also a significant risk factor for HBV reactivation because of its immunosuppressive effects.

Conclusions. The case highlights that constant antiviral therapy and close supervision among chronic hepatitis B patients who are receiving immunosuppressive therapy is important to avoid activation of HBV.

Keywords. Lyme disease, Hepatitis B reactivation, immunosuppressive therapy.

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34. CLINICAL, EVOLUTIONARY, AND DIAGNOSTIC FEATURES OF CLEAR CEREBROSPINAL FLUID MENINGITIS

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Introduction. Meningitis with clear cerebrospinal fluid (CSF) represents a diagnostic challenge in emergency medicine. Although the transparent macroscopic appearance of CSF may suggest a benign condition, it can be associated with viral, atypical bacterial, or fungal infections with significant neurological complications. In this context, accurate diagnosis increasingly relies on the integration of modern molecular diagnostic methods.

Aim of study. The aim of this study was to evaluate the clinical, epidemiological, and laboratory characteristics of meningitis with clear CSF.

Methods and materials. This retrospective clinical study included 31 adult patients diagnosed with meningitis with clear CSF, aged between 20 and 66 years, with a predominance of urban residents and a higher frequency among women. The diagnosis was established based on lumbar puncture findings, medical history, neurological examination, analysis of CSF cytological and biochemical parameters, and etiological investigation using polymerase chain reaction (PCR).

Results. Among the 31 patients with clear CSF meningitis, 28 (90.3%) were diagnosed with enteroviral etiology based on clinical and epidemiological criteria or PCR results, while 3 patients (9.7%) had herpetic etiology confirmed by PCR. All patients presented with a pronounced infectious syndrome characterized by high fever, severe headache, marked photophobia, and recurrent vomiting. Meningeal signs were attenuated, equivocal, or absent during the initial evaluation in 20 patients (64.5%). Paraclinical investigations confirmed the diagnosis, revealing CSF pleocytosis of variable intensity (20–326 cells/µL), with a clear predominance of lymphocytes (71–100%). These findings were associated with moderately elevated CSF protein levels (maximum 0.99 g/L), while glucose levels remained within physiological limits. Patients with enteroviral meningitis showed a more rapid clinical improvement compared with those with herpetic meningitis, with an average hospital stay of 10.6 and 14.5 days, respectively. The presence of comorbidities, such as decompensated diabetes mellitus, or the development of withdrawal syndromes prolonged hospitalization up to 28 days. Patients with herpetic meningitis were treated with acyclovir, whereas those with enteroviral meningitis received pathogenetic and symptomatic therapy. After discharge, some patients presented with residual asthenic–vegetative syndrome.

Conclusions. The modern management of meningitis requires going beyond clinical assessment alone by integrating rapid molecular diagnostic methods. This approach may reduce the empirical use of antibiotics and allow for more personalized treatment according to each patient's etiological diagnosis, risk profile, and comorbidities.

Keywords. serous meningitis, clear cerebrospinal fluid, lymphocytic pleocytosis, differential diagnosis, enteroviruses, neurotuberculosis, multiplex pcr.

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35. THYROID DYSFUNCTION ASSOCIATED WITH ANTICANCER IMMUNOTHERAPY: INCIDENCE AND MANAGEMENT

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Introduction. Cancer treatment has been revolutionized by the increasing use of antineoplastic agents and immunotherapy, including tyrosine kinase inhibitors (TKIs), immune checkpoint inhibitors (ICIs), and mTOR inhibitors. However, these therapies are associated with adverse effects, thyroid dysfunction being among the most common.

Aim of study. To evaluate drug-induced thyroid dysfunction in patients receiving antitumor therapy by identifying its incidence, underlying mechanisms, and therapeutic management.

Methods and materials. To achieve the proposed aim, 20 articles were reviewed and 8 relevant studies were selected from the PubMed, NCBI, and ScienceDirect databases, published between 2018 and 2024. The following keywords were used: thyroid gland, thyroid dysfunction, hypothyroidism, thyrotoxicosis, anticancer drugs, immunotherapy.

Results. Primary thyroid dysfunction is relatively frequent (30–40% of cases), occurs early during treatment, and typically manifests as hypothyroidism (7.0%-12.4%) or by thyrotoxicosis (3.2%-4.7%). Hypothyroidism is sometimes preceded by thyrotoxicosis. The proposed mechanisms include direct toxic effects on thyrocytes, reduced thyroid vascularization, impaired iodine uptake (for tyrosine kinase inhibitors) and immune-mediated cytolytic effects on thyrocytes (for immune checkpoint inhibitors). Thyroid function screening is recommended at treatment initiation, monthly during the first six months, and subsequently every 2–3 months. Management depends on biochemical findings, with hypothyroidism requiring thyroid hormone replacement therapy. Thyrotoxicosis should be treated with non-selective β-blockers in the presence of clinical symptoms. Antithyroid drug therapy is generally not recommended, except in cases of Graves' disease.

Conclusions. Thyroid dysfunction is a common adverse effect in patients receiving anticancer therapies, affecting approximately one-third of patients, most frequently manifesting as hypothyroidism. Although the underlying mechanisms vary, they ultimately lead to thyrocyte damage. Management of thyroid dysfunction depends on the type of disorder: in hypothyroidism, thyroid hormone replacement therapy should be initiated or adjusted as needed, while in thyrotoxicosis, treatment is mainly symptomatic. The occurrence of thyroid dysfunction does not require reduction or discontinuation of anticancer therapy.

Keywords. thyroid gland, thyroid dysfunction, antineoplastic agents.

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36. BETWEEN PULMONARY NEOPLASM AND ENIGMATIC FOREIGN-BODY ASPIRATION

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Introduction. Recurrent pneumonias that do not fully respond to antibiotic therapy and are complicated by pulmonary abscess raise suspicion of an underlying endobronchial obstruction and warrant consideration of malignancy in the differential diagnosis. In adults, such obstruction may be caused either by a neoplasm or by aspiration of a foreign body.

Case presentation. We report the case of a 65-year-old man, non-smoker, without significant comorbidities, admitted with obstructive bronchial syndrome and a pronounced inflammatory syndrome both clinically and paraclinically, anemia, weight loss, and only modest response to antibiotic therapy. Chest X-ray revealed a pulmonary abscess. The patient had a history of six episodes of pneumonia over the previous two years, each partially responsive to antibacterial treatment. During hospitalization, the response to triple antibiotic therapy for the abscess was poor. Therefore, video bronchoscopy was performed to establish the diagnosis and obtain a possible biopsy to exclude endobronchial neoplasm. Bronchoscopy revealed a foreign body measuring approximately 2.5 cm, a chicken sternum bone, partially obstructing the lumen of the right intermediate bronchus. The patient subsequently received antibiotic therapy guided by sensitivity testing, with significant clinical, paraclinical, and radiological improvement. Retrospective review of the chest CT scan indicated that the aspirated foreign body was potentially visible before bronchoscopy was performed.

Discussions. Foreign-body aspiration in adults is uncommon and often overlooked in the differential diagnosis of recurrent pneumonia and obstructive bronchial syndrome. In contrast to children, aspiration events in adults are frequently unwitnessed, and symptoms may be nonspecific, leading to delayed diagnosis. Persistent infection, inflammatory syndrome, and radiologic abnormalities may mimic endobronchial malignancy, particularly when recurrent pneumonias and pulmonary abscess are present. Although chest computed tomography is an important diagnostic tool, the findings may be subtle or misinterpreted. Bronchoscopy remains the diagnostic and therapeutic gold standard, allowing direct visualization and removal of the foreign body. Early recognition is essential to prevent recurrent infections and serious pulmonary complications.

Conclusions. Foreign-body aspiration in adults is rare and may mimic endobronchial pulmonary neoplasm, creating diagnostic challenges. Careful imaging analysis, thorough medical history, and invasive diagnostic procedures such as bronchoscopy are essential for identifying foreign-body aspiration and preventing recurrent pneumonias and complications such as pulmonary abscess.

Keywords. pulmonary neoplasm, foreign-body aspiration, pulmonary abscess.

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37. CONTEMPORARY ASPECTS OF ALOPECIA AREATA

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Introduction. In the treatment of alopecia areata, collaboration between doctor and patient is essential to navigate the complex landscape of treatment. This is based on shared decision-making to align treatment plans with the patient's values, preferences, and lifestyle, while addressing significant psychosocial effects through education, empathy and support.

Aim of study. This study aims to address key gaps in the academic and clinical understanding of alopecia areata to clarify pathogenesis, diagnosis, and treatment.

Methods and materials. A bibliographic study of scientific literature focusing on contemporary aspects of alopecia areata.

Results. The discovery of new molecular targets for treating different types of alopecia has been made possible by advances in understanding inflammatory processes, hormonal imbalances, stem cell dysfunction, and immune system disturbances.Although current medications such as minoxidil and finasteride have had certain advantages, their disadvantages indicate that more targeted and effective treatments are needed. While safety and efficacy continue to be the most important considerations when choosing a treatment, patient comfort is a critical component that can impact patient adherence. Particular attention was paid to assessing the quality of life of patients with alopecia areata, which is associated with a significant burden, including anxiety and depression and impairment of work and activity, especially for patients with severe forms.

Conclusions. As the scientific community advances, the hope is that these future studies will lead to the discovery and approval of more effective and safer treatments for alopecia areata, ultimately improving the quality of life for patients suffering from this condition.

Keywords. alopecia areata, innovations, treatment.

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38. HISTOPATHOLOGICAL SPECTRUM OF RENAL BIOPSIES IN THE REPUBLIC OF MOLDOVA

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Introduction. Renal biopsy remains the gold standard for the diagnosis of glomerular and tubulointerstitial diseases, providing essential information for prognosis and therapeutic decision-making. Data regarding the epidemiology of biopsy-proven kidney diseases in the Republic of Moldova remain limited.

Aim of study. To evaluate the histopathological spectrum of renal biopsies performed at the Republican Clinical Hospital "Timofei Moșneaga" during 2025 and to analyze their association with demographic and clinical characteristics.

Methods and materials. A retrospective observational study was conducted on 30 consecutive patients who underwent renal biopsy at the Nephrology Department of the Republican Clinical Hospital "Timofei Moșneaga" between January 1 and December 31, 2025. Collected variables included age, sex, proteinuria (g/L), serum creatinine (µmol/L), serum potassium (mmol/L), and histopathological diagnosis. Descriptive statistical methods were used to summarize demographic, clinical, and histological characteristics.

Results. The median age of the patients was 46 years (range: 20–75), with a slight predominance of females (53.4%). Median proteinuria was 2.64 g/L (range: 0.5–6.8). Median serum creatinine was 200.8 µmol/L (range: 50.8–1155.1), and median serum potassium was 4.65 mmol/L (range: 2.9–6.27). Histopathological findings showed a heterogeneous spectrum of kidney diseases. Among primary glomerulonephritides, membranoproliferative glomerulonephritis was the most frequent (23.3%), followed by mesangial proliferative glomerulonephritis (16.7%), minimal change disease (10.0%), focal segmental glomerulosclerosis (10.0%), membranous glomerulonephritis (6.7%), and IgA nephropathy (3.3%). Secondary glomerular diseases included renal amyloidosis (3.3%) and rapidly progressive glomerulonephritis with or without crescents (6.6%). Additional diagnoses included diabetic nephropathy (3.3%) and chronic tubulointerstitial nephritis with fibrosis (10.0%).

Conclusions. This study highlights the heterogeneous spectrum of biopsy-proven kidney diseases in patients evaluated at a tertiary nephrology center in the Republic of Moldova. Membranoproliferative glomerulonephritis represented the most frequent primary glomerular disease, while IgA nephropathy appeared relatively uncommon compared with other European cohorts. The elevated median serum creatinine at the time of biopsy suggests that many patients are referred for nephrological evaluation at advanced stages of kidney disease. These findings emphasize the important role of renal biopsy in establishing an accurate diagnosis and guiding appropriate clinical management.

Keywords. renal biopsy, glomerulonephritis, membranoproliferative glomerulonephritis, nephrology, Republic of Moldova.

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39. THE IMPACT OF THE GUT MICROBIOTA ON THYROID HEALTH

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Introduction. The gut microbiota consists of more than 100 trillion microorganisms; taxonomically, at the colonic level, Firmicutes and Bacteroidetes predominate, accounting for approximately 75% of the intestinal microbiome. Studies support the existence of a relationship between the gut microbiota and thyroid health through multiple mechanisms, the main ones being the absorption of micronutrients essential for optimal thyroid function, namely iodine, selenium, zinc, iron, and vitamin D. Another proposed mechanism is the maintenance of tight junctions in the intestinal wall, preserving luminal integrity against antigens, metabolites, and toxins.

Aim of study. To evaluate the relationship between the gut microbiota and thyroid health.

Methods and materials. A literature review based on articles published in the PubMed database between 2020 and 2025 was conducted, assessing the mechanisms through which the gut microbiota influences thyroid function.

Results. A study involving 60 adults (18–65 years) with primary hypothyroidism demonstrated that the administration of probiotics (Lactobacillus casei (7×10^9 CFU), Lactobacillus acidophilus (2×10^9 CFU), Lactobacillus rhamnosus (1.5×10^9 CFU), Lactobacillus bulgaricus (2×10^8 CFU), Bifidobacterium breve (2×10^{10} CFU), Bifidobacterium longum (7×10^9 CFU), Streptococcus thermophilus (1.5×10^{10} CFU), together with a prebiotic (fructooligosaccharides), resulted in significant improvements in thyroid function, evidenced by reduced TSH levels and decreased LT4 dosage. Other studies showed that overgrowth of the genera Mollicutes, Desulfovibrio, Intestinimonas, Ruminiclostridium, and Ruminococcaceae may increase the risk of hypothyroidism. The Enterobacteriaceae family and Veillonella were associated with elevated TSH levels, whereas Lachnospiraceae and Oscillospira were associated with lower TSH levels. Additionally, the genera Collinsella, Catenibacterium, and Bilophila were associated with an increased risk of hyperthyroidism.

Conclusions. Studies demonstrate that the gut microbiota and its metabolites influence thyroid function directly or indirectly through various immunological, metabolic, and micronutrient absorption mechanisms. Overgrowth of pathogenic bacteria may increase intestinal permeability, leading to inflammation and reduced immune tolerance; these processes are involved in the pathogenesis of autoimmune thyroiditis and thyroid cancer. Probiotics, prebiotics, and dietary modifications have potential as adjuvant therapeutic strategies in supporting thyroid gland health.

Keywords. gut microbiota, probiotics, thyroid cancer, autoimmune thyroiditis.

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40. BEYOND THE SKIN RASH: ORGANIZING PNEUMONIA SUSPECTED AFTER HERPES ZOSTER REACTIVATION.

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Introduction. Organizing pneumonia is an inflammatory lung disorder with granulation tissue plugs in the alveoli, often secondary to infections, medications, or immune conditions. Symptoms and imaging are often nonspecific. Diagnosis relies on histopathology, and most cases respond well to corticosteroids.

Case presentation. A 41-year-old patient with a remote history of herpes zoster at age 14 presented with maculopapular rash, fever (38 °C), and persistent dry cough. Recurrent herpes zoster was confirmed serologically (anti-VZV IgM and IgG), and treatment with acyclovir and acetylcysteine was initiated. Two months later, the patient developed persistent cough, low-grade fever, and chest pain. Chest CT revealed bilateral peribronchovascular and subpleural nodular opacities, predominantly in the middle and lower lobes, with several lesions showing the reversed halo ("atoll") sign suggestive of organizing pneumonia. Empiric therapy with ceftriaxone, inhaled budesonide, and montelukast plus levocetirizine was started. Due to persistent symptoms, the patient was hospitalized three weeks later. Chest radiography showed left parahilar reticulomacronodular opacities and bilateral basal infiltrates, while auscultation revealed fine basal crackles. Histopathology demonstrated Masson bodies, confirming post-infectious organizing pneumonia. Serological tests for HIV, tuberculosis, and viral hepatitis were negative. Microbiological testing revealed Enterococcus faecalis resistant to cephalosporins. Targeted treatment with amoxicillin/clavulanic acid and systemic corticosteroids (prednisolone 50 mg/day for 3 months) resulted in favorable clinical and radiological improvement. One limitation was the inability to perform bronchoscopy due to technical constraints.

Discussions. Secondary organizing pneumonia following recurrent herpes zoster is rare and requires careful evaluation. Persistent respiratory symptoms and poor response to antibiotics should prompt further investigation, particularly in younger patients. Histopathology confirmed organizing pneumonia, and favorable outcomes were achieved only after systemic corticosteroid therapy, highlighting its key role.

Conclusions. This case highlights a rare secondary organizing pneumonia following recurrent herpes zoster in a young immunocompetent patient. Persistent symptoms and poor response to antibiotics require careful evaluation. Early recognition and timely corticosteroid therapy are essential for favorable clinical and radiological outcomes.

Keywords. organizing pneumonia; secondary organizing pneumonia; herpes zoster reactivation; reversed halo sign; Masson bodies; corticosteroid therapy; antibiotic resistance.

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41.

42. ETIOLOGICAL, CLINICAL AND PARACLINICAL CHARACTERISTICS OF CHRONIC GASTRITIS

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Introduction. Chronic gastritis is a long-term inflammatory condition of the gastric mucosa and represents one of the most frequent diseases of the digestive system. In most cases, it is associated with infection caused by Helicobacter pylori, a bacterium that colonizes the gastric epithelium and induces persistent inflammatory changes. The prevalence of this infection remains high worldwide, especially in developing countries. Clinical manifestations are often nonspecific and may include epigastric discomfort, postprandial fullness, nausea, and dyspeptic symptoms. Because these manifestations are common in many gastrointestinal disorders, the diagnosis of chronic gastritis may sometimes be delayed. In certain cases, the disease may remain asymptomatic for a long period. If not properly diagnosed and treated, chronic gastritis can progress to structural changes of the gastric mucosa, including atrophic gastritis and intestinal metaplasia, conditions associated with an increased risk of gastric cancer. Therefore, understanding the etiological factors and diagnostic principles of chronic gastritis is essential for early detection and appropriate clinical management.

Aim of study. The aim of the present study was to analyze and summarize recent scientific evidence regarding the etiological factors, clinical manifestations, and diagnostic methods used in the evaluation of chronic gastritis.

Methods and materials. A narrative review of publications published between 2015–2024 was conducted using PubMed, Scopus, and Web of Science. Studies addressing chronic gastritis, Helicobacter pylori, gastric atrophy, and diagnostic methods were analyzed, focusing on etiological factors, clinical manifestations, endoscopic findings, and histopathological features.

Results. The analysis of the reviewed literature confirmed that Helicobacter pylori infection represents the main etiological factor, accounting for approximately 60–80% of chronic gastritis cases. Other contributing factors include prolonged administration of nonsteroidal anti-inflammatory drugs and autoimmune mechanisms affecting the gastric corpus. Clinical manifestations are variable and usually include epigastric pain, dyspepsia, bloating, nausea, and early satiety. Endoscopic examination may reveal mucosal erythema, nodularity, or areas of mucosal atrophy. Histopathological evaluation commonly demonstrates chronic inflammatory infiltration and progressive glandular changes.

Conclusions. Chronic gastritis is a multifactorial disorder with diverse clinical manifestations. Accurate diagnosis requires an integrated approach that combines clinical evaluation, endoscopic examination, histopathological confirmation, and laboratory testing. The use of complementary diagnostic methods facilitates correct identification of the disease and appropriate therapeutic management.

Keywords. chronic gastritis, Helicobacter pylori, endoscopy, gastric mucosa, histopathology.

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42. IMPORTANCE OF FLOW CYTOMETRY IN ACUTE LEUKEMIA

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Introduction. Acute leukemia (AL) is a hematological neoplasm, with increase of myeloblasts or lymphoblasts in the bone marrow or peripheral blood. Appropriate assessment, classification and treatment are important because of its diverse phenotype and lineage. Flow cytometry (FCM) is a highly applicable immunophenotyping method in clinical practice. It plays a significant role in differentiation of the type of Acute leukemia (AL) and minimal residual disease (MRD).

Aim of study. Studying the impact of flow cytometry based on contemporary literature.

Methods and materials. A systematic literature review was conducted using databases such as: PubMed, ResearchGate, ScienceDirect and Google Scholar. The search was conducted filtering articles that were focused on Acute leukemia.

Results. Precise classification of AL is important for its patient specific management and treatment as it has different morphology, phenotype and lineage in each patient . FCM is the most standard technology which uses specific scatter properties in identifying the subtypes of acute myeloid leukemia (AML) and acute lymphoid leukemia (ALL) as morphology and cytochemistry alone has its own limitations. It can identify aberrant phenotypes, its surface antigens, immune markers, intracellular cytokines by using two main plots, Forward scatter (FSC) were the size of the cell and Side scatter (SSC) in which internal complexity and granularity of the cell is analysed. Multiparameter flow cytometry studies the pattern of events and each specimen is run through different tubes each of B-cell markers, T-cell markers, Myeloid markers etc and is compared with the templates created. CD-45 gating, also called cornerstone in acute leukemia, is a fundamental step in differentiating AML and ALL and is the most important prognostic tool in identifying relapse. FCM identifies leukemia associated immunophenotypes (LAIP's) in rare blast cells retained even after treatment, called minimal residual disease (MRD), that helps in early detection of relapse. Studies have also shown that FCM is helpful in identifying rare pattern acute leukemias, that is approximately 1 to 5% of total AL, which can either be acute undifferentiated leukemias or mixed phenotypic leukemias(MPAL).

Conclusions. In conclusion, FCM detects surface antigens and thereby is used in providing personalised and targeted therapy by monoclonal antibodies. Rather than treatment, it is a principal diagnostic approach in detection of MRD in AML patients even after achieving complete remission after treatment.

Keywords. acute leukemia, flow cytometry, minimal residual disease, targeted therapy.

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43. CHANGES IN SEVERITY AND PROGNOSTIC SCORES AFTER DIRECT-ACTING ANTIVIRAL THERAPY IN PATIENTS WITH HEPATITIS C-RELATED CIRRHOSIS

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Introduction. The introduction of direct-acting antiviral (DAA) therapy has radically transformed the management of hepatitis C infection, achieving sustained virological response rates above 95% and significantly reducing liver-related morbidity and mortality. Unlike previous interferon-based regimens, DAA therapy can be safely administered to patients with advanced liver disease, including those with cirrhosis. Nevertheless, the extent to which viral eradication translates into measurable improvements in liver disease severity and prognostic scores in cirrhotic patients remains an important clinical question.

Aim of study. To evaluate the impact of DAA therapy on Child-Pugh and MELD scores in hepatitis C-related cirrhosis.

Methods and materials. We conducted a retrospective longitudinal observational study including 22 patients with hepatitis C-related cirrhosis treated with different DAA regimens. Only patients who achieved sustained virological response at 12 weeks (SVR12) were included. Liver disease severity was assessed using the Child-Pugh score and the MELD score (MELD-Na). Scores were recorded prior to initiation of DAA therapy and at the first available clinical examination after documented SVR12, confirmed by undetectable HCV RNA by PCR. Changes in numerical scores and transitions between Child-Pugh classes were analyzed. Paired comparisons were performed using the t-test.

Results. Improvements in both severity and prognostic scores were observed following antiviral therapy. The mean Child-Pugh score decreased from 7.45 ± 1.90 prior to treatment to 6.50 ± 1.19 after SVR12 ($\Delta = -0.95$; 95% CI −1.63 to −0.28; $p = 0.008$). Similarly, the MELD-Na score showed a significant reduction, decreasing from 10.95 ± 3.14 to 9.36 ± 2.85 ($\Delta = -1.59$; 95% CI −3.12 to −0.06; $p = 0.043$). In addition to improvements in numerical scores, analysis of Child-Pugh class transitions demonstrated a shift toward less severe disease stages. The proportion of patients classified as Child-Pugh A increased from 40.9% before treatment to 54.5% after therapy, while the proportion of patients in class C decreased from 13.6% to 4.5%. Individual class transitions showed that several patients improved their Child-Pugh stage following viral eradication.

Conclusions. Direct-acting antiviral therapy is associated with significant improvements in liver severity and prognostic scores in patients with hepatitis C-related cirrhosis who achieve SVR12. These findings highlight the potential for functional improvement of liver disease following viral eradication and support early antiviral treatment even in patients with advanced liver disease.

Keywords. DAA; hepatitis C; cirrhosis; Child-Pugh; MELD.

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44. IMAGING DIAGNOSIS OF LARYNGEAL CANCER

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Introduction. Laryngeal cancer is a significant medical and social problem, accounting for 30-40% of all head and neck malignancies and approximately 1.1% of all cancers worldwide. Its high prevalence and considerable impact on patients' quality of life require early and accurate diagnosis. Modern imaging methods play an important role in this context.

Aim of study. To analyze demographic characteristics (age and gender distribution), tumor localization, and tumor extent (T classification) in patients with laryngeal cancer, and to evaluate the diagnostic capabilities of imaging methods in tumor detection and treatment planning.

Methods and materials. This retrospective study included 50 patients with laryngeal cancer treated at the Oncology Institute of the Republic of Moldova between 01.01.2024 and 31.12.2024. The analysis was based on medical records and archived imaging data.

Results. In the group of 50 patients with laryngeal cancer, men predominated (98%). The mean age was 63.3 ± 8.4 years, with the highest incidence in the 61-70 age group (58%). Analysis of tumor localization showed that glottic tumors were the most common (64%), followed by supraglottic (30%) and subglottic tumors (6%). Regarding tumor extent, T3 tumors predominated (66%), T2 tumors were observed in 20% of cases, and T1 and T4 tumors accounted for 8% and 6%, respectively. The treatment strategy directly depended on tumor extent and included emergency tracheostomy (60%), organ-preserving surgery (24%), total laryngectomy (10%), and hospitalization only for diagnostic procedures (6%). Tomosynthesis demonstrated the presence of laryngeal masses, unilateral or bilateral thickening of the ligamentous apparatus, flattening of the laryngeal ventricles, incomplete closure of the ligamentous apparatus, involvement of the piriform sinuses, and narrowing of the laryngeal lumen. Lateral radiography revealed signs of perichondritis and was used to evaluate indications for radiotherapy. Computed tomography showed masses with irregular contours, luminal narrowing, diffuse infiltration of the laryngeal walls and adjacent tissues, involvement of laryngeal cartilages, and heterogeneous contrast enhancement. Magnetic resonance imaging highlighted diffuse asymmetric thickening of the laryngeal walls with infiltration of adjacent tissues and paralaryngeal fat, luminal narrowing, involvement of the thyroid cartilage, and heterogeneous contrast enhancement, allowing a more detailed evaluation of tumor spread.

Conclusions. Modern imaging methods allow assessment of tumor localization and extent in laryngeal cancer, which is crucial for selecting the most appropriate treatment strategy.

Keywords. laryngeal cancer, imaging, computed tomography, magnetic resonance imaging.

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45. GENETICALLY CONFIRMED AUTOSOMAL DOMINANT POLYCYSTIC KIDNEY DISEASE TYPE 1 (PKD1)

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Introduction. Autosomal dominant polycystic kidney disease (ADPKD) is the most common inherited kidney disorder and accounts for approximately 5–10% of cases of end-stage kidney disease worldwide. Mutations in the PKD1 gene are associated with a more severe phenotype and faster disease progression compared with PKD2 variants. Molecular diagnosis and systematic family screening play an important role in identifying affected individuals at early stages and enabling appropriate clinical monitoring.

Case presentation. We report the case of a 31-year-old female with a family history consistent with ADPKD. Her father progressed to end-stage kidney disease and underwent kidney transplantation at the age of 50, while her sister was diagnosed with ADPKD at the age of 12. The disease was detected in the patient at the age of 25 during family screening. She presented with intermittent bilateral lumbar pain, dysuria, and occasional episodes of hematuria. Since 2019, the patient has been receiving ACE inhibitor therapy for nephroprotection. Laboratory tests showed preserved kidney function, with serum creatinine of 61.8 µmol/L and an estimated glomerular filtration rate >90 ml/min/1.73 m², corresponding to CKD stage G1 according to KDIGO classification. Hematological parameters and inflammatory markers were within normal limits. Dyslipidemia was identified, with total cholesterol of 5.74 mmol/L, LDL cholesterol 3.99 mmol/L, and triglycerides 3.61 mmol/L. Abdominal magnetic resonance imaging revealed bilaterally enlarged kidneys with multiple diffusely distributed intraparenchymal cysts. The maximal longitudinal renal diameter measured 12.4 cm for the right kidney and 17.0 cm for the left kidney. The largest cysts measured 32×43 mm in the right kidney and 57×48 mm in the lower pole of the left kidney. Extrarenal findings included hepatomegaly associated with diffuse hepatic steatosis.

Discussions. Genetic testing performed in a specialized center in Iași identified a heterozygous pathogenic variant in the PKD1 gene (c.2702G>A, p.Trp901*), classified by ACMG criteria as a class V pathogenic variant. This nonsense mutation introduces a premature stop codon, causing truncation of the polycystin-1 protein and loss of function, a mechanism associated with a more severe ADPKD phenotype and faster disease progression. Molecular confirmation is particularly important in patients detected through family screening, enabling early diagnosis, improved prognostic stratification, and appropriate clinical follow-up.

Conclusions. This case highlights the importance of family screening and molecular genetic testing for early identification of ADPKD, even with preserved kidney function. Integration of imaging and genetic data enables accurate diagnosis, prognostic assessment, and appropriate monitoring to slow disease progression and reduce cardiovascular risk.

Keywords. ADPKD; PKD1; genetic; family screening.

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46. AUTOIMMUNE POLYGLANDULAR SYNDROME TYPE II

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Introduction. Autoimmune Polyglandular Syndrome type II (APS-2) is a clinical entity characterized by the coexistence of autoimmune endocrinopathies in the same patient. The diagnosis is established when two of the following endocrine disorders are present: Addison's disease (AD), autoimmune thyroid disease (Hashimoto's thyroiditis or Graves' disease), and type 1 diabetes mellitus (T1DM). It usually develops between 20 and 40 years of age and is more common in females.

Aim of study. To present APS-2 by describing its pathophysiology, clinical manifestations, diagnostic methods, and treatment.

Methods and materials. Relevant articles, including meta-analyses and observational studies published in recent years on APS-2, were analyzed using the PubMed, EMBASE, and ScienceDirect databases.

Results. APS-2 has a polygenic genetic basis, determined by susceptibility variants in the HLA/MHC region on chromosome 6, together with non-HLA variants involved in immune regulation. Environmental factors, such as radiation exposure and vitamin D and selenium deficiency, may also contribute to the loss of immune tolerance and autoimmune inflammation, leading to lymphocytic infiltration of endocrine organs and their dysfunction. Clinical manifestations depend on the endocrinopathies present. AD is characterized by cutaneous and mucosal hyperpigmentation, hypoglycemia, arterial hypotension, weight loss, fatigue, generalized weakness, abdominal pain, diarrhea, nausea, and vomiting. T1DM presents with hyperglycemia, polydipsia, and polyuria. Hypothyroidism manifests with bradycardia, constipation, dry skin, and edema, whereas hyperthyroidism presents with tachycardia, sweating, and increased nervous excitability. The diagnosis of APS-2 is confirmed by the association of autoimmune endocrinopathies. AD is confirmed by low morning serum cortisol and aldosterone, elevated ACTH, absent cortisol response after ACTH stimulation, and specific antibodies. Autoimmune thyroiditis and Graves' disease are confirmed by specific antibodies (anti-TPO, anti-TG, TRAb). Hypothyroidism and hyperthyroidism are confirmed by decreased or increased thyroid hormone levels. Elevated blood glucose and HbA1c, together with specific antibodies such as anti-GAD confirm T1DM. Treatment depends on the APS-2 components and the patient's functional status and is primarily based on replacement therapy for endocrine insufficiency (Addison's disease, hypothyroidism, and type 1 diabetes mellitus).

Conclusions. APS-2 is a complex disorder caused by the interaction between genetic susceptibility and environmental factors, leading to multiple endocrine dysfunctions. Its clinical presentation is variable and depends on the associated endocrinopathies. Diagnosis is based on specific hormonal and immunological investigations. Individualized hormone replacement therapy is essential for prognosis.

Keywords. Autoimmune Polyglandular Syndrome type II, autoimmune endocrinopathies, Addison's disease.

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47. WHEN HEART FAILURE UNMASKS A RARE INFILTRATIVE CARDIOMYOPATHY: A CASE OF AL AMYLOIDOSIS

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Introduction. Primary light-chain (AL) amyloidosis is a rare systemic disorder caused by extracellular deposition of amyloid fibrils derived from immunoglobulin light chains. Cardiac involvement occurs in most patients and represents the main determinant of prognosis, typically manifesting as a rapidly progressive infiltrative cardiomyopathy. Diagnosis is often delayed because early manifestations are nonspecific and frequently attributed to more common diseases.

Case presentation. A 59-year-old male was admitted to the Institute of Cardiology in October 2025 for exertional dyspnea, recurrent syncope, blood pressure fluctuations, peripheral paresthesias, dyspeptic symptoms, severe fatigue, and unintentional weight loss. His history included arterial hypertension and diabetes mellitus with poor treatment adherence. Symptoms began in December 2024 after an acute respiratory infection followed by purpuric skin lesions. Progressive exercise intolerance, gait disturbances, and recurrent syncope subsequently developed, accompanied by labile blood pressure resistant to antihypertensive therapy. Physical examination revealed pale skin, expressionless facies, moderate macroglossia with dental impressions, muscular hypotrophy, and mild lower-limb edema. Cardiac auscultation detected an apical systolic murmur. Laboratory tests showed anemia, renal impairment with proteinuria, hypoalbuminemia, and markedly elevated NT-proBNP (13.055 ng/mL). Electrocardiography demonstrated sinus rhythm (73 bpm) with low QRS voltage. Transthoracic echocardiography revealed interventricular septal hypertrophy (21 mm) without left ventricular outflow tract obstruction, increased myocardial echogenicity, diastolic dysfunction, and moderate pericardial effusion with right atrial collapse. Serum immunofixation confirmed a significant imbalance of immunoglobulin light chains. Congo red staining of a gingival biopsy demonstrated amyloid deposits, while cardiac magnetic resonance imaging showed concentric hypertrophy with diffuse late gadolinium enhancement, confirming cardiac amyloidosis. The patient was referred to hematology but died 3.5 months after initiation of chemotherapy.

Discussions. This case illustrates the multisystemic nature of AL amyloidosis and the diagnostic delay caused by nonspecific symptoms. The association of ventricular hypertrophy with low QRS voltage, progressive heart failure, peripheral neuropathy, and extracardiac features such as macroglossia or purpura should raise suspicion for infiltrative cardiomyopathy.

Conclusions. Early recognition of red flags for infiltrative cardiomyopathy is essential for timely diagnosis and initiation of disease-specific therapy. Delayed diagnosis in AL amyloidosis is associated with rapid progression and poor prognosis.

Keywords. AL amyloidosis, infiltrative cardiomyopathy, heart failure, macroglossia, cardiac imaging.

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48. POLYPHARMACY AND COMORBIDITIES IN ELDERLY PATIENTS WITH GERD

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Introduction. Gastroesophageal reflux disease (GERD) is one of the most common digestive disorders among elderly individuals, with an estimated prevalence of 17–23%. Aging is frequently associated with multimorbidity, whose prevalence may reach 60–75% in individuals aged ≥65 years. In this context, the concomitant use of multiple medications becomes common. Moreover, polypharmacy, defined as the use of at least five medications, has the potential to influence the progression and severity of GERD.

Aim of study. The aim of this study is to analyze how comorbidities and polypharmacy contribute to the development of GERD in older patients, and to draw attention to how specific drug classes affect the development or exacerbation of reflux symptoms.

Methods and materials. Based on clinical studies and meta-analyses found in the PubMed, Google Scholar, and Mendeley databases about the connection between multimorbidity, polypharmacy, and GERD in older patients, published between 2023 and 2026, this study is a narrative review of the literature.

Results. GERD in elderly patients is frequently associated with multiple comorbidities, particularly cardiovascular diseases, chronic respiratory conditions, rheumatologic, digestive, and neurological disorders, as well as diabetes mellitus. The management of these conditions often requires the use of several classes of medications, including nonsteroidal anti-inflammatory drugs and corticosteroids (which may irritate the esophageal mucosa), calcium channel blockers and nitrates (which reduce lower esophageal sphincter tone), tricyclic antidepressants and anticholinergic drugs (which impair gastrointestinal motility and esophageal clearance), as well as benzodiazepines and bronchodilators that may promote reflux episodes through relaxation of esophageal smooth muscle.In patients with diabetes mellitus, metformin is frequently associated with gastrointestinal disturbances, while diabetic autonomic neuropathy may lead to gastroparesis and delayed gastric emptying. GERD treatment commonly includes proton pump inhibitors, alginates, antacids, and prokinetics, which increases the complexity of therapy.The concomitant use of these medications with treatments for comorbidities may lead to pharmacological interactions and adverse effects, such as gastrointestinal disturbances, hypomagnesemia, reduced absorption of certain nutrients or drugs (vitamin B12, iron, calcium), and alterations in hepatic metabolism.These effects may worsen symptoms and increase the risk of complications, including erosive esophagitis, esophageal strictures, or Barrett's esophagus.

Conclusions. The course and intensity of GERD in older patients may be influenced by comorbidities and several pharmaceutical treatments. Optimizing disease management and preventing complications requires careful pharmacotherapy evaluation, drug interaction monitoring, and interdisciplinary teamwork.

Keywords. GERD, polypharmacy, comorbidities, elderly, management.

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49. ASSESSMENT OF THE RISK OF ADVERSE EFFECTS OF NON-STEROIDAL ANTI-INFLAMMATORY DRUGS AND MANAGEMENT OF PATIENTS WITH OSTEOARTHRITIS IN THE PRESENCE OF CERTAIN CONTRAINDICATIONS.

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Introduction. Osteoarthritis is the most common form of arthritis and a major contributor to chronic pain, physical limitation, and reduced quality of life. Global estimates showed that 595 million people were living with osteoarthritis in 2020, equivalent to 7.6% of the world's population. Because osteoarthritis frequently coexists with cardiovascular, gastrointestinal, renal, and metabolic disorders, selection of symptomatic treatment is often complicated by contraindications and safety concerns. NSAIDs remain among the most widely used drugs for pain control; therefore, careful evaluation of their benefit-risk profile is essential.

Aim of study. To evaluate the therapeutic role and safety limitations of NSAIDs in osteoarthritis, with emphasis on efficacy, major adverse effects, contraindications, and identification of patients at increased risk of complications.

Methods and materials. A descriptive analytical review of the literature was performed using peer-reviewed articles and guideline-based documents published between 2019 and 2025. The selected sources addressed osteoarthritis burden, NSAID efficacy, contraindications, and gastrointestinal, cardiovascular, renal, hepatic, and hypersensitivity-related adverse effects. Data were processed by comparison, synthesis, and critical interpretation.

Results. Current clinical guidelines support the use of topical NSAIDs for knee OA and oral NSAIDs for knee and hip OA when no contraindications are present, as these agents improve pain and physical function. Nevertheless, their use is limited by clinically significant adverse effects affecting the gastrointestinal, cardiovascular, renal, and hepatic systems, as well as hypersensitivity reactions. Guidelines recommend prescribing the lowest effective dose for the shortest possible duration and adding gastroprotective therapy when oral NSAIDs are used. A 2024 real-world cohort study showed that about 30% of newly diagnosed knee or hip OA patients had at least one contraindication or precaution for oral NSAID use, while 21% of those with contraindications still received these medications. The highest risk of complications was observed in older adults and in patients with peptic ulcer disease, chronic kidney disease, hypertension, ischemic heart disease, heart failure, liver dysfunction, or concomitant use of anticoagulants, antiplatelet agents, or corticosteroids.

Conclusions. NSAIDs remain important in osteoarthritis management, but their use should be individualized rather than routine. Safer prescribing requires recognition of contraindications, preference for topical therapy when appropriate, use of the lowest effective dose for the shortest possible duration, gastroprotection with oral NSAIDs when indicated, and monitoring of high-risk patients.

Keywords. osteoarthritis, NSAIDs, adverse effects, contraindications, patient safety.

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50. THE DILEMMA OF DIFFUSE PULMONARY DISEASE: THE OBVIOUS DIAGNOSIS IS NOT ALWAYS THE CORRECT ONE

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Introduction. Diffuse pulmonary disease represents one of the most challenging issues in clinical pulmonology in terms of diagnosis and treatment. Nonspecific clinical manifestations, absence of clear pathognomonic symptoms, and insufficient information from imaging studies are just a few of the problems clinicians face when performing a differential diagnosis in this group of diseases.

Case presentation. We analyzed two clinical cases admitted in IMSP, IP Chiril Draganiuc, Chisinau , initially with suspected pneumonia and differential diagnosis with pulmonary tuberculosis: Case 1: A 40-year-old man admitted to the intensive care, reported an insidious onset of dyspnea, progressively worsening over 5-6 months, accompanied by weight loss (5 kg), and periodic gum bleeding. Seven days prior to admission, he developed an inflammatory syndrome with fever (39˚C), fatigue, arthralgia, serous rhinorrhea and hemoptysis. A chest CT scan that revealed disseminated lesions with cavitations predominantly in the apical segments on the left side. Case 2: A 28-year-old woman presenting with a productive cough with hemoptysis and weight loss of 30 kg over 6 months. She had previously been treated for right-sided pneumonia without positive response, with radiological progression under antibiotic therapy. A "subtotal opacification" of the right lung and a positive c-ANCA (PR3) test unmasked the true diagnostic: Granulomatosis with Polyangiitis (GPA).

Discussions. The elements that guided the diagnosis in both cases were extrapulmonary manifestations such as gingival bleeding, arthralgias, and ENT(otolaryngology) involvement in the first case, otitis media with hearing loss in the second. Paraclinical findings revealed marked inflammatory syndrome, progressive anemia, and decisively, positive anti-neutrophil cytoplasmic antibodies (c-ANCA) (anti-PR3 >160). Imaging patterns in both patients showed polymorphic findings, ranging from cavitary nodules to diffuse alveolar infiltrates (alveolar hemorrhage confirmed by fiberoptic bronchoscopy in case 2). On a background of pulse therapy (Methylprednisolone 1000 mg) and Cyclophosphamide, both patients showed good clinical and radiological evolution.

Conclusions. These cases illustrate the diagnostic challenges and the need of a holistic approach when facing a diffuse pulmonary disease that is not responding to standard antimicrobial therapy and is suspected of tuberculosis. The absence of initial renal involvement, although is a good prognostic factor and it does not exclude the diagnosis of GPA. Considering assessment of autoimmune markers in atypical “pneumonia” is essential for improving long-term survival.

Keywords. Granulomatosis with Polyangiitis (GPA), Diffuse Pulmonary Disease, Anti-neutrophil Cytoplasmic Antibodies (c-ANCA).

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51. IMPLEMENTATION OF AUGMENTED REALITY (AR) IN THE PLANNING OF NEUROSURGICAL INTERVENTIONS

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Introduction. In recent years, significant progress has been made in the development of augmented reality (AR) technologies for preoperative visualization, surgical navigation, and intraoperative guidance in neurosurgery. AR has the potential to support complex neurosurgical interventions by seamlessly integrating visual information. We conducted a systematic analysis to provide an overview of the evaluation criteria reported for AR technologies in neurosurgical practice and to establish a foundation for assessing and comparing such technologies.

Aim of study. The aim of the study is to analyze and evaluate the implementation of augmented reality (AR) in the planning of neurosurgical interventions, highlighting its impact on surgical precision, patient safety, and the efficiency of the operative process.

Methods and materials. A review was conducted of articles published in international databases (PubMed, ScienceDirect, Scopus, Web of Science) during the period 2014–2025. Search terms included: "augmented reality," "neurosurgery," "surgical planning," "AR-guided surgery," "3D visualization," and "neuronavigation".

Results. Recent studies highlight that AR enables a better three-dimensional understanding of cerebral and vascular structures, allowing neurosurgeons to simulate the procedure prior to performing it. Integration of AR with neuronavigation systems and imaging data provides precise mapping of lesions and eloquent brain areas, improving orientation in complex cases such as deep tumor resections, arteriovenous malformations, or treatment of refractory epilepsy. AR contributes to reducing surgical time, lowering the risk of damaging functional structures, increasing the rate of complete lesion resection, and thereby improving postoperative neurological prognosis.

Conclusions. Augmented reality is a promising technology with the potential to fundamentally transform the way neurosurgical interventions are planned and executed. Its implementation in clinical practice enhances the precision, safety, and efficiency of procedures, bringing benefits to both patients and surgical teams. The expansion of its use depends on the accessibility of the technology, its effective integration with existing systems, and validation through large-scale clinical studies. Thus, AR is emerging as an essential component of modern neurosurgery in the transition toward digitally guided surgery.

Keywords. augmented reality, neurosurgery, preoperative planning, neuronavigation, 3D visualization, digitally assisted surgery, advanced medical technology.

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52. PROGRESSIVE CEREBELLAR AND AUTONOMIC DYSFUNCTION IN MSA-C: A CASE REPORT

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Introduction. Multiple system atrophy (MSA) is a progressive adult-onset neurodegenerative disorder, an alpha-synucleinopathy characterized by combinations of autonomic failure, cerebellar syndrome, and parkinsonism. According to the 2022 Movement Disorder Society (MDS) international consensus criteria, clinically established MSA requires autonomic failure, a compatible motor syndrome, and supportive neuroimaging findings. The cerebellar subtype (MSA-C) is dominated by progressive cerebellar dysfunction and gait impairment.

Case presentation. We report a 61-year-old patient diagnosed with clinically established MSA-C according to the MDS 2022 criteria. The patient presented with a 2.5-year history of progressive gait instability and imbalance. Initial symptoms included unsteadiness while walking and difficulty maintaining balance, especially during turns, accompanied by occasional dizziness and mild coordination difficulties. Symptoms gradually progressed to cerebellar ataxia characterized by a wide-based gait, dysmetria, intention tremor, impaired coordination and dysarthria. During the second year, neurological impairment became more pronounced, with marked gait ataxia requiring support for ambulation, postural instability with frequent near-falls, and worsening limb incoordination. Progressive autonomic dysfunction developed, including episodic documented orthostatic hypotension. Neurological examination revealed severe cerebellar syndrome with astasia, ataxia, dysmetria, dysdiadochokinesia, and dysarthria. Bulbar syndrome was also present (dysphonia, dysphagia, dysarthria), together with bilateral pyramidal signs. Brain MRI demonstrated olivopontocerebellar atrophy. For differential diagnosis, extended laboratory and immunological testing was performed. Paraneoplastic antibodies (anti-Hu, anti-Yo, anti-Ri), anti-GAD antibodies, tumor markers (CEA, PSA), and the antinuclear antibody panel were negative.

Discussions. MSA-C is characterized by progressive cerebellar dysfunction associated with autonomic failure and additional neurological signs. This case illustrates the gradual evolution from early gait instability to severe cerebellar impairment with bulbar dysfunction and pyramidal signs. The presence of autonomic failure and characteristic MRI findings supports the diagnosis of clinically established MSA-C according to current criteria.

Conclusions. This particular case highlights the progressive nature and the multisystem involvement of the MSA-C. In order to have a timely diagnosis and the appropriate management it is essential to have an early recognition of cerebellar symptoms associated with autonomic dysfunction.

Keywords. MSA-C, multiple system atrophy, autonomic dysfunction, differential diagnosis.

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53. SENSITIZATION TO PROFILINS IN PATIENTS WITH ALLERGIC PATHOLOGIES IN THE REPUBLIC OF MOLDOVA

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Introduction. Profilins are widely distributed panallergens, present in various plants, pollens, and foods. They can cause diverse clinical manifestations and extensive cross-reactivity. There is a high degree of heterogeneity in the types of reactions that patients allergic to profilins may develop, ranging from mild reactions such as oral allergy syndrome to severe reactions such as anaphylactic shock. These patients may also experience reactions after contact with only a single source of profilins, or they may develop similar reactions triggered by multiple sources.

Aim of study. Characteristics of profilin sensitization among patients with allergic rhinitis and asthma in the Republic of Moldova evaluated in an outpatient allergy clinic.

Methods and materials. For this study, 325 patients presenting with allergic rhinitis and asthma were tested. The profilin sources used for testing included melon (Cuc m 2), goosefoot (Mer a 1) and timothy grass (Phl p 12) .

Results. Of the 325 patients tested, 55% were female and 45% were male. Subjects aged 18 years and older accounted for 83%, while those under 18 years of age represented 17%; the mean age was 34 years. Of the total number of patients, 39 (12%) were sensitized to profilins. The profilin molecules to which patients were sensitized were melon profilin Cuc m 2- 12% of total patients , goosefoot Mer a 1- 10% , and timothy grass Phl p 12- 9% .

Conclusions. Sensitization to profilins is common in patients with allergic rhinitis in the Republic of Moldova, confirming their role as relevant panallergens. Diagnosis of these proteins is essential for personalized treatment and improved clinical management of allergic disease.

Keywords. profilins, sensitization, panallergens, reactivity.

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54. GLUT1 DEFICIENCY SYNDROME: FROM CLINICAL PRESENTATION TO EARLY THERAPEUTIC INTERVENTION. LITERATURE REVIEW

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Introduction. Glucose transporter type 1 (GLUT1) deficiency syndrome is a neurometabolic disorder which occurs in the first months of life and is caused by mutations in the SLC2A1 gene. The incidence in Europe represents 2:100.000 live births. Some studies have shown that SLC2A1 mutations can be found in approximately 1.4% of cases of genetic generalized epilepsy and in 13% in the context of early-onset absence epilepsy. In this syndrome, the central nervous system can utilize ketone bodies as an alternative energy source, which crosses the blood–brain barrier via monocarboxylate transporter 1. Thus, it is necessary to initiate the ketogenic diet (KD) as early as possible, the first-line treatment, aiming to prevent or reduce long-term neurological impairment.

Aim of study. Identification of the specific clinical manifestation of GLUT1 deficiency syndrome, in the pediatric population, referral for genetic testing and early initiation of the KD.

Methods and materials. A comprehensive literature search of PubMed, Scopus, Web of Science, and Up to Date databases was conducted, and analyzed scientific articles including clinical trials and meta-analyses published between 2019-2026. Keyword filters were applied - GLUT1, epilepsy, ketogenic diet. Out of the 1622 articles submitted, 250 met the research criteria.

Results. GLUT1 deficiency syndrome is an early-onset encephalopathy during the first year of life, with three cardinal features: severe epilepsy (90%), a complex movement disorder (85%), and microcephaly (70%). A distinctive sign is the aberrant gaze saccades, reported in 50% of patients, characterized by multidirectional and bilateral saccadic eye movements, usually accompanied by ipsilateral head movements. It may precede the onset of seizures by several months. Five types of epileptic seizures have been described: generalized tonic or clonic (53%), absences (49%), myoclonic (27%), atonic (26%). In most cases, epileptic seizures are drug-resistant. The most commonly reported motor manifestations are: ataxia (89%), dystonia (86%), and spasticity (12%). It was demonstrated that the initiation of KD had a positive effect on epileptic seizures in 83% and in 52% they disappeared. Movement disorders improved in 69% and disappeared in 13%. Cognition improved by 59% but no significant effects were seen on microcephaly.

Conclusions. GLUT1 deficiency syndrome includes a variety of clinical manifestations, but still presents something very suggestive: such as abnormal eye-head movements and drug-resistant seizures that begin early in life. Early specific clinical signs, such as intermittent gaze deviation, should suggest the pediatrician to refer the patient for genetic testing and to initiate early KD therapy.

Keywords. GLUT1 deficiency, ketogenic diet, epilepsy.

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55. TUBERCULOSIS ACTIVATION UNDER BIOLOGICAL TREATMENT WITH ANTI-TNFA IN ULCERATIVE COLITIS.

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Introduction. Tuberculosis activation is a major complication of anti-TNF biological therapy in patients with inflammatory bowel disease. Endemic regions studies estimate a risk of 8–19% for the development of tuberculosis in patients undergoing anti-TNF treatment. Adalimumab interferes with the integrity of the tuberculous granuloma, facilitating the reactivation of latent M.tuberculosis through "reverse signaling" of membrane TNF(tmTNF) and by increasing TGF-β1, favoring bacillary replication. TNF-blockers also reduce the inflammatory immune response.

Case presentation. 27-year-old patient, diagnosed in October 2023 with ulcerative colitis with pan-colonic involvement, characterized by frequent relapses and severe activity, complicated by pathological stenosis in the distal descending colon. In November 2023, anti-TNF therapy with adalimumab was initiated after a negative screening for tuberculosis. After 9 months of treatment, the patient discontinued therapy due to the appearance of cough, chest pain and fever, and was subsequently diagnosed with tuberculosis with multiple localizations: infiltrative pulmonary TBC (GeneXpert MTB/RIF positive, RIF sensitive), bronchial TBC and paratracheal adenopathy confirmed histologically. Antituberculosis treatment was instituted according to the RIPE scheme for 9 months, with favorable evolution and declaration of cure. Two months after completing antituberculosis therapy, the digestive symptoms worsened, with up to 10 diarrheal stools/day, with mucus and blood, and abdominal pain in the left iliac fossa, the patient being admitted to the Gastroenterology unit of the Republican Clinical Hospital. Based on anamnesis and investigations performed: colonoscopy and histological examination, coprological examination and tumor markers (CEA, AFP, CA 19-9, CA 72-4), immunosuppressive therapy with azathioprine 50mg twice daily was initiated for a period of 2 months, associated with prednisolone 20mg/day for 2 weeks, with progressive dose reduction. Subsequent reassessment of the therapeutic response is planned.

Discussions. This is the case of a young patient with severe ulcerative colitis in whom adalimumab therapy led to reactivation of latent tuberculosis, emphasizing that the infectious risk is not eliminated after an initial negative screening. This highlights the need for continuous clinical and paraclinical monitoring throughout anti-TNF biological treatment, not only in the pre-therapeutic phase.

Conclusions. Anti-TNF therapy in patients with severe ulcerative colitis carries a significant risk of reactivation of latent tuberculosis, requiring rigorous screening before initiation and monitoring during treatment. The sequential therapeutic approach: complete antituberculosis treatment, followed by transition to azathioprine, allowed control of inflammatory disease activity without tuberculosis activation risk.

Keywords. ulcerative colitis, tuberculosis, adalimumab, antiTNF.

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56. HORMONAL MODULATION OF STROKE RISK IN YOUNG WOMEN WITH MIGRAINE WITH AURA: THE ROLE OF ESTROGEN AND NEUROVASCULAR MECHANISMS.

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Introduction. Migraine with aura (MA) is associated with an increased risk of ischemic stroke, especially in young women (<45 years). The available evidence suggests that hormonal factors, in particular estrogen, play an important role in modulating this risk, which is often underestimated in clinical practice.

Aim of study. To analyze the interaction between migraine with aura, estrogen exposure, and stroke risk interact in young women, with a focus on the underlying mechanisms that may link these conditions.

Methods and materials. Articles from the PubMed and Google Scholar databases (2016-2026) were selected and analyzed using the keywords: "migraine with aura", "estrogen", "cortical spreading depression", "ischemic stroke" and "CGRP".

Results. MA is characterized by a spreading depression of the cerebral cortex (CSD), a wave of neuronal and glial activity that temporarily disrupts blood flow in the brain and creates conditions conducive to ischemia. Alterations in estrogen levels affect the excitability of neurons, alter the balance of neurotransmitters, and make the cerebral cortex more sensitive to CSD, increasing both the frequency and intensity of auras. Moreover,external sources of estrogen, such as combined oral contraceptives, can additionally affect endothelial function, limit nitric oxide-mediated vasodilation, and promote the development of prothrombotic conditions. Hormonal effects also affect the vascular system of the trigeminal nerve, stimulating the release of vasoactive neuropeptides such as CGRP, which can increase vascular inflammation and instability of cerebral blood flow. The combined effect of neuronal hyperactivity, endothelial dysfunction, changes in the blood coagulation system, and increased neuropeptide signaling probably contributes to an increased risk of stroke observed in young women with MA.

Conclusions. Migraine with aura is a complex neurovascular disease with complex physiopathogenesis in which estrogen plays an important role by increasing the excitability of neurons, altering vascular function and affecting blood clotting, increasing the risk of ischemic stroke in young women. Therefore, understanding these mechanisms is of clinical importance for risk assessment, the development of preventive strategies and correct management.

Keywords. migraine with aura, estrogen,cortical spreading depression, Ischemic stroke, CGRP.

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57.

58. IMPORTANCE OF MULTIMODAL IMAGING IN THE DIAGNOSIS OF NON-TRAUMATIC ORBITAL PATHOLOGIES IN ADULTS.

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Introduction. Non-traumatic orbital pathologies in adults are a broad group of diseases classified into inflammatory, infectious, vascular, and tumoral. Due to the small size of the orbit, it was difficult to make a diagnosis, and this can lead to severe complications. However, thanks to modern imaging techniques, it is easily and rapidly detected. This benefits doctors by establishing localization, characterization of the disease, and improved management.

Aim of study. Highlight the importance of radiological imaging to make a precise, fast diagnosis and the ability to distinguish between the diseases.

Methods and materials. This established literature review is based on scientific databases like PubMed, the National Library of Medicine, and the American Academy of Ophthalmology, published in the last 10 years, that examine imaging diagnosis in non-traumatic orbital pathologies in adults.

Results. Imaging is essential to localize pathologic processes within the eye socket and recognize its limits and constituents. Computer Tomography (CT) is typically used to identify bone structure and calcification; however, CT with intravenous contrast improves the detection of inflammatory, vascular, and tumoral lesions by intensifying soft tissue contrast and enhancing representation of inflammatory modifications, vascularization, and tumoral borders. On the other hand, Magnetic Resonance Imaging (MRI) offers high-quality multiplanar imaging of soft tissue, muscles of the orbit, and the lacrimal gland and uses different sequences, T1 and T2, making localization and characterization of pathology more precise. Orbital ultrasonography is the first-line imaging modality; it is characterized by its rapidity, accessibility, and safety due to the absence of ionizing radiation, and it helps to differentiate between solid, cystic, and vascular lesions based on echogenicity.

Conclusions. Imaging takes a fundamental responsibility in the diagnosis of non-traumatic orbital diseases in adults. CT, MRI, and ultrasonography in combination can provide an accurate assessment to achieve an appropriate management tactic for orbital pathology patients. The key element is to pick the right method of investigation for initial diagnosis and, if necessary, to overlap different methods of imaging for follow-up studies.

Keywords. Orbital Imaging, non-traumatic orbital pathologies, Computer Tomography (CT), Magnetic Resonance Imaging (MRI), Ultrasonography (USG).

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58. CLINICAL, PARACLINICAL AND THERAPEUTIC ASPECTS OF ASCITIC SYNDROME IN LIVER CIRRHOSIS

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Introduction. Ascites is a frequent complication of liver cirrhosis that usually reflects the decompensation of the disease. The presence of ascites is a negative prognostic indicator, being associated with an increased risk of severe complications and high mortality, thus requiring early diagnosis and personalized treatment.

Aim of study. Evaluation of the clinical, paraclinical and therapeutic aspects of ascitic syndrome in patients with liver cirrhosis.

Methods and materials. The study included 103 patients with liver cirrhosis and ascites of varying severity, confirmed clinically and by imaging, consecutively hospitalized in the Hepatology Department of the Republican Clinical Hospital "Timofei Moșneaga", Chisinau, Republic of Moldova, between March and August 2025. The study group included 56 men (54.37%) and 47 women (45.63%), with a mean age of 57.86 ± 9.77 years.

Results. The patients included in the study group (n=103) were diagnosed with liver cirrhosis and different grades of ascites, the majority presenting grade III ascites, identified in 59 patients (57.28%). Grade II ascites was diagnosed in 30 patients (29.13%), while grade I ascites was identified in 14 patients (13.59%). The most frequent etiology was toxic-metabolic cirrhosis (30.1%), followed by the association of viral (HBV) and toxic-metabolic etiology (28.2%), indicating the major role of combined etiological factors in disease decompensation and the development of ascites. Refractory ascites was identified in 43 patients (41.7%) with grade III ascites, thus requiring repeated paracentesis for the evacuation of ascitic fluid. From the total group of 59 patients with grade III ascites, evacuative paracentesis was performed in 52 (88.13%) patients, while intravenous albumin substitution was required in 26 (44.07%) patients. In these 26 patients with grade III ascites, the median intravenous albumin dose was 30.0 g (Q1–Q3: 20.0–57.5 g), and the median volume of evacuated ascitic fluid was 14.5 L (Q1–Q3: 11.0–22.75 L). Serum albumin in this sublot had a median of 26.0 g/L (Q1–Q3: 23.75–28.55 g/L) ($p < 0.001$). In contrast, in those 7 (11.86%) patients without paracentesis but who required albumin administration, the median dose was 20.0 g (Q1–Q3: 20.0–40.0 g), while the median serum albumin was 19.5 g/L (Q1–Q3: 17.9–21.9 g/L) ($p < 0.05$).

Conclusions. Ascitic syndrome in liver cirrhosis manifested predominantly through advanced forms, being mainly determined by toxic-metabolic etiology. One third of the patients presented refractory ascites requiring evacuative procedures and complex substitution therapy, which considerably increases the cost of care for these patients. The study results highlight the need for a therapeutic approach adapted to the severity of ascites in order to optimize disease evolution and reduce the risk of complications.

Keywords. liver cirrhosis, ascites, refractory ascites, paracentesis, albumin.

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59. INVASIVE PULMONARY ASPERGILLOSIS IN IMMUNOCOMPROMISED PATIENTS: CLINICAL IMPACT, RISK FACTORS, AND OUTCOMES

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Introduction. Invasive pulmonary aspergillosis is a severe lung infection caused primarily by Aspergillus fumigatus. Despite antifungal treatment, mortality remains relatively high, ranging from 30% to 60% in high-risk patients. It has significant clinical importance due to the increasing number of patients with conditions predisposing to infection and the difficulty of establishing an early diagnosis. This study describes the clinical relevance, risk factors, and outcomes of invasive pulmonary aspergillosis in immunocompromised patients.

Aim of study. The aim of this study was to review and highlight the frequency, severity, and specific characteristics of invasive pulmonary aspergillosis in immunocompromised patients.

Methods and materials. Articles published in the last ten years on invasive pulmonary aspergillosis were selected and analyzed using the PubMed and Medscape databases, as well as Google Scholar.

Results. The literature review shows that in recent years the number of patients with impaired immune function has increased, mainly due to more aggressive cytotoxic treatments and the increasing number of transplants. These patients primarily include individuals with prolonged neutropenia, hematologic malignancies, and those undergoing stem cell transplantation. A recently recognized high-risk group includes patients with severe COVID-19 admitted to intensive care units, in whom immunosuppression is not typical but rather associated with pulmonary epithelial damage, corticosteroid use, and prolonged mechanical ventilation. Invasive pulmonary aspergillosis represents a major clinical burden in these patients. In some cases, the disease may progress rapidly, even fulminantly, and is associated with high mortality. This is largely due to disease-specific complications, which are further aggravated by delayed diagnosis and late initiation of treatment.

Conclusions. Invasive pulmonary aspergillosis is a severe infection associated with high mortality in patients with risk factors. Therefore, early diagnosis and prompt initiation of appropriate antifungal therapy are essential to reduce complications and improve survival in high-risk patients.

Keywords. Invasive pulmonary aspergillosis, immunocompromised patients, neutropenia, complications, antifungal therapy.

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60. THE STRATEGIES OF SUBACUTE THYROIDITIS MANAGEMENT

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Introduction. Subacute thyroiditis, or De Quervain thyroiditis, or granulomatous thyroiditis, is the inflammation in the thyroid gland, characteristic by gland enlargement, pain and thyrotoxicosis, caused the most probably due to viral infection, mainly post upper respiratory tract infections. Subacute thyroiditis pass by three phases, first one is thyrotoxicosis recognized by high elevation of thyroid hormones T3 and T4, the second phase is hypothyroidal phase we find low level of T3 and T4, the last one is the recovery after management of the disease which is differ depend on severity.

Aim of study. The aim of this study is to identify the different methods of treating the disease and their underlying principles, the doses of each treatment and the duration of using it. It also seeks to determine their effectiveness in various cases and comparison between the strategies of treatment.

Methods and materials. A descriptive and analytical literature review was performed utilising major biomedical databases such as PubMed, Web of Science, and Google Scholar. Peer-reviewed papers, systematic reviews, and international guidelines published primarily between 2015 and 2025 were evaluated.

Results. The aim from management of subacute thyroiditis is pain relief and control symptoms and to reach complete recovery without the development of delayed hypothyroidism. The management of SAT is based on two strategies according to the severity of the patient, if the patient in mild to moderate disease non-steroidal anti-inflammatory drugs are the choice, and if the case in moderate to severe disease the glucocorticosteroid drugs are the strategy of treatment we will follow. In the case of NSAIDs strategy, the drugs used mostly are salicylic acid with dose 600 mg orally every 6 hours or ibuprofen with dose 400 to 800 mg orally every 8 h. This strategy didn't show high effectiveness especially with severe cases, so glucocorticosteroid can be the solution. We can start with a prednisolone initial dose of 40 mg daily for 1-2 weeks and over 2-4 weeks we decrease the doses. GC strategy shows effectiveness better than NSAIDs especially in severe cases but there are some studies reporting that the recurrence of the disease can be related by GC treatment. With the anti-inflammatory drugs, in thyrotoxicosis phase beta blockers can be used to control this phase and in hypothyroidism phase hormones replacement can be a solution like levothyroxine with dose 25-100 mcg/day.

Conclusions. Glucocorticosteroid strategy and non-steroidal anti-inflammatory strategy both are used in subacute thyroiditis management but GC way shows more effectiveness while NSAIDs are safer for patients, so in mild to moderate cases the NSAIDs are the choice and only in severe case we use GCs and with controlled doses also we should check the case for the recurrency possibility.

Keywords. subacute thyroiditis, thyrotoxicosis, hypothyroidism, glucocorticosteroid, NSAIDs.

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61. CONGENITAL CYTOMEGALOVIRUS INFECTION AND ASSOCIATED SEVERE NEUROLOGICAL SEQUELAE: CASE REPORT

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Introduction. Congenital Cytomegalovirus (CMV) infection is the most common transplacentally transmitted viral infection and represents a major cause of childhood neurological disability, sometimes being associated with cerebellar dysplasia syndromes such as Dandy–Walker syndrome.

Case presentation. Objective. To present the clinical evolution and the effectiveness of targeted antiviral therapy in a patient diagnosed with congenital Cytomegalovirus (CMV) infection associated with Dandy–Walker syndrome. Material and methods. The case study concerns a female infant born at 28–29 weeks of gestation, birth weight 1440 g. Clinical, imaging (cranial and abdominal ultrasound, brain MRI), paraclinical (blood and urine tests, CMV RT-PCR and serology, EEG), and therapeutic (antiviral, antiepileptic) methods were used. The evolution was monitored over time.

Discussions. Results. At birth, the patient presented severe microcephaly, marked hypotonia, spasticity in all four limbs, absence of visual responses, and high CMV DNA levels. Imaging revealed periventricular calcifications, bilateral ventriculomegaly, corpus callosum hypoplasia, presence of Dandy–Walker syndrome, and a disorganized epileptiform EEG pattern. Antiviral treatment was administered—intravenous Ganciclovir followed by oral Valganciclovir for 4.5 months—resulting in reduced viremia and viruria. The prognosis was considered severe, with persistent spastic tetraplegia, refractory epilepsy, optic nerve atrophy, and absence of neuropsychomotor development.

Conclusions. Congenital CMV infection can lead to devastating neurological consequences, especially when accompanied by severe structural brain malformations such as Dandy–Walker syndrome. The presented case illustrates a complex evolution with irreversible sequelae despite early initiation of treatment.

Keywords. Congenital Cytomegalovirus, Dandy–Walker, Valganciclovir.

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62. MENSTRUAL CYCLE DISTURBANCES IN TYPE 1 DIABETES: THE EMERGING ROLE OF ARTIFICIAL INTELLIGENCE AND AUTOMATED INSULIN DELIVERY

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Introduction. Women with type 1 diabetes (T1D) often experience menstrual disorders and glycemic variability with the menstrual cycle. Contemporary medicine includes artificial intelligence-based diabetes devices, continuous glucose monitoring and sophisticated hybrid closed-loop systems, to individualize insulin therapy and improve metabolic control.

Aim of study. To review the latest evidence on menstrual cycle disturbances in T1D and to evaluate the role of AI-enabled automated insulin delivery systems in the treatment of glycemic variability in menstrual cycle-related problems.

Methods and materials. A narrative review was conducted. The studies published between 2021-2025 in PubMed, ScienceDirect, Oxford Academic, SpringerLink, MDPI, J-STAGE . Systematic reviews, meta-analyses, and studies that investigated menstrual abnormalities, hyperandrogenic features, ovarian dysfunction, glycemic variability during different menstrual phases, and automated insulin delivery systems in women with T1D were used.

Results. Menstrual irregularities are identified in more than 30% of women with T1D, with a 2.08-fold increased odds of menstrual dysfunction compared to controls, and a mean delay in menarche of 0.53 years. Collective data revealed a prevalence of 26% in women with T1D for PCOS, 29% for hyperandrogenemia, 24% for oligo-amenorrhea, and 34% for polycystic ovarian morphology. In a Japanese cohort, 35.0% (55/157) of women with T1D had oligomenorrhea, and 17.2% (27/157) had PCOS. Using continuous glucose monitoring systems, it was demonstrated a worsening of glycemia during the luteal phase in women with T1D, with a decrease from 60.9% to 54.6% and an increase from 34.9% to 41.2% in 62 menstrual cycles, and a rise in average glucose from 148 to 155 mg/dL and a decrease from 73% to 70% in 179 adult women with T1D. In 39 users of advanced hybrid closed-loop systems, a decrease during the luteal phase from 69.74% to 67.03% and a rise above range from 21.64% to 23.74%, suggesting that algorithm-driven systems improve personalization but do not entirely neutralize hormone-related insulin resistance.

Conclusions. Menstrual cycle malfunctions are common and clinically significant in women with T1D, being associated with higher rates of PCOS, hyperandrogenism, oligo-amenorrhea, delayed menarche, and luteal-phase glycemic deterioration. AI-enabled hybrid closed-loop systems upgrade glucose customization, persistent reductions suggest that current algorithms do not fully compensate for hormone-related insulin resistance, spotlighting the need for cycle-adapted diabetes management.

Keywords. type 1 diabetes; menstrual cycle; artificial intelligence; automated insulin delivery; reproductive health.

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63. CLOSTRIDIUM DIFFICILE INFECTION DURING ANTI-TUBERCULOSIS THERAPY: CLINICAL CHARACTERISTICS AND TREATMENT IMPACT IN A TUBERCULOSIS REFERRAL CENTER

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Introduction. Clostridium difficile infection (CDI) is one of the leading causes of healthcare-associated diarrhea and is strongly associated with antibiotic exposure. Although anti-tuberculosis (anti-TB) therapy is not traditionally considered a major risk for CDI, prolonged treatment with multiple antimicrobial agents may disrupt intestinal microbiota and facilitate CDI development. However, the epidemiology and clinical impact of CDI occurring during anti-tuberculosis therapy remains insufficiently described.

Aim of study. To assess the clinical characteristics, diagnostic findings, management strategies, and impact of CDI on tuberculosis treatment among patients receiving anti-tuberculosis therapy.

Methods and materials. A retrospective observational study was conducted at the Institute of Pneumology "Chiril Draganiuc", Chisinau, Republic of Moldova. All patients hospitalized with tuberculosis between January 1 and December 31, 2023, who developed CDI during anti-TB therapy were included. Demographic data, clinical manifestations, laboratory findings, diagnostic testing, CDI treatment, interruption of anti-TB therapy, recurrence, and clinical outcomes were analyzed using descriptive statistical methods.

Results. The sample size included 25 patients of which 64% are male, with a mean age of 52 ± 12.4 years. CDI symptoms developed after a median of 15 days (IQR 11-30) following the initiation of anti-TB therapy. The most frequent manifestations were diarrhea (84%), abdominal pain (44%), and fever (12%). Leukocytosis was observed in 68% of patients. Immunological testing showed GDH antigen positivity in 68% of the cases, whereas combined GDH and toxin A/B positivity was detected in 16%. All patients received targeted treatment with vancomycin and/or metronidazole. Temporary interruption of anti-TB therapy was required in 80% of patients, with a median duration of 8.5 days (IQR 6-13). CDI recurrence was registered in 24% of cases and did not significantly influence tuberculosis treatment outcomes.

Conclusions. CDI represents an underrecognized complication of anti-tuberculosis therapy. Despite the need for temporary interruption of anti-TB treatment in a substantial proportion of patients, appropriate management of CDI allows continuation of tuberculosis therapy with minimal impact on treatment outcomes. These findings highlight the importance of early recognition of CDI symptoms and the need for more sensitive diagnostic approaches, including molecular methods.

Keywords. Clostridium difficile infection, Tuberculosis, Anti-tuberculosis therapy, Antibiotic-associated diarrhea, Healthcare-associated infections.

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64. CRT-D THERAPY, CARDIAC FUNCTION AND INFECTIVE ENDOCARDITIS

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Introduction. Infective endocarditis is a severe cardiovascular disease with an incidence of approximately 3–10 cases per 100,000 persons annually. It develops as a result of bacterial, and less commonly fungal, infection of the endocardium and cardiac valves, often associated with transient bacteremia originating from oral or other infectious sources. In patients with cardiovascular diseases, infective endocarditis represents a serious condition that may lead to valvular damage, progression of heart failure, and severe systemic complications.

Case presentation. A 65-year-old male patient was admitted to Medpark International Hospital for evaluation of dyspnea and suspected cardiac pathology. Clinical assessment included medical history collection, physical examination, laboratory investigations, blood cultures, and transthoracic echocardiography.

Discussions. The patient had a history of dilated cardiomyopathy and underwent CRT-D implantation in 2022 due to severe systolic heart failure. Prior to device implantation, transthoracic echocardiography revealed a markedly reduced left ventricular ejection fraction (LVEF) of approximately 22%. Following cardiac resynchronization therapy, a progressive improvement in left ventricular systolic function was observed, with LVEF increasing to 35–37% in 2023 and further improving to 45–47% in 2025. In 2026, the patient developed clinical signs of systemic infection and heart failure decompensation, blood cultures were positive for Staphylococcus aureus. Echocardiography revealed vegetations on the tricuspid valve associated with the intracardiac lead, dilation of cardiac chambers, and moderate pulmonary hypertension, findings consistent with device-related infective endocarditis. Due to the infectious complication, complete extraction of the CRT-D system was performed. After device explantation, a significant deterioration of cardiac function was observed, with LVEF decreasing to 25–27%, indicating loss of the beneficial effect of cardiac resynchronization and the impact of the infectious process on myocardial performance.

Conclusions. This clinical case illustrates the complex course of heart failure in patients with cardiac implantable electronic devices. Cardiac resynchronization therapy with CRT-D can significantly improve left ventricular systolic function and clinical status in patients with advanced heart failure compared with pharmacological therapy alone. However, device-related infective endocarditis may lead to the need for device extraction, resulting in loss of the resynchronization effect and subsequent deterioration of cardiac function. Continuous clinical monitoring and regular echocardiographic assessment are essential for early detection of infectious complications and timely management to improve long-term outcomes in patients with intracardiac devices.

Keywords. infective endocarditis, tricuspid valve, CRT-D, heart failure.

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65. NUTRITION OF THE CRITICALLY ILL PATIENT WITH ACUTE PANCREATITIS

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Introduction. Acute pancreatitis (AP) is one of the leading causes of gastrointestinal morbidity and mortality worldwide, with approximately 20% of cases progressing to necrotising forms. In this clinical context, the severe hypercatabolic and hypermetabolic state induced by the systemic inflammatory response necessitates the early initiation of artificial nutritional support. Consequently, optimising nutritional management is a cornerstone in reducing mortality among patients with severe disease.

Aim of study. The objective of this study is to synthesise recent literature regarding nutritional strategies in acute pancreatitis and to establish updated clinical recommendations.

Methods and materials. The study evaluates 22 publications developed between 2017 and 2025, identified in PubMed, Google Scholar, ResearchGate, and Scopus databases, which provide nutritional recommendations for patients with acute pancreatitis.

Results. Given the hypercatabolic status of AP, the feeding strategy is adjusted based on disease severity and requires a systematic assessment of nutritional risk to enable the earliest possible initiation of nutritional support. Thus, in patients with mild AP, if clinically tolerated, oral nutrition with a hypolipidemic diet is indicated from the first 24 hours. Otherwise, in patients with sepsis or who present intolerance to oral nutrition, enteral nutrition (EN) via nasogastric tube is the first line of support and should be initiated in the first 24-72 hours from the onset of the disease. The nasojejunal tube is reserved for patients with gastric stasis or those with intra-abdominal pressure (IAP) >15mmHg and requires its removal in abdominal compartment syndrome, IAP >20 mmHg. EN is associated with a reduction in infectious complications, multiorgan failure, surgical re-interventions, mortality and length of hospital stay. Probiotics are not recommended, and pancreatic enzymes are administered only in diagnosed exocrine pancreatic insufficiency. Parenteral nutrition (PN) remains reserved for patients who do not tolerate EN or when it is contraindicated. Supplementation of PN with L-glutamine, 0.2g/kg/day, contributes to improving the prognosis.

Conclusions. Early initiation of nutritional therapy in AP is a cost-effective strategy, reduces the duration of hospitalisation and improves the prognosis of patients. Hypolipidemic oral nutrition is preferred in mild forms, and EN is the gold standard in severe forms of AP. PN remains a second-line option, indicated when the first two methods are contraindicated or cannot adequately meet the patient's nutritional needs.

Keywords. acute pancreatitis, enteral nutrition, parenteral nutrition, oral nutrition.

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66. THE ROLE OF ECHOCARDIOGRAPHY IN THE DIAGNOSIS AND ASSESSMENT OF THE SEVERITY OF DEGENERATIVE MITRAL REGURGITATION IN WOMEN

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Introduction. Valvular heart disease is increasingly prevalent in the aging population, with an increased incidence of degenerative mitral regurgitation. Although it is slightly more common in men, there are gender differences in terms of clinical presentation and echocardiographic parameters, which justifies the evaluation of the particularities of this pathology in female patients.

Aim of study. This study assesses echocardiographic changes and related clinical manifestations in female patients with degenerative mitral regurgitation.

Methods and materials. The research is based on a comprehensive analysis of the results from studies analyzing the echocardiographic changes in women with degenerative mitral regurgitation. These studies were published between 2020 and 2026 and were sourced from several databases, including PubMed, NCBI, Medscape, and ScienceDirect.

Results. Current guidelines provide criteria for grading the severity of mitral regurgitation (MR), but these thresholds are not sex-specific and are not indexed to body size. Since women generally have smaller hearts than men, even when adjusted for body size, these guidelines tend to underestimate MR severity in female patients.The results showed that female patients were older and more frequently referred with severe symptoms and heart failure than males. As a constant variable, ejection fraction (EF) was slightly higher in females, overall in the normal range in both sexes, with similar ~1/4 males and females displaying decreased EF. Absolute cardiac dimensions (LA and LV) were lower in females with lower proportion displaying LV end-systolic diameter ≥ 40 mm. However, females presented with higher indexed cavity diameters normalized for body surface area (BSA). Integrating comorbidity, older age, more frequent symptoms, and all echocardiographic characteristics, females presented with higher EuroSCORE II and higher MIDA score.

Conclusions. The increasing prevalence of degenerative mitral regurgitation among women underscores the need for sex-specific diagnostic criteria and treatment approaches. The current lack of indexed parameters for severity assessment in echocardiography contributes to underestimation of disease severity, resulting in delayed treatment referrals for women. Among the factors contributing to sex inequality in the diagnosis and treatment of mitral valve disease, insufficient use of echocardiography for sex- and BSA-adjusted evaluation of mitral regurgitation remains an important issue.

Keywords. Degenerative mitral regurgitation, echocardiography.

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67. WEGENER'S GRANULOMATOSIS - ETIOLOGY, PATHOGENESIS, CLINICAL DIAGNOSIS AND TREATMENT

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Introduction. Granulomatosis with polyangiitis, formerly known as Wegener's granulomatosis, is an ANCA-associated systemic vasculitis characterized by necrotizing inflammation of small- and medium-sized vessels, granuloma formation, and multiorgan involvement, predominantly affecting the respiratory tract and kidneys. The importance of this topic lies in the severity of the disease, its heterogeneous clinical manifestations, and the diagnostic challenges that require early recognition and prompt treatment.

Aim of study. The aim of the study was to select, analyze, and systematize literature data on granulomatosis with polyangiitis in order to outline its etiology, pathogenesis, clinical presentation, diagnosis, and treatment.

Methods and materials. A comprehensive review of more than 50 scientific medical sources published over the last 10 years was conducted, focusing on the main etiopathogenic, clinical, diagnostic, and therapeutic aspects of the disease.

Results. The literature review emphasized the multifactorial nature of granulomatosis with polyangiitis, in which genetic predisposition, chronic infections, especially with Staphylococcus aureus, and immune dysregulation contribute to the development of autoimmunity. A systematic study published in 2022, including 4,547 individuals, estimated the global incidence of ANCA-associated vasculitides at 17.2 cases per 1 million persons annually. A retrospective study published in 2024 reported an increase in the incidence of granulomatosis with polyangiitis after the COVID-19 pandemic, from 0.58 to 1.07 cases per 100,000 persons per year, suggesting a possible role of SARS-CoV-2 infection in triggering autoimmune mechanisms. ANCA autoantibodies, especially anti-PR3 and anti-MPO, play a central role in pathogenesis through neutrophil activation and vascular inflammation. PR3-ANCA are detected in 70–80% of patients, whereas 10–15% are MPO-ANCA positive and about 10% are ANCA-negative. The clinical picture is polymorphic, with predominant respiratory and renal involvement, but also cutaneous, articular, neurological, and ocular manifestations. Diagnosis requires integration of clinical, paraclinical, immunological, and histopathological data, as well as thorough differential diagnosis. Current treatment includes remission induction and maintenance, using glucocorticosteroids, cyclophosphamide, and rituximab for induction, and methotrexate, azathioprine, and mycophenolate mofetil for maintenance.

Conclusions. In conclusion, granulomatosis with polyangiitis is a complex autoimmune disease with multifactorial etiology, immune-mediated pathogenesis, and heterogeneous clinical manifestations. Early diagnosis and an individualized therapeutic approach are essential for disease control, remission induction, and prognosis improvement.

Keywords. granulomatosis with polyangiitis, immunity, vasculitis, PR3, ANCA, immunosuppressive agents, granulomatous inflammation, rituximab, cyclophosphamide.

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68. PSYCHO-EMOTIONAL STATUS AND THERAPEUTIC ADHERENCE IN PATIENTS WITH VALVULAR HEART DISEASE

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Introduction. Valvular heart disease represents a major cause of cardiovascular morbidity and mortality worldwide. The progression of the disease is influenced not only by the severity of hemodynamic alterations but also by behavioral and psycho-emotional factors.

Aim of study. To analyse the relationship between psycho-emotional status and therapeutic adherence in patients with valvular heart disease during the preoperative period.

Methods and materials. The study included 50 patients hospitalized at the Institute of Cardiology, Department of Cardiac Surgery, between January and December 2025. Treatment adherence was assessed using the Morisky-Green scale (MMAS-4), where higher scores indicate a lower level of treatment adherence (0-4). Data of depression were obtained using the Patient Health Questionnaire (PHQ-9), while the Hospital Anxiety and Depression Scale (HADS) was used to assess subclinical and clinical levels of anxiety and depression in our patients. The relationships between the studied variables were analysed using correlation coefficient Spearman (r).

Results. Correlation analysis revealed a significant positive correlation between the PHQ-9 score and the MMAS-4 score ($r = 0.310$; $p = 0.028$), indicating that greater severity of depressive symptoms is associated with lower treatment adherence. From a clinical perspective, this finding suggests that patients with more severe depressive manifestations tend to adhere less to the prescribed therapeutic regimen, which may influence the control of cardiovascular symptoms and the course of the disease in the preoperative period. The correlation between the HADS-D score and MMAS-4 was positive, but not statistically significant ($r = 0.170$; $p = 0.238$), suggesting the same but less pronounced trend in the analysed group. Also, no significant association between anxiety by HADS-A and adherence of treatment was identified ($r = 0.142$; $p = 0.322$), thus, anxiety exerts a limited influence on treatment adherence in depressive patients.

Conclusions. Patients with valvular heart disease and depression during the preoperative period have reduced therapeutic adherence. Assessment of psycho-emotional status during the preoperative evaluation may help identify patients at increased risk of non-adherence and contributes to optimising clinical management.

Keywords. Valvular heart disease, psycho-emotional status, treatment adherence.

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69. CONGESTIVE HEART FAILURE COMPLICATED BY ACUTE KIDNEY INJURY

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Introduction. Heart failure remains a disease that affects hundreds of people and requires increased attention to treatment, especially in patients with comorbidities. Uncontrolled heart failure is often associated with a rapid decline in kidney function, and its proper control can prevent further damage to the kidneys.

Case presentation. A 72-year-old patient was admitted to the hospital presenting resting dyspnea, episodes of nocturnal paroxysmal dyspnea, marked peripheral and periorbital edema, retrosternal and abdominal discomfort, palpitations, and severe fatigue. The patient has been known to have cardiovascular disease for several years, his general condition has progressively worsened for the last week, with increasing dyspnea and edema. During the last 6 months, he was admitted into the Cardiology department two times for heart failure decompensation. Personal pathological history includes: hypertension, myocardial infarction, atrial fibrillation, stroke, stage IV chronic kidney disease according to KDIGO, congestive heart failure, two pharmacologically active stents (DES) were implanted on the anterior descending artery and one DES stent on the intermediate marginal artery, status after the implantation of a cardioverter-defibrillator for ventricular tachycardia. Moreover, he has cardiorenal syndrome, chronic tubulointerstitial nephritis, bilateral renal cysts, and grade I anemia. In the first days after admission, oliguria was observed with increased creatinine 907,8 mmol/l, urea 51,8 mmol/l, and severe mixed acidosis (pH 7.018, HCO3 6.26 mmol/L, pCO2 24.1 mmHg). The patient was transferred to the ICU for stabilization and later to the nephrology department for dialysis.

Discussions. In this patient with Congestive Heart Failure, the reduced cardiac output decreases renal perfusion and the activate of the RAAS and the SNS, leading to sodium and water retention, increased renal venous pressure, and tubular ischemia, contributing to the development of Acute Kidney Injury. In the first days of AKI evolution, renal function deteriorated significantly, with serum creatinine from 400 to 907,8 mmol/L and urea from 24 to 51,8 mmol/L. Due to severe renal impairment, Hemodialysis was initiated, after which a partial improvement was observed, with creatinine decreasing to 467 μmol/L and urea to 20 mmol/L.

Conclusions. In patients with heart failure, acute kidney injury is a common complication and is associated with an increased risk of mortality, serving as an independent prognostic factor. No direct correlation was observed between cardiac changes and the onset of AKI, and the KDIGO and AKIN criteria proved similarly useful in assessing renal impairment.

Keywords. Heart failure decompensation, chronic kidney disease, cardiorenal syndrome, acute kidney injury.

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70. IMAGING DIAGNOSIS OF EWING'S SARCOMA

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Introduction. Ewing's sarcoma is one of the most aggressive malignant tumors known today. The earliest clinical manifestations usually include localized pain and swelling, which initially may be mild. Its peak incidence occurs in adolescents aged 10-14, with a slight male predominance during periods of active bone growth. Early clinical and radiological diagnosis allows for prompt initiation of appropriate treatment, increasing the chances of a favorable outcome.

Aim of study. To identify the most common imaging findings on computed tomography and radiography, and to evaluate the effectiveness of each method in detecting these specific signs.

Methods and materials. A retrospective study included 8 patients diagnosed with Ewing's sarcoma based on immunohistochemical confirmation. Evaluation was performed at the Oncology Institute of the Republic of Moldova, covering the period from 01.01.2016 to 31.12.2025.

Results. The average age of the patients in the study was 16.25±11.26 years. The most common location of the tumor was in the bones of the lower extremities, observed in 5 cases. The initial diagnostic method for each patient was radiography, after which computed tomography (CT) was performed. The following radiographic signs were identified: a soft-tissue component was detected in 7 cases, a periosteal reaction in 5 cases, and cortical destruction in 6 cases. The rarest finding was Codman's triangle, observed in the case of a single patient with an advanced stage of disease. All patients had bone lysis with varying patterns, including 5 cases of lytic lesions, 2 cases of mixed lesions, and 1 case of sclerotic lesions. In addition, metastases were detected by CT in 4 patients: 2 in the lungs, 1 in the bone marrow, and 1 in the bones.

Conclusions. Both methods demonstrated high effectiveness in visualizing radiographic signs commonly associated with malignant bone processes. However, computed tomography proved to be more informative in complex cases due to its higher spatial resolution and multiplanar evaluation of bone structures. Notably, CT showed greater accuracy in identifying metastatic lesions.

Keywords. Ewing sarcoma, radiographic signs, bone lysis, metastatic lesions.

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71. ANGINA PECTORIS: CLINICAL FEATURES IN ELDERLY PATIENTS WITH TYPE 2 DIABETES MELLITUS

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Introduction. Stable effort angina, a classical manifestation of ischemic heart disease, affects a significant number of elderly individuals each year and increases the risk of cardiovascular complications. Another common comorbidity in elderly patients is type 2 diabetes mellitus, which has important metabolic consequences on the cardiovascular system, particularly on the blood vessels. Chronic hyperglycemia, insulin resistance, and chronic inflammation accelerate atherosclerosis, vascular stiffness, and diabetic neuropathy, leading to silent myocardial ischemia and atypical or absent clinical presentation of angina pectoris.

Aim of study. To evaluate the clinical features of angina pectoris in elderly patients with type 2 diabetes mellitus.

Methods and materials. A retrospective study was conducted on a group of 50 elderly patients (65–83 years old) diagnosed with stable angina pectoris and type 2 diabetes mellitus, hospitalized at IMSP SCM "Sfântul Arhanghel Mihail" Hospital between December 2024 and February 2025. Data were collected from clinical observation records and processed using Microsoft Excel. The results were expressed as percentages and absolute numbers.

Results. Of the 50 patients included in the study, 32 (64%) were women and 18 (36%) were men, demonstrating a predominance of the female sex, with a female-to-male ratio of approximately 1.8-1. Regarding clinical manifestations, 14 (28%) patients presented a typical clinical picture characterized by retrosternal pain, while 36 (72%) patients presented atypical manifestations of angina pectoris. In the atypical presentation subgroup (n=36), the following symptoms were recorded: dyspnea without chest pain – 19 (52.8%) patients; retrosternal discomfort associated with dizziness – 7 (19.4%) patients; fatigue – 7 (19.4%) patients; and nausea associated with retrosternal discomfort – 4 (11.1%) patients. From the perspective of comorbidities, arterial hypertension was present in all patients included in the study (100%). Among them, 38 (76%) patients had grade II–III hypertension, while 12 (24%) patients had grade I–II hypertension. Coronary angiography results revealed severe coronary atherosclerotic involvement in 18 (36%) patients, of whom 17 patients had previously undergone coronary stenting. Additionally, moderate coronary vessel involvement was identified in 16 (32%) patients.

Conclusions. Angina pectoris in elderly patients with type 2 diabetes mellitus is more frequently diagnosed in women. In most elderly patients with type 2 diabetes mellitus, angina pectoris presents with a variety of atypical manifestations, which should be recognized in order to prevent diagnostic errors and to ensure early initiation of treatment.

Keywords. Angina pectoris, elderly, type 2 diabetes mellitus, hyperglycemia.

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72. THE GUT–JOINT AXIS IN RHEUMATIC DISEASES

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Introduction. Despite significant advances in understanding the pathophysiology of rheumatic diseases, the role of gut microbiota dysbiosis as a potential precursor to clinical manifestations remains underestimated. Emerging evidence indicates that alterations in the intestinal microbial ecosystem may initiate or amplify classical pathogenetic mechanisms in rheumatology, including loss of immune tolerance and dysregulated production of pro-inflammatory cytokines such as IL-1, IL-6, IL-17, IL-23, and TNF-α, thereby contributing to systemic immune activation and joint inflammation.

Aim of study. Highlight the role of gut dysbiosis in systemic rheumatic diseases.

Methods and materials. A literature review was performed using the electronic databases PubMed and Google Scholar.

Results. Several studies have reported significant intestinal microbiota alterations in patients with rheumatic diseases, characterised by increased bacterial abundance, such as Prevotella, Lactobacillus, Collinsella, and Akkermansia. Conversely, reduced levels of beneficial commensal bacteria such as Eubacterium, Bifidobacterium, and Bacteroides have been consistently observed. These microbial alterations may promote systemic autoimmune inflammation, primarily through increased intestinal permeability driven by dietary antigens, microbial imbalance, and aberrant microbiota-derived metabolites. Increased intestinal permeability is associated with elevated levels of Zonulin, leading to disruption of epithelial tight junctions and reduced expression of tight junction proteins such as ZO-1 and Occludin. As a consequence, bacterial components and metabolites may translocate across the intestinal barrier into the submucosa, where they interact with immune cells. Another mechanism involves Th17/TReg imbalance, pivotal in autoimmune inflammation. Under physiological conditions, beneficial commensal bacteria such as Faecalibacterium, Roseburia, Lactobacillus, Eubacterium, and Bifidobacterium promote the production of short-chain fatty acids, particularly butyrate, and tryptophan-derived metabolites such as indole-3-formaldehyde. These metabolites play a crucial role in maintaining intestinal homeostasis by enhancing tight junction integrity, promoting differentiation of TReg cells, and exerting anti-inflammatory effects. However, dysbiosis impairs these protective mechanisms, resulting in increased activation of Th17 cells and enhanced production of pro-inflammatory cytokines including IL17, IL23, and TNF-α, which are key mediators of joint inflammation.

Conclusions. Clarifying the role of gut dysbiosis in rheumatic diseases may improve therapy strategies, enhance drug bioavailability, and enable early biomarker detection.

Keywords. gut microbiota, intestinal dysbiosis, gut–joint axis, rheumatic diseases.

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73. MANAGEMENT OF DRUG INTOXICATION WITH OPIOIDS AT THE PREHOSPITAL STAGE AND IN EMERGENCY DEPARTMENTS

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Introduction. Drug and narcotic intoxications are a major public health issue worldwide, causing high morbidity and mortality. EUDA data (2023–2024) show increasing deaths from synthetic opioids and polysubstance use. Prehospital care and emergency departments (ED) play a crucial role in initial patient stabilization, preventing respiratory failure, cardiac arrest, and multi-organ dysfunction. Effective management requires clear separation between prehospital and hospital approaches, in line with WHO and European toxicology guidelines.

Aim of study. To review modern approaches to acute drug intoxication, emphasizing differences between prehospital care and ED management.

Methods and materials. A literature search was performed in PubMed, EUDA, and the Cochrane Library using keywords „prehospital drug overdose management", „emergency department toxicology", „acute intoxication guidelines". Included reviews, clinical guidelines, and cohort studies in English from 2018-2025.

Results. At the prehospital stage, rapid assessment and stabilization according to ABCDE (airway, breathing, circulation) are priorities. Actions include airway management, oxygen therapy, vital sign monitoring, and IV access. Early antidotes include naloxone for suspected opioid intoxication. Decontamination is limited; rapid transport to a toxicology-capable ED is essential. Cases of severe hypotension may require circulatory support with dopamine. After stabilization, detailed examination, substance history, and labs (blood gases, electrolytes, troponin, osmolality, toxicology screening) and continuous ECG/capnography monitoring are performed. After initial prehospital care gastric lavage is performed at the hospital stage, along with IV infusions. In case of unconsciousness during shock in the red zone of the ED are applied hemodialysis, plasmapheresis or hemofiltration which is continued in ICU.

Conclusions. Management of drug intoxications requires a staged approach: prehospital naloxone administration, respiratory and hemodynamic stabilization; ED -multidisciplinary approach and treatment of complications. Public education and comprehensive assistance are essential roles in reducing mortality.

Keywords. drug intoxication, prehospital stage, emergency department, drug overdose management, toxicology.

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74. EMERGING MOLECULAR MECHANISMS AND THERAPEUTIC TARGETS IN PARKINSON'S DISEASE: A LITERATURE REVIEW

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Introduction. Parkinson's disease (PD) is the most rapidly expanding age-related neurological disorder globally. Current therapeutic standards primarily involve dopamine replacement, which fails to arrest progressive neurodegeneration. Pathogenesis is increasingly attributed to a systemic failure of proteostasis, mitochondrial bioenergetics, and the microbiota-gut-brain axis.

Aim of study. To review recent evidence regarding key molecular mechanisms involved in Parkinson's Disease and emerging therapeutic targets.

Methods and materials. A narrative literature review of peer-reviewed publications and clinical trial databases (ClinicalTrials.gov) published from January 2024 to February 2026 was performed, focusing on molecular pathways involved in Parkinson's Disease and emerging therapeutic targets.

Results. Recent evidence highlights that Parkinson's Disease progression is driven by interconnected α-synuclein dissemination, neuroinflammation, mitochondrial dysfunction, ferroptosis and gut-brain axis signaling. Clinical readouts for the GCase modulator GT-02287 showed an 81% average reduction in CSF glucosylsphingosine and a 2.20-point motor score improvement within 90 days. The SIRT3–ACSS2–OPA1 axis was identified as a critical metabolic defense against neuronal ferroptosis. Additionally, α-synuclein was found to inhibit the mitochondrial enzyme ClpP, a process mitigated by the molecular decoy CS2. Pipeline status updates indicate the Phase 2 LUMA trial (BIIB122) remains ongoing through early 2026, while the Phase 3 ASPro-PD (ambroxol) study has commenced recruitment. Lifestyle analysis confirmed that muscle-derived irisin inhibits ferroptosis via the Nrf2-GPX4 pathway, while synergistic compounds in coffee (caffeine/EHT) and tobacco (phenolic acids) activate antioxidant defenses. Finally, pesticide exposure was linked to a persistent "molecular memory" through epigenetic remodeling in the substantia nigra.

Conclusions. PD is a systemic condition requiring multi-target intervention strategies. Disease modification likely depends on the integration of genetic modulation, restoration of mitochondrial homeostasis, and early intervention in the gut-brain axis. Clinical results from GCase and LRRK2 modulators suggest that molecular stabilization, combined with lifestyle-based neuroprotection, is a viable path toward slowing disease progression.

Keywords. Parkinson's disease, α-synuclein, GBA1, LRRK2, mitochondrial dysfunction, gut-brain axis, neuroprotection.

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75. RENAL IMAGING FOR THE DIAGNOSIS AND STAGING OF RENAL CELL CARCINOMA

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Introduction. Renal cell carcinoma (RCC) is the most frequent primary malignant tumor of the kidney, accounting for approximately 85–90% of adult renal malignancies. In recent decades, the growing use of advanced imaging modalities such as ultrasound (US), computed tomography (CT), and magnetic resonance imaging (MRI) has profoundly altered the clinical picture of RCC. A significant number of tumours are discovered by chance during imaging for unrelated illnesses, frequently at an early stage of the disease. As a result, medical imaging has become critical not only for tumour diagnosis, but also for lesion characterisation, staging, and treatment planning.

Aim of study. The purpose of this study is to assess the relevance of contemporary imaging modalities in the diagnosis and staging of renal cell carcinoma, as well as to emphasise their clinical utility in therapeutic decision-making.

Methods and materials. A comprehensive literature review was conducted, examining current scientific publications and international clinical recommendations for the use of imaging techniques in RCC. The study examined ultrasound, contrast-enhanced ultrasound (CEUS), multiphasic multidetector computed tomography (MDCT), and magnetic resonance imaging (MRI). Special emphasis was placed on imaging characteristics of various RCC subtypes, differential diagnosis with benign renal tumours, and imaging's role in TNM staging and surgical planning.

Results. Because of its great spatial resolution and ability to assess tumour enhancement patterns, local invasion, vascular involvement, and distant metastases, multiphasic MDCT is still the preferred imaging modality for RCC diagnosis and staging. MRI provides superior soft-tissue contrast and is critical for assessing venous tumour thrombus and patients who are allergic to iodinated contrast agents. CEUS has emerged as a significant complementary approach, especially in patients with impaired renal function, as it allows for real-time assessment of tumour vascularity and cystic lesion characterisation. However, distinguishing between benign lesions (such as oncocytoma or lipid-poor angiomyolipoma) and malignant tumours remains a significant diagnostic problem.

Conclusions. Modern imaging techniques play an important role in the treatment of renal cell cancer. The combined use of CT, MRI, and ultrasound considerably enhances diagnostic accuracy, allows for precise staging, and facilitates appropriate therapy planning. Despite these gains, more research is needed to better non-invasive discrimination between benign and malignant kidney tumours, as well as to refine imaging-based predictions of tumour aggressiveness.

Keywords. renal cell carcinoma, renal imaging, computed tomography, magnetic resonance imaging, tumor staging.

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76. EVALUATION OF THE CURB(S)-65 SCORE IN PREDICTING MORTALITY RATE IN PATIENTS WITH COMMUNITY-ACQUIRED PNEUMONIA

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Introduction. Severity assessment in community-acquired pneumonia (CP) is essential both for their correct management and for the initiation of appropriate antibacterial treatment. In this context, several prediction tools have been developed and validated, including the clinical CURB-65 score, which estimates the risk of clinical mortality in patients with CP. CURB-65 has demonstrated its effectiveness in several studies, but it does not include certain relevant parameters, such as oxygen saturation, which could justify hospitalization in certain cases, although the score does not indicate this need.

Aim of study. To evaluate patients with CP through the application of the CURB-65 score complemented with the oxygen saturation parameter (CURB(S)-65).

Methods and materials. The study included 50 patients hospitalized with CP from IMSP SCM "Sf.Arhanghel Mihail", aged over 18 years. Patients with a CURB-65 score between 0-1 were classified in group 1 (18 patients), and those with a CURB-65 score of 2 and more - group 2 (32 patients). Patients with a CURB (S)-65 score with 0-1 accumulated points constituted group 3 (16 patients), and those with a score of 2 and more - group 4 (34 patients). The risk of death was assessed using the CURB-65 and CURB(S)-65 scores. Microsoft Excel 2016 was used for statistical analysis of the data.

Results. In group 1, 5.5% (1), in group 2 - 65.6% (21), in group 3 - 0%, and in group 4 - 64.7% (22) patients died. In the majority of deceased patients in group 2 - 80.95% (17 patients) and in group 4 - 81.8% (18 patients) the oxygen saturation level was <90%. The sensitivity of the CURB(S)-65 score was 100%, and that of the CURB-65 score - 95%, both having a more modest specificity of 57% and 61% respectively. The area under the curve for CURB(S)-65 was slightly higher compared to CURB-65 (0.94 vs. 0.88).

Conclusions. The inclusion of saturation in the CURB-65 prognostic score may increase the accuracy of clinical management of patients with community-acquired pneumonia by more accurately predicting the risk of death among these patients, and more studies would be needed to evaluate the utility of the CURB(S)-65 score. We also mention some limitations of our study: the small sample, the retrospective study, the small number of patients with a CURB-65 score of 0-1.

Keywords. Community-acquired pneumonia; CURB-65; CURB(S)-65; mortality rate.

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77. IMMUNE CHECKPOINT INHIBITOR–ASSOCIATED MYOCARDITIS WITH COMPLETE HEART BLOCK

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Introduction. Immune checkpoint inhibitors (ICIs) have significantly improved outcomes in several malignancies. However, these therapies may cause immune-related adverse events affecting multiple organ systems, including the cardiovascular system. ICI-associated myocarditis is a rare but potentially fatal complication with reported mortality rates approaching 50% in severe cases. Early recognition is crucial because the clinical presentation may be nonspecific and can include arrhythmias, conduction disturbances, or heart failure.

Case presentation. A 65-year-old male presented to the emergency department with progressive fatigue for one week. He denied chest pain, palpitations, syncope, fever, or chills. His history included prostate cancer and recurrent malignancy treated with immune checkpoint inhibitor therapy (pembrolizumab) and lenvatinib. On admission, blood pressure was 140/68 mmHg, heart rate 55 bpm, oxygen saturation 99% of room air, and temperature 36.7°C. Physical examination was unremarkable. Electrocardiography showed a third-degree complete atrioventricular block. Laboratory tests revealed markedly elevated biomarkers: creatine phosphokinase 16,760 U/L, AST 450 U/L, ALT 356 U/L, high-sensitivity troponin up to 87,675 pg/mL, and pro-BNP 8,945 ng/L. Chest X-ray and full blood count were normal. Echocardiography showed mild dilation of all cardiac chambers without regional wall motion abnormalities. Coronary angiography revealed no obstructive coronary artery disease. Given the oncologic therapy and absence of coronary pathology, an immune checkpoint inhibitor–associated myocarditis with complete heart block was suspected.

Discussions. ICI-related cardiotoxicity includes myocarditis, arrhythmias, pericarditis, and acute coronary syndromes. Myocarditis is the most severe manifestation and often occurs early after treatment initiation. It is thought to result from immune-mediated T-cell activation targeting shared antigens between tumor and myocardial tissue. Patients may present with nonspecific symptoms such as fatigue or dyspnea, with markedly elevated cardiac biomarkers. Electrocardiographic abnormalities, including conduction disturbances such as complete heart block, may occur and represent life-threatening complications. Diagnosis requires a high index of suspicion in patients receiving ICI therapy with unexplained cardiac symptoms or biomarker elevation.

Conclusions. Immune checkpoint inhibitor–associated myocarditis is a rare but serious complication of cancer therapy. Clinicians should maintain a high level of suspicion in patients receiving ICIs who present with unexplained cardiac symptoms, elevated biomarkers, or conduction abnormalities such as complete heart block. Early recognition and prompt multidisciplinary management are essential to improve outcomes and ensure cardiovascular safety during oncologic treatment.

Keywords. Immune checkpoint inhibitors,Myocarditis,Complete heart block,.

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78. CHICKENPOX COMPLICATED BY GUILLAIN-BARRÉ SYNDROME

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Introduction. Chickenpox is the primary infection caused by the Varicella-Zoster virus (VZV), a DNA virus belonging to the Herpesviridae family. Although the disease is usually self-limited, neurological complications may rarely occur. Guillain-Barré syndrome is a rare autoimmune complication associated with VZV infection, characterized by acute polyradiculoneuropathy with progressive muscle weakness, areflexia, and frequent sensory disturbances or autonomic dysfunction.

Case presentation. A 39-year-old male patient was admitted with chickenpox in the eruptive stage, initially presenting with fever and generalized polymorphic skin eruptions. The initial course was of moderate severity; however, on the 8th day of illness the patient developed worsening of the general condition with facial and limb paresthesias, progressive muscle weakness, and inability to stand. Subsequent neurological examination revealed ascending flaccid tetraparesis, generalized areflexia, and bulbar syndrome, raising suspicion of post-varicella Guillain–Barré syndrome. Cerebrospinal fluid analysis showed mildly increased protein levels. The patient was transferred to the intensive care unit, where mechanical ventilation was required for 38 days, along with treatment with intravenous immunoglobulin followed by plasmapheresis. After 56 days of intensive treatment and multidisciplinary rehabilitation, complete recovery of bulbar functions was achieved; however, motor recovery remained partial, with persistent tetraparesis, more pronounced in the lower limbs.

Discussions. Varicella in adults can lead to severe complications, including post-infectious Guillain–Barré syndrome. Patients may develop rapid-onset ascending weakness, sensory disturbances, and bulbar involvement, sometimes progressing to respiratory failure. Early recognition and prompt treatment with IVIG or plasmapheresis are critical to limit neurological damage. Multidisciplinary rehabilitation is essential for restoring function, though some motor deficits may persist.

Conclusions. This case highlights that Varicella in adults, although often considered a benign and self-limited disease, may be associated with severe neurological complications such as Guillain-Barré syndrome. The development of progressive neurological symptoms requires a high level of clinical suspicion and careful monitoring in order to ensure early diagnosis. Prompt initiation of appropriate therapy, intensive care support when necessary, and close multidisciplinary management are essential for improving patient outcomes. Prolonged rehabilitation may be required, as neurological recovery can be slow and sometimes incomplete.

Keywords. Chickenpox, Guillain-Barré syndrome, Varicella-Zoster virus.

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79. MALE ALCOHOLIC PSYCHOSES. CLINICAL-EVOLUTIONARY AND DIFFERENTIAL - DIAGNOSTIC PARTICULARITIES

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Introduction. Alcohol consumption is one of the biggest public health problems, with a high prevalence worldwide, a fact supported by the easy possibility of obtaining alcoholic beverages. Clinically, alcohol consumption leads to the emergence of addiction syndrome, withdrawal, cognitive disorders and personality changes, with severe consequences on the quality of life. Alcohol is recognized as being involved in numerous deaths, the emergence of somatic and neuropsychiatric diseases, the consequences are reflected in the family, socio-professional status and social integration.

Aim of study. The goal of this study is to investigate the correlation between chronic alcohol consumption and the onset of alcohol-induced psychoses, specifically analyzing the transition from long-term dependency to complex psychiatric manifestations such as delirium tremens and alcoholic jealousy delirium. Furthermore, the study aims to identify the neurobiological and socio-demographic factors that predispose chronic consumers to these psychotic structures, while evaluating the clinical challenges in their diagnosis and therapeutic management.

Methods and materials. The clinical study was conducted in 2025, on 50 male patients aged between 19 and 67 years. The data were collected by clinical-statistical methods and by the interview-survey method according to the Standardization Glossary of Symptoms and Syndromes in Alcoholism and Alcoholic Psychosis, adapted to the Department of Mental Health, Medical Psychology and Psychotherapy of the State University of Medicine and Pharmacy "Nicolae Testemitanu".

Results. The analysis of the patient group revealed a specific chronological pattern in the evolution from recreational use to the installation of psychotic structures. An early onset of alcohol use was observed in the post-adolescent period. The first episodes of psychosis were observed shortly after the stabilization of daily use, between 29-34 years.

Conclusions. Globally, it is estimated that approximately 4% of the alcohol-dependent population will experience symptoms of alcoholic hallucinosis, with men being the category most at risk. In the analyzed group, a major prevalence of acute forms was observed, correlated with patterns of intense consumption of over 60 g of pure ethanol on a single occasion. From a clinical point of view, a dominance of delirium tremens was identified, present in 58% of cases, followed by alcoholic hallucinosis (38%) and delirium of jealousy (4%). Although genetic factors are often invoked, in the studied sample, 62% of patients denied a family history of alcoholism, suggesting that environmental factors are sufficient to trigger psychosis. The primary triggering factors identified include social isolation, lack of family environment, and unemployment, which support excessive consumption.

Keywords. Alcohol-induced psychosis, delirium tremens, alcohol jealousy delirium, neuroprogression.

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80. THE IMPACT OF VITAMIN D ON THE PATHOGENESIS AND MANAGEMENT OF AUTOIMMUNE THYROIDITIS

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Introduction. Autoimmune thyroiditis (AT) is the most common organ-specific thyroid disorder, characterized by a steadily increasing global incidence. Current scientific interest is focused on the immunomodulatory role of vitamin D, whose active form interacts with VDR receptors on immune cells. Vitamin D contributes to the suppression of the pro-inflammatory functions of Th1 and Th17 lymphocytes and to the stimulation of regulatory T lymphocytes. In this context, vitamin D deficiency promotes loss of immune tolerance, inducing autoantibody synthesis and the development of chronic inflammation.

Aim of study. The purpose of this study is to evaluate the link between serum vitamin D levels and the risk of autoimmune thyroiditis.

Methods and materials. The paper is based on observational data on the immunomodulatory role of vitamin D in autoimmune thyroiditis, using the PubMed database.

Results. The results of the study highlight a significant correlation between vitamin D status and autoimmune thyroiditis, but the results identified differ depending on the methodology used. The retrospective study (933 patients) demonstrated an observational link, where vitamin D normalization (≥75 nmol/L) reduced anti-TPO antibodies by 25% ($p = 0.036$). In contrast, Mendelian randomization analysis confirmed a direct causal relationship, demonstrating that increased levels of 25(OH)D decrease the genetic risk of developing AT (OR=0.499; $p = 0.012$). Unlike clinical data that focused on AT treatment, the genetic study provided a differentiated perspective, demonstrating that vitamin D protection is specific to Hashimoto's thyroiditis, with no significant causal link identified for Graves' disease.

Conclusions. Vitamin D acts through a protective effect on autoimmune thyroiditis, confirmed by the convergence of clinical data and genetic analysis. Achieving optimal serum levels is essential for reducing the autoimmune thyroid process and improving prognosis. The benefits of administration prevail in the management of AT, justifying the need for routine monitoring of vitamin D status in clinical practice.

Keywords. vitamin D, autoimmune thyroiditis, Hashimoto’s thyroiditis, thyroid antibodies.

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81. ASSESSMENT OF THE RISK OF THYROID CANCER ASSOCIATED WITH SEMAGLUTIDE

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Introduction. In contemporary medical practice, semaglutide has established itself as a versatile therapeutic agent, surpassing its hypoglycemic effects in the management of type 2 diabetes mellitus. Its use extends to reducing body weight, cardiovascular risk, metabolic dysfunction-associated steatohepatitis (MASH), and slowing the progression of renal disease. However, concerns remain regarding the safety profile of this drug, particularly the potential risk of thyroid cancer.

Aim of study. To review the current evidence regarding the association between semaglutide therapy and the risk of thyroid cancer.

Methods and materials. The paper presents a narrative analysis of the scientific literature on the thyroid carcinogenic risk associated with semaglutide from the PubMed database. Randomized clinical trials, observational studies, and pharmacovigilance analyses were included.

Results. The study by Nagendra et al. did not identify a significant risk for neoplasms associated with semaglutide (OR = 0,95; Cl 95%: 0,62-1,45). A meta-analysis of 64 randomized trials, 26 of which reported at least one case of thyroid cancer, showed a modest increase in risk (MH-OR = 1,52; Cl 95%: 1,01-2,29). The study by Bezin et al., which analyzed 2,562 cancer patients and 45,184 control subjects, reported an increased risk of thyroid cancer HR = 1,58 (Cl 95%: 1,27-1,95) for all types of thyroid cancer and HR = 1,78 (Cl 95%: 1,04-3,05) for medullary thyroid carcinoma within 1-3 years of treatment. However, this study reflects associations and does not demonstrate causal relationships. Similarly, the European Medicines Agency (EMA) (PRAC, October 2023) stated that there is no evidence to suggest that thyroid cancer occurs due to the administration of GLP-1 receptor agonists. The discrepancies between the reported results may be explained by the heterogeneity of study designs, variable duration of exposure, and the observational nature of some of the data.

Conclusions. Based on the available evidence, semaglutide appears to have a favorable safety profile with regard to the risk of thyroid cancer, which remains low but not completely excluded. Its benefits in the treatment of diabetes mellitus and obesity outweigh the potential risks. Further expansion of the evidence base on long-term safety is essential for medical practice, and well-designed clinical trials with rigorous patient selection in research are needed.

Keywords. semaglutide, Ozempic, thyroid cancer, thyroid neoplasms, GLP-1 receptor agonists, carcinogenic risk.

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82. RISK ASSESSMENT AND PROPHYLAXIS OF VENOUS THROMBOEMBOLISM: THE ROLE OF ARTIFICIAL INTELLIGENCE IN MODERN MEDICINE

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Introduction. Risk Assessment and Prophylaxis of Venous Thromboembolism: The Role of Artificial Intelligence in Modern Medicine Globally, it is estimated that there are over 10 million cases of venous thromboembolism (VTE) each year. It is considered the third leading cause of cardiovascular disease, and the mortality rate of cases can reach approximately 10%. Hospitalized patients, cases, pregnant women and cancer patients are at high risk. Although VTE is often explained by Virchow's triad, recent studies also show that thromboinflammatory mechanisms and clinical factors play a role. Despite having prevention options many high-risk patients are not identified or do not receive proper prevention. Artificial intelligence has become a tool to improve risk stratification, predictive accuracy, and support clinical decision-making in the prevention of VTE.

Aim of study. The goal is to analyze the risk factors of VTE, evaluate current prevention strategies and assess the role of artificial intelligence in improving risk assessment and prevention in clinical practice.

Methods and materials. This study was conducted as a narrative literature review focusing on risk factors, prophylactic strategies, and digital decision-support tools for venous thromboembolism. Relevant studies, reviews and guideline documents were found through PubMed, PubMed Central, NCBI UpToDate and international antithrombotic recommendations. The review included publications on epidemiology, pathophysiology, clinical risk factors and pharmacological and mechanical prophylaxis. Studies evaluating alert systems, clinical decision support and AI-based models for VTE risk stratification were considered.

Results. The analysis confirmed that VTE is a disorder with both temporary and persistent risk factors. These include: age, prolonged immobilization, major surgery, active malignancy, pregnancy, postpartum status, hormonal therapy, long-distance travel. Pharmacological prophylaxis especially with low-molecular-weight heparins and direct oral anticoagulants reduces thromboembolic events in selected patients. Mechanical methods are useful in those with increased bleeding risk. However thromboprophylaxis is still underused in practice. Computerized alerts and AI-assisted models may improve identification of high-risk VTE patients. Support more individualized prevention strategies.

Conclusions. VTE is a largely preventable condition. Effective prevention depends on risk recognition, systematic stratification and appropriate prophylaxis. The integration of intelligence into clinical workflows may strengthen prevention by improving prediction, supporting timely intervention and reducing the gap between guidelines and real-world practice, for VTE.

Keywords. venous thromboembolism, deep vein thrombosis, pulmonary embolism, thromboprophylaxis, risk assessment, artificial intelligence, clinical decision support.

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83. CALCIUM PYROPHOSPHATE DEPOSITION DISEASE

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Introduction. Calcium pyrophosphate deposition disease (CPPD) (pseudogout, chondrocalcinosis) can be associated with severe inflammation and massive joint destruction. CPPD affected joints can also be asymptomatic for a long time. The prevalence rises by 3.7% in the age group 55–59 and by 17.5% in the 80–84 age group.

Aim of study. The aim was to study the material by systematically reviewing the literature, clinical manifestations, diagnosis, and treatment in patients with CPPD.

Methods and materials. The literature was reviewed in the Scientific Library of the USMF „Nicolae Testemitanu", PubMed, scopus,and Web of Science databases, including articles published between 2010 and 2025. The study selected 36 studies on chondrocalcinosis, focusing on clinical manifestations, diagnosis and treatment.

Results. Calcium pyrophosphate deposition disease (CPPD) happens when tiny crystals made of calcium pyrophosphate build up in the joints, especially in the cartilage. Inflammation from this accumulation can result in joint pain, edema, and injury. When these calcium pyrophosphate crystals develop, the primary issue begins. In joint cartilage, the equilibrium between calcium and inorganic pyrophosphate (PPi) often maintains stability. However, in CPPD, this equilibrium shifts in favor of excessive PPi production outside of cells, which promotes crystal formation. In CPPD, the knee joint, wrists, and symphysis are frequently affected. CPPD has been described to occur bilaterally in the knee joints, with the lateral compartment and especially the meniscus being more frequently affected than the medial compartment. In case of polyarticular involvement, the changes come slightly earlier. Screening radiographs of other frequently involved joints should be obtained in all patients in whom the diagnosis is suspected but in whom radiographs of pertinent affected joints have not yielded a definitive diagnosis. According to the EULAR recommendations, in case of asymptomatic CPPD no treatment is necessary. Prophylactic treatment might be taken into consideration in these situations. Low-dose colchicine, typically 0.5–0.6 mg once or twice daily, is the medication with the strongest evidence. According to studies, this regimen lowers the frequency of attacks, and the advantages become apparent after a few months of treatment. Typically, treatment lasts three to six months, but if relapses happen after discontinuing, longer courses could be needed.

Conclusions. A better understanding of the inflammatory and destructive processes caused by disease-associated particles, together with advances in disease monitoring technology, will be of great help in developing future prevention/treatment strategies for CPPD.

Keywords. Microcrystalline arthritis, chondrocalcinosis, clinical manifestations, diagnosis.

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84. HETEROGENITY IN DIABETES MELLITUS T2

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Introduction. For many years, type 2 diabetes mellitus (T2DM) was generally viewed as a single metabolic disorder characterized by chronic hyperglycemia resulting from insulin resistance combined with impaired insulin secretion. However, current research increasingly suggests that this traditional view is overly simplistic. Clinical observations and molecular studies have demonstrated that individuals diagnosed with type 2 diabetes often differ substantially in their metabolic characteristics, genetic background, disease progression, and response to therapy. This variation has led researchers to recognize T2DM as a heterogeneous disease rather than a single uniform condition.

Aim of study. To understand the heterogeneity of diabetes mellitus and to understand and plan treatment that fits the diversity.

Methods and materials. Literature reviews from PubMed, Google Scholar, and symposiums on the heterogeneity of diabetes mellitus.

Results. The development of type 2 diabetes involves several interacting mechanisms, the most prominent being insulin resistance and β-cell dysfunction. Although these processes are central to the disease, the relative contribution of each mechanism varies between individuals. In some patients, insulin resistance appears to be the dominant abnormality. These individuals often have obesity or metabolic syndrome and initially maintain adequate insulin secretion. Genetic predisposition also contributes to disease variability. Genome-wide association studies have identified numerous genetic variants associated with T2DM susceptibility. Interestingly, many of these variants affect different biological pathways, including insulin secretion, adiposity, and hepatic glucose metabolism. Efforts to better understand diabetes heterogeneity have led to attempts to classify patients into more specific subgroups. One influential study conducted by Ahlqvist and colleagues in 2018 used cluster analysis to identify distinct clinical forms of diabetes based on several measurable characteristics. The researchers analyzed variables including: age at diagnosis body mass index (BMI) glycated hemoglobin (HbA1c) insulin resistance β-cell function presence of autoantibodies Using these parameters, the study identified five major clusters of diabetes. Some genetic variants primarily affect insulin secretion, while others influence body fat distribution, appetite regulation, or hepatic lipid metabolism.

Conclusions. The growing body of research on T 2DM has highlighted the considerable variability that exists among patients diagnosed with the disease. Rather than representing a single disease entity, T2DM is increasingly recognized as a spectrum of related metabolic disorders that has also included genetic factors into play along with metabolic pathways, β-cell function,environmental exposures. Identifying and understanding these subtypes may eventually lead to more personalized approaches to prevention and treatment.

Keywords. diabetes mellitus type 2, heterogeneity.

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85. COMPARATIVE STUDY OF CARDIOEMBOLIC AND NON-CARDIOEMBOLIC STROKE PATIENTS

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Scientific adviser: Natalia Ciobanu

Introduction. Stroke represents the leading cause of disability among the working-age population in the Republic of Moldova. At the European level, The Stroke Action Plan for Europe (SAP-E) highlights the underutilization of oral anticoagulants for stroke prevention in patients with atrial fibrillation (AF).

Aim of study. Comparing demographic and clinical characteristics between cardioembolic stroke patients and the rest of the stroke cohort.

Methods and materials. A retrospective observational cohort study was conducted on 287 patients diagnosed with acute stroke, admitted during two distinct periods: January–April 2024 and July 2025. Anamnestic, clinical, and paraclinical data were collected from the medical records. The NIHSS (National Institutes of Health Stroke Scale) score was used to assess the severity of neurological deficit at admission, and the CHA_2DS_2-VA score was calculated to evaluate the cardioembolic risk in these patients.

Results. The study consisted of 287 patients admitted with acute stroke. Cardioembolic stroke etiology was established in 117 patients (40.8%). AF was identified as the leading cause of cardioembolic stroke, accounting for 86.3% of the cases. The prevalence of hypertension(84.6%), ischemic heart disease (23.9%) and congestive heart failure (17.95%) in the studied cohort reflects a complex cardiovascular profile. Patients with cardioembolic stroke were significantly older, with a mean age of 72.4 years (±9.87), with the mean age of the entire cohort, which was 68.6 years (±10.5). Moreover, the severity of neurological deficits at the time of stroke onset was also more pronounced, as reflected by a mean NIHSS score of 11.6 in the cardioembolic group, compared to 9.7 in the entire cohort, suggesting larger infarct volumes consistent with cardiac embolism. The mean CHA_2DS_2-VA score was 3.97 (±1.6), indicating a moderate-to-high cardiovascular risk profile in the studied population. Regarding topography, the ischemic lesions were more commonly found in the middle cerebral artery (MCA) territory, accounting for 67.5%. At admission, the majority of the cardioembolic stroke subgroup, or 49.6%, whereas 24.8% were receiving heparins, and 4.3% were receiving vitamin K antagonists. Importantly, 10.3% received no anticoagulation despite evident embolic risk. Overall in-hospital mortality was 18.1%, with 74.6% discharged home.

Conclusions. Stroke is a major cause of death and disability, with AF playing a central role in cardioembolic etiology (86.3% of cases). Cardioembolic patients were older, had more severe neurological deficits, and predominant MCA involvement. Hypertension (84.6%), ischemic heart disease (23.9%), and heart failure (17.9%) contributed to the cardiovascular risk profile. These findings support systematic AF screening and integrated prevention strategies.

Keywords. cardioembolic stroke, atrial fibrillation, hypertension, NIHSS, CHA_2DS_2-VA, anticoagulation.

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86. PULMONARY INVOLVEMENT IN RHEUMATOID ARTHRITIS

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Introduction. Rheumatoid arthritis (RA) is a chronic systemic autoimmune disease characterised predominantly by inflammatory polyarthritis, but frequently accompanied by extra-articular manifestations. Pulmonary involvement is one of the most clinically significant consequences, accounting for a sizable portion of morbidity and mortality. RA lung symptoms include interstitial lung disease (ILD), airway disease, pleural involvement, and pulmonary nodules. RA-associated ILD is especially significant because of its progressive nature and poor prognosis. Early detection of pulmonary involvement remains difficult since many patients are asymptomatic in the early stages, although structural lung abnormalities may already be present.

Aim of study. To examine and synthesise current understanding on pulmonary involvement in rheumatoid arthritis, with a focus on epidemiology, pathophysiological causes, clinical manifestations, diagnostic tools, and prognostic implications.

Methods and materials. The investigation was carried out as a structured literature review using scientific papers identified through databases such as PubMed/MEDLINE, Scopus, and Google Scholar. The study examined literature published between 2021 and 2026 that discussed pulmonary involvement in rheumatoid arthritis. Publications were chosen based on predetermined inclusion criteria that addressed epidemiology, pathophysiology, clinical symptoms, diagnostic techniques, and prognostic factors in RA-related lung illness.

Results. The literature review shows that pulmonary involvement is a common extra-articular symptom of RA and a significant predictor of disease outcome. The most clinically significant pulmonary consequence is interstitial lung disease, which has three main patterns: typical interstitial pneumonia, nonspecific interstitial pneumonia, and organizing pneumonia (OP). Several risk factors for RA-related lung disease include advanced age, male sex, smoking, and high levels of rheumatoid factor and anti-citrullinated peptide antibodies. High-resolution computed tomography is critical in detecting and characterising pulmonary involvement, since it allows for the identification of preclinical illness and discrimination between ILD patterns.

Conclusions. Pulmonary involvement in rheumatoid arthritis encompasses a diverse range of diseases with significant clinical and prognosis implications. Early detection and precise characterisation of lung symptoms are critical for effective patient care. An integrated diagnostic method that combines clinical evaluation, functional assessment, and imaging is required to improve detection and guide therapeutic decision-making in RA patients.

Keywords. rheumatoid arthritis, pulmonary involvement, interstitial lung disease, HRCT, extra-articular manifestations.

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87. ALLERGIC CONTACT DERMATITIS CAUSED BY 2-HYDROXYETHYL METHACRYLATE IN A NAIL TECHNICIAN.

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Introduction. 2 Hydroxyethyl methacrylate (HEMA), a methacrylate monomer widely used in nail cosmetics, is a significant contact allergen. Its inclusion in the European baseline patch test series in 2019 reflects the increasing number of allergic contact dermatitis (ACD) cases among consumers and nail technicians. Positive reactions to HEMA in European centres range from 0.9% to 4.4%, with nearly two-thirds of sensitizations linked to nail cosmetic products, especially in women. Early recognition and precise identification of the allergen are crucial for prevention and management of ACD.

Case presentation. A 38-year-old woman who had worked as a nail technician for approximately 10 years presented with a history of recurrent hand eczema characterized by vesicles, erythema, and pruritus. She had discontinued her professional activity due to periodic exacerbations of eczema affecting her hands. The patient reported that the dermatitis had been present for approximately two years, with recurrent flare-ups. At the time of examination, vesicles were observed on the fingers, accompanied by severe pruritus. Patch testing demonstrated sensitization to acrylates, with a positive reaction to 2-hydroxyethyl methacrylate observed at the 72-hour reading. Nickel allergy and irritant contact dermatitis were considered in the differential diagnosis but were excluded based on clinical findings and patch test results.

Discussions. Allergic contact dermatitis from nail acrylates, particularly HEMA, is increasingly common among young female nail technicians, with occupational exposure accounting for up to 90% of cases in Europe. Epidemiological studies indicate that 1.5–3.7% of patch-tested patients exhibit positive reactions to HEMA, with sensitization rates reaching up to 72% among professional nail technicians, underscoring its high allergenic potential. Patch testing remains the gold standard for the diagnosis of contact allergy, although cross-reactivity with other acrylates has been documented. Even with protective gloves and masks, prolonged exposure can lead to recurrent hand eczema, emphasizing the need for early recognition and preventive measures.

Conclusions. This case highlights that prolonged occupational exposure to 2-Hydroxyethyl Methacrylate can lead to recurrent dermatitis, even when partial protective measures are employed. Early recognition, strict allergen avoidance, and implementation of safety practices are essential to prevent disease progression and preserve work capacity.

Keywords. eczema, contact dermatitis.

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88. ASSOCIATION OF COMORBIDITIES IN PATIENTS WITH CHRONIC HEART FAILURE

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Introduction. Chronic Heart Failure (CHF) is a long-term clinical syndrome where the heart is unable to pump enough blood to meet the body's metabolic requirements due to structural or functional cardiac abnormalities. Numerous comorbidities frequently can complicate this clinical syndrome, and these comorbidities have a significant impact on the pathophysiology, treatment, and prognosis of CHF. According to studies published in peer-reviewed journals in PubMed, Google Scholar, and ScienceDirect, DM type 2, hypertension, chronic kidney disease, COPD and atrial fibrillation are the main comorbidities associated with increased hospitalization and mortality among CHF cases.

Aim of study. The purpose includes the identification of comorbidities in Chronic Heart Failure, the nature of the most common comorbid cardiovascular and non-cardiovascular diseases, the clinical presentation, severity of symptoms and effect of comorbidities on the course of chronic heart failure, hospitalization rates and its prognosis.

Methods and materials. The research is based on 22 bibliographic sources that were analysed using PubMed, Google Scholar, Science Direct and other web sources.

Results. Among the comorbidities analysed, the most common include Hypertension (≈63–75%), Type 2 Diabetes Mellitus (≈26–33%), Chronic Kidney Disease (≈23–25%), Chronic Obstructive Pulmonary Disease (≈18%), and Atrial Fibrillation (≈25–58%). Cases with multiple comorbid conditions presented with severe clinical manifestations such as dyspnoea, fatigue, decreased exercise tolerance and peripheral edema. They were also associated with increased hospitalization rates, complex treatment approaches and poor prognosis compared to those with smaller or no comorbid conditions. In the CHF population, the mortality rate increased with the number of comorbid conditions: 4.4 % if no comorbid conditions, 13.7 % if one, 18.9 % if two, 21.5 % if three, and 23.8 % if four or more. Hospitalized CHF patients have an in-hospital mortality rate around 10%, with 5-year mortality rates over 50%.

Conclusions. The comorbidities play an important role in the course and outcome of chronic heart failure. The early detection and management of comorbid diseases are necessary for the improvement of the prognosis of Chronic Heart Failure patients.

Keywords. Chronic heart failure, comorbidities, hypertension, diabetes mellitus.

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89. LIVER INVOLVEMENT AFTER HEMATOPOIETIC STEM CELL TRANSPLANTATION

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Introduction. Hematopoietic stem cell transplantation (HSCT) represents an essential therapeutic option in the treatment of numerous malignant and non-malignant hematological diseases. Despite significant advances in transplantation techniques and supportive care, hepatic complications remain frequent and may significantly contribute to post-transplant morbidity and mortality.

Aim of study. The aim of the study is to analyze the main types of liver involvement that may occur after HSCT and their specific characteristics.

Methods and materials. A literature review on liver involvement after HSCT included scientific papers published between 2015 and 2025, selected from the PubMed, Google Scholar, and Hinari databases. The analysis focused on studies describing the main hepatic complications associated with HSCT and the mechanisms involved in their development. A total of 18 relevant scientific papers were analyzed.

Results. Liver involvement after HSCT may occur through vascular, immunological, toxic, or infectious mechanisms. Hepatic complications are classified into early and late forms depending on the time of onset after transplantation. Early complications occur within the first 100 days after transplantation, the most frequent being sinusoidal obstruction syndrome (SOS), drug-induced hepatotoxicity, infections, and acute graft-versus-host disease (aGVHD). SOS represents one of the most severe complications and occurs in approximately 5–15% of transplanted patients, manifesting with painful hepatomegaly, jaundice, ascites, and fluid retention, while in severe cases mortality may exceed 80%. aGVHD is reported in approximately 30–70% of transplanted patients and may lead to hepatic involvement characterized by cholestasis and increased levels of bilirubin and liver enzymes. Late complications occur after day 100 post-transplant, the most frequent being chronic graft-versus-host disease (cGVHD), chronic viral hepatitis, and hepatic iron overload. cGVHD occurs in approximately 50% of patients and may cause persistent hepatic involvement manifested by chronic cholestasis and elevated liver enzymes, sometimes associated with hepatomegaly or ascites.

Conclusions. Liver involvement after HSCT has a multifactorial etiology and results from the interaction of toxic, immunological, infectious, and vascular factors. Understanding these mechanisms is essential for early diagnosis and appropriate management of transplanted patients.

Keywords. hematopoietic stem cell transplantation, hepatic complications, graft-versus-host disease, sinusoidal obstruction syndrome.

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90. ALCOHOL USE AND BIPOLAR AFFECTIVE DISORDER: CLINICAL PATTERNS AND OUTCOMES IN A PSYCHIATRIC INPATIENT SAMPLE

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Introduction. Bipolar affective disorder (BAD) is among the most debilitating psychiatric conditions, frequently complicated by substance use comorbidities. Alcohol use disorder stands out as particularly prevalent in this population, often preceding or accelerating the onset of affective episodes, worsening prognosis, and complicating treatment. In the Republic of Moldova, data on this comorbidity remain scarce, making local clinical evidence especially valuable.

Aim of study. To describe and compare the clinical, demographic, and evolutionary characteristics of BAD patients with and without documented alcohol consumption, focusing on suicidal behavior, age of onset, disease duration, and hospitalization patterns.

Methods and materials. We retrospectively reviewed 2,000 inpatient files from the Psychiatry Clinical Hospital, Chisinau (2015–2025). From these, 150 patients carried a BAD diagnosis (ICD-10: F31.x). Based on documented alcohol use, two groups were formed: consumers (n=109, 72.7%) and non-consumers (n=41, 27.3%). We analyzed sex, diagnostic subtype, suicidal ideation or attempts, hereditary psychiatric background, somatic comorbidities, onset age, evolution duration, and number of hospitalizations. Chi-square tests (χ^2), Spearman correlations (ρs) and descriptive statistics were applied, significance threshold $\alpha=0.05$.

Results. Suicidal behavior was recorded in 66.1% of consumers vs 43.9% of non-consumers ($\chi^2=6.092$, $p=0.014$). Consumers had a markedly earlier disease onset (~22 vs ~30 years; $\chi^2=6.359$, $p=0.012$) and longer evolution (over 10 years in 55.0% vs 29.3%). Repeat hospitalizations (4 or more) occurred in 58.7% of consumers versus 26.8% of non-consumers ($\chi^2=12.117$, $p<0.001$), with a mean of 4.9 vs 3.0 admissions per patient. Spearman analysis confirmed a moderate-strong positive correlation between disease duration and hospitalization count ($\rho s=0.540$, $p<0.001$ in consumers; $\rho s=0.536$, $p<0.001$ overall). F31.2 was the predominant subtype in both groups.

Conclusions. In this clinical sample, alcohol comorbidity was associated with earlier BAD onset, longer illness course, greater hospitalization burden, and higher suicidal risk. These findings support the routine integration of alcohol screening into psychiatric assessment of every BAD patient, alongside dual-focused treatment strategies.

Keywords. bipolar disorder, alcohol comorbidity, suicide risk, hospitalization.

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91. CLINICAL OUTCOMES IN PATIENTS WITH SEVERE AORTIC STENOSIS UNDERGOING TAVR VERSUS SAVR - SYSTEMATIC REVIEW

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Introduction. Aortic stenosis is a progressive valvular pathology characterized by narrowing of the aortic valve orifice, leading to impaired blood flow and poor prognosis if untreated. Historically, surgical aortic-valve replacement (SAVR) has been the definitive gold standard, but transcatheter aortic-valve replacement (TAVR) has emerged as a minimally invasive alternative. Initially reserved for high surgical risk patients, TAVR is increasingly considered for intermediate and low-risk populations.

Aim of study. This systematic review aims to synthesize existing randomized data comparing clinical outcomes between TAVR and SAVR in severe aortic stenosis, identifying the procedure with superior overall patient outcome.

Methods and materials. Conducted in strict accordance with PRISMA guidelines, a comprehensive search was performed across PubMed, Cochrane, Embase and Google Scholar for primary studies published between 2015 and 2025. Search keywords included "severe aortic stenosis", "TAVR" and "SAVR". Inclusion criteria required quantifiable clinical outcomes: mortality, stroke, hospitalization duration, complication rates, reintervention rates and quality-of-life (QoL) scores. Studies were excluded for missing outcome parameters, population overlap or prior cardiac surgery. Bias risk was not evaluated.

Results. A total of 12 primary studies and meta-analyses were included, representing over 10,000 randomized participants across surgical risk profiles. In low-risk patients at 5 years, the composite endpoint of death, stroke or rehospitalization showed no significant difference between TAVR and SAVR (22.8% vs. 27.2%; p=0.07; 95% CI, -9.9 to 1.3) (Mack et al. 2023), sustained at 7 years (Leon et al. 2025). Long-term all-cause mortality (95% CI, 0.95–1.11; p=0.54) and disabling stroke risk (95% CI, 0.93–1.11; p=0.70) were comparable. However, TAVR showed significantly higher rates of permanent pacemaker implantation (p<0.001) (Forrest et al. 2025) and paravalvular leaks (p=0.01) (Talanas et al. 2024). Mortality within the first year favored TAVR (95% CI, 0.68–0.98; p=0.03), though SAVR may offer improved survival beyond two years (95% CI, 1.14–2.00; p=0.004). KCCQ-OS quality-of-life gains were comparable at 5 years (TAVR: 15.4 vs. SAVR: 14.3; p=0.83), with TAVR showing faster early recovery (Kleiman 2024).

Conclusions. TAVR and SAVR provide comparable long-term survival and quality-of-life outcomes in severe aortic stenosis. TAVR is favored for its minimally invasive nature and early survival advantage, while SAVR remains superior in reducing conduction disturbances and paravalvular regurgitation. Limitations include differential follow-up loss in surgical trial arms and absence of comparative data beyond 10 years.

Keywords. Cardiology, Valvular Heart Disease, Severe Aortic Stenosis, Valve Replacement, Transcatheter vs. Surgical Technique

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92. VITAMIN D AND SYSTEMIC INFLAMMATION IN PSORIATIC ARTHRITIS: CLINICAL AND PATHOPHYSIOLOGICAL CORRELATIONS

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Introduction. Psoriatic arthritis (PsA) is a chronic immune-mediated inflammatory disease affecting the joints, entheses and skin. In recent years, vitamin D has gained attention due to its immunomodulatory properties, particularly through its influence on the Th17/IL-23 axis, which plays a key role in inflammation. Recent studies indicate that low vitamin D levels may be associated with higher disease activity in PsA.

Aim of study. To evaluate the relationship between serum vitamin D levels and systemic inflammation, disease activity, and clinical outcomes in patients with PsA by synthesizing evidence from observational studies and meta-analyses.

Methods and materials. A narrative literature review included 11 observational studies (cohort, cross-sectional, case-control) and 2 meta-analyses published between 2014 and 2023. Studies were identified in PubMed, Web of Science, Scopus and the Cochrane Library using the keywords "psoriatic arthritis", "vitamin D", "25(OH)D", "inflammation" and "disease activity". Data on serum 25-hydroxyvitamin D [25(OH)D] levels and correlations with inflammatory markers (CRP, ESR), disease activity scores (DAS28, PASI, BASDAI, HAQ, PGA, MASES) and quality-of-life measures (PsAQoL) were analyzed.

Results. Patients with psoriatic arthritis had significantly lower serum 25(OH)D levels (=10-22 ng/mL) compared with healthy controls (MD = -6.42 ng/mL, 2023 meta-analysis). Vitamin D deficiency was linked to evaluate CRP (~4-32 mg/L) and ESR (=10-45 mm/h) levels, as well as higher disease activity scores, including DAS28, PASI, BASDAI and HAQ. An inverse relationship between 25(OH)D levels and disease severity was reported, with PASI correlations ranging from r = -0.34 to -0.52, and DAS28-CRP also showing a negative association with vitamin D levels. Patients with PsA also demonstrated elevated levels of pro-inflammatory cytokines such as IL-17, IL-18, and IL-23, although a consistent correlation with 25(OH)D was not observed across all studies. Furthermore, longer disease duration appeared to be associated with lower vitamin D levels.

Conclusions. Current evidence indicates that hypovitaminosis D is common in patients with psoriatic arthritis and is associated with increased inflammatory activity and greater disease severity. Moreover, a bidirectional relationship appears to exist between vitamin D levels and disease progression: vitamin D deficiency may contribute to enhanced inflammatory responses, while chronic inflammation and longer disease duration may in turn lead to decreased vitamin D levels. These findings suggest that monitoring and correcting vitamin D deficiency may represent a valuable adjunctive strategy in the management of PsA.

Keywords. Psoriatic arthritis, vitamin D, systemic inflammation, PASI, DAS28, CRP, ESR, IL-17, IL-23, IL-18.

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93. COMPLEX COMPLICATIONS IN MALE WITH SYSTEMIC LUPUS ERYTHEMATOSUS (SLE) AND ANTIPHOSPHOLIPID SYNDROME (APS)

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Introduction. SLE is an autoimmune disease where balancing control of systemic inflammation with immunosuppressors and prevention of its long-term severe complication is a real challenge for clinicians. We present a case of a 36-years old male with a 20-years history of SLE associated with APS, whose disease course was complicated by rare joint arthropathy, therapy-related damage and recurrent severe infection.

Case presentation. The patient was initially diagnosed with idiopathic juvenile arthritis at the age of 15 and improved with steroids. Skin eruptions and constitutional severe manifestations developed later and were misdiagnosed as allergic dermatitis. Rheumatologist consultation confirmed clinically and immunologically the diagnosis of SLE associated with APS and steroid pulse therapy was indicated with tapering. Maintenance therapy was 4-8mg methylprednisolone, hydroxychloroquine and anticoagulants that stabilized his condition. Insidiously Jaccoud arthropathy developed, In 2017 mycophenolate mofetil (MMF) was introduced but was periodically stopped due to recurrent infections. APS, prolonged steroids and anticoagulants use contributed to bilateral avascular necrosis (AVN) of the femoral head and retroperitoneal hematoma. In 2023 MMF was stopped after recurrent infections: septic arthritis, repeated phlegmons and abscess, requiring surgical drainage and antibiotics. Knee subluxation in 2025 showed the weakness of ligaments.

Discussions. SLE predominantly affects women, and rare cases of severe clinical course in men associated with APS makes diagnosis and management challenging. Jaccoud arthropathy can mimic rheumatoid arthritis. Chronic SLE requires long-term management with corticosteroids, immunosuppressants and anticoagulant drugs, which give rise to AVN, osteoporosis, retroperitoneal hematoma, and infections progressing to sepsis. The recurrent episodes of infections oblige the withdrawal of MMF that give rise to a severe disease activity. Despite this long journey of complications, visceral complications such cardiopulmonary or renal were not observed.

Conclusions. This case shows complexity of managing SLE with secondary APS in man, in association with several complications (Jaccoud arthropathy/ AVN and repeated infections) although visceral damage was absent. It illustrates the delicate balance between disease activity, chronic immunosuppressive therapy, and risk of complications.

Keywords. systemic lupus erythematosus, antiphospholipid syndrome, jaccoud arthropathy ,avascular necrosis, recurrent infections, Immunosuppressive therapy.

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94. SCHISTOSOMIASIS: ETIOPATHOGENESIS, CLINICAL MANIFESTATIONS, DIAGNOSIS AND TREATMENT

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Introduction. Schistosomiasis is a neglected tropical parasitic disease caused by blood flukes of the genus Schistosoma and remains one of the most prevalent helminth infections worldwide. According to data reported in the scientific literature, more than 200 million people are infected globally, mainly in tropical and subtropical regions. Human infection occurs through skin contact with freshwater contaminated by cercariae released from infected freshwater snails, which act as intermediate hosts. After penetrating the skin, larvae migrate through the bloodstream and mature in the venous plexuses. The pathogenesis of schistosomiasis is largely related to the host immune response to parasite eggs deposited in tissues, leading to granulomatous inflammation, fibrosis, and progressive organ damage.

Aim of study. The aim of this study was to analyze the etiopathogenesis, clinical manifestations, diagnostic approaches, and treatment strategies of schistosomiasis based on data reported in the scientific literature.

Methods and materials. A narrative literature review was performed using internationally recognized medical databases including PubMed, ScienceDirect, and Medscape. Scientific articles focusing on schistosomiasis pathogenesis, clinical manifestations, diagnosis, and treatment were selected using keywords such as „schistosomiasis", „schistosome", „pathogenesis", „clinical manifestations", „diagnosis", and „treatment". A total of 30 peer-reviewed publications were analyzed and the information was summarized using descriptive analytical methods.

Results. Schistosomiasis is mainly caused by Schistosoma haematobium, Schistosoma mansoni, and Schistosoma japonicum. Clinical manifestations vary depending on the stage of infection and the organs involved. Acute schistosomiasis (Katayama syndrome) may present with fever, malaise, cough, eosinophilia, and hepatosplenomegaly. Chronic infection develops due to persistent egg deposition in tissues and may lead to intestinal, hepatic, or urogenital disease. Intestinal schistosomiasis commonly presents with abdominal pain and diarrhea, whereas urogenital schistosomiasis is characterized by hematuria and urinary tract pathology. Long-term infection may lead to hepatic fibrosis, portal hypertension, and increased risk of bladder carcinoma. Diagnosis is based on the detection of parasite eggs in stool or urine samples and may be supported by serological or molecular methods. Praziquantel remains the treatment of choice due to its high efficacy against adult worms.

Conclusions. Schistosomiasis remains a significant parasitic disease with important clinical and public health implications. Early diagnosis and treatment with praziquantel are essential for preventing complications and reducing disease burden. Continuous research and improved preventive strategies are necessary for effective disease control.

Keywords. schistosomiasis, Schistosoma, parasitic infection, pathogenesis, diagnosis, praziquantel.

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95. METHOTREXATE-ASSOCIATED CRYSTALLURIA AND NEPHROPATHY

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Introduction. Methotrexate (MTX) is a cornerstone of therapy in oncology and rheumatology. As it is primarily excreted renally, it carries a significant risk of inducing acute kidney injury (AKI) through direct tubular toxicity or the precipitation of insoluble crystals. While crystalline MTX nephropathy is statistically rare, it represents a severe, life-threatening complication. Low-dose MTX is generally safe; however, toxicity can arise if renal function is compromised, dehydration occurs, or dosing errors are made. This study explores the epidemiology, diagnostic markers, and prevention protocols associated with MTX-induced renal injury.

Aim of study. This research evaluates the incidence, clinical presentation, and management of methotrexate (MTX)-associated crystalluria and nephropathy. It specifically compares renal complications in patients on high-dose oncological protocols against those receiving low-dose weekly regimens for autoimmune conditions.

Methods and materials. A 30-month observational review was conducted on adult patients undergoing MTX therapy across various clinical settings. The methodology involved analyzing data from PubMed-indexed publications (2016–2025) and integrating the 2023 KDIGO and EFLM urinalysis guidelines. The patient cohort was stratified by dosage into high-dose oncology and low-dose rheumatology groups. Baseline renal function was established for all participants. Monitoring parameters included serum creatinine, eGFR, urine pH, and comprehensive automated urinalysis, with crystalluria confirmed via polarized light microscopy of fresh urine samples.

Results. MTX-associated crystalluria and nephropathy are significant drivers of iatrogenic AKI, particularly in intensive chemotherapy or patients with underlying renal disease. Prevention relies on aggressive hydration and urine alkalinization to maintain drug solubility within the renal system. Clinical diagnosis involves observing AKI alongside elevated plasma MTX concentrations and the presence of distinctive “brown-golden” needle-like or rhomboid urine crystals. Management utilizing glucarpidase and leucovorin often results in successful renal recovery. In contrast, crystal-induced nephropathy was found to be exceptionally rare in low-dose regimens, provided appropriate monitoring is maintained and chronic kidney disease is absent.

Conclusions. MTX-induced renal injury primarily manifests in high-dose protocols or in compromised patients on low-dose therapy. Prevention involves pH-targeted alkalinization, vigorous hydration, and the timely use of glucarpidase and leucovorin. Early clinical intervention typically ensures a favorable long-term renal prognosis and minimizes permanent damage.

Keywords. Methotrexate toxicity, crystalline nephropathy, acute kidney injury, urine alkalinization, glucarpidase, leucovorin.

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96. THERAPEUTIC MANAGEMENT OF AUTOSOMAL DOMINANT POLYCYSTIC KIDNEY DISEASE ACCORDING TO THE KDIGO 2025 GUIDELINE

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Introduction. Autosomal dominant polycystic kidney disease (ADPKD) is the most common monogenic kidney disorder, affecting nearly 12 million people worldwide. It is characterized by progressive renal cyst formation leading to kidney enlargement and gradual decline in renal function. ADPKD is a major genetic cause of end-stage kidney disease and often requires kidney replacement therapy. Advances in understanding its pathogenesis have enabled the development of therapies aimed at slowing disease progression.

Aim of study. To summarize the main therapeutic approaches recommended by the KDIGO 2025 guideline for the management of autosomal dominant polycystic kidney disease.

Methods and materials. A narrative review was conducted based on the KDIGO 2025 Clinical Practice Guideline for the Evaluation, Management and Treatment of ADPKD published in Kidney International. The analysis focused on disease-modifying therapies, management of ADPKD-related complications, and therapeutic strategies for advanced stages of the disease.

Results. ADPKD is most frequently caused by mutations in the PKD1 and PKD2 genes encoding polycystin-1 and polycystin-2. Their dysfunction leads to abnormal cellular signaling, progressive cyst growth, and renal parenchymal damage. Therapeutic management includes both standard chronic kidney disease care and disease-specific strategies aimed at slowing progression. Arterial hypertension commonly occurs in early stages; therefore, renin–angiotensin system inhibitors are recommended for blood pressure control and nephroprotection.A major therapeutic advance is tolvaptan, a selective vasopressin V2 receptor antagonist that reduces vasopressin-mediated cyst growth and slows kidney volume increase and decline in glomerular filtration rate in patients with rapidly progressive disease. Treatment requires careful risk–benefit assessment and monitoring of liver function.Management also includes treatment of complications such as cyst infections, nephrolithiasis, and chronic pain, as well as lifestyle measures including sodium restriction and adequate fluid intake. In advanced stages, kidney replacement therapy (dialysis or kidney transplantation) becomes necessary.

Conclusions. ADPKD remains a major genetic cause of chronic kidney disease progression. According to the KDIGO 2025 guideline, optimal therapeutic management requires early identification of patients at risk of rapid progression, control of modifiable risk factors, treatment of complications, and the use of disease-modifying therapies such as tolvaptan. Implementation of these strategies may slow disease progression and improve long-term clinical outcomes.

Keywords. ADPKD, tolvaptan, KDIGO guideline, CKD.

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97. LOCAL ALLERGIC RHINITIS—CLINICAL FEATURES, IMMUNOLOGICAL MECHANISMS, AND DIAGNOSTIC CHALLENGES

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Introduction. Allergic rhinitis is an inflammatory condition of the nasal mucosa triggered by various airborne allergens and mediated by IgE. Recent studies describe the term local allergic rhinitis (LAR), which represents an allergic response in the nasal mucosa, in the absence of systemic sensitization detected by skin prick tests or specific IgE. This particularity represents a challenge in establishing a definitive etiological diagnosis and, subsequently, administering allergen-specific treatment.

Aim of study. To analyze the clinical, patho-immunological, and diagnostic characteristics of local allergic rhinitis.

Methods and materials. The study was conducted by analyzing articles published on PubMed and MDPI platforms over the last 5 years using the following search criteria: local allergic rhinitis, allergic rhinitis, nasal challenge test.

Results. Local allergic rhinitis is a phenotype of allergic rhinitis with similar clinical manifestations such as rhinorrhea, nasal congestion, excessive mucus production, and nasal pruritus, in the absence of systemic manifestations. It affects patients of different ages, regions, and ethnicities, and has a prevalence of 25.7% in adults, especially those previously known to have chronic non-allergic rhinitis, and up to 36% among children. Although there is no clear understanding of the pathogenic mechanisms in RAL, several studies in recent years have demonstrated the presence of an IgE-mediated inflammatory response involving eosinophils, mast cells and mediators such as tryptase and eosinophil cationic protein. All of these ultimately contribute to the accumulation of Th2 and Th9 cells in the nasal mucosa. The diagnosis of LAR is based on a detailed medical history, evolution history, and clinical examination, including anterior rhinoscopy and nasal endoscopy, the latter performed to rule out alternative diagnoses. The gold standard for confirming local allergic rhinitis is nasal allergen challenge testing with suspected allergens to assess the response of the nasal mucosa in the absence of specific IgE in serum or negative skin tests.

Conclusions. Local allergic rhinitis is a particular form of allergic rhinitis, characterized by a hypersensitivity reaction in the nasal mucosa, in the absence of systemic manifestations. The inability to identify a specific etiological agent limits the therapeutic options for these patients, which can significantly affect their quality of life.

Keywords. local allergic rhinitis, allergic rhinitis, nasal challenge test.

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98. CLINICAL AND HEMATOLOGICAL CHARACTERISTICS OF ACUTE PROMYELOCYTIC LEUKEMIA

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Introduction. Acute promyelocytic leukemia (APL) is a distinct subtype of acute myeloid leukemia characterized by the uncontrolled accumulation of abnormal promyelocytes in the bone marrow and peripheral blood. In the majority of cases, APL is associated with the chromosomal translocation t(15;17), which results in the formation of the PML-RARA fusion gene and leads to a block in myeloid cell differentiation. Clinically, patients may present manifestations related to bone marrow failure, such as anemia, thrombocytopenia and neutropenia, as well as severe bleeding complications caused by disseminated intravascular coagulation. Diagnosis is based on the bone marrow morphological evaluation, cytogenetic analysis and molecular testing for the detection of the PML-RARA fusion gene. Early diagnosis and prompt initiation of therapy are essential for preventing life-threatening hemorrhagic complications and improving patient survival.

Aim of study. To evaluate the clinical and hematological characteristics of patients diagnosed with acute promyelocytic leukemia.

Methods and materials. The study included 37 patients diagnosed with APL, who were hospitalized at the Hematological Center of the Institute of Oncology, Republic of Moldova. The age of the patients included in the study ranged from 19 to 66 years, distributed as follows: 19-39 years-20 cases, 40-59 years-15 cases, more than 60 years-2 cases. In all cases, the diagnosis was established based on morphological examination of bone marrow samples.

Results. Analysis of the clinical and hematological characteristics of patients with APL showed that the disease occurred most frequently in young individuals aged 19-39 years (54%), followed by adults aged 40-59 years (40%), while patients older than 60 years represented 6% of all recorded cases. Within the studied cohort, a higher prevalence was observed among female patients, whereas in the age group above 60 years male patients predominated. The distribution of patients with APL according to clinical and hematological syndromes is as follows: 100% of patients presented with anemic syndrome, 84% with hemorrhagic syndrome, 16% with infectious syndrome, and 24% with proliferative syndrome.

Conclusions. Acute promyelocytic leukemia occurs most frequently in young patients aged 19-39, with a predominance among females. Among the clinical manifestations observed, anemia represents the most common finding.

Keywords. APL, clinical and hematological characteristics, age.

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99. IMPACT OF DIGITAL MONITORING TECHNOLOGIES ON BLOOD PRESSURE AND GLYCEMIC CONTROL IN PATIENTS WITH TYPE 2 DIABETES

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Introduction. Type 2 diabetes mellitus (T2DM) is one of the most prevalent non-communicable diseases worldwide. According to the International Diabetes Federation Diabetes Atlas (2021), approximately 537 million adults live with diabetes globally representing 10.5% of the adult population, with more than 90% of cases being type 2 diabetes. Hypertension frequently coexists with T2DM and affects up to two-thirds of patients, significantly increasing cardiovascular risk. Achieving optimal glycemic and blood pressure (BP) control remains challenging, but digital health technologies may improve cardiometabolic management through continuous monitoring and remote medical support.

Aim of study. To evaluate the impact of digital monitoring technologies on glycemic and BP control in patients with T2DM and to analyze their role in improving cardiometabolic outcomes.

Methods and materials. A narrative literature review was conducted using PubMed, Scopus, and Web of Science databases. Studies published between 2021 and 2025 were analyzed, including clinical trials, observational studies, and meta-analyses evaluating digital monitoring technologies such as continuous glucose monitoring systems, mobile health applications, wearable devices, connected BP monitors, and telemedicine interventions in adults with T2DM. Main outcomes included glycated hemoglobin (HbA1c), time-in-range (TIR), BP values, treatment adherence, and patient engagement.

Results. Recent studies indicate that digital monitoring technologies can significantly improve metabolic and cardiovascular parameters in T2DM patients. Continuous glucose monitoring systems are associated with reductions in HbA1c levels and increased time spent within the target glucose range, enabling better detection of glycemic variability and hypoglycemic events. Mobile health applications and digital self-management platforms facilitate real-time data sharing between patients and healthcare professionals, supporting adherence and lifestyle modifications. Remote BP monitoring combined with telemedicine consultations allows more frequent BP assessment and earlier therapeutic adjustments in patients with uncontrolled hypertension. Additionally, wearable activity trackers promote increased physical activity and behavioral changes contributing to improved metabolic control. Overall, these technologies enhance patient engagement and support clinical decision-making.

Conclusions. Digital monitoring technologies represent promising adjunctive tools in the integrated management of T2DM and associated hypertension. Their use may improve glycemic and BP control and increase patient participation in disease management. Further large-scale studies are needed to evaluate long-term effectiveness and cost-effectiveness in clinical practice.

Keywords. Type 2 diabetes mellitus, digital health, continuous glucose monitoring, hypertension.

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100. TOCILIZUMAB IN REFRACTORY SEROPOSITIVE RHEUMATOID ARTHRITIS WITH LUNG CAVITIES MIMICKING TUBERCULOSIS: A CASE REPORT

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Introduction. Rheumatoid arthritis (RA) is a systemic disease affecting approximately 1% of the population, it is associated with numerous extra-articular manifestations that significantly impair quality of life and require an individualized management approach. Pulmonary involvement is a case in point: such manifestations often mimic tuberculosis or malignancy on imaging. Importantly, they are frequently refractory to conventional DMARDs, which is why timely introduction of biologic therapy - targeting key pathways such as IL-6 or TNF-α - is often required.

Case presentation. A 46-year-old woman with a 4-year seropositive RA (anti-CCP >300, RF >200 IU/mL) failed multiple csDMARDs (methotrexate, leflunomide) in combination with corticosteroids. The patient was lost to follow-up for some time; upon her return, she had developed cutaneous vasculitis (chest/arm), in addition to a dry cough that had persisted for approximately one year. HRCT showed multiple cavitary nodules, bronchiectasis, and fibroatelectasis in the left lung (S10). Tuberculosis (GeneXpert, culture) and malignancy were excluded. Therapy with cyclophosphamide, sulfasalazine and hydroxychloroquine was started without improvement for two months. Due to high disease activity (DAS28 ESR – 7.6), tocilizumab therapy (162 mg/weekly) was initiated. After the first dose, theo major clinical improvement was observed; after three doses – sustained clinical and laboratory remission was achieved. A 6-month HRCT showed marked cavitary regression with no adverse events occurred.

Discussions. The most probable mechanism of pulmonary cavitation in RA involves central necrosis of rheumatoid nodules mediated by IL-6-driven inflammation. This pathophysiological framework provides a compelling rationale for IL-6 receptor blockade with tocilizumab. The radiographic resemblance of cavitary lesions in RA to tuberculosis poses a significant diagnostic challenge. In this case, the diagnosis was supported by: (1) a radiographic pattern atypical for tuberculosis (subpleural, lower-lobe involvement); (2) negative GeneXpert and culture, which together constitute the gold-standard for pulmonary TB exclusion.

Conclusions. We report a unique case of cavitary lung disease presenting as a severe extra-articular manifestation of seropositive RA. The diagnostic journey required a coordinated multidisciplinary effort. This case reinforces the importance of early access to targeted biological therapy with tocilizumab in refractory, systemic RA where aggressive immunosuppressive therapy fails.

Keywords. Rheumatoid arthritis, tocilizumab, lung cavitation.

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101. CARDIOVASCULAR COMORBIDITIES IN PATIENTS WITH GOUT

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Introduction. In recent decades, gout has become an increasingly important public health problem, due to its increasing prevalence and frequent association with multiple concomitant systemic diseases, especially cardiovascular, metabolic and renal. The link between hyperuricemia and cardiovascular pathology is explained by complex mechanisms, such as endothelial dysfunction, oxidative stress, vascular inflammation and activation of the renin-angiotensin-aldosterone system. These processes contribute to the development of arterial hypertension, ischemic cardiopathy and other cardiovascular comorbidities.

Aim of study. To evaluate cardiovascular comorbidities in patients diagnosed with gout.

Methods and materials. A retrospective study was conducted based on the analysis of medical records of patients diagnosed with gout (ACR/EULAR 2015) from the Rheumatology and Arthrology departments of the Republican Clinical Hospital "Timofei Moșneaga" between 2025 and 2026. The study group included 50 patients, of whom 43 were men (86%) and 7 were women (14%), the mean age of the patients was 67 years (95% CI, 64.9- 69.1 years), with limits between 46 and 88 years, the mean age at the onset of the disease was 39.5 years (95% CI, 37.5-41.5 years), the duration of the disease at the time of inclusion in the study was 14.5 years (95% CI, 13.3-15.7 years), with limits between 2 and 27 years. The following laboratory parameters were assessed: erythrocyte sedimentation rate, serum uric acid, total cholesterol, LDL cholesterol, HDL cholesterol, triglycerides, urea, creatinine and instrumental investigations: ECG, ECOCS+Doppler, USG of internal organs, radiography.

Results. Hypertension was recorded in 41 patients (82%) (95% CI, 31.4%-50.5%), the presence of dyslipidemia was identified in 39 patients (78%) (95% CI, 29.4%-48.6%), the presence of hypertensive cardiopathy was established in 38 patients (76%) (95% CI, 28.5%-47.5%), heart failure was diagnosed in 4 patients (8%) (95% CI, 0.2%-7.8%), and mixed cardiopathies were present in 5 patients (10%) (95% CI, 0.7%-9.3%). In one case (2%), bilateral carotid artery occlusion and stenosis was diagnosed.

Conclusions. The results of the study highlight an increased frequency of cardiovascular comorbidities in patients with gout, the most common being hypertension. Early identification and careful monitoring of cardiovascular comorbidities in patients with gout are essential for optimizing therapeutic management and reducing the risk of long-term cardiovascular complications.

Keywords. gout, hyperuricemia, cardiovascular comorbidities.

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102. SARCOPENIA AS A CHALLENGE IN THE USE OF GLP-1 RECEPTOR AGONIST THERAPIES

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Introduction. Glucagon-like peptide-1 receptor agonists (GLP-1RAs) are widely used in the treatment of type 2 diabetes mellitus and obesity due to their effects on glycemic control and weight reduction. Although weight loss is primarily associated with a reduction in adipose tissue, part of the weight loss also involves a decrease in lean body mass. Sarcopenia represents a potential clinical challenge, particularly in older patients or in individuals with initially reduced muscle mass.

Aim of study. The aim of this study was to analyze the impact of GLP-1 receptor agonist therapies on body composition, with a focus on the mechanisms involved in muscle mass loss and on strategies for the prevention of sarcopenia.

Methods and materials. Relevant articles published over the past 10 years were analyzed from international databases, including PubMed Central, Elsevier, The Lancet, and Medscape. Randomized clinical trials, meta-analyses, and observational studies evaluating the effects of GLP-1RAs on body weight and body composition were included, along with data regarding therapeutic interventions aimed at preserving muscle mass.

Results. Treatment with GLP-1RAs induces weight loss mainly through appetite suppression and delayed gastric emptying. However, prolonged energy deficit and reduced protein intake may promote muscle mass loss. At the molecular level, reduced insulin and IGF-1 levels associated with energy restriction may decrease the activity of the PI3K-Akt-mTOR signaling pathway, thereby reducing muscle protein synthesis. Epidemiologically, muscle mass loss affects approximately 20-40% of patients on intensive GLP-1RA therapy. Key risk factors include: advanced age (>65 years), low baseline protein intake, sedentary lifestyle, and a rapid rate of weight loss (exceeding 1-2 kg per week). In addition, discontinuation of therapy is frequently followed by weight regain, with disproportionate recovery of fat mass compared with muscle mass. To limit muscle mass loss, both pharmacological and non-pharmacological strategies are being investigated. Pharmacological approaches include inhibitors of the myostatin/activin signaling pathway, while non-pharmacological interventions remain essential. Resistance training and adequate protein intake contribute to maintaining muscle protein synthesis and improving body composition.

Conclusions. Lean mass reduction during GLP-1RA therapy is primarily driven by energy-restriction-induced downregulation of the PI3K-Akt-mTOR pathway, especially in elderly patients and those with rapid weight loss. Effective prevention strategies must integrate pharmacological innovations, such as myostatin/activin inhibitors, with essential non-pharmacological interventions like resistance training and optimized protein intake to ensure high-quality weight loss.

Keywords. GLP-1 receptor agonists, sarcopenia, risk factors, strategies for prevention.

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103. PREPROCEDURAL ATRIAL FIBRILLATION AS A PREDICTOR OF MAJOR CARDIOVASCULAR EVENTS AFTER TRANSCATHETER AORTIC VALVE IMPLANTATION

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Introduction. Atrial fibrillation is common among patients with severe aortic stenosis undergoing transcatheter aortic valve implantation (TAVI) and may influence postprocedural prognosis. However, its impact on postinterventional major adverse cardiovascular events (MACE) remains controversial.

Aim of study. To evaluate the association between preprocedural atrial fibrillation and the risk of MACE after TAVI, assessed peri-procedurally and at 1, 6, and 12 months.

Methods and materials. An analytical observational study was conducted in 135 patients treated with TAVI, stratified according to the presence of preprocedural atrial fibrillation: with atrial fibrillation (n=41) and without atrial fibrillation (n=94). MACE (all-cause mortality, stroke or transient ischemic attack, and acute myocardial infarction) and the extended composite endpoint (MACE plus cardiovascular rehospitalization and the need for permanent pacemaker implantation) were analysed peri-procedurally and at 1, 6, and 12 months by comparing event rates between groups and estimating odds ratios.

Results. Preprocedural atrial fibrillation was present in 41 patients (30.4%). During the periprocedural period, MACE rates were similar between groups (1/41 (2.4%) vs 2/94 (2.1%); OR=1.15; p=1.00), while extended MACE showed a numerically higher rate in the atrial fibrillation group (6/41 (14.6%) vs 9/94 (9.6%); OR=1.62; p=0.387). At 1 month, MACE was rare, with one event observed in the atrial fibrillation group (1/38 (2.6%) vs 0/87 (0.0%); OR=7; p=0.304), while extended MACE remained numerically higher in the same group (7/38 (18.4%) vs 10/87 (11.5%); OR=1.738; p=0.394). At 6 months, MACE events were sporadic (0/30 (0.0%) vs 1/77 (1.3%); OR=0.836; p=1.00), and extended MACE did not differ significantly between groups (1/30 (3.3%) vs 8/77 (10.4%); OR=0.297; p=0.439). At 12 months, atrial fibrillation was associated with an increased rate of MACE (3/26 (11.5%) vs 0/61 (0.0%); OR=18.319; p=0.024) and extended MACE (8/26 (30.8%) vs 5/61 (8.2%); OR=4.977; p=0.017). In the overall 12-month analysis, MACE occurred in 5/41 (12.2%) patients with atrial fibrillation compared with 3/94 (3.2%) without atrial fibrillation (OR=4.212; p=0.055), while extended MACE occurred in 16/41 (39.0%) versus 25/94 (26.6%) (OR=1.766; p=0.159).

Conclusions. Preprocedural atrial fibrillation does not significantly influence early post-TAVI prognosis but is associated with a higher risk of adverse events at 12 months, particularly for the composite MACE endpoint. These findings suggest a predominantly late prognostic impact of atrial fibrillation in this population.

Keywords. TAVI, MACE, atrial fibrillation.

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104. SPECIFIC CARDIAC AND RENAL MARKERS OF ACUTE CARDIORENAL SYNDROME

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Introduction. Cardiorenal syndrome either acute or chronic means a primary disorder of the heart followed by renal failure, and vice versa. This combined pathological support markedly increases prognosis and the risk of complications. The estimation of specific cardiac and renal markers could be an important tool of early assessment of vital organ dysfunction, driving also optimization of treatment.

Aim of study. Revealing the main specific markers of cardiac and renal disorders in patients with acute cardiorenal syndrome.

Methods and materials. The material reflected in 20 recent articles found in scientific databases PubMed and MEDLINE was analyzed.

Results. Acute cardiorenal syndrome derives from primary acute heart failure or primary acute renal failure followed respectively by acute renal injury or acute heart failure. The chronic cardiorenal syndrome respects the same algorithm of dependence, but in a set-up of chronic fashion. A series of specific markers of acute heart failure which reflect myocardial necrotic damage which happens in acute myocardial infarction, are: (i) increase of serum level of troponins (I and T) higher than the 95th-percentile, raise of creatine kinase MB and H-FABP (fatty acid binding protein of the heart) after 1-3 hours since ischemic impact; (ii) the appearance in the blood of the protein of sarcoplasmic reticulum pump of calcium (Ca-ATPase), SERCA2a, which is considered as most specific hallmark to heart maker of myocardial injury; (iii) elevation of NT-proBNP, a marker of peripheral hemodynamic disorder due to cardiac pump function failure. Basic markers of acute kidney injury or kidney attack are: (i) marked reduced urine output (<0.5 mL/kg/h for 6h); (ii) markers of glomerular filtration disorders exhibited by elevated blood levels of creatinine (>0.3 mg/dL within 48h), and cystatin C, the presence of microalbuminuria (30-300 mg/24 hours), and decline of glomerular filtration rate <60 ml/min/1,73m2; (iii) markers of renal tubular damage, such as monomeric neutrophil gelatinase associated lipocalin (NGAL), Dickkopf-3 (DKK3) and kidney injury molecule-1 (KIM-1) expressed mainly in distal and proximal tubular epithelial cells; (IV) hepatocyte growth factor (HGF), a biomarker upregulated in interstitial cells in response to kidney injury.

Conclusions. Specific markers of acute heart failure are elevated levels of troponin I and T >95th-percentile, creatine kinase MB, H-FABP and sarcoplasmic reticulum Ca-ATPase. Specific markers of acute kidney injury are oliguria, decline of glomerular filtration rate <60 ml/min/1,73m2, blood creatinine and cystatin C, as well as the markers of tubular injury: NGAL, DKK3 and KIM-1.

Keywords. Acute cardiorenal syndrome, cardiac markers, renal markers.

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105. RELATIONSHIP BETWEEN BIOMARKERS NLR, AISI, SII AND SEVERITY OF CHRONIC OBSTRUCTIVE PULMONARY DISEASE

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Introduction. Chronic obstructive pulmonary disease (COPD) is a multifactorial lung disease characterized by irreversible or partially reversible airflow obstruction. Globally, COPD is the third leading cause of death, responsible for approximately 3.2 million deaths annually. It is estimated that in the coming decades, the number of COPD cases will rise to 600 million. Exacerbations play an important role in the pathogenesis and progression of the disease, worsening patients' quality of life and increasing hospitalizations. In this study, we aimed to investigate the relationship between COPD severity and several blood count–derived inflammatory biomarkers, including the systemic inflammatory index (SII), aggregate systemic inflammation index (AISI), neutrophil-to-lymphocyte ratio (NLR), lymphocyte-to-monocyte ratio (LMR), and platelet-to-lymphocyte ratio (PLR), to assess the systemic inflammatory response.

Aim of study. To evaluate the relationship between AISI, SII, and NLR and the severity of COPD.

Methods and materials. We conducted a retrospective observational study analyzing medical records of 56 COPD patients hospitalized in the pulmonology department of IMSP SCM "Sfântul Arhanghel Mihail." The following parameters were evaluated: age, length of hospitalization, FEV1%, COPD severity classification, and inflammatory indices derived from blood counts (AISI, SII, NLR, LMR). The Spearman rank correlation coefficient was used to analyze associations between variables.

Results. The study included 56 patients with a mean age of 66.45 ± 8.9 years. Blood count biomarkers showed a positive correlation with COPD severity, including SII ($r = 0.92$, $p < 0.05$), NLR ($r = 0.65$, $p < 0.05$), and AISI ($r = 0.68$, $p < 0.05$). These findings reflect the association between systemic inflammatory activity and hematological parameters in COPD. A strong negative correlation was observed between FEV1% and COPD severity ($r = –0.95$, $p < 0.05$), indicating that reduced lung function is closely linked to increased disease severity.

Conclusions. Elevated values of NLR, AISI, and SII highlight the relationship between COPD severity, hospitalization duration, and disease progression. These accessible inflammatory markers may help identify patients at higher risk of worsening and support management and treatment decisions.

Keywords. COPD, exacerbations, AISI, SII, NLR.

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106. CLINICAL PRESENTATION AND DIAGNOSTIC PARTICULARITIES OF CEREBRAL VENOUS THROMBOSIS IN PREGNANCY

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Introduction. Cerebral venous thrombosis (CVT) is a rare but potentially life-threatening cerebrovascular disorder in pregnancy. Its clinical manifestations often overlap with conditions such as preeclampsia/eclampsia, post-dural puncture headache, and other obstetric neurological emergencies, which may delay diagnosis and anticoagulant treatment, increasing the risk of serious maternal complications.

Aim of study. To analyze the clinical presentation and diagnostic challenges of cerebral venous thrombosis in pregnancy, with a focus on early recognition in obstetric practice.

Methods and materials. A narrative literature review of publications from 2016 to 2026 was conducted. Clinical guidelines, systematic reviews and meta-analyses, observational studies, cohort studies, case series on pregnancy- and postpartum-associated cerebral venous thrombosis were analyzed. Data on clinical presentation, warning signs, differential diagnosis, and neuroimaging strategies were extracted.

Results. Studies confirm that headache remains the most frequently encountered symptom in CVT, being present in 98.53% of reported cases, yet it remains nonspecific if not associated with other signs of intracranial hypertension. Focal neurological deficits such as hemiparesis were reported in 20-38% of patients, while aphasia/dysarthria occurred less frequently, but may be prominent in early pregnancy. Seizures, altered mental status, stupor, or coma indicated severe disease and were associated with unfavorable evolution. In pregnant patients, nausea, vomiting, and visual complaints may obscure the diagnosis, whereas in the puerperium CVT may mimic eclampsia or post-dural puncture headache. The diagnostic gold standard is brain MRI combined with MR venography, preferably without gadolinium; CT venography remains a reliable alternative when MRI is unavailable. Standard MRI sequences should be correlated with non-contrast MRV to avoid flow-related errors, and D-dimer testing must not be used as an exclusion tool.

Conclusions. with focal deficits, seizures, or altered consciousness. Rapid neurovascular imaging, especially MRI/MRV, is essential for confirmation and for differentiating CVT from obstetric mimics. Early recognition can reduce diagnostic delay and improve maternal outcomes.

Keywords. cerebral venous thrombosis; pregnancy; headache; magnetic resonance venography.

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107. RITLECITINIB IN THE TREATMENT OF ALOPECIA AREATA: A TARGETED IMMUNOMODULATORY APPROACH

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Introduction. Alopecia areata (AA) is an autoimmune disorder characterized by immune-mediated destruction of anagen hair follicles following collapse of immune privilege. The IFN-γ/IL-15 signaling axis activates the JAK–STAT pathway, particularly JAK3-dependent γc cytokine signaling, sustaining cytotoxic T-cell proliferation and follicular damage. Targeted inhibition of JAK3 interrupts this pathogenic cascade.

Aim of study. To evaluate the pathophysiological rationale, clinical efficacy, and safety of ritlecitinib in alopecia areata.

Methods and materials. A focused review of recent clinical trials, mechanistic studies, and FDA documentation regarding ritlecitinib was performed using PubMed Central and ClinicalTrials.gov sources.

Results. Ritlecitinib is an oral selective JAK3 and TEC kinase inhibitor that suppresses IL-15–mediated T-cell activation. Experimental models demonstrated that selective JAK3 inhibition alone restores hair growth, confirming the central role of γc-dependent cytokines in AA pathogenesis. In the phase IIb/III ALLEGRO-2b/3 trial (n=718; SALT ≥50), 23–31% of patients treated with ritlecitinib 50 mg achieved SALT ≤20 at Week 24 versus 2–6% in placebo groups. Clinical response was dose-dependent and evident by Week 12. Continued therapy increased response rates to approximately 38–40% at Week 48. Long-term extension data revealed sustained benefit: at 24 months, 73.5% of patients achieved SALT ≤20 and 66.4% achieved SALT ≤10. Improvement was also observed in eyebrow and eyelash regrowth and patient-reported outcomes. Adverse events were predominantly mild to moderate, most commonly nasopharyngitis, upper respiratory infections, acne, and headache. Serious adverse events were infrequent, and laboratory abnormalities were generally transient.

Conclusions. Ritlecitinib provides targeted immunomodulation in moderate-to-severe alopecia areata by inhibiting JAK3-dependent cytokine signaling. Clinical trials demonstrate meaningful and sustained hair regrowth with an acceptable safety profile, supporting its role as a pathogenetically driven therapeutic option.

Keywords. alopecia areata, ritlecitinib, JAK3 inhibition, SALT score, immunotherapy.

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108. OCULAR MANIFESTATIONS AS EARLY DIAGNOSTIC MARKERS IN INHERITED METABOLIC DISEASES: A LITERATURE REVIEW

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Introduction. Inherited metabolic diseases (IMDs) can present with clinical manifestations in any organ system, including the visual analyzer. The ocular phenotype may accompany the systemic manifestations of IMDs, or often appears early and in isolation in the course of the disease. There are two situations in clinical practice: either the patient known to have a diagnosis of IMDs develops ocular complications in the natural course of the disease, or the ocular manifestations appear first and raise suspicion of a systemic disease. Thus, the ophthalmologist may play a significant role in early detection, monitoring and multidisciplinary management.

Aim of study. To evaluate the significance of ocular manifestations in the early diagnosis of hereditary metabolic diseases depending on the main structures affected: retina, optic nerve, lens, and cornea.

Methods and materials. This literature review was based on original articles and systematic reviews published over the last 10 years in international scientific databases: PubMed, ScienceDirect. Clinical guidelines from professional organizations in the field of ophthalmology, such as the European Society of Ophthalmology and the American Academy of Ophthalmology, were also consulted.

Results. The frequency of ocular manifestations in IMDs is highly variable, being correlated with the type of hereditary disorder, the availability of neonatal screening methods, which varies from country to country. However, researchers believe that ocular manifestations are present in approximately one-third of IMDs cases, second only to neurological manifestations. The age of onset of ocular manifestations in IMDs also varies significantly, being correlated with the severity of the disease. For example, neonatal cataracts in galactosemia develop in the first days of life, while LHON is predominantly diagnosed in young people. Patients present with various ophthalmological symptoms, ranging from photophobia, hyperlacrimation, and decreased visual acuity to severe amblyopia and total blindness. Any segment of the visual analyzer can be involved in systemic pathology, from the cornea to the retina and optic nerve. The most common ocular signs include corneal clouding, keratopathy, metabolic cataracts, ectopia lentis, retinitis pigmentosa, and optic neuroatrophy. These ocular signs are usually bilateral. All of these require differential diagnosis with primary ophthalmic diseases to avoid unnecessary treatments, delay in establishing the diagnosis of IMDs, and worsening of the functional prognosis.

Conclusions. The recognition of ocular signs supports the early diagnosis of inherited metabolic diseases and, at the same time, justifies regular follow-up with the ophthalmologist throughout the life of already diagnosed patients to prevent complications and maintain quality of life.

Keywords. inherited metabolic diseases, ocular manifestations, neonatal cataract, corneal clouding.

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109. NEW APPROACHES IN THE SURGICAL TREATMENT EARLY-STAGE CERVICAL CANCER

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Introduction. The surgical management of early-stage cervical cancer lies at the center of oncologic safety, functional preservation, and technological innovation. Open radical hysterectomy with pelvic lymphadenectomy has been considered standard treatment. Although this approach has several disadvantages, including greater intraoperative blood loss, longer hospitalization, delayed recovery, and postoperative functional complications. Minimally invasive surgery (MIS), including laparoscopic and robotic techniques, arises as an alternative advantage. Sentinel lymph node (SLN) mapping introduced ultra-staging, which enhances the detection of micrometastasis. Fertility-sparing procedures are highlighted in eligible patients with early cervical cancer who desire to preserve reproductive potential. But the LACC trial raised concerns regarding the oncologic safety of MIS radical hysterectomy and prompted a re-evaluation of surgical techniques and patient selection.

Aim of study. To compare modern surgical approaches in the management of early-stage cervical cancer, focusing on oncologic, perioperative, and reproductive outcomes with the impact of the LACC trial.

Methods and materials. A narrative review of contemporary surgical management in early-stage cervical cancer. Major medical databases: PubMed/MEDLINE, Scopus, Web of Science, Google Scholar, the Cochrane Library, and NCBI. International clinical guidelines were also reviewed, with recommendations from FIGO, the National Comprehensive Cancer Network, and ESGO.

Results. The LACC trial (2018) demonstrated lower disease-free survival and overall survival in patients undergoing minimally invasive radical hysterectomy compared with open surgery. The 4.5-year disease-free survival was about 86% for MIS versus 96% for open surgery, while overall survival was 90.6% and 96.2%, respectively. Similar findings were reported in analyses from large population databases such as NCDB and SEER. Although further analyses suggested that technical factors—uterine manipulators, intracorporeal colpotomy, and variability in surgical expertise—may have influenced these outcomes. Later SHAPE trial demonstrated that for low-risk patients (tumor ≤ 2 cm, no LVSI) with modified surgical techniques, oncologic outcomes may improve.

Conclusions. Open radical hysterectomy remains the current reference standard for early-stage cervical cancer. But modern approaches such as SLN mapping, nerve-sparing surgery, MIS, and fertility-preserving procedures may reduce perioperative morbidity and improve functional outcomes when applied in eligible patients. Future management should focus on individualized treatments that balance oncologic safety with fertility preservation and quality of life.

Keywords. Cervical cancer; Radical hysterectomy; Minimally invasive surgery;Sentinel lymph node mapping; Fertility-sparing surgery;Oncologic outcomes.

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110. PREDICTION OF CORONARY ARTERY INFLAMMATION USING ARTIFICIAL INTELLIGENCE IN CORONARY COMPUTED TOMOGRAPHY ANGIOGRAPHY

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Introduction. Inflammation has been recognized as a key factor of cardiovascular disease. However, the ability to accurately measure inflammation within coronary arteries remained elusive. The development of artificial intelligence (AI) in medicine, associated with Computed Tomography Angiography (CCTA), allowed extracting quantitative information through the algorithm integration of imaging data and facilitate extracting vulnerable plaques more quickly and automatically and provide accurate decision-making based on multiple specific features of an anatomical segment. AI-corrected Fat Attenuation Indexing (FAI) is a novel, validated measure of coronary inflammation that captures through CCTA, spatial changes in perivascular fat composition.

Aim of study. The study sought to evaluate the integration of AI-powered FAI-score algorithms into the diagnostic process for coronary artery inflammation, specifically aiming to define the role of FAI in enhancing diagnostic precision and its subsequent value in clinical practice.

Methods and materials. An analysis of the following scholarly database between 2018-2026 was used in this research: PubMed, Science Direct, medRxiv, Dive Press and ten other bibliographic sources.

Results. Coronary inflammation, as measured by Caristo's CaRi-Heart FAI-ScoreTM, predicted fatal and non-fatal cardiac events, independently from traditional risk factors, routine clinical CCTA interpretation, calcium scoring and plaque quantification, at least 10 years in advance. Even among the 50% of patients who had no or minimal coronary plaque at the time of the initial CCTA, those with the most abnormal FAI-Score results experienced a 9.5-fold higher risk for cardiac mortality and 5.5-fold higher risk for major adverse cardiac events. CaRi-Heart Risk Score, outperformed other scores in routine clinical use for prediction of cardiac mortality, and when presented to clinicians, resulted in changes of management decision in 45% of the patients. Most changes were due to clinicians' decision to target the previously undetected coronary inflammation. That included initiation of statin treatment in 24%, an increase in statin dosage in 13%, and addition of other treatments like aspirin, colchicine, and icosapent ethyl in 8%.

Conclusions. Coronary FAI-Score percentile curves provide a reference map for coronary inflammatory burden and enable standardized interpretation of perivascular FAI mapping on CCTA. Individuals in the top percentile curves have an increased cardiovascular risk independent of traditional risk factors and existing atherosclerotic changes.

Keywords. Inflammation, coronary computed tomography angiography, artificial intelligence, fat attenuation indexing.

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111. DIFFERENTIAL DIAGNOSIS OF ACUTE POLYMORPHIC PSYCHOTIC DISORDER AND PSYCHOTIC DEPRESSION

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Introduction. Acute polymorphic psychotic disorder (APPD) with symptoms of Schizophrenia is characterized by an acute onset of psychotic symptoms—such as delusions, disorganized thinking, hallucinations, or experiences of influence, passivity, or control—occurring without a prodromal phase and progressing from a non-psychotic state to a clearly psychotic state within 2 weeks. Psychotic depression (PD) is an episode described by several pronounced and distressing symptoms like loss of self-esteem and feelings of worthlessness or excessive guilt—associated by psychotic features such as hallucinations, delusions, severe psychomotor retardation, or stupor to the extent that normal social life becomes impossible; there may also be a significant risk to life due to suicide, starvation, or dehydration.

Aim of study. To analyze the key diagnostic dimensions that distinguish APPD with schizophrenic symptoms from a severe depressive episode (SDE) with psychotic features, and to assess their clinical and therapeutic implications.

Methods and materials. A narrative review of diagnostic classifications (ICD-10, ICD-11, DSM-5) and relevant peer-reviewed literature was performed. Selected publications were analyzed to identify diagnostic criteria and clinical dimensions used in the differential diagnosis (DD) between APPD and PD.

Results. The literature analysis identified several key diagnostic dimensions: 1) Onset pattern: APPD has a crescendo development of the symptoms within 2 weeks or less, but PD emerges in the course of progressive affective decline; 2) Symptom structure: APPD is characterized by polymorphic and rapidly fluctuating psychotic symptoms, however PD typically presents with thematically stable delusions and hallucinations combined with depressive cognition; 3) Mood congruence: There are feelings of guilt, nihilism and worthlessness in PD, while marked happiness or ecstasy, or severe irritability are present in APPD; 4) Treatment response: PD demonstrates a strong response to combined antidepressant–antipsychotic therapy, while APPD often resolves with short-term antipsychotic treatment. Suicidal ideation in APPD is usually reactive to psychotic experiences, while in SDE it reflects pervasive depressive cognition.

Conclusions. Careful evaluation of onset dynamics, affective symptoms, and psychotic content is essential for accurate DD. Correct identification guides proper treatment strategies, prevents undertreatment of SDE or unnecessary prolonged antipsychotic therapy, and may influence long-term prognosis.

Keywords. Acute polymorphic psychotic disorder, psychotic depression, differential diagnosis.

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112. ASSOCIATION BETWEEN SOCIODEMOGRAPHIC FACTORS AND CHILD ABANDONMENT: MATERNAL AGE, MARITAL STATUS AND AREA OF ORIGIN – A 2025 RETROSPECTIVE COHORT STUDY

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Introduction. Child abandonment is a serious medical and social problem, with profound and long-term consequences on the physical, emotional and psychosocial development of the child. Sociodemographic factors such as maternal age, marital status and area of residence, may influence the risk of maternal-child separation in the perinatal period. Understanding these associations is essential for early identification of vulnerable mothers and for implementing preventive measures.

Aim of study. The aim of the study is to investigate the associations between sociodemographic factors and child abandonment .

Methods and materials. This retrospective study was based on data obtained from the institutional registry of the Municipal Clinical Hospital ”Gheorghe Paladi”. The study included 85 cases with different degrees of potential risk of child abandonment identified within the institution between January 1, 2025 and December 31, 2025. The analyzed variables included maternal age, area of residence and marital status.

Results. During the study period, 85 cases with various degrees of potential risk of child abandonment were identified. Maternal age ranged from a minimum of 15 years to a maximum of 45 years, with a mean age of 28 years (standard deviation ± 7.48) and (IQR = 12). Analysis by age groups revealed that 7 cases (8.24%) involved mothers under 18 years, 20 cases (23.53%) were aged 18-24 years, 38 cases (44.7%) were aged 25-34 years, and 20 cases (23.53%) were aged 35 years or older, suggesting that younger mothers were more frequently represented among the identified cases. Regarding marital status, the following categories were identified: single mothers accounted for 39 cases (45.88%), married mothers for 25 cases (29.41%), mothers in cohabitation for 18 cases (21.17%), and divorced or in the process of divorce for 3 cases (3.53%). Analysis of the area of residence showed that 52 mothers (61.18%) resided in urban areas, while 33 mothers (38.82%) originated from rural areas.

Conclusions. This study highlights that child abandonment is a complex phenomenon closely linked to certain sociodemographic characteristics of the mother, which can be identified as early as the perinatal period. The results indicate that maternal age, marital status, and place of origin may be significant sociodemographic factors associated with vulnerability to child abandonment. The majority of at-risk mothers were unmarried, accounting for 70.58% of cases. Early identification of at-risk mothers in maternity facilities is essential for implementing preventive social and medical interventions aimed at reducing the incidence of child abandonment.

Keywords. child abandonment, sociodemographic factors, maternal age, at-risk mothers.

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113. DYNAMICS OF INFLAMMATORY MARKERS ACCORDING TO THE BRIXIA SCORE IN PATIENTS WITH SEVERE COVID-19 ASSOCIATED WITH BACTERIAL SUPERINFECTION

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Introduction. Inflammatory markers in patients with COVID-19 usually have high plasma concentrations. The association of bacterial infection in these patients can amplify the inflammatory response. The resulting lung injury (ALI/CARDS) could influence the prognosis of these patients admitted to the ICU.

Aim of study. Comparative evaluation of fibrinogen (FIB), procalcitonin (PCT), and C-reactive protein (CRP) values in patients with severe COVID-19 and bacterial superinfection, according to the Brixia lung injury score.

Methods and materials. Retrospective, case-control study conducted on a group of 118 patients. Data from ICU patients with severe COVID-19 (WHO 5-6 points), PCR-confirmed and bacterial superinfection (bacteriologically confirmed) were analyzed. The evolution (T1-T5) of inflammatory marker values was compared from the moment of admission to the ICU, according to the Brixia score (1-9 p. vs. 10-18 p.). Data presented as mean and standard deviation. Statistical test applied: unpaired two-tailed Student's t-test.

Results. Temporal trends of inflammatory markers were analysed in the cohort of patients with Brixia score 1–9 (n=24) and compared with patients with Brixia score 10–18 (n=94). At T1, T2, T3, T4 and T5, mean fibrinogen values were, respectively, 4.6±1.74 g/L vs 4.9±1.68 g/L, 4.3±2.14 g/L vs 4.1±1.36 g/L, 4.1±1.62 g/L vs 4.1±1.66 g/L, 4.2±1.07 g/L vs 3.8±2.12 g/L and 4.0±0.46 g/L vs 4.0±1.20 g/L in patients with Brixia 1–9 and Brixia 10–18 score. At T1, T2, T3, T4 and T5, mean values of CRP were, respectively, 77.8±62.47 mg/L vs 73.7±61.79 mg/L, 58.6±51.79 mg/L vs 76.8±51.95 mg/L, 68.2±65.12 mg/L vs 82.1±70.06 mg/L, 75.3±58.53 mg/L vs 87.7±66.10 mg/L and 97.4±55.67 mg/L vs 87.5±57.88 mg/L in patients with Brixia 1–9 and Brixia 10–18 score. At T1, T2, T3, T4 and T5, mean values of PCT were, respectively, 0.4±0.69 ng/mL vs 0.3±0.81 ng/mL, 0.7±1.02 ng/mL vs 0.7±1.43 ng/mL, 1.3±3.61 ng/mL vs 1.9±4.69 ng/mL, 0.6±0.76 ng/mL vs 1.5±4.02 ng/mL and 0.6±0.88 ng/mL vs 0.4±0.40 ng/mL in patients with Brixia 1–9 and Brixia 10–18 score. There were no statistically significant differences among patients groups ($p>0.05$ for all) for all the parameters. T1: ICU admission. T2–T5: time points representing four additional 48-hour periods between biological samplings.

Conclusions. No significant differences were identified in the plasma concentration of the inflammatory markers studied (FIB, CRP, PCT) during hospitalization in the ICU of patients with severe forms of COVID-19 and bacterial superinfection, regardless of whether they had mild or severe lung damage.

Keywords. COVID-19, bacterial superinfection, inflammatory markers, Brixia score.

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114. GENETICS IN HEART FAILURE

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Introduction. One of the causes of heart failure is dilated cardiomyopathy (DCM) and a major proportion of DCM cases are of genetic mutation and most common is TTN gene which encodes for titin and causes cardiac dysfunction.

Aim of study. To analyse literature data about TTN mutation and severity of dilated cardiomyopathy and its genetic correlation.

Methods and materials. A literature review of a number of two articles in PubMed publications, including studies conducted to evaluate the type of mutation, genetic inheritance, and their effect on cardiac structure and function.

Results. The most common cause of dilated cardiomyopathy is structural mutation of titin, a giant gene encoded by TTN, which maintains structural integrity and acts as a molecular spring in the cardiomyocyte. TTN mutations have an autosomal dominant inheritance pattern. The TTN gene not only maintains the structure of the sarcomere but also multiple signalling pathways in cardiomyocytes, which are striated, involuntary, and branched muscle cells. When there is a genetic mutation in TTN, it leads to the formation of irregular trabeculae in the cardiomyocyte and causes left ventricular non-compaction (LVN), which is a type of dilated cardiomyopathy. Congestive heart failure caused by familial dilated cardiomyopathy occurs in approximately 20 to 30% of cases, due to mutations in cytoskeletal proteins, contractile proteins, and inner nuclear membrane proteins. The inheritance pattern of the TTN mutation is autosomal dominant with dilated cardiomyopathy, linked to chromosome 2q31 and known as CMD1G and MIM 604145. If we consider a large family of TTN mutations, there is a 2-base pair insertion mutation in exon 326 of TTN, which causes a frameshift mutation and leads to the truncation of a region of the titin loop. The truncation of titin leads to the formation of a premature stop codon that is incorporated into the sarcomere and acts as a poisonous peptide, ultimately destroying contractile function. If we consider another family of familial dilated cardiomyopathy with CMDIG that has a missense mutation, instead of tryptophan there is an arginine substitution Try930Arg, which leads to destabilization of the protein structure, may weaken the structural integrity of titin and disconnect the Z disc from the M line.

Conclusions. Genetics play a crucial role in the development of DCM, and the identification of the TTN gene sheds light on the genetic mechanism. This contributes to early diagnosis, thus ensuring early management, prevention and optimal treatment of heart failure.

Keywords. TTN mutation, Dilated cardiomyopathy, Autosomal dominant.

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115. DIFFERENTIAL DIAGNOSIS BETWEEN KERATITIS AND ANTERIOR UVEITIS IN PATIENTS WITH PAINFUL RED EYE

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Introduction. Keratitis and acute anterior uveitis are among the most serious causes of a painful red eye and together account for a significant proportion of preventable vision loss in clinical practice.Their overlapping clinical features often create diagnostic uncertainty,and misdiagnosis may result in direct harm to ocular tissues.This review compiles current evidence aimed at distinguishing between these two conditions.

Aim of study. To identify the main clinical signs that differentiate keratitis from anterior uveitis in patients with painful red eyesna.

Methods and materials. We searched PubMed/PMC and Google Scholar for publications from 2016 through February 2026, prioritizing reviews, clinical guidelines,and landmark cohort studies.A total of 15 articles were analyzed.Clinical variables were grouped into three domains:ocular surface signs (fluorescein staining,corneal epithelial defects,and stromal infiltrates);anterior segment findings(anterior chamber cells and flare, keratic precipitates, and pupillary changes);diagnostic indicators (pattern of photophobia,response to topical anesthetic,contact lens use, and ocular trauma).Reports describing concurrent diagnoses were reviewed.

Results. Both conditions present with ocular pain, ciliary injection, photophobia, and reduced visual acuity, making early differentiation challenging. Keratitis typically presents with corneal epithelial defects that stain with fluorescein,stromal infiltration or ulceration, and visible corneal haze, most commonly in patients with contact lens use or ocular trauma as predisposing factors. Relief of pain after topical anesthetic application suggests a corneal origin.In contrast, persistent pain despite anesthetic application indicates possible intraocular pathology and keeps anterior uveitis in the differential diagnosis. Anterior uveitis often produces consensual photophobia and minimal pain relief after topical anesthetic administration. The pupil may appear miotic due to ciliary spasm or irregular because of posterior synechiae. Slit-lamp examination typically reveals cells and flares in the anterior chamber as well as keratic precipitates,without a fluorescein-staining epithelial defect.

Conclusions. Distinguishing keratitis from anterior uveitis requires a systematic clinical approach rather than reliance on a single finding. Assessment of risk factors,fluorescein staining,and slit-lamp evaluation of the anterior segment constitute the foundation of accurate diagnosis.When infectious keratitis induces secondary anterior chamber inflammation,the clinical presentation may become misleading.For this reason,fluorescein staining should always precede any decision to initiate topical corticosteroid therapy.Early recognition and prompt referral to an ophthalmologist remain the most effective strategies for preventing permanent vision loss.

Keywords. painful red eye, keratitis, anterior uveitis, differential diagnosis, fluorescein staining.

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116. COMPARATIVE ANALYSIS OF CLINICAL AND PARACLINICAL PARAMETERS DEPENDING ON THE SEX OF PATIENTS WITH INFECTIOUS MONONUCLEOSIS CAUSED BY THE EPSTEIN-BARR VIRUS

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Introduction. Infectious mononucleosis is an acute viral disease caused mainly by the Epstein–Barr virus, characterized by fever, pharyngitis, lymphadenopathy, and atypical lymphocytosis, resulting from the infection of B lymphocytes and the activation of the body's immune response. There are few studies that have analyzed gender differences in patients with infectious mononucleosis. Previous studies have found a higher age of onset of the disease and significantly increased transaminase levels in men.

Aim of study. Perform a statistical and comparative analysis of clinical and paraclinical parameters in patients with mononucleosis depending on gender.

Methods and materials. A retrospective analysis was performed on the medical data of patients with mononucleosis admitted to the IMSP Infectious Diseases Hospital "Toma Ciorba" between January 1, 2020, and November 4, 2025, 29 in total. The patients were divided into two groups based on gender. Age, symptoms, physical examination, and laboratory parameters were compared. For statistical analysis, the t-test was used for independent samples and the Mann-Whitney U-test. The Fisher exact test was used for categorical variables.

Results. Most patients were male - 19 men (65.52%) and 10 women (34.48%), a ratio of 1.9:1. The average age of male patients was 22.53 (18-27) years, and of female patients was 18.9 (18-20) years ($p<0.05$). Symptom analysis: fever (median 38.5°C in both groups), pain when swallowing (87% vs. 85%, $p>0.05$), general weakness (99% vs. 97%, $p>0.05$). Also headache (58% vs. 32%, $p<0.001$), cough (67% vs. 38%, $p<0.001$), abdominal pain (29% vs. 15%, $p<0.05$) Presence of hepatosplenomegaly (69.8% vs. 72%, $p>0.05$), lymphadenopathy (81.2% vs. 78.6%, $p>0.05$). Analysis of paraclinical parameters showed: ALT (U/L): men - 212.5 ±34.5; women – 130.2 ±28.7 ($p<0.001$); AST (U/L): men - 144.7±14.5; women – 110.4 ±15.4 ($p<0.001$); Creatinine (µmol/l): men - 94.0±8.9, women – 73.0±6.4 ($p<0.001$); lymphocytes (%): men – 0.53, women - 0.58 ($p>0.05$); IgG AntiCMV (+): men – 60.0%, women – 66.7% ($p>0.05$).

Conclusions. The study showed a higher number of men compared to women in a ratio of 1.9:1 and a statistically significantly higher average age in men. Headache, cough, and abdominal pain were statistically significantly more frequent in the male group, accompanied by cytolysis syndrome, as assessed by statistically significantly higher ALT and AST values.

Keywords. Epstein-Barr virus, Mononucleosis, Gender differences, Clinical comparation.

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117.

118. SUPPORTED EMPLOYMENT FOR PEOPLE WITH SEVERE MENTAL ILLNESS

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Introduction. Individuals living with severe mental health disorders unfortunately still have limited access to employment. Their reliance on social assistance programs and their low employment rates indicate significant barriers to labor market participation. Research has shown that mental health conditions are closely linked with academic pathways and later employment consequences, suggesting a complex relationship between illness, education and professional integration.

Aim of study. This research aimed to investigate the main challenges to employment access to work retention for people with mental health disorders. The study focused on the prevalence of these disorders, the impact of social stigma, current public policies, and the availability of support services.

Methods and materials. This research is based on a review of 20 scientific publications between 2015 and 2025. Several electronic databases were searched to identify relevant literature, including PubMed, Scopus, Google Scholar, as well as reports and publications associated with the Journal of the American Medical Association (JAMA).

Results. Mental health disorders are common among people of working age, still, their participation in the labor market remains lower than that of the overall population. Employment rates among individuals with severe mental disorders range between 22% and 40%, compared to approximately 76-87% among those without such conditions. Several studies have highlighted social stigma and discrimination as key factors influencing whether individuals choose to disclose their diagnosis, which may subsequently affect their opportunities within educational and professional environments. Underemployment is also frequently observed in this sector. Approximately 38% of employed individuals with severe mental disorders receive wages close to the minimum salary level, while only 36% work on a full - time basis. Analyses of public disability support programs show that more than 1/3 of beneficiaries are individuals with severe mental disorders. On the other hand, only approximately 0.5% succeed in obtaining stable employment that allows them to become independent from these support systems.

Conclusions. Individuals with severe mental health disorders continue to face lower employment rates and higher underemployment levels. These outcomes are largely influenced by social stigma, discrimination, and structural barriers within existing public policies. Although disability support programs provide essential protection, they may sometimes reduce the incentives for labor market reintegration. Supported employment models have shown promising results, although access to these programs remains limited.

Keywords. Severe mental disorders, supported employment, labor market.

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118. AI IN EEG INTERPRETATION: IMPLICATIONS IN EPILEPSY AND STATUS EPILEPTICUS

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Introduction. Epilepsy affects over 70 million people, and electroencephalography (EEG) is an important study for its diagnosis, classification, and treatment planning, yet it is prone to misdiagnosis. Status epilepticus (SE) and nonconvulsive seizures (NCS) are overlooked causes of altered mental status in the emergency department, where access to EEG is limited. Wearable and long term EEG monitoring create a massive volume of data, surpassing the extent of manual review. Artificial intelligence (AI), including machine learning and deep learning, enables automated detection of epileptiform discharges, seizures, and complex EEG patterns, enhancing precision in epilepsy and SE care.

Aim of study. To outline present data on AI driven EEG analysis in epilepsy and SE, focusing on diagnostic performance, clinical impact, and limitations relevant to practical use.

Methods and materials. This literature review was compiled from papers in Google Scholar, ScienceDirect, PubMed dated 2020-2026.

Results. A convolutional neural network (CNN) system for routine EEG (SCORE AI) attained AUC of 0.89–0.96 for differentiating normal from abnormal EEG ,epileptiform from nonepileptiform EEG, with accuracy exceeding that of expert readers and previous spike detection models. Most AI-EEG studies focused on seizure detection and prediction show improved diagnostic precision compared to manual review. Explainable AI (XAI) models integrating CNN with SHAP (Shapley Additive Explanations) have achieved 98% accuracy and F1 scores in seizure prediction ,identifying a limited number of informative EEG channels. In view of SE, AI-EEG for early detection of NCS reported sensitivity of 95% and specificity of 83%; at a 40% pretest probability, approximately 1 in 7 positive tests would be false positives. Commercial AI-EEG platforms reduced unnecessary antiepileptic drug administration by 26% and decreased the median time to EEG from 4.5 to 2.1 hours. Prospective emergency department data using limited lead AI-EEG showed a sensitivity 66.7% and specificity 97.0% for seizure/status detection but tends to overestimate seizure burden in non seizure recordings. Limitations are poor interpretation, data integration and challenges in clinical implementation.

Conclusions. AI-EEG has progressed from experimental research to tools proficient at interpretation of numerous NCS and SE episodes. These systems improve diagnostic accuracy, speed up EEG evaluation, and reduce overtreatment in places where expertise is limited. Risks of false-positive results, data bias, and unclear model behavior shows that AI should remain as a decision-making aid under the supervision of clinicians. Future research should focus on larger EEG datasets, XAI models and multicentre validation to safely integrate AI-EEG into routine epilepsy and emergency settings.

Keywords. Artificial Intelligence, EEG, Epilepsy, Status Epilepticus, Nonconvulsive Seizures.

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119. THE SILENT TRIGGER: ACEI-INDUCED ANGIOEDEMA

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Introduction. Angioedema is a transient, localized swelling of deeper dermal and mucosal tissues caused by increased vascular permeability. Two primary mechanisms are recognized: histamine-mediated (allergic) and bradykinin-mediated angioedema. ACE inhibitors (ACEIs), widely prescribed for hypertension, heart failure, and diabetic nephropathy, can rarely induce bradykinin-mediated angioedema, occurring in 0.1–0.7% of users. Among these cases, 25–39% involve the upper respiratory tract, posing a potentially life-threatening risk. Unlike allergic forms, ACEI-induced angioedema typically lacks urticaria or pruritus and responds poorly to antihistamines, corticosteroids, or epinephrine. Onset may occur anytime, from hours to years after therapy initiation, emphasizing the need for high clinical suspicion to prevent airway compromise.

Case presentation. We report a patient on lisinopril for 18 months who developed sudden swelling of the upper lip and uvula, without urticaria or pruritus. Laboratory evaluation showed normal IgE (19.2 IU/mL), and no recent exposure to new medications, foods, or allergens was reported. Based on clinical features and medication history, bradykinin-mediated ACEI-induced angioedema was diagnosed. Lisinopril was immediately discontinued, and the patient was closely monitored; edema resolved completely within 48 hours with no recurrence.

Discussions. Angioedema represents a heterogeneous clinical entity in which identifying the underlying mechanism is critical for appropriate management. Bradykinin-mediated angioedema, including ACEI-induced forms, results from impaired bradykinin degradation due to angiotensin-converting enzyme inhibition. This leads to increased vascular permeability and localized tissue edema independent of mast-cell activation. Key clinical clues – absence of urticaria, normal IgE levels, and poor response to conventional anti-allergic therapies – support a non-histaminergic pathophysiology and guide timely diagnosis and treatment.

Conclusions. This case emphasizes the need for vigilance for ACEI-induced angioedema even after prolonged therapy. Early recognition, exclusion of allergic causes, and immediate drug cessation are crucial to prevent airway compromise. Prompt assessment of risk factors and distinction from histamine-mediated angioedema enables early intervention and helps prevent serious complications.

Keywords. Angioedema, ACE inhibitors, Bradykinin pathway.

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120. ENTEROVIRAL INFECTION IN CHILDREN: CLINICAL AND EPIDEMIOLOGICAL PARTICULARITIES

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Introduction. Enteroviral infections are among the most common viral diseases in the pediatric population and can cause a wide spectrum of clinical manifestations, ranging from mild febrile illnesses to neurological complications, such as aseptic meningitis. These infections are caused by viruses of the Enterovirus genus, including polioviruses, coxsackieviruses, echoviruses, and more recently identified enteroviruses, such as enterovirus D68. The analysis of clinical and epidemiological particularities is important for early diagnosis and appropriate management of these infections.

Aim of the study. To evaluate the clinical, epidemiological, and disease course characteristics of enteroviral infection in children.

Methods and materials. A retrospective descriptive study was conducted, based on the analysis of clinical and paraclinical data from the medical records of 76 children diagnosed with enteroviral infection and hospitalized at the Municipal Clinical Hospital of Contagious Diseases for Children in Chișinău during 2024–2025. Demographic characteristics, clinical manifestations, and disease evolution were analyzed using descriptive statistical methods, and results were expressed as absolute values and percentages.

Results. Most cases were recorded in preschool-aged children, with a mean age of 5.26 years. A higher frequency of cases was observed in the summer–autumn season. Fever was present in all patients. Skin rash was observed in 81.6% of cases. Gastrointestinal manifestations included abdominal pain (30.3%), acute enteroviral diarrhea (26.3%), and vomiting (22.4%). The following clinical forms were identified: enteroviral infection with exanthem, hand–foot–mouth syndrome (55.3%), herpangina (40.8%), and aseptic meningitis (3.9%). The clinical course was favorable in most cases, with a mean duration of hospitalization of 5.7 days.

Conclusions. Enteroviral infections in children predominantly present as mild to moderate clinical forms, characterized by fever and skin rash, and are more frequent in preschool-aged children and during the summer–autumn season. Early recognition of clinical manifestations and the implementation of appropriate symptomatic management contribute to favorable disease outcomes and reduce the risk of complications.

Keywords. enteroviral infection, children, epidemiology, clinical manifestations, rashes.

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121. ROLE OF AI IN FOOD ALLERGY AND POLLEN FOOD ALLERGY SYNDROME DIAGNOSIS

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Introduction. Pollen food allergy syndrome (PFAS), also known as Oral Allergy Syndrome, results from the cross-reactivity between aeroallergens and structurally homologous proteins in plant-derived foods (nuts, fruits). Occurs in 30-70% of pollen-sensitized individuals, mainly adolescents and adults with allergic rhinitis, particularly those sensitized to birch, grass or ragweed pollen. The typical allergen families include PR-10, PROFILINS and Lipid Transfer Protein(LTP). Current diagnosis relies on skin prick test, serum specific IgE, Component Resolved Diagnosis(CRD) and Oral Food Challenges- the gold standard. AI, including Machine Learning(ML) and Deep Learning(DL), study complex data like IgE levels, microbiomes, and clinical histories to predict risks, enhance diagnostics, and personalize treatments.

Aim of the study. To review AI's role in diagnosing, predicting, and managing food allergies, particularly PFAS, by evaluating ML/DL models accuracy and clinical utility from literature sources.

Methods and materials. Literature review was conducted using PubMed, Google Scholar, Science Direct, MedScape, dated 2020-2026, using keywords: PFAS, AI ,diagnosis.

Results. Machine Learning models trained on skin prick testing, allergen-specific IgE, and CRD data denote 40% improvement in diagnostic accuracy in contrast to standard clinical criteria, with Deep Learning models further enhancing the area under the curve by 10-15%. ML predicts which pollen sensitized patients will develop PFAS and distinguish subtypes (PR-10 vs LTP-driven). DL enhances basophil activation tests and epitope analysis for Oral Food Challenge outcomes (AUC 0.87-0.99), labels cross-reactivity patterns like birch-apple via microbiome and multi-omics data. AI-driven tools detect allergens in foods (97.3% accuracy via Infrared spectroscopy) and optimize hypoallergenic products. Clinician accuracy rose to 82% with ML support for comorbid allergies like rhinitis-urticaria. AI-driven biosensors detect allergens (β-Lactoglobulin, parvalbumin) with high precision, detect hidden allergens and guide dietary suggestions. Highly accurate pollen forecasting models can predict allergen exposure risk. Machine vision achieves >90% accuracy in identifying allergenic foods from images and helps with management. Integration of mask-use data and air-quality indices into AI platforms enhanced personalized exposure risk.

Conclusions. AI notably enhances the management of Food Allergy and PFAS by increasing diagnostic precision, refining cross-reactivity evaluation, and including environmental exposure data into predictive models. AI-driven tools form precision, risk-stratified and patient-centered care when used with the European Academy of Allergy and Clinical Immunology guidelines. To ensure that clinical implementation is safe and effective, more multicenter validation and creation of PFAS-specific models are needed.

Keywords. FOOD ALLERGY, machine learning, artificial intelligence, cross reactivity.

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122. THE DIAGNOSTIC VALUE OF MRI IN THE IDENTIFICATION OF POSTMENOPAUSAL OSTEOPOROSIS

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Introduction. Postmenopausal osteoporosis is one of the most common metabolic bone diseases and is characterized by decreased bone mineral density and deterioration of bone microarchitecture. This condition occurs in women aged between 50 and 65 years and results from increased osteoclastic activity associated with hypoestrogenism, leading to a higher risk of fractures. In recent years, MRI has emerged as a promising technique for evaluating bone changes associated with osteoporosis, as it allows assessment of trabecular microarchitecture, bone marrow composition and metabolic alterations without the use of ionizing radiation.

Aim of the study. The aim of this study is to evaluate the role and the diagnostic value of MRI in the detection and assessment of postmenopausal osteoporosis, as well as to explore the future perspectives of this imaging method.

Methods and materials. The literature review was based on the analysis of scientific articles published in the last ten years, focusing on the role of MRI in the detection of postmenopausal osteoporosis.

Results. MRI can identify structural and metabolic changes in bone tissue associated with osteoporosis. Recent discoveries suggest that marrow fat plays an important role in bone health. Modern MRI techniques allow the assessment of bone marrow composition, including increased marrow fat content, which correlates with decreased bone mineral density. In particular, PDFF has emerged as a useful imaging biomarker for quantification of marrow fat with an inverse correlation between PDFF values and bone mineral density. Furthermore, methods such as the vertebral bone quality score and diffusion or MR spectroscopy techniques can contribute to the evaluation of bone microstructure and the early detection of osteoporosis.

Conclusions. At the moment, the wider application of MRI techniques is limited by variability among MRI systems and the lack of standardized thresholds. However, MRI represents a promising method in the evaluation of postmenopausal osteoporosis, providing additional information about bone quality and microstructure. MRI may complement conventional diagnostic methods by enabling early detection of bone changes and a more comprehensive assessment of fracture risk.

Keywords. Postmenopausal osteoporosis; Magnetic resonance imaging; Bone marrow fat; Vertebral bone quality score; Bone mineral density.

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123. DETERMINANTS OF SURVIVAL AND RESOURCE UTILIZATION IN ACUTE CNS INFECTIONS: A 2025 RETROSPECTIVE STUDY OF 74 EMERGENCY CASES

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Introduction. Central Nervous System (CNS) infections are among the most serious emergencies in modern medicine, where the window for effective intervention is incredibly narrow. In the high-pressure environment of an emergency department, clinicians must often make rapid, life-saving decisions before a specific pathogen is identified. Understanding why certain patients face fatal outcomes while others recover is critical for refining triage protocols and improving survival rates in these complex neurological crises.

Aim of the study. To identify the clinical and demographic factors associated with mortality in patients presenting with emergency CNS infections. To evaluate the resource burden, measured by hospital stay duration and the necessity for intensive care interventions. To determine the impact of etiological categories on patient survival.

Methods and materials. This research was a retrospective, cross-sectional analysis of 74 patients admitted to the Emergency Medicine Institute (IMU) in Chisinau between January and December 2025. The study utilized clinical archives to analyze demographics, length of stay, discharge status, and specific medical or surgical interventions for each patient.

Results. The study identified a significant mortality rate of 27.0% (n=20) within the total cohort. The demographic profile skewed toward males (63.5%) and the elderly, with a mean age of 56.4 ± 16.4 years. Bacterial etiologies (ICD-10 G00-G06) emerged as the most lethal, exhibiting a 35.3% mortality rate and requiring the longest periods of specialized care, with some critical cases remaining hospitalized for up to 133 days or even 246 days. Fatal outcomes were frequently associated with severe secondary complications such as cerebral edema, intracranial hemorrhage, and the need for prolonged life-support measures, including percutaneous tracheostomies and gastrostomies.

Conclusions. High mortality is strongly correlated with bacterial etiologies and advanced age, highlighting the need for immediate, aggressive screening in these high-risk groups. The extreme duration of hospital stays for non-survivors and severely ill patients underscores the massive burden CNS emergencies place on intensive care and neurosurgical resources. Survival is contingent on the rapid coordination of neurology and neurosurgery teams, emphasizing that the management of secondary complications within the first 24 hours is the primary determinant of clinical outcomes.

Keywords. : Emergency Neurology, Mortality Determinants, CNS Infections, Clinical Severity, Resource Utilization,.

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124. URINE MICROSCOPY – AN IMPORTANT DIAGNOSTIC TOOL IN NEPHROLOGY

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Introduction. Urine sediment microscopy stands as a non-invasive diagnostic modality in nephrology, offering real-time morphological insights into glomerular, tubular and interstitial pathologies. It aims to identify features like dysmorphic erythrocytes for glomerular hematuria and granular casts indicating acute tubular necrosis. Despite the integration of advanced biomarkers, microscopy retains a superior concordance of 85-90% with kidney biopsy findings. However, the field faces challenges such as inter-observer variability, which makes it a very subjective phenomenon, which often overlooks uncommon and fragile cellular elements. Advancements in specialised optics and artificial intelligence promise to bridge these diagnostic gaps.

Aim of the study. To systematically appraise the diagnostic efficacy, interpretive challenges, and emerging enhancements in urine sediment microscopy in diagnosing renal pathologies for both chronic and acute conditions.

Methods and materials. The data were collected from literature searches of Pubmed, Google Scholar, Medscape and Cochrane Library for studies published up to January 2026. 90 studies were analysed using selected keywords and inclusion criteria.

Results. Nephrologists- performed microscopy achieves 85-90% concordance with kidney biopsies for acute kidney aetiologies. Phase-contrast microscopy is highly effective, revealing red blood cell acanthocytes for glomerular hematuria and granular "muddy brown" casts, which have a positive predictive value 92% in acute tubular necrosis. The analysis shows distinct patterns in chronic kidney diseases, where early stages feature subtle changes like hyaline casts, and advanced stages are dominated by waxy and broad casts. Furthermore, recent advancements in artificial intelligence, specifically convolutional neural networks, provide promising automated detection rates of 92% for dysmorphic red blood cells and 87% for granular casts, enhancing consistency.

Conclusions. Standard nephrology microscopy remains the gold standard for real-time renal parenchymal diagnosis, offering pathognomonic patterns that outperform biomarkers in specificity. The integration of ancillary techniques and emerging AI tools optimises accuracy, reduces the reliance on kidney biopsy by 25-30%, and addresses operator variability. Prompt analysis within two hours is critical to preserve diagnostic quality and informed targeted interventions. Moving forward, artificial intelligence rewrites the transformative future of urinalysis, with neural networks poised to achieve high accuracy and enable better healthcare management.

Keywords. Urine microscopy, urinary casts, dysmorphic RBC'S , acute kidney injury, artificial intelligence.

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125. ENDOMORPHIC SOMATOTYPE - A RISK FACTOR IN CARDIOVASCULAR DISEASES

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Introduction. Cardiovascular diseases remain the main cause of death in the world, with a constant growth rate and a progressive expansion of the affected population, which turns them into a major public health problem. The somatotype reflects the morphofunctional, anthropometric and metabolic parameters. The connection between the body type and cardiovascular risk is important to study and understand, in order to prevent the triggering factors of cardiovascular diseases, as well as to reduce the mortality and morbidity rate.

Aim of the study. Studying cardiovascular risk depending on the endomorphic somatotype.

Methods and materials. A systematic literature review was conducted applying the PubMed, Google Scholar, JSTOR and South Eastern European Journal of Public Health databases, using the keywords: "somatotype", "cardiovascular disease risk", "endomorphy", "mesomorphy", "ectomorphy".

Results. According to the information reported in the scientific literature, the endomorphic type is associated with a higher cardiovascular and metabolic risk comparated to mesomorphic or ectomorphic. Dyslipidemias represent a more common risk factor in the endomorphic somatotype, characterized by increased LDL-C values and the Chol/HDL-C ratio, compared to the ectomorphic type, which represents more favorable HDL-C values. Another risk factor, such as arterial hypertension, represents a prevalence in the endomorphic group of people, recording elevated values of systolic and diastolic blood pressure. The high glycemic profile prevails in endomorphic people, as well as the increased predisposition to adiposity and obesity, determining the higher risk of cardiovascular diseases. According to the study "SOMATOTYPE OF MEN SUFFERING FROM ISCHAEMIC HEART DISEASE" (ČEŘOVSKÁ, J., et al. 1980), in the group of patients with ischemic heart disease, a greater proportion of endomorphs was found compared to the other groups. In the evolution of coronary heart disease, endomorphs have a more severe prognosis, as well as a higher predisposition to dyslipidemia and hypertension.

Conclusions. The endomorphic somatotype is a way of predicting the risk of cardiovascular diseases, due to a predisposition to hypertension, dyslipidemia, and worsening of the evolution of existing cardiovascular diseases. Early identification of the endomorphic type allows doctors to personalize the regimen of such a patient as well as implement preventive measures.

Keywords. "somatotype", "cardiovascular disease risk", "endomorphy", "mesomorphy", "ectomorphy".

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126. RISK FACTORS IN THE DEVELOPMENT OF OSTEOARTHROSIS

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Introduction. Osteoarthrosis is one of the most common degenerative diseases of the locomotor system and constitutes a major public health problem due to its increased prevalence and impact on the quality of life of patients. The condition is characterized by a progressive degradation of articular cartilage, remodeling of the subchondral bone and the involvement of periarticular structures, processes influenced by many risk factors, such as age, sex, overweight, sedentary and mechanical joint overstrain.

Aim of the study. Identification and analysis of risk factors involved in the development of osteoarthritis in patients examined in the period 2024–2025 in the IMSP Republican Clinical Hospital „Timofei Mosneaga" in the Republic of Moldova.

Methods and materials. The study included 125 patients diagnosed with osteoarthrosis, examined during 2024–2025 at IMSP Spitalul Clinic Republican „Timofei Moșneaga" in the Republic of Moldova. Demographic data and disease-associated risk factors were analyzed. Data processing was performed using descriptive statistical methods.

Results. The study included 125 patients with osteoarthritis, with a predominance of females (94 patients, 75%) compared to males (31 patients, 25%). The highest prevalence was observed in the 65–74 years age group, confirming the increasing frequency of the disease with advancing age. Most patients originated from rural areas (80%). Regarding joint localization, gonarthrosis was the most frequent form (35.2%), followed by spondylosis (24%) and coxarthrosis (20.8%). Overweight and obesity were highly prevalent, with 51.2% of patients presenting obesity and 30.4% being overweight. Radiological evaluation showed that moderate–severe osteoarthritis (Kellgren–Lawrence III–IV) was present in 53% of cases. A significant association was identified between increased BMI and gonarthrosis ($p \approx 0.003$), as well as between BMI and radiological severity of osteoarthritis ($p \approx 0.03$). Additionally, intense physical effort was significantly associated with the presence of gonarthrosis ($p \approx 0.004$).

Conclusions. Osteoarthritis predominantly affects elderly women and individuals with increased body weight. Obesity and intense physical effort represent important risk factors, being significantly associated with both the occurrence and severity of osteoarthritis, particularly gonarthrosis. Identification and control of modifiable risk factors may contribute to improved prevention and management of the disease.

Keywords. Osteoarthrosis, risk factors, degenerative disease, gonarthrosis.

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127. ARTIFICIAL INTELLIGENCE IN DERMATOLOGY AND COSMETOLOGY

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Introduction. AI is part of the modern technology innovation that has infiltrated almost every field, including medicine. Dermatology is one of the directions in which significant progress has been made, thanks to the introduction of AI, especially in the screening and diagnosis of skin cancer.

Aim of the study. Analysis of the potential of AI in facilitating early diagnosis and self-screening of patients with dermatological conditions, its safety and ethical aspects.

Methods and materials. The study of the specialized literature using the databases of the PubMed platform, Medline, Google Academic, with the selection of relevant articles published in the last 10 years.

Results. A clinical diagnosis in dermatology involves a visual evaluation, which offers the possibility of integrating artificial intelligence into dermatological medical practice. It has the possibility to differentiate "normal" from "abnormal" skin lesions, and to recognize lesions that must be taken into account when indicating the biopsy, in order to exclude melanoma. One of the medical software programs that works in this way is DermaScan, where AI and deep image learning algorithms are automatically used. It is trained on large databases to perform classification and evaluation. New melanoma detection systems using AI have demonstrated good accuracy using dermatoscopic imaging, which has led to increased detection rates and decreased biopsies. Through the development of AI and technologies, it would be possible to address the dermatological deficit in low-income areas or areas where a low number of specialized medical personnel are present. Frequently, family doctors are the first to examine skin defects and prescribe a referral to the dermatologist. As a result, by providing primary health care with such technologies, late cases can be prevented. With the development of the technological era and the inclusion of the smartphone in everyday life, it would be a good opportunity to detect and monitor in real time the development of injuries through specialized applications using AI. It would solve ethical issues such as patient data protection. The use of images in AI systems must involve clear procedures in their use and storage.

Conclusions. The evolution of AI is a natural step for the accuracy and effectiveness of medical diagnosis. But digital progress cannot replace the responsibility and experience of the specialist. The medical act involves communication, interpretation of data, and therapeutic decisions. Thus, the future of Dermatology lies in the harmonious interaction between AI and professional competence for the purpose of patient benefit.

Keywords. Dermatology, artificial intelligence, melanoma, technologies, ethics.

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128. EVALUATION OF RELAPSES IN PATIENTS WITH HODGKIN LYMPHOMA STAGES I AND II WITH PRIMARY CERVICAL LYMPH NODE INVOLVEMENT

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Introduction. Hodgkin lymphoma (HL) is a malignant lymphoproliferative disorder characterized by high cure rates with modern therapy. Nevertheless, in some patients with local stages, there are up to 10-20% of relapses, which remains an important clinical issue, influencing long- term survival and treatment strategies. The risk of relapse may vary depending on the primary localization of lymph node involvement, including cervical lymph nodes, which represent one of the most frequent initial sites of disease manifestation.

Aim of the study. To evaluate the frequency and characteristics of relapse in patients with Hodgkin lymphoma local stages, with primary cervical lymph node involvement.

Methods and materials. A retrospective descriptive-analytical study was performed on 127 patients, aged 18 to 80 years, with Hodgkin lymphoma local stages with primary cervical lymph node involvement, initially diagnosed with stages I and II, with complete remissions due to the first-line therapy. Clinical records were analyzed to determine relapse frequency and distribution.

Results. Among the 127 patients with primary cervical lymph node involvement, relapse was documented in 19 cases, corresponding to a relapse rate of 14.9%. Most patients maintained durable remission after first-line therapy. The relapse pattern demonstrated that cervical lymph node involvement may be associated with a relatively lower relapse frequency compared with other primary lymph node localizations reported in the cohort. The majority of relapses occurred during follow-up after initial complete remission, reflecting disease progression rather than isolated local recurrence.

Conclusions. Patients with Hodgkin lymphoma with primary cervical lymph node involvement demonstrated a relapse rate of 14.9%, which is comparatively lower than that observed in several other primary nodal localizations. These findings suggest that primary cervical involvement does not represent a major independent risk factor for relapse, although continued monitoring remains essential for early detection of disease recurrence.

Keywords. Hodgkin lymphoma, cervical lymph nodes, relapse, primary localization.

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129. THERAPEUTIC CHALLENGES IN THE MANAGEMENT OF ACUTE PROMYELOCYTIC LEUKEMIA AFTER LIVER TRANSPLANTATION

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Introduction. Acute promyelocytic leukemia (APL) is a specific subtype of acute myeloid leukemia associated with the PML-RARA fusion gene and characterized by a marked predisposition to severe coagulation disorders. Differentiation therapy with all-trans retinoic acid (ATRA) has significantly improved survival; however, APL remains a hematological emergency due to the risk of early fatal complications. The occurrence of APL in solid organ transplant recipients is extremely rare and presents significant therapeutic challenges due to immunosuppression, transplant-related complications, and the need to balance antileukemic therapy with graft preservation.

Case presentation. A 35-year-old patient developed APL 24 months after orthotopic liver transplantation for hepatitis B-associated cirrhosis. The patient presented with pancytopenia on routine laboratory tests. Bone marrow examination revealed 58% abnormal promyelocytes. Flow cytometry identified a dominant leukemic population (~70%) expressing CD45, icMPO, CD117, CD33, CD13, CD123, and CD38, with the absence of HLA-DR and CD34. Molecular analysis confirmed the PML-RARA transcript, establishing the diagnosis of APL. Induction therapy with ATRA combined with chemotherapy was initiated immediately, aiming for rapid differentiation of leukemic promyelocytes and hematological remission. The clinical course was complicated by chronic liver graft rejection, confirmed by biopsy, requiring biliary stenting, and subsequent portal vein thrombosis, which limited therapeutic options. During induction therapy, the patient developed disseminated intravascular coagulation (DIC), a severe complication associated with early mortality in APL. Despite intensive supportive care, the patient's condition deteriorated rapidly and died before completing therapy.

Discussions. Management of post-transplant APL is demanding. Immunosuppressive therapy, graft complications, and high-risk coagulopathy require careful balancing of antileukemic therapy with graft preservation. DIC remains the most common and lethal early complication; multiple reports in the literature confirm that it contributes substantially to mortality in this setting. This case highlights the importance of early recognition, rapid initiation of ATRA-based therapy, and aggressive supportive care. Furthermore, it emphasizes the need to investigate safer, targeted therapies specifically tailored to post-transplant patients to reduce life-threatening complications while maintaining high remission rates.

Conclusions. APL after liver transplantation is a rare but clinically challenging condition. Severe coagulopathy continues to be a major cause of early mortality. Optimizing supportive care and developing safer therapeutic strategies are essential to improve outcomes in this vulnerable patient population.

Keywords. Acute promyelocytic leukemia, ATRA, post-transplant, disseminated intravascular coagulation.

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130. AN INNOVATIVE CONCEPT ON THE USE OF 3D-MIXED REALITY IN ONCOLOGY FOR DIDACTICAL AND PRACTICAL PURPOSES- CURRENT ACHIEVEMENTS AND FUTURE PROSPECTS

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Introduction. Nowadays, the oncology domain faces important changes due to the implementation of immersive technologies, such as Virtual Reality (VR) and Augmented Realities (AR). Along with 3D-printing techniques (3D-PT), their use is widely implemented in didactic, research and curative areas for students, residents, patients and doctors. offering the possibility to create a detailed concept of the disease and its treatment options from the combination of both virtual and physical images.

Aim of the study. Analysis and interpretation of relevant data from scientific databases regarding the use of immersive technologies in oncology, including Virtual Reality, Augmented Reality together with 3D-Printing techniques and their implementation in the didactic process.

Methods and materials. A literature review was carried out using scientific publications from PubMed, Nature, Google Scholar, Frontiers databases for up to 10 years. An innovation in medicine was registered and implemented at the Oncology Department by Nicolae Testemitanu SUMPh on the use of the concept of 3D-Mixed Reality.

Results. According to the recent studies, one of the main fields of implementation of immersive technologies in oncology was the didactical one, where VR, AR and 3D-PT had been integrated in the teaching process of medical students and oncology residents, highlighting the structural properties, anatomical localizations of the tumors and their potential methods of treatment. Moreover, this approach was used in the process of patients' education prior and after the surgical, chemotherapy and/or radiotherapy procedures, enhancing their knowledge about their disease and strengthening the doctor-patient relationship, Based on the previous results, there was created, registered and implemented an innovation in medicine ,,Method of use of 3D-Mixed Reality in oncology for didactic-practical purposes", where students and residents during practical lessons at Oncology module had the opportunity to view virtual and 3D-printed models of tumors, visualize the mechanism of cancerogenesis in an immersive format and test an interactive software for radiotherapy treatment planning through VR glasses. The concept received positive feedback from the users, being pleased by the innovative approach and the possibility to develop and integrate it in the educational process.

Conclusions. The immersive technologies, including VR, AR and 3D-PT have high prospects in the development of the educational process, being involved in the knowledge foundation of medical students and residents in the oncology field. Further development and integration in clinical practice is expected to enhance the therapeutic approaches and quality of care for oncology patients.

Keywords. 3D-Mixed Reality, Oncology, Virtual Reality, Augmented Reality, 3D-Printing Techniques.

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131. THE IMPACT OF CHRONIC DIGESTIVE DISEASES ON PATIENTS' QUALITY OF LIFE

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Introduction. Chronic digestive disorders represent a major global public health concern, being associated with increased morbidity and mortality and a considerable impact on patients' quality of life. According to Global Burden of Disease data, the incidence of these conditions has increased significantly over recent decades, with a notable rise in mortality and disability-adjusted life years (DALYs). Beyond their clinical manifestations, chronic digestive diseases affect biological, psychological, and social dimensions of health, leading to impairment of health-related quality of life (HRQOL). Therefore, standardized HRQOL assessment tools are increasingly used to evaluate disease burden and the effectiveness of therapeutic interventions.

Aim of the study. Studying the impact of chronic digestive diseases on patients' quality of life based on specialized literature and clinical data.

Methods and materials. A comprehensive research approach was applied, including a review of scientific literature published between 2015–2025 identified in the Scientific Medical Library of the Nicolae Testemitanu State University of Medicine and Pharmacy and electronic databases such as Medline, PubMed, and Google Scholar. The empirical study included 101 patients with chronic digestive diseases hospitalized in the Department of Gastroenterology and Hepatology of the Timofei Moșneaga Republican Clinical Hospital, Chișinău, between January and March 2026. Gastrointestinal symptoms and HRQOL were assessed using the Izumo Scale (15 items, 0–5 Likert scale; total score 0–75).

Results. The study included 101 patients with chronic digestive diseases, with a predominance of females (63.4%) and individuals from rural areas (74.3%). The most frequent diagnoses were chronic pancreatitis and chronic liver disease (19.8% each), followed by gastroesophageal reflux disease (16.8%), inflammatory bowel disease and chronic gastritis (15.8% each), and irritable bowel syndrome (11.9%). Abdominal pain was reported by 58.4% of patients and was more common in females (65.6% vs. 45.9% in males). The highest median pain intensity (VAS) was observed in inflammatory bowel disease, while lower values were recorded in chronic liver disease. Chronic digestive diseases affected professional activity in 23.8% of patients, most frequently leading to job abandonment. Health-related quality of life (HRQOL) scores were higher in older age groups and in female patients, and significantly increased in the presence of abdominal pain, with the highest median values observed in patients with gastroesophageal reflux disease and irritable bowel syndrome.

Conclusions. Chronic digestive diseases significantly affect HRQOL, particularly in the presence of abdominal pain and in older patients, highlighting the importance of comprehensive assessment and the use of HRQOL instruments in clinical management.

Keywords. Health related quality of life; chronic gastrointestinal disorders; biopsychosocial.

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132. PROARRHYTHMIA DURING FLECAINIDE THERAPY ASSOCIATED WITH HYPOMAGNESEMIA AND THYROTOXICOSIS

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Introduction. Flecainide is a class IC antiarrhythmic used in the treatment of atrial fibrillation and paroxysmal supraventricular tachycardia. It blocks fast sodium channels, leading to slowed intracardiac conduction, PR interval prolongation and QRS widening, with usually minimal effect on QTc. Although torsade de pointes (TdP) is uncommon with flecainide, proarrhythmic events may occur, especially with electrolyte disturbances.

Case presentation. We report the case of a 52-year-old man with hypertension and thyrotoxicosis who presented with palpitations. Baseline ECG showed sinus rhythm with supraventricular extrasystoles. Echocardiography revealed preserved LVEF (58%) and no valvular disease. Holter monitoring detected frequent supraventricular extrasystoles and short episodes of supraventricular tachyarrhythmia, leading to initiation of flecainide 100 mg twice daily with a beta-blocker. At follow-up, the patient reported fatigue, somnolence, and tremor. Repeat Holter showed frequent ventricular extrasystoles, couplets, bigeminy, trigeminy, and a 4 h 29 min tachyarrhythmic episode with alternating narrow and wide QRS complexes. Ventricular tachycardia up to 300 bpm with torsade de pointes–like morphology and QT variability (280–489 ms) were recorded. Flecainide was discontinued and the patient was hospitalized. Laboratory tests revealed severe hypomagnesemia (0.46 mmol/L) and suppressed TSH (0.06 µIU/mL) with elevated free T4. Coronary angiography excluded significant coronary disease. Magnesium supplementation, optimized beta-blocker and thiamazole therapy were initiated. Follow-up Holter showed complete resolution of ventricular arrhythmias, with favorable evolution under adjusted antihypertensive, antithyroid, and electrolyte-correcting treatment.

Discussions. This case highlights flecainide's proarrhythmic potential, even in patients without structural heart disease. Although it usually minimally affects QT, individual susceptibility, especially hypomagnesemia and thyrotoxicosis, may trigger ventricular arrhythmias. Therefore, continuous ECG monitoring and periodic reassessment are important during class IC antiarrhythmic therapy, particularly in patients with endocrine or metabolic disorders.

Conclusions. Flecainide therapy may be associated with severe ventricular arrhythmias, including torsade de pointes, even in apparently low-risk patients. Electrolyte imbalance, particularly hypomagnesemia, may act as a precipitating factor. Careful ECG monitoring, timely recognition of proarrhythmic signs and multidisciplinary management are crucial to prevent potentially life-threatening complications.

Keywords. Flecainide; Proarrhythmia; Polymorphic ventricular tachycardia; Thyrotoxicosis; Hypomagnesemia.

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133. MICRONUTRIENT DEFICIENCIES AND THEIR ASSOCIATION WITH METABOLIC AND ENDOCRINE PARAMETERS IN ADULT PATIENTS

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Introduction. Micronutrient status plays an important role in maintaining metabolic balance and normal endocrine function. Deficiencies in vitamins and minerals may be accompanied not only by biological alterations, but also by changes in the way patients perceive their general health.

Aim of the study. This study aimed to assess the association between micronutrient status and metabolic, endocrine, and self-reported health parameters in adult patients.

Methods and materials. A retrospective observational study was conducted on 112 adult patients examined at the "Galaxia" Family Health Center. Demographic, clinical, and laboratory data were collected, including age, body mass index, blood pressure, pulse, glycemia, and TSH levels. These parameters were evaluated in relation to micronutrient status. Self-reported indicators such as energy level, sleep quality, digestive function, and general health perception were also analyzed.

Results. Several important metabolic and endocrine alterations were identified in the studied group. Excess body weight was frequent: 61% of participants were classified as obese and 31% as overweight. Increased blood pressure values were also common, with 84% of patients meeting the criteria for hypertension. In 54% of patients, glycemic values suggested hyperglycemia or prediabetes, whereas elevated TSH levels were observed in 88%, reflecting a high prevalence of thyroid dysfunction. The micronutrient profile showed multiple imbalances. Deficiency of B-group vitamins was present in all patients. Vitamin D3 deficiency was found in 45.5%, vitamin E deficiency in 36.6%, and betaine deficiency in 31.25%. Among minerals, selenium deficiency had the highest prevalence (66.1%), followed by iodine (59.08%) and magnesium (51.9%). Lower frequencies were recorded for calcium, iron, zinc, and potassium deficiencies. Subjective assessment showed that many patients reported reduced energy, poorer sleep, digestive discomfort, and a generally reduced perception of health.

Conclusions. Micronutrient deficiencies are frequently encountered in adults with metabolic and endocrine disturbances and may play a role in the development of functional health impairment through disruptions in metabolic balance. Their early identification may be valuable for developing personalized preventive approaches and for supporting better long-term metabolic outcomes.

Keywords. Micronutrient deficiencies, metabolic disturbances, endocrine dysfunction, obesity, preventive medicine.

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134. SERUM BIOMARKERS IN MULTIPLE SCLEROSIS: FROM ESTABLISHED CLINICAL TOOLS TO EMERGING CANDIDATES

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Introduction. Multiple sclerosis (MS) is a chronic inflammatory neurodegenerative disease of the central nervous system. A biomarker is an objective and measurable indicator of both physiological or pathological processes or response to a treatment. They can be classified into 4 groups: predictive, diagnostic, disease activity and treatment-response biomarkers.

Aim of the study. This review aims to discuss serum biomarkers for MS, focusing on those already used as well as on those with potential relevance.

Methods and materials. A comprehensive literature search of articles published since 2005 was conducted using PubMed, HINARI and Science Direct. The search included terms such as "multiple sclerosis," and "serum biomarkers". A total of 216 relevant sources were identified, including original studies, reviews and book chapters.

Results. Predictive biomarkers support risk stratification and early MS identification. Vitamin D levels <63.3 nmol/L more than doubled MS risk compared to patients with levels >99.1 nmol/L according to Munger KL et al. (2006). Other candidate predictors associated with neurodegenerative diseases include dipeptidyl peptidase-6 and apolipoprotein E. Diagnostic biomarkers, such as kappa free-light chain (kFLC) and oligoclonal bands (OCB), are included in the McDonald criteria. They reflect the intrathecal immunoglobulin synthesis through serum-CSF comparison, therefore they are not pure serum biomarkers. However, no association was found between serum kFLC and disease activity, while the overall level of kFLC decreased in MS patients treated with ocrelizumab. Another diagnostic indicator, glial fibrillary acidic protein (GFAP), showed higher serum levels in primary progressive MS than in relapsing remitting MS. Disease activity is mainly assessed clinically, potentially missing subclinical progression. Several serum biomarkers including neurofilament light chain (NfL), occludin, CXCL13 and serum amyloid A (SAA) have been studied. Khule J et al. (2019) showed elevated NfL levels correlated with new/enlarging T2 lesions (T2L), disability worsening and treatment efficacy. A strong correlation was noted between EDSS, radiological burden and osteopontin levels, while occludin levels were significantly decreased in patients who achieved NEDA. GFAP also correlated with disease activity, particularly with white matter lesions volume. Juan Z et al. (2025) detected higher serum levels of CXCL13 in patients with EDSS >3.5 than in those with EDSS <3.5. Hiroki Y et al. (2020) found a moderate correlation ($r = -0.41$, $p = 0.019$) between SAA and cortical volume. Several serum biomarkers have been investigated for treatment selection and monitoring.

Conclusions. Integrating serum biomarkers is essential for individualizing MS management. Emerging candidates like NfL, CXCL13 and SAA provide objective insights into subclinical disease activity and therapeutic efficacy.

Keywords. Multiple Sclerosis, Serum Biomarker.
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135. CORNEOSCLERAL INVOLVEMENT IN RHEUMATOID ARTHRITIS: PREVALENCE, DISEASE ACTIVITY AND SEROLOGICAL PREDICTORS IN A MOLDOVAN COHORT.

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Introduction. Rheumatoid arthritis (RA) is a chronic systemic autoimmune disease in which extra-articular involvement reflects cumulative inflammatory burden and unfavorable prognosis. Ocular manifestations, particularly corneoscleral disorders, remain insufficiently quantified despite their potential to signal severe systemic activity. Identifying statistical associations between ocular involvement, disease activity, and serological markers may refine risk stratification and interdisciplinary management.

Aim of the study. To quantify the prevalence of corneoscleral manifestations in RA and to determine their statistical association with disease duration, inflammatory activity, and autoantibody status.

Methods and materials. A cross-sectional observational study included 54 consecutive RA patients diagnosed according to ACR/EULAR 2010 criteria. All subjects underwent standardized ophthalmological assessment (slit-lamp biomicroscopy, Schirmer I test, fluorescein staining). Rheumatologic evaluation comprised disease duration, DAS28-CRP, RF and ACPA status. Continuous variables were expressed as mean ± SD and compared using Student's t-test or Mann-Whitney U test. Categorical variables were analyzed by the $\chi 2$ test. Correlations were assessed using Pearson or Spearman coefficients. Odds ratios (OR) with 95% confidence intervals (CI) were calculated. Statistical significance was set at $p<0.05$.

Results. Corneoscleral involvement was detected in 19 patients (35.2%). Keratoconjunctivitis sicca was present in 22.2%, anterior scleritis in 9.3%, and peripheral ulcerative keratitis in 3.7%. Patients with ocular involvement showed significantly longer RA duration (10.4 ± 4.1 vs 6.2 ± 3.5 years; $p<0.001$) and higher disease activity (DAS28-CRP 5.4 ± 0.8 vs 4.2 ± 0.9; $p<0.001$). DAS28 correlated positively with ocular involvement severity ($r=0.61$, $p<0.001$). High-titer RF and ACPA positivity were associated with increased odds of corneoscleral disease (OR 3.8; 95% CI 1.4-10.2; $p=0.008$). Patients with moderate-high disease activity (DAS28 ≥3.2) exhibited a significantly higher prevalence of ocular pathology compared to those in remission/low activity (72.7% vs 38.5%; $p=0.01$).

Conclusions. Corneoscleral manifestations in RA are statistically associated with prolonged disease duration, elevated inflammatory activity, and seropositive immunological profile. These findings support routine ophthalmological screening in patients with active or long-standing RA and emphasize the prognostic value of ocular involvement as a marker of systemic disease severity.

Keywords. rheumatoid arthritis, corneoscleral involvement, disease activity, autoantibodies, extra-articular manifestations.

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136. PATHOGENETIC MECHANISMS OF H. PYLORI-NEGATIVE GASTRIC MALT LYMPHOMA

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Introduction. MALT lymphoma (mucosa-associated lymphoid tissue) is a form of non-Hodgkin lymphoma of type B, with predominantly gastric localization, characterized by a low potential of malignancy. The development of pathology is mainly conditioned by chronic infection with Helicobacter pylori, which is an essential element in initiating the process of lymphomagenesis, by stimulating persistent antigenicity and inducing the formation of lymphoid tissue in the gastric mucosa. However, there are patients who are H.pylori negative, who may develop this condition and require adapted treatment.

Aim of the study. The purpose of this study is to elucidate current data on pathogenetic mechanisms, in order to adapt a specific treatment in patients with gastric MALT lymphoma H. pylori-negative.

Methods and materials. Current articles published on PubMed, ScienceDirect and Medspace were included and evaluated in this study, using keywords such as: H. pylori, MALT, lymphoma.

Results. According to published studies, about 5-10% of patients diagnosed with MALT lymphoma appear independently of the H.pylori infection. This finding suggests the involvement of other pathogenetic mechanisms, such as some genetic abnormalities, especially chromosomal translocations - t(11;18)(q21;q21), which can cause the formation of the fusion protein API2-MALT1, activation of the NF-kB pathway, which are associated with resistance to eradication therapy. Other etiopathogenetic mechanisms involve immunological disorders of the autoimmune type or the participation of other microbial agents. Representing a minority of cases of gastric MALT lymphoma, negative H. pylori lymphoma induces significant difficulties in diagnosis, differential diagnosis and treatment. However, in the diagnostic process, the emphasis is placed on superior digestive endoscopy with biopsy, histopathological examination according to the Wotherspoon score, immunocystochemistry and genetic evaluation by PCR or FISH. Treatment to eradicate H.pylori will induce remission in negative H.pylori patients, but with a low response rate compared to infected patients. A therapeutic performance in advanced cases is radiotherapy and systemic therapies, such as immunochemistry.

Conclusions. Gastric MALT lymphoma Helicobacter pylori-negative is identified as a specific subset, marked by its own pathogenetic mechanisms and corresponding therapeutic implications. Although eradication therapy may be a first-resort option, alternative therapeutic approaches should be planned early for non-responsive patients. Individualization of the treatment according to the molecular profile is the key element for increasing the effectiveness and optimizing the prognosis.

Keywords. H. pylori; MALT; lymphoma; gastric; pathogeny.

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137. CLINICAL AND LABORATORY FEATURES OF HIGH BLEEDING RISK IN PATIENTS WITH NON-VALVULAR ATRIAL FIBRILLATION ON RIVAROXABAN

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Introduction. Effective anticoagulation in atrial fibrillation (AF) requires balancing thromboembolic prevention with hemorrhagic safety. While the HAS-BLED score is used to estimate bleeding risk, its correlation with clinical and laboratory parameters in patients receiving direct oral anticoagulants remains incompletely defined.

Aim of the study. To identify clinical and biochemical determinants associated with elevated hemorrhagic risk in non-valvular AF patients treated with Rivaroxaban.

Methods and materials. This retrospective observational study included 41 consecutive patients with non-valvular AF on Rivaroxaban hospitalized in Clinical Municipal Hospital ”Sfânta Treime”, Chișinău (October 2025-January 2026). HAS-BLED components were recorded: hypertension, abnormal renal or liver function, prior stroke, bleeding history, age >65 years, medications predisposing to bleeding, and alcohol intake. Laboratory evaluation included International Normalized Ratio (INR), prothrombin index (PTI), fibrinogen, and a lipid profile. Patients were stratified into high-bleeding risk (HAS-BLED ≥3) versus low-to-moderate risk (HAS-BLED <3). Continuous variables were expressed as mean ± SD, and categorical variables as percentages.

Results. The cohort had a mean age of 70.0 ± 10.4 years, with 58.5% men and 41.5% women. The HAS-BLED score was 2.2 ± 0.7, with 29.3% of patients classified as high bleeding risk. Age was slightly higher in high-risk patients (71.5 ± 6.2 vs 68.7 ± 11.5). Hypertension was present in all high-risk patients (100%), with 58% having grade 3 hypertension, while in low-risk patients, 93% were hypertensive, with 34% having grade 3 hypertension. Prior stroke was present in 50% of high-risk patients and absent in the low-risk group. No patients reported alcohol use disorders, hepatic dysfunction, or renal impairment. Coagulation parameters were slightly higher in the high-risk group: INR 1.08 ± 0.16 vs 1.10 ± 0.14, fibrinogen 4.84 ± 1.5 g/L vs 4.01 ± 1.33 g/L, and PTI 90.2 ± 25.8% vs 81.4 ± 26.7%. Antiplatelet therapy was more frequent in the high-risk group (25% vs 3%). Prior bleeding was reported in 8% of high-risk patients and was absent in the low-risk group. Lipid profiles did not differ appreciably between groups.

Conclusions. High bleeding risk in patients on Rivaroxaban is associated with advanced age (>70 years), grade 3 hypertension, prior stroke, and concomitant antiplatelet therapy. While laboratory parameters remained within narrow ranges, high-risk patients tended to have higher fibrinogen and prothrombin index levels. These findings highlight the importance of comprehensive clinical and laboratory assessment for individualized anticoagulation management in atrial fibrillation.

Keywords. Atrial Fibrillation, Rivaroxaban, HAS-BLED score, Anticoagulation therapy, Bleeding risk.

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138. DIAGNOSTIC DILEMMA IN PERIPHERAL NEUROPATHIES: CHRONIC INFLAMMATORY DEMYELINATING POLYNEUROPATHY VS. DIABETIC POLYNEUROPATHY. FROM THE PRESUMPTION OF AXONAL DIABETIC NEUROPATHY TO THE ACTIVE SEARCH FOR TREATABLE DEMYELINATION.

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Introduction. Diabetes mellitus is a "maniac" in Moldova's socioeconomic landscape, with record figures of 131,000 cases. Most neurological deficits are reflexively attributed to this diagnosis, overlooking that diabetics are nine times more likely to develop CIDP. Unlike the irreversible course of Diabetic Polyneuropathy, CIDP is a treatable pathology responsive to immunotherapy. However, limited access to advanced investigations leads to underdiagnosis and disabling progression.

Aim of the study. Highlighting the evolution of clinical 'red flags' typical for CIDP is essential for differential diagnosis: Proximal muscle weakness: A hallmark of CIDP that is rarely observed in standard diabetes, where sensory disturbances typically follow a 'stocking-glove' distribution. Rate of progression: The relatively rapid progression of peripheral neurological symptoms over 8 weeks strongly suggests CIDP, whereas diabetic neuropathy typically sets in insidiously over several years. The ultimate goal is the prevention of CIDP underdiagnosis in the diabetic population.

Methods and materials. According to the EAN/PNS 2021, patients with progressive neurological symptomatology will be examined to confirm the demyelination process — the axonal damage in PDN. Distal motor latency. Motor conduction velocity. F-wave latency. Conduction block. Peripheral nerve ultrasound. CSF analysis.

Results. If motor latency increases, motor conduction velocity decreases, the CMAP is likewise diminished, and albuminocytologic dissociation is present in the CSF. Meanwhile, on peripheral nerve ultrasound, we observe non-uniform nerve hypertrophy in an "onion bulb" pattern typical of CIDP, with marked hypoechogenicity. Based on these positive demyelination criteria, we establish the diagnosis of CIDP.

Conclusions. For Moldova, the differential diagnosis of CIDP is a major challenge, shifting the prognosis from disabling for underdiagnosed cases to a bright and successful perspective upon the administration of IV Ig, corticosteroid therapy, and biological medication — efgartigimod. We can offer both diabetic patients and those with CIDP a good quality of life only on the basis of adequate treatment; the latter can be applied only if we recognize the disease. In conclusion, the foundation of success is an accurate diagnosis.

Keywords. CIDP, PDN, Demyelination, Chronic inflammation, Diabetes, Neurology, Diabetic Polyneuropathy.

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139. GASTROESOPHAGIC REFLUX DISEASE IN ASSOCIATION WITH COPD – DIAGNOSTIC FEATURES

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Introduction. Gastroesophageal reflux disease (GERD) significantly influences the clinical course of chronic obstructive pulmonary disease (COPD) and is recognized as an independent risk factor for acute exacerbations. The prevalence of GERD among patients with COPD ranges between 17–78%, with proximal and distal reflux episodes occurring about five times more frequently than in the general population. The underlying mechanisms include the esophago-bronchial vagally mediated reflex with bronchoconstrictive effect, chronic microaspiration of gastric contents, and the inflammatory response mediated by pro-inflammatory cytokines — TNF-α, IL-1β, IL-6, IL-8 — which amplify airway inflammation. Pulmonary hyperinflation further aggravates reflux by increasing the thoraco-abdominal pressure gradient and reducing the tone of the lower esophageal sphincter, thereby creating a self-perpetuating pathological cycle.

Aim of the study. Analysis of the manner in which gastroesophageal reflux disease (GERD) influences the course and exacerbations of chronic obstructive pulmonary disease (COPD), highlighting the diagnostic particularities generated by the overlap of respiratory and extraesophageal symptomatology.

Methods and materials. Narrative review of the literature published between 2012 and 2025, based on observational studies, meta-analyses and international consensus documents — GOLD 2025, Lyon Consensus 2.0 (2024), ACG 2022, AGA 2023 — accessed through PubMed and Cochrane databases. Pathophysiological, epidemiological and diagnostic data regarding the GERD–COPD association were analyzed.

Results. GERD is associated with a 5.37-fold higher risk of COPD exacerbations (OR: 5.37; 95% CI: 2.71–10.64), accompanied by an increased annual rate of exacerbations and hospitalizations. The ECLIPSE study identified reflux as one of the strongest independent predictors of exacerbations, validated across all GOLD stages. Chronic microaspiration induces structural injury of the small airways, objectively demonstrated on computed tomography by increased air trapping. Predominantly extraesophageal manifestations — chronic cough, nocturnal wheezing, dysphonia, dyspnea — in the absence of typical heartburn complicate the diagnostic process. The recommended diagnostic algorithm includes the GerdQ questionnaire, upper gastrointestinal endoscopy, esophageal pH monitoring, and combined pH-impedance monitoring, as no single method alone is sufficient for definitive confirmation.

Conclusions. GERD represents a modifiable factor with a direct impact on the frequency of COPD exacerbations and on disease prognosis. Early, objective and multidisciplinary diagnosis may significantly reduce the clinical burden associated with this comorbidity. Objective confirmation of reflux is essential before initiating long-term antisecretory therapy, thereby avoiding unjustified empirical treatment.

Keywords. GERD, COPD, Exacerbations, Microaspiration, PH-impedance.

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140. CLINICAL AND BIOCHEMICAL PREDICTORS OF ACTIVITY, SEVERITY, AND EARLY THERAPEUTIC RESPONSE IN GRAVES' ORBITOPATHY

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Introduction. Graves' orbitopathy is the most common extrathyroidal autoimmune disorder. The Clinical Activity Score and EUGOGO score represent the recognized standard for detecting active and severe inflammation. However, the integration of specific biomarkers and risk factors remains critical for predicting clinical course and treatment outcomes.

Aim of the study. The aim of the study is to determine the relation between clinical scores and selected biochemical parameters to assess the progression of thyroid eye disease and response to various therapeutic interventions.

Methods and materials. A retrospective analysis was conducted using the SIAAMS institutional database. The hospitalized patients were selected during the period 2017-2025 from the "Endocrinology" department, IMSP Republican Clinical Hospital "Timofei Mosneaga".

Results. The study included 34 patients: 18 men and 16 women, with an average age between 50.2 ± 13.6 years. Within the cohort, 18 patients (52.9%) had multiple hospital admissions, whereas 16 patients (47.1%) had a single admission. According to the recorded data, 11 patients (32.4%) presented with hyperthyroidism at onset, 14 patients (41.2%) presented with primary orbitopathy, and 8 patients (23.5%) had hyperthyroidism and primary orbitopathy associated. More than 79.4% of patients were found to be in the active phase of orbitopathy. Analytical comparisons revealed that the CAS distribution follows a relatively normal pattern ($p=0.0711$, Shapiro-Wilk test), offering higher statistical flexibility and diagnostic reliability than the NOSPECS system. Biological analysis confirmed that TRAb titers serve as a statistically significant discriminator between mild and moderate-to-severe disease phases ($p=0.0088$, Dunn test). Furthermore, a significant correlation was identified between elevated LDL and total cholesterol levels ($p<0.001$, Spearman correlation) and higher inflammatory activity as measured by CAS. Following therapeutic intervention, patients exhibited a statistically significant reduction in CAS by an average of 1.6 points. Intravenous glucocorticoid pulse therapy was confirmed as the most frequent and effective first-line intervention. Due to the small size of the treated cohort, the analysis of newer treatments, such as Tocilizumab, remained statistically limited.

Conclusions. Systematic monitoring of biological parameters alongside rigorous clinical scoring via CAS allows for the efficient analysis of Graves' orbitopathy dynamics. Despite limitations involving cohort size ($n=18$ for dynamic tracking) and data heterogeneity, these results validate the utility of LDL cholesterol and TRAb as critical predictors of severity.

Keywords. Graves' orbitopathy, CAS, TRAb, Pulse therapy, Thyroid eye disease.

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141. CLINICAL AND DIAGNOSTIC FEATURES OF MEDIASTINAL LYMPHOMAS

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Introduction. Mediastinal lymphomas are a heterogeneous group of malignant lymphoid neoplasms that frequently present as mediastinal masses and may cause compressive symptoms due to the involvement of surrounding thoracic structures. Owing to their nonspecific clinical manifestations, establishing the diagnosis requires correlation between imaging findings and histopathological confirmation by biopsy.

Aim of the study. To analyze the clinical presentation and diagnostic methods used in patients with mediastinal lymphomas.

Methods and materials. A retrospective study was conducted at the Oncology Institute of the Republic of Moldova, including 63 patients diagnosed with mediastinal lymphoma between 2019 and 2024. Demographic data, clinical manifestations, imaging investigations, and biopsy techniques were analyzed using descriptive statistical methods.

Results. The study included 63 patients with a mean age of 43 years (range 21-85 years). Females slightly predominated (34 cases) compared with males (29 cases). The most common clinical manifestations included general weakness (45 cases), dyspnea (40 cases), and cough (27 cases). Weight loss was more commonly observed in patients with non-Hodgkin lymphoma (17 cases) than in those with Hodgkin lymphoma (6 cases), contributing to a higher frequency of B symptoms in non-Hodgkin lymphoma. Histologically, non-Hodgkin lymphomas showed a slight predominance (33 cases), including 22 cases of diffuse large B-cell lymphoma. Hodgkin lymphoma was diagnosed in 30 patients, with 24 cases corresponding to the nodular sclerosis subtype. Imaging investigations included chest radiography combined with computed tomography (CT) in 42 cases, CT alone in 11 cases, and radiography alone in 9 cases, while magnetic resonance imaging (MRI) was used in one case. Histopathological confirmation was obtained using various biopsy techniques, including thoracotomy (21 cases), incisional biopsy of peripheral lymph nodes (19 cases), excisional biopsy (13 cases), transthoracic puncture biopsy (8 cases), and thoracoscopy (2 cases).

Conclusions. Mediastinal lymphomas most commonly present with general weakness, dyspnea, and cough. B symptoms, particularly weight loss, were more frequently observed in non-Hodgkin lymphomas. Non-Hodgkin lymphomas showed a slight predominance, with diffuse large B-cell lymphoma representing the most frequent subtype, while nodular sclerosis predominated among Hodgkin lymphomas. Imaging investigations combined with histopathological confirmation remain essential for establishing the diagnosis.

Keywords. Mediastinal lymphomas, Diagnostic methods, Biopsy, Computed tomography, Non-Hodgkin lymphoma, Hodgkin lymphoma.

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142. IMAGING ASPECTS IN CERVICAL ADENOPATHIES

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Introduction. Cervical adenopathy is a common clinical and imaging finding encountered in otolaryngology, oncology, infectious diseases, and radiology. Cervical lymph nodes are important for immune monitoring and are commonly involved in inflammatory, infectious, and neoplastic processes of the head and neck. The considerable overlap of imaging characteristics makes accurate separation between benign and malignant lymphadenopathy a major diagnostic problem. Recent improvements in medical imaging, notably multiparametric ultrasound and functional magnetic resonance imaging, have made it easier to analyse lymph node shape, vascularization, and tissue features without invasive procedures.

Aim of the study. To analyse and synthesise data from the most recent specialised literature on the imaging characteristics of cervical adenopathies, as well as to assess the diagnostic value of multiparametric ultrasonography and complementary cross-sectional imaging techniques.

Methods and materials. A literature review was performed utilising major worldwide medical databases such as PubMed/MEDLINE, Scopus, Web of Science, and Google Scholar. The search approach used a combination of keywords relating to cervical lymphadenopathy, ultrasonography, Doppler imaging, elastography, computed tomography, magnetic resonance imaging, and diffusion-weighted imaging. Publications over the last 10 years were prioritised, and selected studies were critically analyzed to compare imaging criteria, diagnostic performance, and limits of various imaging modalities.

Results. According to the literature, ultrasonography remains the preferred imaging modality for examining cervical lymph nodes due to its accessibility, excellent spatial resolution, and lack of ionising radiation. The combination of greyscale morphology, Doppler vascular patterns, and elastography greatly increases diagnostic performance. However, there is significant overlap between benign and malignant lymph nodes, especially in instances with equivocal imaging findings. Cross-sectional imaging techniques, such as computed tomography and magnetic resonance imaging, offer additional information about nodal architecture, extracapsular spread, and involvement of deep cervical areas. Functional MRI approaches, particularly diffusion-weighted imaging, help to improve tissue characterisation in specific clinical circumstances.

Conclusions. Multiparametric imaging is critical in the diagnostic evaluation of cervical adenopathies. Ultrasound remains the dominant imaging tool, with computed tomography and magnetic resonance imaging providing critical supplemental information in more complex patients. Despite technological developments, imaging data alone are frequently insufficient for a definitive etiological diagnosis, emphasising the need to combine imaging results with clinical examination and histopathologic confirmation.

Keywords. cervical adenopathy, ultrasound, magnetic resonance imaging, computed tomography, lymph nodes.

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143. NEUROIMAGING ASPECTS IN DEMYELINATING POLYNEUROPATHIES

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Introduction. Demyelinating polyneuropathies are a class of peripheral nervous system disorders characterized by damage to the myelin sheath that surrounds peripheral nerve fibres. Major clinical entities include Guillain-Barré syndrome, chronic inflammatory demyelinating polyradiculoneuropathy, and inherited neuropathies including Charcot-Marie-Tooth disease. Early detection is critical because some inflammatory neuropathies are potentially curable; yet, diagnostic delays are typical due to limitations in clinical and electrophysiological testing. In recent years, improvements in neuroimaging have allowed for direct visualisation of peripheral nerves, enhancing radiology's diagnostic significance in neuromuscular diseases.

Aim of the study. To examine and synthesise current scientific information on the importance of neuroimaging in the assessment of demyelinating polyneuropathies, with a focus on magnetic resonance neurography and high-resolution ultrasonography.

Methods and materials. A descriptive and analytical literature review was performed utilising major biomedical databases such as PubMed/MEDLINE, Scopus, Web of Science, and Google Scholar. Peer-reviewed papers, systematic reviews, and international guidelines published primarily between 2015 and 2025 were evaluated. Selected papers examined imaging procedures, morphological patterns, and quantitative imaging parameters in inflammatory and hereditary demyelinating neuropathies.

Results. The reviewed literature shows that neuroimaging gives anatomical and functional information in demyelinating polyneuropathies. Magnetic resonance neurography enables thorough visualisation of nerve hypertrophy, increased T2 signal intensity, and contrast enhancement caused by inflammatory activity. High-resolution ultrasonography allows for the dynamic assessment of peripheral nerve morphology as well as the measurement of cross-sectional area, making it easier to identify specific patterns of nerve enlargement. New techniques, such as diffusion tensor imaging, provide additional information about microstructural changes in peripheral nerves. These imaging findings supplement clinical and electrophysiological data and may increase diagnostic accuracy, especially in early or unusual cases.

Conclusions. Neuroimaging has emerged as an important complementary diagnostic tool in the diagnosis of demyelinating polyneuropathies. Magnetic resonance neurography and high-resolution ultrasound enable non-invasive visualisation of peripheral nerve pathology and aid in the differentiation between inflammatory and inherited neuropathies. Further standardisation of imaging procedures and quantitative data could improve their utility in clinical practice and multidisciplinary patient care.

Keywords. demyelinating polyneuropathy, magnetic resonance neurography, high-resolution ultrasound, peripheral nerve imaging, CIDP.

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144. USE OF ARTIFICIAL INTELLIGENCE FOR THE AUTOMATED ANALYSIS OF PHQ-9 AND GAD-7 QUESTIONNAIRES IN THE SCREENING OF DEPRESSION AND ANXIETY IN PRIMARY CARE

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Introduction. Depression and anxiety are frequently underdiagnosed in primary care, and the systematic implementation of standardized instruments (PHQ-9, GAD-7) is often limited by time and resource constraints. Recent studies highlight the potential of artificial intelligence to automate the analysis of these questionnaires.

Aim of the study. To evaluate the utility, performance, and efficiency of using artificial intelligence for the automated analysis of PHQ-9 and GAD-7 questionnaires in the screening of depression and anxiety in primary care.

Methods and materials. Articles published between 2020 and 2025 were selected and analyzed from the PubMed, ResearchGate, and NCBI databases. The results of several types of artificial intelligence models were synthesized: decision-tree models (CART) used for score regression; machine learning models predicting depression and anxiety from open-ended interview language; multimodal text-speech models estimating PHQ-9/GAD-7 scores from a single question; and models for automated analysis of patients' electronic clinical documentation.

Results. Decision-tree models applied to a sample of 20,585 participants reduced PHQ-9 and GAD-7 to 2–3 items while maintaining high performance: AUC 0.921–0.923 for mild forms and AUC 0.902–0.903 for severe forms. A multimodal video model applied to 434 patients achieved AUC 0.900 (PHQ-9) and 0.907 (GAD-7) using a single question, reducing assessment time by approximately 65%. Estimation of PHQ-9 scores from the clinical documentation of 48,594 patients and 143,224 consultations, including PHQ-9 predicted depression severity with AUC 0.81, and applying the model in consultations without PHQ-9 administration increased the mean number of scores per year by 2.8 times, substantially improving the detection of previously unreported cases. Screening based on open-ended interviews achieved AUC of 0.77 for depression and 0.74 for anxiety.

Conclusions. Artificial intelligence demonstrates a robust capacity to optimize the screening of depression and anxiety in primary care, either by validated shortening of scales to 2–3 items with very high performance or by automatic estimation of severity from clinical and multimodal data, thereby expanding the detection of unreported cases. However, the high performance observed in some digital datasets contrasts with moderate results in real clinical settings, highlighting the need for rigorous external validation and adjustment for systematic errors.

Keywords. artificial intelligence; PHQ-9; GAD-7; depression; anxiety; automated screening; primary care.

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145. MALE SEX AS A PREDICTOR OF HIGH DISEASE ACTIVITY IN SYSTEMIC SCLEROSIS

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Introduction. Systemic sclerosis (SSc) is a heterogeneous multisystemic autoimmune disorder, characterized by significant sex-related differences in the clinical expression. Although the international literature indicates a clear female predominance of the disease, with a gender ratio of up to 14.5:1, males frequently present a more aggressive clinical phenotype. Identifying patients at high risk for severe progression is critical for optimizing clinical monitoring and therapeutic intervention.

Aim of the study. To evaluate male sex as a potential predictor of high SSc activity, as well as to analyze specific correlations between the cutaneous phenotype, autoantibody profile and interstitial lung involvement.

Methods and materials. This study included 39 patients diagnosed with SSc according to the ACR/EULAR 2013 criteria. The cohort was divided into two groups: group 1 (14 men) and group 2 (25 women). Clinical, paraclinical and immunological data were analyzed. Statistical processing of the data included frequency analysis, Fisher's exact test for qualitative associations and the calculation of odds ratio (OR), with the statistical significance threshold set at $p<0.05$.

Results. High disease activity was significantly more prevalent in men (57.1%), compared to women (16%), the difference being statistically significant ($p=0.012$). Male patients exhibited a sevenfold increased risk of developing high disease activity (OR=7.0; 95% CI: 1.55–31.52). Furthermore, all men with diffuse cutaneous phenotype presented high disease activity, while this proportion was 57.1% in women. Similarly, 100% of male patients seropositive for Anti-Scl-70 antibodies presented high activity, compared to 42.9% of women. Anti-Scl-70 antibody seropositivity was significantly associated with high disease activity, being identified in 63.6% of Anti-Scl-70 positive patients, in contrast to 17.9% of Anti-Scl-70 negative patients ($p=0.017$). An absolute association was established between high activity and pulmonary involvement in the male group. All male patients with severe activity had interstitial lung disease, compared to only 50% among females with similar activity levels.

Conclusions. Male sex constitutes an independent predictor of high activity of SSc, significantly correlating with the diffuse cutaneous phenotype and Anti-Scl-70 antibody seropositivity. In the analyzed cohort, high disease activity in males was invariably associated with the presence of interstitial lung disease, reflecting a specific organic determinism. These findings emphasize the importance of a rigorous pulmonary screening and personalized therapeutic management for male patients starting at the time of diagnosis.

Keywords. systemic sclerosis, disease activity, male sex, Anti-Scl-70, ILD.

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146. PERICARDITIS – THE CARDIAC ONSET OF SYSTEMIC LUPUS

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Introduction. Pericarditis is defined as inflammation of the pericardial layers, with or without effusion, usually manifested by pleuritic/positional chest pain, a pericardial friction rub, and characteristic ECG changes. Pericardial effusion occurs in over 50% of cases. It is the most common cardiac manifestation of SLE, affecting about 25% of patients.

Case presentation. We present the case of a 38-year-old woman whose disease began in May 2025 with fever 38.5 °C, myalgia, and positional chest pain. Chest X-ray indicated minimal bilateral pleural effusion. Antibacterial and anti-inflammatory therapy was started, with temporary clinical improvement. In December 2025, her general condition worsened with pleuritic chest pain, fever, myalgia, palpitations, and dyspnea, and she was urgently admitted to an infectious disease hospital. Laboratory tests showed elevated inflammatory markers, while blood and urine cultures, RPR, and HIV tests were negative. Chest ultrasound demonstrated bilateral pleural effusion and signs of pericarditis. Dual antibacterial therapy was initiated with slight clinical improvement, and the patient was discharged home. Two days later, her condition worsened with the recurrence of symptoms, and she was admitted to the Institute of Cardiology. Physical examination revealed pale-pink skin, with no skin rashes, fever 39 °C, BP 110/70 mmHg, HR 120 bpm, SO_2 98%. ECG showed sinus tachycardia, low voltage, PR depression in leads II and aVF, and diffusely flattened T waves. Echocardiography showed non-dilated chambers, preserved left ventricular function, and moderate pericardial effusion. To assess an autoimmune etiology, specific autoimmune tests were performed (ANA, anti-DNA, Anti-Sm, complement C3, C4, lupus anticoagulant, anticardiolipin IgM and IgG, anti-β2GP1), confirming SLE. Treatment was initiated with NSAIDs, colchicine, glucocorticoids, and beta-blockers.

Discussions. This case is clinically significant as it highlights the need for a thorough evaluation of young patients presenting with a fever of unknown origin associated with organ involvement, which may mask an underlying autoimmune disorder. Early diagnosis allows for prompt initiation of targeted treatment.

Conclusions. Pericarditis may result from pericardial inflammation due to infections, neoplastic drugs, metabolic disorders, or autoimmune diseases. About 5–15% of acute or recurrent cases are linked to systemic autoimmune conditions. Therefore, identifying and treating the underlying disease is essential for effective management.

Keywords. Pericarditis, autoimmune disease, systemic lupus erythematosus, young woman.

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147. PULMONARY THROMBOEMBOLISM IN PREGNANCY WITH CRITICAL PERIPARTUM EVOLUTION: CLINICAL CONSIDERATIONS AND MANAGEMENT

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Introduction. Pulmonary thromboembolism is a complex pathology with multifactorial etiology, associated with increased morbidity and mortality. Pregnancy represents a particular pathophysiological context, characterized by a pronounced procoagulant state, explained by activation of Virchow's triad, to which additional risk factors may be added, such as obesity, multiple gestations, advanced maternal age, and delivery by cesarean section. The management of acute pulmonary thromboembolism during pregnancy requires an individualized and multidisciplinary approach, aimed at optimizing both maternal and fetal prognosis.

Case presentation. To evaluate the clinical and paraclinical characteristics and the management of a case of pulmonary thromboembolism in pregnancy, hemodynamically complicated, in a patient with suspected Wolff–Parkinson–White pre-excitation syndrome. Case study of a 23-year-old patient, 30–31 weeks pregnant (G4P2), with a history of two cesarean sections, one complicated by uterine rupture. During her third pregnancy, at 12 weeks of gestation, she developed bilateral pulmonary thromboembolism. Echocardiography revealed dilation of the right heart chambers. The ECG showed repolarization changes with negative T waves in V3–V6. CT pulmonary angiography identified thrombi in the upper and middle lobar branches with segmental extension and complete luminal obstruction. Interventional thrombectomy via femoral approach was performed, followed by anticoagulation with low-molecular-weight heparin, with an initially favorable course. The pregnancy was completed at 32 weeks by cesarean section, complicated intraoperatively by hypotension, tachyarrhythmia, and self-limited polymorphic ventricular tachycardia episodes (5–10 seconds). In the current pregnancy, at 30–31 weeks, the patient presented with dyspnea at rest, retrosternal pain, and recurrent syncope (2–5 episodes/day). Cardiologic evaluation (echocardiography, ECG, Holter ECG monitoring) did not reveal structural abnormalities or sustained arrhythmias, although periods of delta wave were documented. Delivery by cesarean section was performed at 35 weeks, without complications.

Discussions. Following thrombus extraction and therapeutic-dose anticoagulant treatment, a favorable biological response was observed, with a decrease in D-dimer levels and a downward trend in high-sensitivity troponin, suggestive of secondary myocardial involvement. The clinical course was favorable, confirming the effectiveness of recommended parenteral anticoagulant therapy in pregnancy.

Conclusions. Management of patients with pulmonary thromboembolism during pregnancy requires a multidisciplinary team, appropriate anticoagulation, and individualized interventional strategies, with strict monitoring due to gynecological and cardiovascular risks, potentially fatal.

Keywords. Pulmonary thromboembolism, pregnancy, anticoagulants.

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148. IMMUNOLOGIC PROFILE OF SECONDARY SJÖGREN'S SYNDROME IN RHEUMATOID ARTHRITIS

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Introduction. Secondary Sjögren's syndrome (sSS) in RA is an overlap syndrome marked by focal lymphocytic infiltration of exocrine glands and systemic autoimmunity. sSS occurs in an estimated 3.6–31% of RA patients. It is diagnosed by objective glandular dysfunction and anti-SSA/SSB antibodies or biopsy.SS pathogenesis involves B-cell hyperactivity and type I interferon pathways. RA patients with sSS may thus exhibit a distinct immunologic phenotype, affecting serologic markers and clinical risk.

Aim of the study. The aim of this study is to review recent (2021–2026) evidence on immunologic markers of sSS in RA, with a focus on serologic prevalence and diagnostic performance of RF, ANA, anti-SSA/Ro, anti-SSB/La, and related biomarkers.

Methods and materials. Medical platforms such as PubMed/Medline and Embase (2021-2026) were used to research cohort studies, systematic reviews, and classification criteria for RA with sSS. Studies reporting serologic marker frequencies, sensitivities/specificities, or predictive values were included. Data on antibody prevalence, odds ratios, and diagnostic metrics were extracted and summarized.

Results. SS is more common in seropositive RA: RF-positive RA had 10.5% SS, and ANA-positive RA 17.0%. Notably, 67.6% of anti-SSA/Ro+ RA patients had sSS. RA+sSS patients show far higher autoantibody rates. In one study, RF was positive in 84.7% of RA+sSS vs 69.5% of RA, ANA in 83.3% vs 47.7% in RA, anti-SSA/Ro in 63.9% vs 5.2%, and anti-SSB/La in 33.3% vs 1.6%, and anti-CCP 47–92% positivity in RA+sS.In Sjögren's disease cohorts, RF showed sensitivity of 72–83.1% and specificity of 78.4–100%, depending on cohort/design. ANA sensitivity is 58–85%, and specificity is 50–97%. In a primary Sjögren's cohort,anti-SSA/Ro showed 100% sensitivity and 81% specificity, yet there is no robust data for sSS. Specificity and sensitivity criteria for anti-SSB/La and anti-CCP have not been sufficiently elucidated in recent studies of SS.

Conclusions. RA with secondary SS exhibits a distinct immunologic profile: markedly elevated frequencies of RF, ANA, anti-SSA/Ro, anti-SSB/La and anti-CCP antibodies. Anti-SSA/Ro positivity is especially indicative of overlap. Quantitatively, seropositivity in RA+sSS is roughly RF 85%, ANA 83%, anti-SSA/Ro 64%, and anti-SSB/La 33%. Reported sensitivities/specificities for serologic markers: RF showed sensitivity of 72–83.1% and specificity of 78.4–100%, depending on cohort/design; ANA sensitivity is 58–85% and specificity is 50–97%; and anti-SSA/Ro showed 100% sensitivity and 81% in a primary Sjögren's cohort. Sensitivities/specificities for anti-SSB/La and anti-CCP were not found in recent studies. Overall, the presence of RF and especially anti-SSA/Ro in an RA patient with sicca symptoms should prompt evaluation for SS.

Keywords. Rheumatoid arthritis; Secondary Sjögren's syndrome; Autoantibodies; Rheumatoid factor; Anti-SSA/Ro; Anti-SSB/La; ANA, anti-CCP.

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149. CLINICAL AND IMAGING FEATURES OF CARDIOMYOPATHIES

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Introduction. Cardiomyopathies represent a heterogeneous group of myocardial diseases, defined by structural and functional alterations of the heart muscle, which constitute a major cause of progressive heart failure and sudden arrhythmic death, often affecting young or middle-aged patients. The variable clinical presentation, often nonspecific in the early stages, requires the use of imaging methods for establishing an early diagnosis and risk stratification.

Aim of the study. Analysis of the clinical and imaging features of the main types of cardiomyopathies and highlighting the role of multimodal imaging in the diagnosis, risk assessment and management of patients.

Methods and materials. The paper is a narrative synthesis of the literature based on resources from the Scientific Medical Library of Nicolae Testemitanu State University of Medicine and Pharmacy and articles indexed in international databases (PubMed, MEDLINE, Medscape).

Results. The main phenotypes of cardiomyopathy include dilated, hypertrophic, restrictive and arrhythmogenic forms of the right ventricle, each with distinct morphological and pathophysiological characteristics. Clinical expression is heterogeneous, from dyspnea and palpitations to syncope or sudden arrhythmic death. Nonspecific symptoms require a systematic imaging evaluation. The diagnostic algorithm involves correlating clinical findings with imaging results. Echocardiography remains the primary imaging technique. It is essential for evaluating chamber dimensions, parietal thickness, systolic and diastolic function, but also for identifying dynamic obstruction of the left ventricular ejection tract in hypertrophic cardiomyopathy. Cardiac magnetic resonance completes the evaluation through advanced tissue characterisation and detection of myocardial fibrosis, while computed tomography adds anatomical detail and helps determine etiology in selected cases, e.g., coronary causes. Genetic testing allows the detection of individuals carrying pathogenic mutations of sarcomeric proteins, such as B-myosin heavy chain and Troponin T, before the onset of ventricular hypertrophy. This enables identification of asymptomatic, genotype-positive individuals prior to phenotypic manifestation. Such testing is clinically relevant, as these mutations account for approximately 35% of familial cases of HCM. Correlation of clinical and imaging data allows for a more precise etiological classification and guides treatment decisions.

Conclusions. Cardiomyopathies are complex myocardial pathologies with a major impact on the cardiovascular system. Early diagnosis is based on the rigorous integration of clinical and imaging data. The use of multimodal imaging allows for a more accurate phenotypic assessment, risk stratification and the personalization of therapy, leading to improved long-term clinical outcomes.

Keywords. cardiomyopathy, multimodal imaging, echocardiography, genetic testing, risk stratification.

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150. IMMUNOHISTOCHEMICAL AND GENETIC CHARACTERISTICS OF PRIMARY RETROPERITONEAL SARCOMAS

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Introduction. The retroperitoneal space is characterized by remarkable topographic complexity owing to the wide variety of vascular, neural, and visceral structures it contains. Primary retroperitoneal sarcomas constitute a heterogeneous and rare group of mesenchymal neoplasms. Their principal clinical importance derives from their insidious, asymptomatic growth within a large, compliant space, which often leads to diagnosis only after tumors have reached a substantial size.

Aim of the study. The main objective of this study was to evaluate the clinicopathological, immunohistochemical, and genetic features of primary retroperitoneal sarcomas in order to optimize risk stratification and individualize therapeutic strategies. The study also aimed to analyze the impact of molecular alterations on tumor behavior and to identify potential predictors of postoperative outcomes.

Methods and materials. This research combined a review of the specialized literature with a retrospective clinical study of patients diagnosed with retroperitoneal sarcomas. Special emphasis was placed on correlating histopathological features with immunohistochemical (IHC) and genetic findings. Data from recent databases were analyzed to evaluate key molecular markers—such as MDM2/CDK4 amplification and KIT/PDGFRA mutations—with regard to their utility in differential diagnosis and in guiding surgical management.

Results. The study highlights that definitive diagnosis relies fundamentally on the immunohistochemical profile, which is crucial for distinguishing between liposarcoma subtypes and other pleomorphic sarcomas with differing prognoses. Genetic analysis revealed that the major subtypes are defined by recurrent molecular alterations: MDM2/CDK4 amplification in liposarcomas, KIT/PDGFRA mutations in gastrointestinal stromal tumors (GISTs), and NF1 inactivation in malignant peripheral nerve sheath tumors. These genetic mechanisms account for the tumors' local aggressiveness and the necessity of achieving R0/R1 resections. A notable finding in our series was the absence of independent statistical predictors of postoperative complications in multivariate models. This suggests that intrinsic biological factors and the genetic profile may exert a greater influence on patient outcomes than conventional surgical variables.

Conclusions. Management of retroperitoneal sarcomas requires an integrated approach in which histopathological diagnosis must be complemented by immunohistochemical and genetic testing. Systematic integration of these molecular profiles into preoperative assessment allows better personalization of surgical treatment and improved risk stratification. Expanding access to molecular genetic testing is essential for improving the management of these tumors.

Keywords. Retroperitoneal sarcomas, immunohistochemistry, MDM2, molecular genetics, surgical resection, liposarcoma.

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151. CORRELATION BETWEEN CENTRAL SENSITIZATION AND DEPRESSIVE SYMPTOMS IN PATIENTS WITH OSTEOARTHRITIS.

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Introduction. Osteoarthritis is one of the most common musculoskeletal diseases and an important cause of chronic pain and functional limitation. Pain in osteoarthritis has traditionally been explained mainly by structural damage to the joint. However, recent research suggests that central sensitization and nociplastic pain mechanisms may also contribute to the persistence of chronic pain. Psychological factors, particularly depressive symptoms, may influence how patients perceive and experience pain.

Aim of the study. To evaluate the correlation between central sensitization and depressive symptoms in patients with osteoarthritis and to assess the prevalence of depressive symptoms in this patient group.

Methods and materials. A cross-sectional study included 35 patients (65.7% women), with a mean age of 56.8 ± 13.5 years, diagnosed with osteoarthritis who were hospitalized in the Rheumatology and Arthrology Department of the Republican Clinical Hospital "Timofei Moșneaga", Chișinău. Central sensitization was assessed using the Central Sensitization Inventory (CSI), while depressive symptoms were evaluated using the Patient Health Questionnaire-9 (PHQ-9). Pain intensity and pain characteristics were additionally assessed using the Visual Analog Scale (VAS) and the PainDETECT questionnaire. Statistical analysis included descriptive statistics and Pearson correlation analysis.

Results. Clinically relevant depressive symptoms (PHQ-9 ≥5) were identified in 30 of 35 patients (85.7%), while moderate or more severe depression (PHQ-9 ≥10) was present in 21 patients (60%). The most common symptoms were fatigue or lack of energy (57.1%), sleep disturbances (51.4%), loss of interest in daily activities (74%), and depressed mood (68.6%). Difficulties with concentration were also reported by more than half of the patients. A strong positive correlation was found between central sensitization and depressive symptoms ($r = 0.79$; $p < 0.001$).

Conclusions. Central sensitization and depressive symptoms are common in patients with osteoarthritis. The strong correlation between these variables suggests that chronic pain in osteoarthritis is influenced not only by structural joint changes but also by central nervous system mechanisms and psychological factors. These findings highlight the importance of a multidimensional evaluation of pain in patients with osteoarthritis.

Keywords. osteoarthritis, central sensitization, depression, nociplastic pain, chronic pain.

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152. PRECISION RISK STRATIFICATION FOR ACS IN COPD: INTEGRATING RESPIRATORY PARAMETERS AND BIOMARKERS USING ADVANCED AI ALGORITHMS.

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Introduction. COPD patients face a 50-70% higher cardiovascular risk of Acute Coronary Syndrome (ACS) than the general population. This stems from shared mechanisms-persistent systemic inflammation, endothelial dysfunction, and chronic hypoxia-which exacerbate coronary atherosclerosis. Traditional scores (GRACE, TIMI) underestimate ischemic events in this population by omitting specific respiratory parameters (FEV1, DLCO) and multimodal inflammatory-pulmonary interactions.

Aim of study. Optimizing the timing of initiation of therapeutic management for ACS in patients with COPD by implementing an AI-based risk prediction system (artificial intelligence) and multiparametric analysis.

Methods and materials. This work is based on the studies published between 2020 and 2026, available in academic databases such as PMC, MDPI, AHA, and BMJ Thorax. Studies comparing the performance of AI methods (XGBoost)-trained on biochemical, respiratory, and imaging parameters-with traditional scores (GRACE, TIMI) were selected. Predictive performance was evaluated and compared using the AUC-ROC (Area Under the Curve of the Receiver Operating Characteristic) statistical metric. Mathematically, the AUC was calculated by integrating the True Positive Rate (Sensitivity) with respect to the False Positive Rate (1-Specificity), according to the formula: the integral of the TPR as a function of the FPR, evaluated from 0 to 1, where TPR (True Positive Rate) represents the proportion of ACS patients correctly identified, and FPR (False Positive Rate) represents the proportion of false alarms.

Results. The studies demonstrated the superiority of ML (machine learning) models in risk stratification, specifically XGBoost (AUC 0.92), compared to traditional GRACE (AUC 0.74) and TIMI (AUC 0.71) scores, in predicting acute events. The primary predictive factors included pulmonary function (FEV1<50%, FEV1/FVC<0.7, DLCO<60%), cardiac biomarkers (hs-cTnT>14 ng/L, NT-proBNP>300 pg/mL, hs-CRP>3 mg/L), cardiovascular imaging (coronary angiography Gensini score>20, Agatston coronary calcium score>100 AU), respiratory parameters (mean PaO2/SaO2<60 mmHg, nocturnal desaturations), and clinical characteristics (age>65, frequency of COPD exacerbations). Secondary predictors included pulmonary artery diameter>28-29 mm, CT-quantified emphysema>15% by volume, LVEF<50%, inflammatory markers (NLR>3.5, monocytes>0.9/L, fibrinogen>400 mg/dL), and lipid profile (TG/HDL-C ratio >3.5).

Conclusions. ML models demonstrate superior performance compared to traditional statistical methods, enabling precise ACS risk stratification in the COPD population. Their clinical implementation facilitates early detection and personalized management, with the potential to reduce cardiovascular morbidity and mortality by 25-30% in multidisciplinary practice.

Keywords. COPD, ACS, XGBoost, Machine Learning, AI.

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153. CAR-T THERAPY IN AUTOIMMUNE RHEUMATIC DISEASES: A LITERATURE REVIEW

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Introduction. Chimeric Antigen Receptor (CAR) T-cell treatment, originally designed for haematologic malignancies, is currently under investigation for severe autoimmune rheumatic disorders. This procedure entails the genetic alteration of autologous T lymphocytes to specifically target B-cell antigens, such as CD19, leading to the selective depletion of autoreactive B cells that contribute to ongoing autoantibody synthesis and immunological dysregulation. In systemic lupus erythematosus and rheumatoid arthritis, some individuals are unresponsive to immunomodulatory and biologic medications, prompting the exploration of CAR T-cell therapy as a potential option for prolonged remission.

Aim of study. To evaluate the existing clinical data on the efficacy, safety, and practical difficulties of CAR T-cell treatment in immunological rheumatic disorders.

Methods and materials. A structured research of PubMed and other indexed databases was performed for studies published between 2016 and 2026. Clinical trials, observational studies, and case series assessing CAR T-cell therapy in autoimmune rheumatologic conditions were included. The data collection was aimed at remission results using established indicators (SLEDAI, DAS28), CAR T-cell durability, documented adverse events such as cytokine release syndrome, neurotoxicity and problems in execution. The results were summarised in a descriptive manner.

Results. Phase I–II trials and small case series indicate that CD19-directed CAR T-cell therapy induces marked B-cell depletion with subsequent reductions in disease activity scores, autoantibody levels, and inflammatory markers in refractory disease. Improvements in SLEDAI and DAS28 generally ranged from 60-85% within six months. During short- to mid-term follow-up, approximately 70-85% of patients achieved drug-free remission. Reported side effects are cytokine release syndrome, neurotoxicity, persistent B-cell aplasia, and infections, requiring monitoring in specialized centres. Interpretation is limited by small cohorts and short follow-up.

Conclusions. CAR T-cell therapy is a promising experimental option for selected patients with severe autoimmune rheumatic diseases unresponsive to usual treatments. Although early outcomes are encouraging, larger controlled studies with longer follow-up are needed to establish long-term efficacy, safety, and its role in routine rheumatologic practice. Manufacturing complexity and high cost currently limit wider accessibility.

Keywords. CAR T-cell therapy; autoimmune rheumatic diseases; CD19; systemic lupus erythematosus; refractory disease.

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154. ADULT-ONSET STILL'S DISEASE: A SIX-PATIENT CASE SERIES

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Introduction. This case series shows 6 adults (36-71 years, 3 females and 3 males) patients with adult-onset Still's disease (AOSD) who attended the Rheumatology Department of Timofei Moșneaga Republican Clinical Hospital during the period 2017-2025. Adult-onset Still's disease (AOSD) is a rare systemic autoinflammatory disorder characterised by high inflammatory activity and heterogeneous clinical manifestations, often leading to diagnostic delay due to overlap with infectious and autoimmune diseases.

Case presentation. All six patients (100%) presented with intermittent high-grade fever ranging from 39°C to 41°C, accompanied by a transient maculopapular rash and sore throat occurring during febrile episodes, as well as polyarthralgia and myalgia. Inflammatory arthritis involving the wrists, ankles, and knees was observed in three patients, while the other three patients reported unintentional weight loss. Laboratory investigations showed leukocytosis (11–18×10⁹/L), anaemia (Hb 9–11 g/dL), elevated ESR (50-90 mm/h), and increased CRP (40-100 mg/L). Rheumatoid factor, antinuclear antibodies, and anti-CCP antibodies were negative in all cases.

Discussions. The delay to definitive diagnosis was extensive, with preceding diagnoses of gout, reactive arthritis, undifferentiated connective tissue disease, pneumonia or allergic/dermatological disorders, as well as multiple non-rheumatologic admissions until referral. All patients received high-dose systemic glucocorticoids (including pulse methylprednisolone in one) combined with DMARDs such as methotrexate, leflunomide, hydroxychloroquine and colchicine. Three patients experienced remission periods ranging from six months to three years, followed by disease exacerbations, unlike rheumatoid arthritis, in which the remission is short (3-6 months), requiring treatment continuation. One patient developed methotrexate-induced leukopenia requiring discontinuation of therapy and initiation of leflunomide. Two patients required high-dose corticosteroid therapy during severe disease exacerbations.

Conclusions. Adult-onset Still's disease demonstrates a highly variable clinical evolution, ranging from long periods of remission without treatment to transformation into severe rheumatoid arthritis-like forms. This case series highlights the heterogeneous clinical presentation and fluctuating disease course of adult-onset Still's disease, the delay in diagnosis and chronic course in a real tertiary setting. AOSD should be considered in patients with recurrent high fever, systemic inflammatory manifestations, and negative autoimmune markers. Early recognition and appropriate immunosuppressive therapy are essential to control systemic inflammation and prevent disease progression.

Keywords. Adult-onset Still's disease; rheumatoid arthritis syndrome; systemic inflammatory arthritis; methotrexate; fever; rash; rheumatoid factor; remission.

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155. WEIL'S DISEASE IN A YOUNG SAILOR FROM MOLDOVA: DIAGNOSTIC CHALLENGE OF EARLY SEROLOGY-NEGATIVE LEPTOSPIROSIS

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Introduction. Leptospirosis is a zoonotic spirochetal infection with a clinical spectrum ranging from mild febrile illness to severe multi-organ dysfunction (Weil's disease) characterized by jaundice, renal impairment, and hemorrhagic manifestations. In low-incidence regions such as Moldova, diagnosis may be delayed when common confounders like viral hepatitis are suspected. Early recognition based on clinical clues and exposure history is essential for prompt management.

Case presentation. A 20-year-old sailor presented with progressive fatigue, asthenia, scleral and cutaneous jaundice, scleral haemorrhages, oliguria, anorexia, and gastrointestinal symptoms beginning on 05.02.2026. He received outpatient treatment for acute intoxication at two facilities with antiemetics, antispasmodics, and supportive care, but his condition worsened. Persistent fever and jaundice led to admission to the Infectious Diseases Hospital on 12.02.2026. Examination revealed conjunctival suffusion with hemorrhagic zones, hepatosplenomegaly, thrombocytopenia, acute renal dysfunction, and gastrocnemius pain, raising suspicion for leptospirosis. Initial serology for Leptospira (IgM, IgG) and viral hepatitis markers (HAV, HBV, HCV, HEV) was negative. Empiric intravenous ceftriaxone and supportive care were initiated, with improvement over 10 days, including resolution of jaundice, hemorrhagic sclera, and recovery of renal function.

Discussions. This case illustrates diagnostic challenges of Weil's disease in a low-endemic area, where confounders such as viral hepatitis can obscure the clinical picture. Clinical clues: gastrocnemius pain, jaundice, and conjunctival suffusion raised suspicion for leptospirosis. The patient's occupational exposure further supported early diagnosis despite negative serology. Antibodies to Leptospira become detectable only several days after symptom onset, so early tests may be negative and should not exclude the diagnosis. PCR can aid early detection where available. Exclusion of viral hepatitis was essential, particularly in the Republic of Moldova, as hepatitis is prevalent and can mimic leptospirosis. This case highlights the importance of careful examination, exposure history, and empiric therapy, as prompt diagnosis and treatment prevent severe outcomes.

Conclusions. Severe leptospirosis is hard to diagnose in non-endemic regions, especially when early serology is negative. Recognizing signs such as gastrocnemius pain, jaundice, and hemorrhagic sclera, and considering occupational exposure, is crucial for diagnosis. Prompt empiric antibiotics based on clinical suspicion ensure favorable outcomes. Rare or non-endemic infections should remain in the differential, as travel and occupational exposures can spread pathogens across regions.

Keywords. Leptospirosis, Weil's disease, occupational exposure, gastrocnemius pain.

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156. THERAPEUTIC STRATEGIES IN PEDIATRIC PSORIASIS; FROM TOPICAL MANAGEMENT TO BIOLOGICAL THERAPIES

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Introduction. Pediatric psoriasis is a chronic immune-mediated inflammatory disease with important dermatologic, systemic, and psychosocial consequences. Although often considered a mild cutaneous disease in childhood, moderate to severe disease may persist into adulthood and require sophisticated therapeutic approaches. There have been tremendous advances in immunopathogenesis, and treatment modalities have undergone a paradigm shift with the advent of targeted biologic therapies.

Aim of study. To critically evaluate the existing evidence-based therapeutic approaches and management strategies for pediatric psoriasis, according to the latest clinical guidelines and scientific literature.

Methods and materials. A structured narrative review was performed using peer-reviewed literature published in PubMed/MEDLINE and Google Scholar, in addition to international consensus guidelines published mainly in the past 10 years. Randomized controlled trials, cohort studies, systematic reviews, and pediatric treatment guidelines in patients under the age of 18 were included.

Results. Topical treatment remains the mainstay for mild disease, with corticosteroids, vitamin D analogues, and calcineurin inhibitors showing established efficacy and safety when properly monitored. Narrowband ultraviolet B phototherapy is an effective second-line treatment for widespread and resistant disease. Traditional systemic therapies, such as methotrexate, cyclosporine, and acitretin, remain vital in severe disease but demand rigorous laboratory and clinical monitoring. Recent pediatric trials have shown high efficacy and favourable safety profiles of biologic agents blocking the TNF-α, IL-12/23, and IL-17 pathways, achieving high rates of PASI response and marked improvement in quality of life. Contemporary treatment algorithms increasingly incorporate multidimensional disease severity assessment, including body surface area, physician global assessment, and quality of life measures.

Conclusions. The management of childhood psoriasis needs a tailored, stepwise, and multidisciplinary approach. The development of biologic therapies has changed the treatment paradigm of childhood psoriasis, making it possible to achieve sustained remission of the disease and improve psychosocial function. Long-term safety studies and individualized treatment approaches are essential in optimizing the management of this vulnerable group of patients.

Keywords. pediatric psoriasis, therapeutic management, biologic therapy, evidence-based medicine, systemic treatment, immunomodulation.

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157. DISSEMINATED VARICELLA LEADING TO HYPERACUTE MULTI-ORGAN FAILURE IN AN UNDIAGNOSED HIV PATIENT

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Introduction. Varicella-zoster virus (VZV) typically presents as a self-limiting illness in immunocompetent individuals. In patients with advanced, undiagnosed HIV infection, profound depletion of cell-mediated immunity can lead to visceral dissemination with mortality rates exceeding 30–50%. We report a case of hyperacute course in which a previously asymptomatic adult with HIV-positive developed fatal multi-organ failure within 96 hours of hospital admission, highlighting the lethal synergy between occult immunodeficiency and common viral pathogens.

Case presentation. A 36-year-old male was admitted to the ICU on June 7, 2025, with a generalized vesiculopustular rash, high fever, and malaise. He had no known medical history and was clinically asymptomatic. Laboratory tests revealed multi-organ involvement. Hepatic markers showed cytolysis (ASAT 410.90 U/L, ALAT 327.60 U/L), while LDH was elevated at 1317.00 U/L, indicating systemic tissue damage. Hematologic studies demonstrated severe thrombocytopenia (45.00 × 10^9/L) and consumption coagulopathy (INR 1.37, prothrombin time 56%). Screening was positive for Hepatitis C virus and HIV-1/2. Immunologic testing showed a CD4 count of 135 cells/µL and an HIV RNA viral load of 275,731 copies/mL. Despite aggressive supportive care and intravenous acyclovir, the patient progressed to refractory multi-organ failure. On June 11, 2025, he suffered cardiorespiratory arrest. Advanced life support, repeated adrenaline administration, and continuous chest compressions were unsuccessful and death was pronounced at 09:00.

Discussions. This case is remarkable due to its hyperacute progression. Unlike most AIDS-related complications, which develop over months to years, this patient transitioned from apparent health to death in less than four days. The markedly elevated LDH and abnormal coagulation parameters reflect the severe cytokine-mediated tissue injury and DIC triggered by systemic VZV infection. The primary diagnostic challenge was the patient's young age and previously asymptomatic status, which concealed an underlying HIV infection. Coinfection with HCV likely contributed to the rapid hepatic failure. Furthermore, the intensive resuscitation attempts emphasize the irreversible nature of viral dissemination once critical physiological thresholds are surpassed in treatment-naïve hosts.

Conclusions. Disseminated varicella in patients with advanced HIV infection is a medical emergency with high mortality. This case highlights the importance of routine HIV screening in young adults due to its often asymptomatic course, recognition of systemic VZV manifestations, and prompt intravenous antiviral therapy to prevent hyperacute progression to multi-organ failure and death.

Keywords. HIV/AIDS, disseminated varicella, hyperacute clinical course, multi-organ-dysfunction.

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158. IMPACT OF ARTERIAL STIFFNESS AND RENAL DECLINE ON CARDIOVASCULAR RISK IN THE ELDERLY

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Introduction. Aging of the population is a significant demographic shift in the 21st century, with a growing prevalence of cardiovascular disease (CVD), the main cause of death in the elderly. In addition to conventional risk factors, aging is characterized by progressive arterial stiffening, endothelial dysfunction, vascular calcification, chronic low-grade inflammation, and renal function decline, all of which are known to play a significant role in determining cardiovascular risk. However, traditional risk prediction algorithms may not adequately capture these biological changes.

Aim of study. To assess the role of biological changes associated with aging, specifically arterial stiffness and renal function loss, on cardiovascular risk levels in the elderly.

Methods and materials. This study was performed as a narrative literature review of peer-reviewed articles, meta-analyses, and international clinical guidelines published between 2015 and 2025. A comprehensive search of PubMed, Google Scholar, and publications from major cardiology societies was conducted using the keywords "cardiovascular risk assessment," "arterial stiffness," "renal function decline," "frailty," and "elderly." Particular emphasis was placed on the latest recommendations from the European Society of Cardiology and the validation studies of the SCORE2-OP risk prediction algorithm in older population.

Results. Arterial stiffness, especially pulse wave velocity, was identified as an independent risk factor for MACE. Even small decreases in glomerular filtration rate are associated with accelerated atherosclerosis and vascular remodeling. Other factors, such as frailty, sarcopenia, autonomic dysfunction, and inflammaging, further contribute to risk factors beyond chronological age. Data indicate that traditional risk prediction algorithms tend to underestimate risk in vigorous elderly patients and overestimate risk in frail patients. The addition of biological risk factors, renal parameters, and functional status can improve risk prediction beyond age-based models.

Conclusions. Risk prediction in elderly patients with cardiovascular disease should move from a strictly chronological model to a biologic model that incorporates measures of vascular stiffness, renal function, and functional status. A biologic model of risk prediction allows for more accurate risk stratification and can guide individualized preventive strategies in elderly patients, decreasing both undertreatment and overtreatment of older patients.

Keywords. cardiovascular risk, elderly, arterial stiffness, renal function decline, SCORE2-OP, frailty, prevention.

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159. UNUSUAL BRAIN STEM STROKE PRESENTATION. A CASE REPORT.

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Introduction. Stroke diagnosis may not always be straightforward. Sometimes patients present with uncommon symptoms that make recognition of stroke challenging. Clinical cases often involve patients with brainstem or cerebellar strokes experiencing difficulty with tracking (smooth pursuit), scanning, or maintaining eye position.

Case presentation. A 54-year-old male patient presented with acute onset of transient diplopia, followed by the sudden onset of binocular misalignment and gait instability. Pathologic history: Myocardial infarction in 2023. Neurological examination demonstrated exotropia and bilateral adduction impairment. Initial routine brain CT revealed no significant findings. MRI revealed an acute multifocal ischemic stroke, bilateral periaqueductal, left cerebellar peduncle, left hypothalamic uncinate process. Upon investigation, his imaging revealed an ischemic lesion in the unilateral midbrain involving his MLF.

Discussions. A lesion in the medial longitudinal fasciculus (MLF) causes WEBINO (wall-eyed bilateral intranuclear ophthalmoplegia), a particular kind of neuro-ophthalmological disorder that manifests as bilateral adduction (inward movement of the eyes) dysfunction.

Conclusions. Early detection using suitable imaging and clinical assessment is essential to prevent misdiagnosis, guarantee prompt action, and enhance patient results. To improve therapeutic care and diagnostic precision, more investigation into these unusual stroke symptoms is necessary.

Keywords. WEBINO, MLF, brainstem, cerebrovascular event.

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160. RISK FACTORS FOR DEVELOPING DIABETES IN PATIENTS WHO HAVE SUFFERED A STROKE

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Introduction. Diabetes mellitus (DM) and stroke are two important pathological conditions that have a significant impact on public health, reducing quality of life and life expectancy. People who have had a stroke are at higher risk of developing diabetes mellitus compared with the general population.

Aim of study. The purpose of the study was to identify the risk factors involved in the development of DM in individuals with the antecedents of stroke.

Methods and materials. A retrospective and prospective study was conducted in a neurology department from 2024 to 2025. The study cohort consisted of 105 (60 men, 45 women) stroke survivors. The risk of developing type 2 diabetes was assessed using the FINDRISC scale by testing fasting blood glucose and lipid profiles.

Results. The average age of participants was 69.04±7.8 years. Anthropometric parameters indicated a high prevalence of obesity: the average body mass index (BMI) was 29.1±4.6 in men and 31.4±6.7 in women, and waist circumference (WC) was 96.9±10.2 cm in men and 96.7±13.1 cm in women. 91.4% of patients were taking antihypertensive drugs (HTN). A history of hyperglycemia was present in 35.2%, and a family history of DM in 9.5%. Low physical activity was identified in 43.8%, and low intake of fruits and vegetables was observed in 35.2% of patients. According to the FINDRISC scale, 8 patients (7.6%) had a very low risk, slightly elevated risk was observed in 29 (27.6%), moderate risk in 32 (30.5%), high risk in 28 (26.7%), and very high risk in 8 (7.6%). Correlation analysis revealed a moderate positive correlation between the total FINDRISC score and basal glycemia (r_s=0.38, p=0.0003). A statistically significant positive correlation was found between WC and glycemia in both men (ρ=0.321; p=0.02) and women (ρ=0.361, p=0.016), confirming the role of abdominal obesity in carbohydrate metabolism disorders in post-stroke patients. Multiple linear regression analysis identified independent predictors of elevated FINDRISC scores: HTN (b=2.87; p=0.001), family history (b=2.25; p=0.005), dyslipidemia (b=1.98; p=0.014), hyperglycemia (b=1.95; p=0.005), low physical activity (b=1.72; p=0.014), and unhealthy diet (b=1.55; p=0.023). Gender variations were noted: in men, high risk of diabetes was associated with HTN, hyperglycemia and dyslipidemia; in women, it was associated with HTN and family history (dyslipidemia bordered on significance, p=0.055). Among patients with high and very high FINDRISC scores, almost all cases had elevated BMI and WC, HTN, and hyperglycemia. Dyslipidemia and lifestyle disorders were noted in about half of these patients, and family history in a quarter.

Conclusions. Early assessment and identification of risk factors for developing DM in individuals with a history of stroke, along with monitoring and improving modifiable factors, enable the implementation of preventive strategies to reduce DM incidence and associated complications.

Keywords. Diabetes mellitus, stroke, FINDRISC.

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161. VITAMIN D DEFICIENCY AND SYSTEMIC MANIFESTATIONS IN SJÖGREN'S DISEASE

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Introduction. Sjögren's disease (SD) is a systemic autoimmune disorder primarily impacting exocrine glands. Sicca symptoms, such as dry eyes and mouth, are a sign of lymphocytic invasion. It affects 0.5-1% of people, with women making up 9 out of 10 cases. In 20 to 40% of cases, SD has extraglandular manifestations, including peripheral neuropathy (10-20% of patients) and a higher risk of B-cell lymphoma (15-40-fold higher than in the general population). Vitamin D can control the growth of T and B cells, the balance of cytokines (such as reducing IL-17/IFN-γ), and epithelial cell function through its receptor (VDR) on immune cells. Vitamin D deficiency, which is less than 20 ng/mL of 25(OH)D, is common in autoimmune diseases (50–80%).

Aim of study. To systematically review evidence linking vitamin D deficiency to heightened ocular severity, peripheral neuropathy, and lymphoma risk in SD patients, identifying gaps for future research.

Methods and materials. A narrative synthesis of peer-reviewed studies (2010–2025) from PubMed, Scopus, and Web of Science, using keywords: (”Sjögren syndrome/disease”) AND (”vitamin D” OR ”25(OH)D”) AND (”ocular” OR ”neuropathy” OR ”lymphoma”). Inclusion: observational/cohort studies (n>30 SD patients) reporting serum 25(OH)D versus controls or clinical manifestations; exclusion: case reports, non-English. Data were extracted on levels, correlations (e.g., ESSDAI/OSDI scores), odds ratios; quality assessed via Newcastle-Ottawa Scale (mean score 7/9).

Results. Across 15 studies (n≈1,500 SD patients), mean serum 25(OH)D was consistently lower in SD cohorts (18–22 ng/mL) than controls (25–30 ng/mL), with deficiency rates of 60–75%. Cross-sectional data linked hypovitaminosis D to elevated ESSDAI scores (r=-0.35 to -0.48), reflecting higher systemic activity. Ocular findings showed worse dry eye parameters in deficient patients: elevated OSDI symptom scores (moderate-to-severe in 65% vs. 35%), reduced tear break-up time (<5 seconds), and lower Schirmer test values (<5 mm/5 min). For peripheral neuropathy, case-control analyses reported 2–3-fold higher odds (OR 2.1–3.4), predominantly sensory-axonal subtypes with impaired nerve conduction. Lymphoma correlations were discovered in prospective cohorts, where levels below 15 ng/mL were seen in 70% of high-risk cases (compared to 40% of non-lymphoma SD).

Conclusions. Vitamin D deficiency robustly correlates with amplified SD manifestations-ocular, neuropathic, and lymphoproliferative-mirroring its immunomodulatory mechanisms. These findings suggest that vitamin D status may serve as a potential adjuvant treatment target. Prospective interventional trials on supplementation are essential to confirm its clinical utility and guide clinical management.

Keywords. Sjögren’s disease; vitamin D deficiency; 25(OH)D; ocular involvement; peripheral neuropathy; lymphoma risk.

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162. PERSPECTIVES OF IMMUNOTHERAPY IN THE TREATMENT OF MELANOMA

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Introduction. Melanoma is a carcinoma of melanocytic origin, characterized by a high degree of aggressiveness and significant mortality. Immunotherapy has established itself as an essential approach to counter tumor aggression, aiming to educate the immune system to identify and selectively eliminate tumor cells.

Aim of study. To explore the perspectives of immunotherapy, with emphasis on the mechanisms of action and classes of immunotherapeutic agents.

Methods and materials. This review involved carefully selecting and examining a set of academic literature from electronic databases such as PubMed, NCBI and ScienceDirect.

Results. Immunotherapeutic strategies applied in the treatment of melanoma include immune checkpoint inhibitors (ICIs), oncolytic virus therapy, and modulation of the tumor microenvironment, each demonstrating variable efficacy. Immune checkpoint pathways regulate the immune system. Tumor cells take advantage of inhibitory molecules like PD-1, CTLA-4, and LAG-3 to suppress T-cell activity and weaken the anti-tumor immune response, which promotes tumor growth. Immune checkpoint inhibitors (ICIs) oppose this mechanism by interrupting immunosuppressive signaling, thereby reactivating T-cell function and slowing tumor progression. In addition, the tumor microenvironment can be reprogrammed through genetic engineering of the patients' own T-cells, trained to target tumor cells. This method is supported by adjuvant therapies such as IL-2 or TNF-α, which can both inhibit tumor growth itself and promote T-cell production. Another intriguing strategy is oncolytic virotherapy. This technique exploits the lack of antiviral signaling pathways in tumor cells. It acts directly by selectively replicating within the tumor cells and inducing cytolysis. The process leads to the release of pathogen-associated molecular patterns (PAMPs) that are presented to T-cells, which in turn stimulate immunogenic cell death, thereby enhancing the anti-tumor immune response. At the same time, it exerts indirect effects by modifying the extracellular matrix and vascular structure of the mass, which stagnates its formation and growth. The effectiveness of these therapies has been analyzed both individually and in combination, resulting in a synergistic immune response and promising clinical results.

Conclusions. Immunotherapy is a promising alternative in the treatment of melanoma, based on the fact that tumor progression is closely related to the evasion of the immune system. The diversity of available strategies allows for the amplification of endogenous defense mechanisms, providing increasingly effective therapeutic perspectives.

Keywords. Immunotherapy, melanoma, immune checkpoints, tumor microenvironment, oncolytic virotherapy.

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163. CHALLENGES AND OPPORTUNITIES OF JAK INHIBITORS THERAPY IN CHRONIC MYELOPROLIFERATIVE NEOPLASMS.

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Introduction. JAKi are targeted therapies that suppress the aberrant JAK–STAT pathway in MPNs, commonly driven by JAK2, CALR, or MPL mutations, by reducing abnormal myeloproliferation and inflammatory cytokine production, improving symptoms and quality of life. However, due to disease heterogeneity, their long-term impact on disease modification, clonal evolution, and survival remains uncertain, while resistance and adverse effects continue to be major challenges.

Aim of study. To analyze and synthesize current scientific evidence regarding the efficacy, safety, and therapeutic limits of JAKi in MPNs, and to highlight the need for well-designed prospective clinical trials evaluating their long-term disease-modifying potential.

Methods and materials. Literature review of the PubMed and Google Scholar databases, including 15 relevant articles identified using the search term ”JAK inhibitor therapy in myeloproliferative neoplasms,” along with original research articles from the American Society of Hematology.

Results. Evidence from multiple clinical trials demonstrates that JAKi, particularly ruxolitinib, significantly improves outcomes in MPNs. Approximately 40–45% of patients achieve ≥35% spleen volume reduction, and 45–50% experience symptom improvement, including relief of fatigue, night sweats, and weight loss. A meta-analysis of 2,198 patients shows a significant reduction in thromboembolic events (IRR 0.52; 95% CI 0.28–0.98; p=0.04), with an even greater effect in patients with myelofibrosis and polycythemia vera treated with ruxolitinib (IRR 0.41; 95% CI 0.26–0.64; p<0.001). These benefits are partly related to anti-inflammatory effects that reduce pro-inflammatory cytokines and modulate the MPN microenvironment. However, type I JAKi rarely reduce mutant allele burden, indicating limited disease-modifying potential. Common toxicities include anemia and thrombocytopenia, and pharmacovigilance analyses of 126,815 reports identified infections, thromboembolic events, and malignancies as notable risks. Emerging type II JAKi, such as CHZ868, selectively target JAK2 mutations and may reduce allele burden. Combination approaches, including JAK–MEK inhibition, show enhanced efficacy and potential reversal of fibrosis, while ongoing research explores therapies targeting apoptosis, epigenetic regulation, and telomerase activity.

Conclusions. JAKi substantially improve symptomatic control and reduces inflammatory burden in MPNs. Nevertheless, their limited impact on clonal eradication and safety concerns highlight the need for more selective agents and rational combination strategies. Future research should focus on achieving deeper molecular responses and durable disease modification through personalized therapeutic approaches.

Keywords. JAKi, MPNs.

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164. COMORBIDITIES AMONG PATIENTS WITH PULMONARY THROMBOEMBOLISM

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Introduction. Pulmonary thromboembolism (PTE) remains a major cause of cardiovascular morbidity and mortality. PTE is a medical emergency as it results from thromboembolic obstruction of the pulmonary arteries and their branches. Risk factors, including comorbidities, play a significant role in disease onset.

Aim of study. To assess comorbidities in patients with PTE.

Methods and materials. The study included 40 patients with PTE, admitted to the Sfânta Treime Municipal Hospital during 2024-2025. The diagnosis was confirmed by chest CT angiography in all patients. Anamnestic data and objective examination findings were collected. Other instrumental methods consisted of a venous duplex scan of the lower extremities and, when necessary, the upper extremities, echocardiography, and the D-dimer testing.

Results. The average age of the studied patients was 63,8±1,7 years old, 13 women (32,5%), and 27 men (67,5%). The source of thrombosis was detected in half of the cases (deep vein thrombosis of the lower limbs). Bilateral PTE was found in 34 cases (85%), unilateral PTE in 6 cases, and recurrent PTE (chronic pulmonary thrombosis) was observed in 3 cases. In 12 cases (30%), PTE was complicated by pulmonary infarction. The detected comorbidities included established cardiac pathologies – 26 cases (65%), specifically: myocardial infarction – 3 cases, chronic coronary syndrome – 18 cases, atrial fibrillation – 15 cases. Additional comorbidities included: obesity – 8 cases (class III-3, class II-5) (20%), diabetes – 6 cases (15%), cancer – 2 cases, fractures – 1 case, severe infections – 2 cases, postoperative condition – 2 cases.

Conclusions. PTE is most frequently associated with cardiovascular and metabolic pathologies, indicating that these patients need closer monitoring within the healthcare system for early detection and for preventing pulmonary thromboembolism and its complications.

Keywords. pulmonary thromboembolism, comorbidities.

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165. POST-STROKE DELUSIONAL DISORDERS

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Introduction. Organic delusional disorders are acute syndromes, which have as a basic element the presence of a specific organic factor, including metabolic disorders, neurodegenerative diseases and some drugs. Stroke is one of these causes. Despite the relatively low prevalence of post-stroke psychiatric symptoms, the global impact gives this problem major clinical importance.

Aim of study. Studying the clinical aspects and therapeutic options, characteristics of post-stroke delusional disorders.

Methods and materials. A review of the specialized literature was carried out, using the databases PubMed, Medline and Google Scholar, with the selection of articles published in the last 10 years.

Results. Delusional disorders are reported in 4-5% of patients who have suffered a stroke, predominantly ischemic strokes. These are diagnosed in patients without a prior psychiatric history and with the presence of clinical data of suffering a stroke. The clinical presentation is diverse. The most common are delusions of persecution, jealousy, somatic, monothematic and reduplicative paramnesia. Hallucinations may also be present, the most common being auditory and visual. The condition is most commonly localized in the right cerebral hemisphere, namely the right posterior temporo-parietal area, the right inferior prefrontal cortex and the right caudate nucleus. An additional risk factor is pre-existing subcortical atrophy, as evidenced by the enlargement of the third ventricle and the anterior horns of the lateral ventricles. The role of the right hemisphere in the production of delusional ideas is suggested by the dysregulation of a complex composed of four important functions of this brain area: pragmatic social communication, global integration of information, differentiation of familiar from new contexts, and adjustment of beliefs through counterarguments. In addition to the treatment of the cerebrovascular pathology, therapeutic options include atypical antipsychotics. The most commonly used are risperidone, quetiapine, and olanzapine. The average treatment time until resolution of delusional symptoms is 3.5 months. The functional prognosis is unfavorable, with a mortality rate that is 51% higher compared to stroke patients without psychiatric disorders.

Conclusions. Post-stroke delusional disorders represent a particular form of organic psychiatric disorder, occurring in the context of a structural brain lesion. The organic nature is supported by the onset of symptoms after the vascular event and the lack of a psychiatric history. Regarding treatment, it remains an under-researched topic, considering the adverse effects of antipsychotics and their association with an increased risk of stroke.

Keywords. Organic delusional disorder, stroke, right hemisphere, antipsychotics.

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166. EFFICACY OF TOCILIZUMAB IN REDUCING SYSTEMIC INFLAMMATION IN RHEUMATOID ARTHRITIS

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Introduction. Rheumatoid arthritis (RA) is a chronic systemic autoimmune disease predominantly affecting synovial joints. Elevated inflammatory markers, including erythrocyte sedimentation rate (ESR), C-reactive protein (CRP), and fibrinogen, are associated with increased disease activity. Despite advances in conventional DMARD therapy, many patients do not achieve adequate disease control. Biological therapies, particularly IL-6 receptor antagonists such as Tocilizumab, have demonstrated efficacy in reducing systemic inflammation. Early identification of patients with high inflammatory activity and timely initiation of targeted biological therapy are essential to optimize long-term outcomes.

Aim of study. The aim of this study was to evaluate the efficacy of Tocilizumab in reducing systemic inflammation and improving clinical outcomes in RA patients by analyzing the dynamics of ESR, CRP, fibrinogen, and DAS28 scores over six months of therapy.

Methods and materials. The retrospective observational study included 48 adult RA patients (36 women, 12 men) treated at the Republican Clinical Hospital "Timofei Moșneaga". The patients' mean age was 52.4 years (range 24-72), with a mean disease duration of 8.6 years prior to initiation of biological therapy. Tocilizumab was administered intravenously (62.5%) or subcutaneously (37.5%). Clinical evaluation included DAS28 scores, while laboratory evaluation comprised ESR, CRP and fibrinogen levels measured at baseline, 3 months, and 6 months after therapy initiation. Patients were assessed for clinical improvements, including joint pain, swelling, morning stiffness, and functional status.

Results. At baseline, mean ESR was 46,3 mm/h, CRP 28,7 mg/L, and fibrinogen 5,2 g/L. The mean DAS28 was 5,6, with 70.8% of patients exhibiting high disease activity and 29.2% moderate activity. After 3 months, ESR decreased to 31,7 mm/h, CRP to 15,4 mg/L, and fibrinogen to 4,3 g/L. At 6 months, further reductions were observed: ESR 22,2 mm/h, CRP 7,9 mg/L, and fibrinogen 3,6 g/L. DAS28 scores decreased correspondingly, reflecting improvements in joint pain, swelling, and morning stiffness. Tocilizumab demonstrated effectiveness even in patients with long-standing disease, with marked improvement in functional status and achievement of clinical remission in 38% of patients.

Conclusions. Tocilizumab significantly reduces systemic inflammation and disease activity in patients with rheumatoid arthritis. Regular monitoring of ESR, CRP, and fibrinogen, alongside clinical assessment using DAS28, is essential to guide therapy and optimize outcomes. Early and individualized administration of biological therapy improves long-term disease control, functional status, and quality of life in RA patients, confirming Tocilizumab as an effective option for moderate to severe disease.

Keywords. Rheumatoid arthritis, Tocilizumab, systemic inflammation, ESR, CRP, fibrinogen, DAS28.

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167. CLINICAL AND PECULIARITIES OF DEPRESSION IN THE ELDERLY

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Introduction. According to the World Health Organization, approximately 350 million people worldwide suffer from depression. Its prevalence among older adults is significantly higher compared to younger populations, affecting between 13-43% of individuals over 65 years of age. Depressive syndromes are twice as prevalent in women compared to men, likely due to specific biological, psychological, and socio-cultural factors. Projections indicate that by 2050, depressive disorders may become the leading cause of disability worldwide. In the context of global population aging, late-life depression represents a major public health concern.

Aim of study. To examine the clinical particularities of depression in the elderly and to determine therapeutic implications according to severity levels.

Methods and materials. The study included 55 respondents aged over 65 years. Depression severity was assessed using the 15-item Geriatric Depression Scale (GDS-15). Based on total scores, participants were categorized into four groups reflecting severity levels. Descriptive statistical analysis was performed to evaluate the distribution of depressive symptoms.

Results. Among individuals, 23.64% showed no depressive disorder (scores≤4). Mild depression (5-8 points) was identified in 40.00% of participants, representing the largest group and indicating a high prevalence of low-intensity depressive symptoms. Moderate depression was present in 24.45% of cases, potentially affecting daily functioning. Severe depression was observed in 10.91% of participants and was associated with significant psychological distress and impaired quality of life. The distribution of severity underlines the necessity of continuous assessment in this age group.

Conclusions. Depression in late life represents a significant mental health problem with a substantial impact on daily functioning and quality of life. It is frequently underdiagnosed, often masked by somatic symptoms or age-related comorbidities. Early identification through systematic screening is essential. Therapeutic management should be comprehensive and individualized, integrating pharmacological and psychotherapeutic interventions to optimize clinical outcomes and preserve quality of life in elderly patients.

Keywords. Depression, elderly, GDS-15, mental health, aging.

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168. MIGRENE IN THE VERTIGO MASK

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Introduction. Vestibular migraine (VM) is the most common cause of recurrent spontaneous vertigo, affecting 1–3% of the population and 10–30% of patients seeking care for dizziness. Despite its prevalence, it is underdiagnosed: 80% of patients consult for vertigo, but fewer than 20% receive the correct diagnosis. VM presents with recurrent moderate to severe vertigo lasting minutes to hours, often accompanied by nausea, vomiting, nystagmus, photophobia, phonophobia and migraine-like headache, making its recognition challenging.

Aim of study. To summarize current concepts regarding the mechanisms responsible for the development of vestibular vertigo in VM.

Methods and materials. A review of clinical and experimental studies from the last 10 years was conducted using PubMed, ScienceDirect, Scopus, and other sources, focusing on proposed pathophysiological mechanisms.

Results. Vertigo in VM is thought to result from abnormal processing of vestibular signals within central and peripheral structures of the vestibular system. One important mechanism involves interaction between the trigeminovascular system and vestibular pathways. Activation of trigeminal afferents leads to the release of neuropeptides such as calcitonin gene-related peptide (CGRP), substance P and neurokinin A. These mediators can influence vestibular nuclei and increase the excitability of vestibular neurons, which may trigger vertigo. Cortical spreading depression is another mechanism implicated in vestibular symptoms. This wave of neuronal depolarization spreads across the cerebral cortex and alters neuronal activity. When it involves cortical regions responsible for spatial orientation and vestibular integration, disturbances in the perception of motion and body position may occur. Dysfunction of thalamocortical networks also contributes to vestibular manifestations. The thalamus integrates vestibular signals and transmits them to cortical vestibular areas. Altered thalamic modulation may increase sensitivity to motion stimuli and lower the threshold for perception of vestibular signals, explaining the motion intolerance commonly observed in VM patients. Neuroimaging demonstrates altered activity in temporoparietal cortical areas, supporting the vestibulo-thalamo-cortical pathway's role. Peripheral mechanisms, including calcium channel dysfunction and transient labyrinthine artery vasospasm, may impair inner ear function, contributing to episodic vertigo and nystagmus.

Conclusions. Vertigo in VM results from complex interactions between trigeminovascular activation, cortical spreading depression, altered thalamocortical processing, and possible peripheral vestibular dysfunction. A better understanding of these mechanisms may improve diagnostic accuracy, guide targeted therapeutic strategies, and help prevent misdiagnosis of vestibular disorders.

Keywords. Vestibular migraine, vertigo, trigeminovascular system, thalamocortical dysfunction.

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169. GASTROINTESTINAL INVOLVEMENT AS A MARKER OF SYSTEMIC SEVERITY IN SYSTEMIC SCLEROSIS

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Introduction. Systemic sclerosis is a systemic autoimmune disease characterized by immune dysregulation, vasculopathy and progressive fibrosis of the skin and other organs. The most frequent internal manifestation is gastrointestinal involvement which affects up to 80-90% of patients and considerably contributes to morbidity and a low quality of life. Nowadays, it is considered that GI manifestations indicate long-term disease severity rather than isolated organ dysfunction.

Aim of study. This review aims to evaluate the clinical correlation between the extent of gastrointestinal involvement and overall systemic disease severity in patients with systemic sclerosis.

Methods and materials. This study blended a narrative literature review and an observational analysis of 1917 patients who met the criteria for definite SSc. It stratifies patients by GI symptom extent (none, isolated upper or combined upper/lower), the research assesses how GI manifestations correlate with vascular markers, capillaroscopic patterns and pulmonary disease to determine their relationship with overall systemic severity.

Results. Literature indicates that approximately 56% of SSc patients reported the presence of GI symptoms. GI involvement was linked to longer disease duration (9.84 vs 7.75 years, $P<0.001$), a greater prevalence of diffuse cutaneous SSc (23.8% vs 13.2%, $P<0.001$) and elevated interstitial lung disease (43.5% vs 31%, $P<0.001$). The presence of vascular damage was considerably more frequent in patients with GI manifestations, as well as telangiectasias (68.0% vs 49.1%), digital ulcers (25.4% vs 15.6%) and digital pitting scars (54.2% vs 36%) (all $P<0.001$). Patients with both upper and lower GI involvement displayed the most severe phenotype, characterized by the longest disease duration (11.6 ± 9.5 years), increased prevalence of diffuse cutaneous disease (28%) and higher interstitial lung disease burden (47.1%) ($P<0.001$).

Conclusions. Gastrointestinal involvement in SSc is highly associated with a more aggressive fibrotic and vasculopathic phenotype. The extent of GI symptoms resembles overall disease severity, supporting the concept of the gastrointestinal tract as a major target organ in systemic sclerosis.

Keywords. Scleroderma, gastrointestinal, target, fibrosis.

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170. BIOMARKERS AND MODERN IMAGING IN THE ASSESSMENT OF OSTEOARTHRITIS PROGRESSION

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Introduction. Osteoarthritis is a disease that affects more than 300 million people worldwide and is one of the most common causes of pain and disability. Current structural changes are detected by conventional radiographs mainly in advanced disease states. However, biochemical biomarkers and advanced imaging modalities such as MRI, compositional MRI, and ultrasound allow for earlier detection of changes in cartilage, bone, and synovial tissue that are not evident on conventional radiographs.

Aim of study. To assess the diagnostic and prognostic potential of biochemical markers and advanced imaging modalities in the early detection and progression of osteoarthritis.

Methods and materials. A narrative review of the literature was conducted using PubMed, MEDLINE and Google Scholar databases focusing on the period between 2020-2025.The analysis emphasized important biochemical markers of cartilage metabolism and inflammatory processes, as well as advanced imaging techniques such as MRI, compositional MRI (including T2 mapping and dGEMRIC), and ultrasound imaging.

Results. Biochemical markers such as COMP and CTX-II were significantly correlated with cartilage damage and progression, while inflammatory markers indicated the level of synovial activity and the severity of disease activity. MRI was useful in detecting cartilage thinning, bone marrow lesions, synovitis, and subchondral changes before radiographic abnormalities appeared. Compositional MRI was useful in detecting preclinical biochemical changes in cartilage, suggesting early degenerative changes in the joint. Ultrasound imaging was useful in detecting synovial hypertrophy, effusion, and increased vascularity in the joint. Combining biochemical markers with imaging was useful in detecting the disease process at an early stage and in obtaining a clear picture of disease activity. In addition, the combined approach was useful in stratifying patients according to their risk of progression and in identifying patients who could benefit from early therapeutic interventions.

Conclusions. The integration of biochemical biomarkers with modern imaging technologies can enable early diagnosis, proper monitoring, and risk stratification in the management of osteoarthritis. These techniques can enable the development of personalized treatment modalities, and enhance long-term disease management.

Keywords. Osteoarthritis, biomarkers, MRI, compositional MRI, ultrasound, cartilage degradation, disease progression.

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171. MASKED HYPERTENSION IN PHYSICIANS: THE ROLE OF OCCUPATIONAL STRESS AND PSYCHOSOMATIC MECHANISMS

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Introduction. Masked hypertension (MH) is a blood pressure phenotype in which patients record normal blood pressure in a clinical environment but at high levels during day-to-day activities, as detected by ambulatory blood pressure or home monitoring. It is a major clinical issue that is often undiagnosed even when it carries cardiovascular risks similar to sustained hypertension. Growing evidence shows that occupational stress and psychosomatic processes enhance its development by disrupting the control of the autonomic and neuroendocrine systems, resulting in elevated real-life blood pressure that does not appear in office recordings.

Aim of study. The purpose of this review is to integrate the findings of various peer-reviewed research papers that investigate the relationship between masked hypertension, work-related stress, and psychosomatic mechanisms. The aim is to explain the biological and psychological mechanisms through which work-related stress leads to an increase in ambulatory blood pressure and to emphasize the clinical implications of this association.

Methods and materials. A narrative review of studies published between 2021 and 2026 was conducted using the PubMed and Google Scholar databases. Only studies including physicians were selected. The review included cross-sectional, longitudinal and interventional studies, which evaluated ambulatory blood pressure patterns and psychological stress indicators.

Results. It has been established that masked hypertension (MH) is linked to high levels of job strain and chronic occupational stress. Affected individuals show elevated ambulatory blood pressure despite normal clinic readings due to increased sympathetic activity, catecholamine release, hypothalamic-pituitary-adrenal axis (HPA axis) dysregulation, and abnormal cortisol patterns. Anxiety, poor sleep, and unhealthy lifestyle habits contribute. Masked hypertension is associated with target organ damage and increased cardiovascular risk (CVD).

Conclusions. Occupational stress and psychosomatic dysregulation represent a clinically significant condition that is related to masked hypertension. Chronic stress results in the activation of autonomic and neuroendocrine systems, which elevates ambulatory blood pressure, although office monitoring is normal. Ambulatory monitoring and stress management therapy can help decrease the long-term cardiovascular risk, which is possible only with early detection.

Keywords. Masked hypertension, occupational stress, psychosomatic mechanisms, ambulatory blood pressure, sympathetic activation, HPA axis, cardiovascular risk.

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172. CLINICAL–RADIOLOGICAL CORRELATIONS IN PROGRESSIVE SUPRANUCLEAR PALSY: IMPLICATIONS FOR EARLY DIAGNOSIS.

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Introduction. Progressive supranuclear palsy (PSP) is a rare and rapidly progressing 4-repeat tauopathy characterized by a wide range of clinical manifestations and substantial diagnostic difficulties. Due to overlapping motor and cognitive characteristics, early distinction from Parkinson's disease and other atypical parkinsonian disorders is still challenging. A vital technique for increasing diagnostic precision and understanding disease characteristics is neuroimaging.

Aim of study. To assess the relationship between neuroimaging results and clinical symptoms in PSP and to examine the role that structural and advanced imaging indicators play in enhancing the accuracy of early diagnosis.

Methods and materials. This study used the PubMed, Cochrane Library and HINARI databases to conduct a structured narrative review of the literature published between 2016 and 2026. PSP phenotypes and imaging biomarkers were the subject of clinical investigations, systematic reviews and meta-analyses. Correlations between MRI/PET imaging indicators and motor, oculomotor, and cognitive characteristics were highlighted.

Results. Richardson's syndrome exhibits early postural instability, vertical supranuclear gaze palsy, and axial rigidity, but alternative phenotypes like PSP-parkinsonism and PSP-frontal exhibit varying motor and cognitive predominance. PSP exhibits significant clinical variability. Midbrain atrophy with relative pontine preservation is routinely shown by structural MRI, and quantitative indicators such as Magnetic Resonance Parkinsonism Index (MRPI) help distinguish it from multiple system atrophy and Parkinson's disease. Diffusion tensor imaging and FDG-PET are examples of advanced imaging techniques that show region-specific neurodegeneration correlating with clinical severity. While frontal and cortical involvement correlates with executive and behavioral impairment, midbrain atrophy parallels ocular motor dysfunction and postural instability, demonstrating a strong clinicoradiological correlation across PSP symptoms.

Conclusions. Integrated clinical and imaging evaluation is necessary for PSP diagnosis. While new imaging biomarkers provide promising tools for early identification, phenotypic categorization, and future treatment targeting, structural MRI is still the most widely available and dependable imaging modality. Enhancing clinicoradiological correlations may help with tailored PSP management methods, enhance differential diagnosis, and shorten diagnostic delays.

Keywords. Progressive supranuclear palsy, MRI, tauopathy, Richardson's syndrome.

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173. INTESTINAL MICROBIOME IN ANKYLOSING SPONDYLITIS

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Introduction. Ankylosing spondylitis (AS) represents a chronic immune-mediated disease, predominantly involving the spine and sacroiliac joints, and is characterized by progressive structural damage. Although genetic predisposition and immune dysregulation play a central role in its development, accumulating evidence suggests that alterations of the gut microbiota may also contribute to disease pathogenesis and progression.

Aim of study. To evaluate the clinical characteristics and the gut microbiota profile in patients diagnosed with AS compared with healthy subjects and to perform a comparative analysis of axial and peripheral disease phenotypes.

Methods and materials. A prospective observational study included 60 participants recruited between 2025 and 2026 from the Department of Rheumatology and Arthrology of the Republican Clinical Hospital ”Timofei Moșneaga”. The study group consisted of 41 patients with ankylosing spondylitis and 19 healthy controls. According to the ASAS 2009 criteria, patients were classified into axial and peripheral forms of the disease. Clinical and laboratory parameters were assessed, and gut microbiota composition was analyzed based on the relative abundance of bacterial genera.

Results. The study groups were comparable in age, sex distribution, and body mass index ($p>0.05$). Patients with peripheral AS had a significantly earlier disease onset compared to those with axial AS (18.0 vs. 25.5 years, $p<0.01$), while inflammatory activity markers (CRP, ESR) and ASDAS scores were similar between the two clinical forms. The gut microbiota at the phylum level was dominated by Bacteroidetes, Firmicutes, and Proteobacteria (≈97% of total abundance) in both patients and controls. At the genus level, Bacteroides remained predominant but showed lower relative abundance in AS patients compared with controls (33.2% vs 43.0%), while Prevotella demonstrated increased abundance in AS (16.8% vs 3.1%). Statistical analysis confirmed lower median abundance of Bacteroides in AS compared with controls (32.3 vs 37.9; $p<0.003$). Comparative analysis between clinical forms showed generally similar microbial profiles, with slightly higher prevalence of Prevotella, Collinsella, and Comamonas in peripheral AS.

Conclusions. Patients with ankylosing spondylitis show certain changes in gut microbiota composition compared with healthy subjects, mainly involving variations in the relative abundance of several bacterial genera. However, the overall microbial composition remained generally comparable between patients and controls. Differences between axial and peripheral forms were modest, suggesting that these alterations are more likely related to the disease itself rather than to its clinical phenotype.

Keywords. Ankylosing spondylitis, intestinal microbiome, dysbiosis.

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174. CONTRAST AGENTS IN COMPUTED TOMOGRAPHY: INDICATIONS, HANDLING AND SAFETY

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Introduction. Modern medicine often uses the non-invasive imaging method of computed tomography, to explore the internal structures of the human body. Contrast agents are used to visualize the target organ for a more precise and accurate diagnosis of tumors, inflammations and to highlight blood vessels. At the same time, iodine-based contrast agents are administered in computed tomography for various indications, including computed tomography angiography, liver parenchymal assessment and the evaluation of soft tissues. Non-ionic and hypoosmolar iodinated contrast agents are usually used due to their properties, meaning that the human body can endure the side effects more easily and provide safety to the patient.

Aim of study. Identification and analysis of adverse reactions of contrast agents in computed tomography.

Methods and materials. A literature review of scientific articles published from 2016 to 2025 on the PubMed, ScienceDirect and Google Scholar databases was conducted.

Results. Based on the reviewed articles, the frequency of side effects of the iobitridol contrast agent is lower compared to iomeprol. Additionally, following the general media of side effects, 0.66% represents a total of 184 cases of which the majority (90.22%) occurred in less than 20 minutes after administration of contrast agents. At the same time, the lowest percentage of 0.05%, belongs to severe negative reactions. Various immediate side effects have been reported, with rashes and itching being the most common. Also, acute kidney injury induced by iodinated contrast agents was confirmed as a late harmful effect. Studies show that people over the age of 60 (OR=0.71, 95% CI=0.53, 0.95) and those with hypertension (OR=0.78, 95% CI=0.65, 0.94) are less vulnerable to contrast agents used in computed tomography, compared to women (OR=1.27, 95% CI=1.13, 1.41), people under the age of 35 (OR=1.77, 95% CI=1.19, 2.64) who are more prone to side effects.

Conclusions. Modern non-ionic and hypoosmolar contrast agents offer a favorable safety framework when used correctly according to standardized handling measures. Iodinated contrast agents used in computed tomography have fewer harmful effects on patients, but remain capable of causing side effects. For this reason, it is necessary to direct attention to patients' criteria, in order to quickly implement strategies to save the patient if it is necessary.

Keywords. Iodinated contrast agents, computed tomography, adverse reactions of contrast agents.

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175. THE IMPACT OF NEW GENERATION OF X-RAY DEVICES ON IMAGE QUALITY AND RADIATION DOSE

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Introduction. According to the International Commission on Radiological Protection (ICRP), the radiation doses to exposed personnel should not exceed 20 mSv per year, averaged over 5 years. For patient safety, it is mandatory that the radiation doses need to be clinically justified and optimized according to ALARA principles (As Low As Reasonably Achievable). For this reason, the new generation of X-ray equipment is more often used in the healthcare system because of their function, such as, digital radiography, additional filters, flat-panel digital detectors, to minimize the radiation dose but at the same time keeping the image quality at a high level.

Aim of study. To evaluate the efficiency of new methods and the new generation of X-ray devices in reducing radiation doses and improving image quality.

Methods and materials. The literature review was made by selecting relevant databases indexed between 2023-2025 and published on PubMed and ScienceDirect.

Results. The digital radiography system provides a radiation dose that is 90% lower than the original film-based system. Using extra filters and different parameter adjustments for X-ray equipment, such as the tension of the X-ray tube and additional filters, the radiation dose can decrease by 13% and at the same time the image quality increases by almost 9%. Also, by keeping the tension (kVp) at a great level and reducing the exposure time, the radiation dose can drop off considerably without heavily affecting the image quality. The radiography system stocked with a high-resolution flat panel, offers superior image quality even at low doses. Also, studies show that, in the case of a cardiac CT examination, the prospective synchronization technology activates the X-ray beam only during specific phases of the heart rhythm, which minimizes exposure approximately 70%.

Conclusions. The modernization of X-ray devices leads to a significant reduction in radiation doses, simultaneously improving image quality for patient safety, medical staff protection and a more accurate diagnosis, in comparison with the previous generations of X-ray machines, that offers a high radiation and poor image quality.

Keywords. Radiation dose reduction, image quality, new generations of X-ray devices.

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176. CLINICAL FEATURES OF PULMONARY TUBERCULOSIS IN PATIENTS WITH GASTROINTESTINAL DISEASES

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Introduction. Tuberculosis remains a formidable infectious disease, even in the 21st century. In the WHO Global Tuberculosis Report 2024, the persistence of a tense epidemiological situation is mentioned, including the Republic of Moldova. The failure to control tuberculosis is also due to the difficult tolerance of treatment, caused by the presence of comorbidities. Gastrointestinal tract pathology represents a challenge in the treatment of TB patients, as medications are predominantly administered enterally. At the same time, gastrointestinal diseases cause malnutrition and, consequently, an increased risk of disease.

Aim of study. To study the course of pulmonary tuberculosis in patients with gastrointestinal tract pathology in order to establish a more appropriate therapeutic approach in these cases.

Methods and materials. A retrospective study was conducted based on the analysis of 103 medical records of patients aged ≥18 years with gastrointestinal tract diseases who were diagnosed with different forms of pulmonary tuberculosis (TB) during 2025 at the Municipal Hospital of Phthisiopneumology, Chișinău. The clinical picture, complications, radiological data, comorbidities, drug-resistance profile and treatment adherence were evaluated.

Results. Of the total 103 patients included in the study, males predominated (75 cases; 72.8%). The age distribution analysis shows the predominance of patients between 41–50 years (28 cases; 27.2%), followed by those aged 31–40 years (24 patients; 23.3%) and 51–60 years (22 patients; 21.4%), while the age extremes (<30 years and >60 years) totaled 29 cases (28.1%). Infiltrative pulmonary tuberculosis was the most frequent clinical form (88 cases; 85.4%), followed by disseminated tuberculosis (12 cases; 11.7%), fibro-cavitary pulmonary TB (2 cases; 1.9%) and tuberculous pleurisy (1 case; 1.0%). Extensive pulmonary involvement was observed in approximately three-quarters of the patients. New cases accounted for 70 patients (67.9%), while 33 patients (32%) were retreatment cases. A total of 45 patients (43.7%) presented more than two concomitant digestive diseases. Drug-resistant tuberculosis was diagnosed in 13 patients (12.6%). Disease complications were documented in 34 patients (33%), 68 patients (66%) presented adverse reactions to treatment, while 38 patients (36.9%) manifested difficult tolerance to treatment.

Conclusions. Gastrointestinal tract pathology requires increased vigilance both for the occurrence of pulmonary tuberculosis and for therapeutic success. The medical history of patients suspected of TB and the presence of gastrointestinal diseases must be taken into account in the diagnostic process.

Keywords. Key words: tuberculosis, digestive diseases.

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177. ACUTE KIDNEY INJURY INDUCED BY TUMOR LYSIS SYNDROME

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Introduction. Acute kidney injury (AKI) is a clinical syndrome characterized by a rapid decline in renal function, reflected by changes in serum creatinine levels, glomerular filtration rate, and urine output. In oncology patients, particularly those with hematological malignancies, AKI may occur as a consequence of Tumor Lysis Syndrome (TLS), a metabolic complication that develops following rapid tumor cell destruction during antineoplastic therapy. The release of intracellular contents leads to metabolic disturbances such as hyperuricemia, hyperkalemia, hyperphosphatemia, and hypocalcemia, which contribute to the development of renal injury.

Aim of study. To highlight tumor lysis syndrome as a specific cause of acute kidney injury in patients with malignancies and to summarize the main mechanisms involved in its pathogenesis.

Methods and materials. A narrative review of the literature was conducted, analyzing current publications and clinical studies addressing the pathophysiology, diagnosis, and incidence of acute kidney injury associated with tumor lysis syndrome in patients with hematological malignancies.

Results. The pathophysiology of TLS-induced acute kidney injury involves three major mechanisms: massive production of uric acid with subsequent deposition in renal tubules, precipitation of calcium phosphate crystals, and vascular alterations affecting renal hemodynamics. Based on these mechanisms, renal injury can be classified into two categories: crystal-dependent injury, caused by the precipitation of uric acid and calcium phosphate crystals in renal tubules, and crystal-independent injury, associated with vasoconstriction, oxidative stress, and the release of inflammatory cytokines. The diagnosis of AKI related to TLS is established based on increased serum creatinine levels in association with laboratory criteria specific to TLS. AKI usually develops within 24 hours or later after the initiation of chemotherapy. A recent study conducted between July 2018 and May 2021 involving 115 patients with hematological malignancies treated with CAR T-cell therapy reported that 24 patients (21%) developed acute kidney injury following treatment, highlighting the growing clinical relevance of this complication.

Conclusions. Tumor lysis syndrome represents an important and potentially severe cause of acute kidney injury in patients with hematological malignancies. Further studies are required to better define the epidemiology, risk factors, and underlying hematological conditions most frequently associated with TLS, as well as to optimize preventive and therapeutic strategies for reducing the incidence of renal complications.

Keywords. Tumor lysis syndrome, acute kidney injury, hematological malignancies, metabolic complications, oncology.

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178. THE ROLE OF LONG-TERM VIDEO-EEG MONITORING IN THE DIAGNOSIS OF FOCAL EPILEPSY IN A PATIENT WITH MULTIPLE RISK FACTORS

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Introduction. Epilepsy is a neurological disorder characterized by recurrent, unprovoked seizures, with diagnosis based on the correlation between clinical manifestations and electroencephalographic data. Differentiating between focal epilepsy, alcohol withdrawal seizures, and psychogenic non-epileptic seizures (PNES) is challenging in patients with multiple comorbidities, frequently necessitating prolonged video-EEG monitoring to reach a definitive diagnosis.

Case presentation. A 56-year-old woman, with a history of chronic alcohol use and grade III hypertension, was evaluated through clinical history, neurological examination, brain MRI, standard EEG and prolonged video-EEG monitoring. The first episode (April 22, 2022) occurred following excessive alcohol consumption and hypertensive peaks, presenting with vertigo, cyanosis, loss of consciousness, and generalized tonic-clonic movements. Carbamazepine (400 mg/day) was initiated. Between 2023 and 2025, the patient experienced one episode per year, characterized by nocturnal urinary incontinence, hypersalivation, tonic-clonic activity, facial cyanosis and postictal confusion lasting around 30 minutes. The interictal neurological exam was unremarkable. Brain MRI revealed bilateral periventricular and subcortical gliosis (suggestive of microangiopathy) without expansive lesions. While standard EEG showed no epileptiform activity, prolonged video-EEG monitoring revealed left temporal epileptiform discharges and an ictal sleep pattern. These findings correlated with mandibular contractions, deglutition automatisms and tachycardia reaching 120 bpm.

Discussions. This case highlights the difficulty of reaching a definitive diagnosis when standard EEG shows no abnormalities and precipitating factors are present. Long-term video-EEG monitoring proved essential for capturing epileptiform discharges and establishing an electro-clinical correlation, confirming the epileptic nature of the seizures. The Carbamazepine dosage was titrated up to 800 mg/day.

Conclusions. Extended video-EEG monitoring is crucial in the differential diagnosis of paroxysmal events with unclear symptoms. In the reported case, it confirmed focal epilepsy evolving into bilateral tonic-clonic seizures within a complex comorbid context. Establishing the correct diagnosis allowed for the optimization of antiepileptic treatment and provided a clear therapeutic pathway.

Keywords. Focal epilepsy, long-term video-EEG, tonic-clonic seizures.

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179. RENAL DAMAGE IN PSORIATIC ARTHRITIS

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Introduction. Psoriatic arthritis (PsA) is a chronic immune-mediated inflammatory disease with systemic involvement. Renal manifestations may remain clinically silent, yet they can influence prognosis and therapeutic safety. Early renal injury in PsA is frequently reflected by urinary abnormalities (proteinuria/hematuria) and/or a decline in estimated glomerular filtration rate (eGFR).

Aim of study. To determine the prevalence and phenotypic patterns of renal impairment in PsA and to evaluate associations with systemic inflammatory activity and hyperuricemia.

Methods and materials. We conducted a single-center observational study including 107 patients with confirmed PsA, followed at the Rheumatology Department of the Republican Clinical Hospital "Timofei Moșneaga" (March 25, 2024–March 25, 2025). Renal impairment was defined by the presence of ≥1 abnormal parameter: proteinuria, hematuria, and/or eGFR <60 mL/min/1.73 m² calculated using CKD-EPI. Patients were stratified by isolated versus combined renal abnormalities. Associations were assessed against C-reactive protein (CRP), erythrocyte sedimentation rate (ESR) and serum uric acid, reporting p-values.

Results. Renal impairment was identified in 29/107 patients (27%). In the overall cohort, proteinuria was detected in 23/107 (21%), hematuria in 14/107 (13%), and eGFR <60 mL/min/1.73 m² in 9/107 (8%). Within the renal-impairment subgroup (n=29), isolated abnormalities accounted for 52%: isolated proteinuria (n=10), isolated hematuria (n=4), isolated reduced eGFR (n=1). Combined abnormalities represented 38%: proteinuria+hematuria (n=6), proteinuria+reduced eGFR (n=4), hematuria+reduced eGFR (n=1). The complex phenotype (proteinuria+hematuria+reduced eGFR) was observed in 10% (n=3). Proteinuria was significantly more frequent in patients with elevated CRP (p=0.0045) and elevated ESR (p=0.0074), whereas associations between inflammatory markers and hematuria (p=0.394; p=0.209) or reduced eGFR (p=0.162; p=0.264) did not reach statistical significance. Hyperuricemia was present in 34/107 patients (32%) and showed a significant association with reduced eGFR (p=0.028), but not with proteinuria (p=0.45) or hematuria (p=0.76). Hyperuricemia was also more prevalent in patients with elevated ESR (p=0.039) and elevated CRP (p=0.022).

Conclusions. More than one quarter of PsA patients exhibited renal impairment, predominantly characterized by urinary abnormalities, with proteinuria reflecting higher systemic inflammatory activity. The association of hyperuricemia with reduced eGFR and with inflammatory markers supports integrated renal and metabolic surveillance (urinalysis, eGFR, serum uric acid) as part of routine PsA management.

Keywords. psoriatic arthritis; renal impairment; proteinuria; hematuria; eGFR; hyperuricemia; CRP; ESR.

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180. PET ALLERGY - SOMETIMES A FRIEND BECOMES A HEALTH PROBLEM

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Introduction. The percentage of households with pets varies (20% - 65%). Furry animals are important allergen sources, and the prevalence of sensitization to dander, saliva or urine appears to be increasing worldwide. The most popular home pets and the most common allergen sources are cats and dogs. Allergens from pet animals are mainly present in their fur, saliva and urine and are spread into the environment through shedding of hair and dander, symptoms frequently include allergic rhinitis and asthma. Allergy diagnosis is supported by the detection of allergen-specific IgE antibodies for the most important allergenic proteins.

Aim of study. Analysis of the particularities of sensitization to pet allergy major allergens (cats and dogs) lipocalins, secretoglobins, serum albumins and kallikrein in patients with respiratory allergies.

Methods and materials. The study included 1265 patients, between 2020 and 2025, with respiratory allergies (allergic rhinitis and asthma). Patients were tested for detailed molecular profiling using multiplex allergy tests. Component-based IgE testing can distinguish primary sensitization from cross-sensitization.

Results. The study group includes patients from different regions of the Republic of Moldova, making it representative of the entire country. The average age was 25.6 years, 49.6% women and 50.4% men. Sensitization to cats was identified in 16.4% of patients (47.6% females, 52.4% males), with the following molecular distribution: Fel d 1-91.3%, Fel d 2 - 5.3%, Fel d 4 - 13.9%, and Fel d 7 - 13.9%. Sensitization to dogs was present in 11.3% of patients (55.2% females, 44.8% males), with the following molecular distribution: Can f 1 - 35.7%, Can f 2 - 6.3%, Can f 3 - 7%, Can f 4 - 15.4%, Can f 5 - 42%, and Can f 6 - 14.7%. Monosensitization to Can f 5 was observed in 37.1% of sensitized patients and may represent a highly specific marker for allergy to male dogs.

Conclusions. Most commonly, allergic patients are sensitized to Fel d 1 and Can f 1, the most important allergenic proteins in cats and dogs. When clinical history and investigations are inconclusive, molecular allergology can add valuable clinical information in the diagnostic work-up.

Keywords. Pet allergy, Fel d 1, Can f 1, furry animals.

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181. ANALYSIS OF TUBERCULOSIS-RELATED DEATHS IN MUN. CHISINAU DURING 2022–2024

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Introduction. Tuberculosis (TB) remains a major public health problem associated with increased mortality, particularly among patients with behavioral risk factors and severe comorbidities. Analysis of TB-related deaths helps identify determinants of unfavorable disease progression.

Aim of study. To evaluate tuberculosis-related deaths in Chisinau municipality during 2022–2024, identifying risk factors and clinical and imaging characteristics.

Methods and materials. A retrospective descriptive-analytical study based on 34 electronic records of deceased patients. Demographic data, behavioral risk factors, comorbidities, duration of disease before medical presentation, and clinical, imaging, microbiological findings were analyzed. Statistical analysis was performed using Fisher's exact test. In 29 cases, the cause of death was specified (TB vs other cause).

Results. Among the 34 deceased patients, 82.4% were male, with a mean age of 58.1 years; 47.1% were older than 60 years. Chronic alcohol consumption was present in 73.5% of cases, $p<0.005$, smoking in 58.8%, both being associated with delayed medical presentation and reduced treatment adherence. In 64.7% of cases, the duration of disease progression before presentation exceeded 2–3 months, $p<0.005$, and in 32.4% it exceeded one year, favoring advanced disease forms. Radiologically, 79.4% of patients presented bilateral pulmonary involvement, $p<0.005$, 61.8% had extensive disease ($p<0.005$) and 58.8% showed cavitary destruction. In the TB group (15 cases), bilateral involvement was present in 100% of cases, cavitary destruction in 80.0%, compared with 64.3% and 35.7% in the non-TB group. Microbiological/molecular confirmation (BAAR, GeneXpert, culture) was more frequent in the TB group, 60.0% – 66.7%, compared with 7.1% – 14.3% in the non-TB group, indicating a high bacillary load, $p<0.005$. Clinically, the predominant manifestations were asthenia (85.3%), cough (79.4%), dyspnea (55.9%), and weight loss (47.1%). Elevated ESR was recorded in 85.3% of cases, anemia (70.6%), and thrombocytopenia (58.8%). Frequent comorbidities included hepatic diseases (58.6%), cachexia (48.3%), renal pathology (34.5%), COPD (24.1%), contributing to severe disease progression and limitation of therapeutic options.

Conclusions. Tuberculosis-related death in Chisinau (2022–2024) was predominantly associated with male sex, advanced age, alcohol consumption, and delayed medical presentation. The major determinants of TB-related death were bilateral destructive pulmonary involvement, positive bacteriological confirmation, and cachexia syndrome, which led to respiratory failure and systemic decompensation. These findings highlight the need for early detection and integrated management of risk factors in order to reduce tuberculosis mortality.

Keywords. Tuberculosis, mortality, risk factors, bilateral involvement, cachexia.

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182. POLYMORPHISM OF CLINICAL MANIFESTATIONS IN PATIENTS WITH GRANULOMATOSIS WITH POLYANGIITIS AND THEIR PREDICTION IN THE COURSE OF THE DISEASE

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Introduction. Granulomatosis with polyangiitis (GPA) is defined as a pauci-immune vasculitis characterized by necrotizing granulomatous inflammation that affects small- and medium-sized vessels, such as arterioles, capillaries, and venules.

Aim of study. Aim of the study. The purpose of this paper is to conduct a systematic analysis of the specialized literature through the lens of the polymorphism of clinical manifestations in patients with granulomatosis with polyangiitis.

Methods and materials. We conducted a search in several databases (the Scientific Medical Library of the SUMF "Nicolae Testemitanu," Google Scholar, and PubMed), identifying 81 studies, of which 22 met our inclusion criteria based on relevance and quality.

Results. Upper respiratory tract involvement occurs in 70–95% of cases, with ulcerations and epistaxis, followed by nasal septum perforation, destruction of septal cartilage, and ultimately collapse of the nasal skeleton in late stages. Otologic involvement is found in 16–30% of cases. Lower respiratory tract involvement occurs in approximately 90% of cases, with diffuse alveolar hemorrhage, consolidations, interstitial involvement, tracheolaryngeal lesions, pleural involvement, and hilar lymphadenopathy. Renal involvement occurs in 50–83% of cases, with 20–40% presenting at disease onset. Histopathologically, glomerular injury is represented by pauci-immune necrotizing glomerulonephritis with crescents and rapidly progressive glomerulonephritis, with the appearance of oliguria, generalized edema, macroscopic hematuria, dyspnea, dyspepsia, and cutaneous pruritus. Cutaneous involvement occurs in approximately 30–55% of cases. Manifestations include purpura, cutaneous ulcers, and subcutaneous nodules. Musculoskeletal involvement occurs in 30–70% of patients, presenting with arthralgia, myalgia, and inflammatory myopathies. Peripheral nervous system involvement is reported in 11–44% of patients: mononeuritis multiplex in 80% of these patients and distal symmetric sensorimotor polyneuropathy in 11% of peripheral neuropathy cases. Cardiovascular involvement is reported in 3.3% of patients. Pericarditis and coronary arteritis occur in approximately 50% of cardiac cases, myocardial infarction in 11%, myocarditis in 25% of cases with cardiac manifestations, and endocarditis and valvulopathy in 21%. The gastrointestinal tract is affected in 5–10% of patients, with abdominal pain reported in 97% of these patients.

Conclusions. GPA is a rare disease with polymorphic manifestations predictive of disease severity and progression. The severe form is associated with renal involvement, lower respiratory tract involvement, central nervous system involvement, mesenteric and cardiac involvement.

Keywords. Vasculitis, granulomatosis with polyangiitis, hemorrhage.

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183. CORRELATION BETWEEN INTRAOCULAR LENS POWER CALCULATION AND FINAL VISUAL OUTCOMES

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Introduction. Globally, cataract affects approximately 95 million people and represents the leading cause of visual impairment. Treatment consists of extraction of the opacified crystalline lens followed by implantation of an intraocular lens (IOL), a procedure that ensures effective optical and functional rehabilitation of the patient. However, recent studies indicate that only 70-80% of eyes achieve a postoperative refractive outcome within ±0,50 D of the predicted target. In the remaining cases, residual ametropia may lead to asthenopia, reduced uncorrected visual acuity, and the need for spectacle correction.

Aim of study. To analyze the degree of correlation between intraocular lens power calculation and postoperative refraction and functional outcomes.

Methods and materials. A retrospective study evaluated 85 eyes with cataract (32 men, 53 women; age range 40-75 years) at Medpark International Hospital between October 2025 and February 2026. Among the analyzed cases, cataract associated with hyperopia was diagnosed in 20 eyes, myopia in 24 eyes, and astigmatism in 41 eyes. Clinical and instrumental evaluation included visual acuity testing, autorefractometry, keratometry, ultrasound biometry, tonometry, computerized perimetry, macular optical coherence tomography (OCT), and IOL power calculation based on keratometry, A-scan biometry, IOLMaster measurements, and corneal topography. Surgical treatment consisted of phacoemulsification of the crystalline lens followed by implantation of an intraocular lens, including the following types: monofocal IOLs (AcrySof® IQ, Akreos® (Bausch+ Lomb)), trifocal IOLs (AcrySof® IQ PanOptix), toric IOLs (AcrySof® IQ PanOptix, LuxLife ® (Bausch+ Lomb), TECNIS Synergy II).

Results. Patients were evaluated postoperatively at 24 hours, 1 week, and 1 month. The assessment included: uncorrected and corrected visual acuity, biomicroscopic examination, intraocular pressure measurement, fundus examination, final refractive assessment, OCT of the macula and optic nerve. For monofocal IOLs, 70% of the patients achieved a visual acuity (VA) of 0.8, 20%-0.9, and 10%-1.0. In the trifocal IOL group, 50% achieved a VA of 0.9, 35%-1.0, 15%-0.8. In the toric IOL group, 82%- 1.0, 10%-0.9, and 8%-0.8.

Conclusions. Implantation of an artificial intraocular lens represents an effective method for correcting ametropia. Analysis of the final refraction demonstrated a direct correlation between preoperative biometric calculations and postoperative visual performance. Most patients achieved a refractive outcome within ±0.50 D of the target refraction. Toric trifocal lenses showed the best functional outcomes, with 82% of patients achieving a VA of 1.0, suggesting increased postoperative visual satisfaction and the effectiveness of simultaneous astigmatism correction in improving final visual performance.

Keywords. Ametropia, IOL implantation, visual acuity outcomes.

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184. EVIDENCE-BASED SCREENING STRATEGIES FOR ACTIVE TUBERCULOSIS IN THE PAEDIATRIC POPULATION

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Introduction. Childhood tuberculosis (TB) is a critical issue that presents a considerable burden of TB globally, particularly in low- and middle-income settings. The majority of TB-related mortality among children occurs among those who are five years old or younger. Delayed diagnosis raises the risk of severe TB forms and unfavourable prognosis, that is why screening for active childhood TB is crucial.

Aim of study. To assess the existence of evidence-based approaches to the systematic screening of active tuberculosis among the paediatric population and their role in TB control.

Methods and materials. An analytical review of scientific publications using the comprehensive search on PubMed data base in the last 5 years related to the keywords: screening, children, TB disease, was performed and 3 meta-analysis, 45 clinical trials, 2 WHO guidelines were analysed.

Results. Screening strategies for TB in children seek to find children who are at a higher risk of developing active TB and need further evaluation for diagnostic purposes.The main groups to be targeted in TB screening include children who are below 15 years of age and have had a history of TB exposure or contact of TB patient (household, other close contacts) as well as children below 10 years who are HIV-positive. The screening tools for TB in children with contact of TB patients include symptom screening and chest radiography (chest X-ray), which can be done in series or in parallel. Symptom screening (cough, weight loss, poor weight gain, fever, lethargy, reduced playfulness) has a high sensitivity, but a low specificity, while chest X-ray has a higher specificity and a lower sensitivity. Children with positive screening results require further testing using WHO-recommended molecular rapid diagnostic tests (mWRDs), including Xpert MTB/RIF and Xpert Ultra, along with clinical evaluation.In children, specimen samples include gastric aspirates,nasopharyngeal aspirates, or stool samples,sputum samples can be obtained in older children. Tuberculin skin test, interferon gamma release assays are not indicated for screening for TB but are used for decision-making for preventive treatment of TB. Screening for TB in children living with HIV below 10 years is difficult because of atypical presentations, extrapulmonary sites of TB.It included symptom screen and TB contact. Symptom screen has high specificity and low sensitivity.Children with positive screen required future evaluation for TB disease.

Conclusions. Systemic screening for active TB among at-risk populations of children facilitates early detection of TB, early treatment initiation,prevention of complications, progression to severe TB forms and improves treatment outcomes. Development of the tools and implementation of screening strategies for active TB is necessary for reducing transmission,morbidity and mortality from TB among children.

Keywords. Tuberculosis; Children; Screening; Paediatric TB; Public health.

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185. COMPARATIVE ANALYSIS OF PATIENT MANAGEMENT IN THE GREEN ZONE OF IMSP IMU AND IMSP SF. TREIME

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Introduction. The green zone of the Emergency Department (ED) is designated for patients with minor or non-critical conditions and represents an important indicator of efficient healthcare resource utilization. A comparative analysis of patient presentations allows identification of demographic profiles and trends in emergency service use.

Aim of study. To comparatively evaluate the demographic characteristics and the profile of emergencies managed in the green zone of IMSP IMU and IMSP St. Treime, as well as to analyze patient management outcomes.

Methods and materials. A retrospective comparative study was conducted on a cohort of 1,000 patients randomly selected from the Medproject Information System: 500 patients from IMSP IMU and 500 from IMSP Sf. Treime, all managed in the ED green zone. Demographic variables, emergency profiles, and consultation outcomes (hospital admission vs. discharge with recommendations) were analyzed.

Results. Patients from IMSP IMU had a mean age of 38 ± 0.32 years, with predominance of the 20-40 age group (46%) and male sex (56.4%). At IMSP Sf. Treime, the mean age was 48 ± 0.39 years, with predominance of the 41-60 age group (42%) and female sex (63.4%). At IMSP IMU, surgical (153 cases), trauma-related (86), urological (96), and gynecological (31) emergencies were more prevalent. In contrast, IMSP Sf. Treime recorded a higher frequency of cardiological (143 cases), neurological (109), and urological (95) emergencies. Analysis of management outcomes showed that more than two-thirds of patients were discharged with medical recommendations without requiring hospitalization. Approximately 50% of presentations did not represent true emergencies and could have been managed within primary healthcare services. Admission rates varied depending on specialty: neurology (18–28%), surgery (33%), urology (22–37%), gynecology (33–38%), cardiology (≈22%), and traumatology (36%).

Conclusions. Significant differences exist between the two institutions regarding demographic profiles and types of emergencies managed in the green zone. IMSP IMU predominantly managed surgical and trauma-related cases in younger patients, whereas IMSP Sf. Treime recorded a higher frequency of cardiological emergencies in middle-aged and elderly patients, reflecting its role as one of the principal centers for acute coronary syndrome management. The high proportion of non-urgent presentations highlights the need to optimize healthcare pathways and strengthen primary care services in order to reduce the burden on emergency departments.

Keywords. green zone, emergency medicine, comparative analysis, non-urgent presentations, hospital management.

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186. IRON DEFICIENCY ANEMIA: COMPREHENSIVE APPROACH

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Introduction. Iron deficiency anemia is a common condition caused by insufficient iron for hemoglobin production. It frequently affects women due to factors such as chronic blood loss and inadequate dietary intake. Early diagnosis through clinical evaluation and laboratory tests is important for proper management. The presented case highlights the risk factors, clinical manifestations, and effective treatment of iron deficiency anemia in a patient managed in primary healthcare.

Case presentation. A 48-year-old female patient presented to the family physician with complaints of progressive fatigue, dizziness, headache, and general weakness that had developed over the previous three months. The patient also reported dry skin and episodes of lipothymia. On physical examination, pallor of the skin and mild tachycardia were observed. Laboratory investigations revealed decreased hemoglobin levels and findings consistent with hypochromic microcytic anemia. Based on the clinical presentation and laboratory results, the diagnosis of iron deficiency anemia was established, and treatment with oral iron supplementation was initiated.

Discussions. Iron deficiency anemia develops mainly due to chronic blood loss, insufficient dietary iron intake, or impaired absorption. In this case, the most significant contributing factor was increased menstrual blood loss after the insertion of an intrauterine device, combined with an irregular diet poor in iron-rich foods. The diagnosis was supported by clinical manifestations of anemia and laboratory findings showing hypochromic microcytic anemia. Oral iron supplementation together with correction of the underlying cause and dietary recommendations represents the main therapeutic approach. Early identification and adequate management are essential to restore hemoglobin levels and prevent recurrence of iron deficiency anemia.

Conclusions. Iron deficiency anemia is a common condition that requires early diagnosis and appropriate treatment. Identification of the underlying cause and administration of oral iron therapy are essential for restoring hemoglobin levels and preventing recurrence.

Keywords. Iron deficiency anemia, Microcytic hypochromic anemia, Menorrhagia Uterine myoma, Iron metabolism, Ferrous sulfate therapy, Dietary iron deficiency, Primary healthcare management, Hemoglobin Ferritin.

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187. PULSELESS DISEASE ASSOCIATED WITH SEVERE REGENERATIVE ANEMIA AND PYODERMA GANGRENOSUM

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Introduction. Takayasu arteritis (Pulseless Disease, TA) is a rare large-vessel vasculitis affecting the aorta and its major branches, predominantly in young women. Extra-vascular manifestations may complicate its course and reflect systemic immune dysregulation. The aim of this report is to highlight a rare association of TA with severe anemia and pyoderma gangrenosum, emphasizing diagnostic and therapeutic challenges.

Case presentation. A 39-year-old woman with established TA was admitted for marked asthenia, severe anemia and bilateral necrotic ulcerative lesions on the calves with undermined violaceous borders and surrounding atrophy. The lesions progressed from painful pustulo-nodular eruptions to deep ulcers with granulation tissue and fibrin deposition. MRI angiography revealed diffuse inflammatory changes of the thoracic and abdominal aorta, dilation of the ascending aorta and sinus of Valsalva, and diffuse stenosis of the left renal, subclavian, axillary, and vertebral arteries. Laboratory findings demonstrated severe anemia (Hb 58 g/L, reticulocytes 81%), elevated LDH, indirect hyperbilirubinemia, and transient hepatocytolysis, suggestive of hemolysis. Echocardiography identified aortic dilation, moderate multivalvular insufficiency, preserved left ventricular ejection fraction (55%), and signs for moderate pulmonary hypertension. Differential diagnosis for skin condition included ischemic vasculitic ulcers, infectious cutaneous lesions and other neutrophilic dermatoses. Final diagnosis: Takayasu arteritis type V, secondary severe anemia (probable from systemic inflammation), secondary hypertension. Systemic corticosteroid therapy, antihypertensive treatment, packed red blood cell transfusions, Bacitracin zinc and Neomycin sulfate powder for skin lesions led to partial stabilization and regression of inflammatory activity.

Discussions. This case illustrates the multisystemic nature of TA and its association with hematologic and dermatologic complications. Such associations are rarely reported and may reflect underlying immune dysregulation, emphasizing the need for multidisciplinary management.

Conclusions. Early recognition of extra-vascular manifestations in TA is essential. Individualized immunosuppressive and supportive therapy may improve outcomes in complex presentations.

Keywords. Takayasu arteritis, regenerative anemia, pyoderma gangrenosum, large-vessel vasculitis, immune dysregulation.

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188. MILLER FISHER SYNDROME - A RARE VARIANT OF GUILLAIN-BARRÉ SYNDROME: CASE REPORT

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Introduction. Miller Fisher Syndrome (MFS) is a rare variant of Guillain-Barré Syndrome (GBS), defined by ophthalmoplegia, ataxia, and areflexia. MFS is an acute immune-mediated inflammatory neuropathy affecting peripheral and cranial nerves. Early diagnosis of MFS is difficult due to similar symptoms to other acute neurological pathologies, such as vertebrobasilar stroke or myasthenia gravis.

Case presentation. A 46-year-old male patient was admitted to the Neurological Emergency Department of the Neurology and Neurosurgery Institute with an acute onset reported on 08.02.2026, with left hand paresthesia, followed by extension to the both upper extremities, accompanied by dizziness, postural instability, and nasal speech. The next morning, partial ptosis of the left eyelid was associated, at which point he arrived at the emergency department with presumptive diagnosis of vertebrobasilar stroke (NIHSS 2). During the neurological examination, consciousness was appreciated at GCS 15. Additional findings were: bilateral horizontal nystagmus, facial asymmetry, reduced contraction of the soft palate on the right, dysphonia, and dysphagia for liquids and food. Examination of the sensory nerves revealed superficial hypesthesia with polyneuritic „glove and stocking" distribution and reduced vibratory sensibility distally. Cerebellar tests showed bilateral dysmetria, intention tremor, gait ataxia and instability on the Romberg test. Electromyography done on 12.02.2026 revealed sensory axonal polyneuropathy. Cerebrospinal fluid analysis showed normal protein levels, positive Pandy test and pleocytosis. Brain CT didn't reveal lesions specific to ischemia or acute hemorrhage. Differential diagnosis excluded vertebrobasilar stroke and myasthenia gravis using clinical testing and imaging findings. Laboratory tests revealed the inflammatory syndrome (C-reactive protein 24 mg/L, ESR 42 mm/h) and leukocytosis with neutrophilia and lymphopenia (NLR=10.9). The patient was treated using plasma exchange and intravenous immunoglobulins. This resulted in clinical recovery with reduced paresthesia, improved gait stability, and partial recovery of cranial nerve function.

Discussions. This case demonstrates difficulties in diagnosing MFS in the context of an acute onset, with similar signs to central nervous damage. The presence of ophthalmoplegia, ataxia, and electromyography modifications were supportive for the diagnosis of MFS.

Conclusions. Miller Fisher Syndrome is considered in the differential diagnosis of patients presenting with oculomotor deficits and ataxia. Early diagnosis and proper treatment can positively influence neurological evolution.

Keywords. Miller Fisher Syndrome, Guillain-Barré Syndrome, Neurology.

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189. PROFILIN SENSITIVITY AND HETEROGENEOUS CLINICAL EXPRESSION

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Introduction. Profilin is a cytoskeletal, thermolabile protein responsible for actin binding, being a structural component of the cytoplasm of eukaryotic cells. Profilin is an archetypal plant panallergen and, despite being considered a minor pneumoallergen, is relevant in cross-reactivity, being responsible for polysensitization and the connections between food allergy, pollen allergy, and latex allergy.

Case presentation. We present the case of a 65-year-old female patient with a history of asthma with exacerbations, seasonal: watery rhinorrhea, nasal congestion, hyperlacrimation, sneezing in bursts, nasal and ocular pruritus, associated with oral pruritus and lip edema when consuming melon, apple, and peach, when consumed raw, and chronic spontaneous urticaria. According to the molecular diagnosis (ALEX2), the following positive results were determined: grass pollen: timothy – Phl p 12 = 5.78 kUA/L; tree pollen: silver birch – Bet v 2 = 3.24 kUA/L; date palm Pho d 2 = 10.85 kUA/L; grass pollen: creeping bentgrass Mer a 1= 7.96 kUA/L; fruits: melon Cuc m 2 = 10.18 kUA/L; latex Hev b 8 = 4.18 kUA/L; Additionally, cryptomeria Cry j 1 = 21.6 kUA/L; walnut Jug r_pollen = 0.49 kUA/L; grass pollen: ragweed Amb a 1 = 1.31 kUA/L; Amb a 4 = 40.77 kUA/L. Thus, according to the molecular profile, the patient presents a polysensitization determined by profilins, without the risk of systemic reactions, the clinical picture being represented by seasonal rhinoconjunctivitis and oral allergy syndrome.

Discussions. Research shows that primary sensitization to profilins is most often the result of sensitization to grass pollen through (Phl p 12), but also to birch pollen through (Bet v 2) and ragweed. Profilin Hev b 8 shows a high degree of cross-reactivity, but this is irrelevant in the case of the patient.

Conclusions. In conclusion, profilins are proteins that frequently induce cross-reactions. Primary sensitization through inhalation of grass, birch, and ragweed pollen leads to the development of food allergies to products containing profilins, resulting in pollen-food syndrome. However, due to their thermal and enzymatic lability, they induce mild symptoms, and through molecular diagnosis we can correctly stratify the risk and avoid dietary restrictions.

Keywords. Profilin, cross-reaction, allergens.

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190. CHARACTERISTICS OF TUBERCULOUS PLEURISY.

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Introduction. Tuberculous pleurisy is one of the most common forms of extrapulmonary tuberculosis (TB) and is defined as a specific inflammation of the visceral and parietal pleural layers resulting from increased vascular permeability and the accumulation of fluid in the pleural cavity. The pleural effusion in tuberculosis is characterized as a lymphocytic exudate. The diagnosis of TB pleurisy is quite difficult which requires a multidisciplinary approach involving clinical and imaging assessments complemented by laboratory investigations.

Aim of study. The aim of the study is to highlight the clinical and paraclinical features in tuberculous pleurisy.

Methods and materials. The study is based on a review of specialized literature from digital sources like PubMed, Web of Science and Google Scholar database. The selected articles explore the clinical and paraclinical characteristics of tuberculous pleurisy.

Results. Pathogenetically, tuberculous pleurisy represents a combination of pleural infection and a compartmentalized effusive hypersensitivity reaction within the pleural space. Due to the increased immune reactivity in children and young individuals, these groups are more prone to develop excessive pleural effusion. Pleural exudate is characterized by a density ≥ 1016, pleural LDH ≥ 200 IU/L, a pleural/serum LDH ratio ≥ 0.6, a pleural/serum protein ratio ≥ 0.5, and adenosine deaminase (ADA) ≥ 40 IU/L. Interferon-gamma (IFN-γ) is considered a biomarker in the diagnosis of tuberculous pleurisy. Definitive diagnosis requires histological confirmation through the identification of caseating granulomas or microbiological confirmation by detection of Mycobacterium tuberculosis (via Xpert MTB/RIF or culture). Drug resistance is an emerging issue that requires increased attention. Treatment of tuberculous pleurisy is based on antituberculous drug susceptibility and may consist of either standardized or individualized therapy according to established protocols. There is evidence supporting the use of corticosteroids even if the risk of adverse effects persists. Some studies report short and long-term benefits of interventions such as therapeutic thoracentesis and intrapleural fibrinolytic administration, although many questions remain unanswered.

Conclusions. Tuberculous pleurisy is commonly observed in young adults. Accurate diagnosis currently requires a multidisciplinary approach. Diagnostic thoracentesis with comprehensive pleural fluid analysis, including biomarkers such as interferon-gamma (IFN-γ) and adenosine deaminase (ADA), contributes significantly to establishing a precise diagnosis.

Keywords. Tuberculous pleurisy, Pleural effusion, Differential diagnosis, Mycobacterium tuberculosis, Adenosine deaminase.

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191. PARTICULARITIES OF ANGINA PECTORIS IN SMOKERS WITH TYPE II DIABETES MELLITUS: A CASE STUDY OF LAD-THROMBOTIC OCCLUSION

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Introduction. Angina pectoris in smokers have obvious pathophysiology engaging escalated atherosclerosis and plaque instability. Smoking catalyse Hypercoagulability, Systemic inflammation often leading to acute coronary syndrome, which is exacerbated by metabolic disease like Type II DM. This case looks at particularities in a patient who suffered severe Angina with Inferior wall myocardial infarction.

Case presentation. A 54y.o man a known chronic smoker with type II DM for 7 years, Came to hospital with severe chest pain radiating to the left arm, which started 2 hours ago, At the time of investigation vitals were BP-160/90mmHg, HR-86/min, RR-24/min, SpO2-98%,He was Agitated, sweating &conscious, NO pallor/cyanosis was seen. Lab investigations showed: GRBS-330mg/dl, HbA1c-9.3%,CRP-31.2mg/L, platelet-473000/mm3, other parameters were within the range. ECG showed NSR and ST segment elevation of 1mm in Lead II,III and aVF, which was very suggestive of IWMI. Coronary Angiogram revealed single vessel disease with calcific stenosis 70-80% at MID-LAD. The patient was diagnosed with CAD/ACS-IWIF with EF-60%.The patient underwent Thrombolysis by TNKase, further he underwent successful PTCA with 3.5x32mm PROMUS ELITE drug eluting stent.

Discussions. The particularities of Angina in this case shows the coaction of smoking and uncontrolled DM, Primarily the presence of thrombus in MID-LAD, which signify the prothrombotic state urged by smoking. second the calcific stenosis adds on proving vascular damage caused by chronic smoking and uncontrolled DM(HbA1c-9.3% & GRBS- 330mg/dl).Besides that CRP-31.2mg/L(6 times more than normal value) explains the amplified inflammation milieu imposed by smoking on both systemic and vasculature level. This accelerated formation of Hard calcific stenosis & Soft thrombus promoted by smoking explains why the smokers with comorbidity are prone to increased Angina events leading to Acute coronary syndrome.

Conclusions. Angina Pectoris in smoker along with Diabetes Mellitus easily progress to clotting episodes due to increased Atherothrombogenic events induced by smoking and uncontrolled DM, which steadily induce Acute vascular occlusion leading to ACS, though early revascularization stands as a gold standard management, Lifestyle Modification and smoking cessation plays a critical role in Prevention of Angina leading to ACS in smokers.

Keywords. Angina pectoris, smoking , Diabetes Mellitus, Thrombosis, calcific stenosis.

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192. ISCHEMIC STROKE IN A PATIENT WITH MECHANICAL MITRAL VALVE AND SUBTHERAPEUTIC INR: THERAPEUTIC CHALLENGES AND MULTIDISCIPLINARY MANAGEMENT

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Introduction. Mechanical heart valve prostheses are associated with a persistent risk of thromboembolic complications, requiring carefully balanced long-term anticoagulation. Deviations from therapeutic targets may lead to acute cerebrovascular events, creating complex clinical scenarios that necessitate prompt diagnosis and coordinated multidisciplinary management.

Case presentation. On admission, the patient presented with dyspnea, palpitations, and chronic fatigue. ECG showed atrial fibrillation with a ventricular rate of 75 bpm and left bundle branch block. INR was subtherapeutic (1.7). Transthoracic echocardiography revealed a 10-mm mobile mass on the ventricular surface of the mechanical mitral valve. Subsequently, the patient developed acute ischemic stroke with left-sided hemiparesis. Brain CT and CT angiography confirmed thrombotic occlusion of the right middle cerebral artery (M1 segment). Endovascular thrombectomy was successfully performed. Follow-up echocardiography showed disappearance of the mass, confirming the cardioembolic origin of the stroke. Neurological deficits improved progressively, anticoagulation therapy was optimized, and INR reached the therapeutic range (2.52).

Discussions. Patients with mechanical mitral valve prostheses remain at high risk for thromboembolic events, particularly in the presence of atrial fibrillation and subtherapeutic anticoagulation. Vitamin K antagonists are mandatory in this population, as direct oral anticoagulants are contraindicated. Subtherapeutic INR represents the main modifiable risk factor for prosthetic valve thrombosis and cardioembolic stroke. In this case, the identification of a mobile mass on the prosthetic valve and its subsequent disappearance after cerebral embolism strongly support a cardioembolic mechanism. Echocardiography and CT angiography were essential for diagnosis and therapeutic decision-making. Mechanical thrombectomy proved to be an effective reperfusion strategy in acute large-vessel occlusion. Rapid multidisciplinary management and optimization of anticoagulation were crucial for favorable neurological recovery and secondary prevention.

Conclusions. This case highlights the diagnostic and therapeutic challenges of cardioembolic stroke in patients with mechanical mitral valves. Early recognition of embolic sources, rapid access to endovascular thrombectomy, and individualized anticoagulation adjustment (continuous INR monitoring) were key to favorable neurological recovery and secondary prevention.

Keywords. Ischemic stroke, mechanical valve, subtherapeutic INR, thrombectomy.

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193. HUMAN AFRICAN TRYPANOSOMIASIS: ETIOLOGY, CLINICAL FEATURES AND CURRENT THERAPEUTIC APPROACHES

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Introduction. Human African trypanosomiasis (HAT), caused by Trypanosoma brucei gambiense and T. b. rhodesiense, remains a neglected tropical disease in sub-Saharan Africa. Although reported cases have decreased by 98% since 1999, transmission persists in endemic areas. Global travel maintains risk of imported cases, while climate change and animal reservoirs, especially in rhodesiense infection, complicate elimination efforts. WHO updates, including oral fexinidazole, improved treatment strategies.

Aim of study. To analyze HAT from etiological, clinical, diagnostic and therapeutic perspectives, emphasizing differences between gambiense and rhodesiense forms and their relevance for elimination programs.

Methods and materials. This thesis represents a narrative review of scientific literature and institutional reports. Data were collected from PubMed/MEDLINE, WHO, CDC and ECDC sources, as well as peer-reviewed journals in infectious and tropical medicine. Publications from 2010–2026 were prioritized. Sources were selected based on relevance to epidemiology, pathogenesis, clinical manifestations, staging, diagnosis and treatment. A comparative synthesis highlighted epidemiological and clinical differences between the two subspecies.

Results. T. b. gambiense accounts for over 90% of cases and is characterized by chronic evolution with delayed diagnosis, prolonged hemolymphatic stages, polyclonal B-cell activation, hypergammaglobulinemia (mainly IgM) and gradual central nervous system invasion. In contrast, T. b. rhodesiense causes an acute zoonotic disease with higher parasitemia, frequent inoculation chance and faster progression to the meningoencephalitic stage. These differences have implications for diagnosis and treatment. Pathogenesis involves antigenic variation of surface glycoproteins (VSG), immune evasion mechanisms (SRA protein in rhodesiense and TgsGP in gambiense), chronic inflammation, multifactorial anemia and blood–brain barrier disruption. Histopathological findings include lymphoid hyperplasia, Mott cells in lymph nodes and cerebrospinal fluid, interstitial myocarditis and chronic meningoencephalitis. Diagnosis is confirmed by parasite detection in blood, lymph node aspirate, or cerebrospinal fluid, and staging depends on CSF analysis. Oral fexinidazole and NECT reduced the use of toxic drugs such as melarsoprol. Continuous surveillance remains essential.

Conclusions. Despite epidemiological progress, elimination of HAT remains challenging due to ecological factors, zoonotic reservoirs and health system limitations. Therapeutic advances improved treatment safety, but long-term success depends on surveillance, early diagnosis, vector control and clinical awareness.

Keywords. Human African trypanosomiasis, Fexinidazole.

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194. TECHNICAL RADIODIAGNOSTIC ALGORITHM IN COMPUTED TOMOGRAPHY ANGIOGRAPHY SCANNING

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Introduction. Computed Tomography Angiography (CTA) is a modern imaging modality essential for the diagnosis of acute and chronic vascular diseases. The development of multidetector computed tomography (MDCT) systems has enabled the acquisition of high spatial and temporal resolution images within a short scanning time, facilitating the detection of vascular stenosis, occlusions, aneurysms, and dissections. The diagnostic performance of CTA depends directly on optimization of the technical radiodiagnostic algorithm, which includes appropriate selection of scanning parameters, precise synchronization with intravenous contrast administration, and the use of advanced image reconstruction techniques. Standardization of these steps is crucial for improving image quality while reducing radiation exposure.

Case presentation. This retrospective study included 55 patients with suspected or confirmed vascular pathology examined between May and December 2025. Investigations were performed using two MDCT systems (80-slice and 125-slice scanners). The analyzed variables included the type of CTA performed, technical parameters (kVp, mAs, pitch, reconstruction slice thickness), contrast synchronization method (bolus tracking, test bolus), and reconstruction techniques (MPR, MIP, VR). Image quality was assessed using a global score from 1 to 5.

Discussions. Coronary CTA (30.9%) and cerebral CTA (21.8%) were the most frequently performed examinations. Bolus tracking was applied in 81.8% of cases, ensuring optimal arterial enhancement. Image quality was rated good or excellent in 63.6% of examinations. The 125-slice scanner allowed the use of lower mean tube voltage and finer reconstructions compared to the 80-slice system. Pathological findings were confirmed in 89.1% of cases.

Conclusions. Implementation of a standardized technical algorithm in CT angiography significantly improves image quality and diagnostic accuracy. Bolus tracking synchronization and adaptation of technical parameters according to examination type and scanner performance allow an optimal balance between diagnostic efficiency and patient safety.

Keywords. computed tomography angiography, technical algorithm, MDCT, bolus tracking, parameter optimization, vascular disease.

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195. INFECTIVE ENDOCARDITIS CAUSED BY STAPHYLOCOCCUS LUGDUNENSIS IN AN INTRAVENOUS DRUG USER. CLINICAL CASE

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Introduction. Infective endocarditis (IE) is a severe condition associated with high mortality and major systemic complications. Staphylococcus lugdunensis, a rarely implicated pathogen, frequently encountered in intravenous drug users, is associated with an aggressive clinical course characterized by valvular destruction and severe thromboembolic complications.

Case presentation. A 45-year-old man with infective endocarditis caused by Staphylococcus lugdunensis, involving the mitral valve (MV), was admitted to the IMSP "Institute of Cardiology." According to the medical history, the disease onset was characterized by low-grade fever, generalized weakness, chills, night sweats, dyspnea on moderate physical exertion, and myalgias. Comorbidities: recurrent lacunar ischemic stroke in the right middle cerebral artery (MCA) territory and chronic viral hepatitis C. Clinically and paraclinically evaluated by: blood cultures, echocardiography, electrocardiography, clinical and biochemical tests. Objective: pale, diaphoretic skin, in the projection of the femoral vein – drug injection area. Rhythmic heart sounds, HR 103 bpm, a systolic murmur at the mitral area and a diastolic murmur at the aortic area, BP 95/65 mmHg. Results: blood cultures were positive for Staphylococcus lugdunensis. EcoCG revealed mobile MV vegetations (9×8 mm), an aortic valve of 7.4 mm, significant mitral regurgitation, and a left ventricular ejection fraction (LVEF) of 38%. Abdominal USG: moderate hepatomegaly, splenomegaly and an encapsulated splenic abscess. Laboratory tests: Hb 81 g/l, erythrocytes 2.9×10^{12}/l, leukocytes 9.19×10^{9}/l, ESR 42 mm/hour; ALT 53 mmol/l, urea 5.1 mmol/l, creatinine 92 mmol/l, CRP 124.5 U/I. Combined treatment with 2 antimicrobial drugs in maximum doses, antifungals, beta-blokers, diuretics, hepatoprotectors, antiplatelet agents.

Discussions. In intravenous drug users with staphylococcal IE, the tricuspid valve is exclusively affected. In this clinical case, considering the involvement of the mitral and aortic valves, along with the occurrence of systemic emboli (recurrent stroke and splenic embolism), it is possible that the patient was injecting drugs intra-arterially.

Conclusions. Infective endocarditis caused by Staphylococcus lugdunensis is a rare entity with a potentially severe course, which underscores the importance of a holistic evaluation for the early detection of multiorgan involvement, thereby facilitating effective treatment with a favorable prognosis.

Keywords. Infective Endocarditis, Staphylococcus lugdunensis, thromboembolic complications.

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196. PERSISTENT ARTERIAL HYPERTENSION IN AN ADOLESCENT WITH REPAIRED TETRALOGY OF FALLOT: A CASE REPORT

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Introduction. Primary arterial hypertension is increasingly diagnosed in adolescents, mainly due to excess body weight, low levels of physical activity, unhealthy diet and a positive family history. Secondary hypertension is less common, but is particularly important to consider in patients with congenital heart disease after surgery. In adolescents after surgical correction of Tetralogy of Fallot, blood pressure is usually monitored, but the long-term impact of moderate and persistent elevation may still be underestimated.

Case presentation. A 13-year-old boy with complete surgical repair of Tetralogy of Fallot at the age of 3 years is being followed routinely by a pediatric cardiologist and is referred after 6 months of elevated blood pressure up to 145/90 mmHg and intermittent headaches. He is overweight, with body mass index (BMI) 27 kg/m², has a sedentary lifestyle, and both parents have grade 2 arterial hypertension. On examination he is clinically stable, with BP 142/88 mmHg, heart rate 82 beats per minute and a soft systolic murmur over the pulmonic area, without signs of heart failure. Laboratory tests and renal ultrasound with Doppler are normal. Transthoracic echocardiography (TTE) shows an intact ventricular septum, good surgical result, moderate pulmonary regurgitation and mild right ventricular dilation with preserved systolic function. Ambulatory blood pressure monitoring (ABPM) confirms persistent arterial hypertension, with mean arterial pressure (MAP) 105 mmHg, average daytime blood pressure 138/86 mmHg and night-time 124/78 mmHg, with preserved nocturnal dipping pattern. He is managed with lifestyle modification and low-dose angiotensin-converting enzyme (ACE) inhibitor therapy, which reduces average blood pressure to about 130/80 mmHg and improves his symptoms.

Discussions. This case shows that a common combination in adolescents — excess weight, low physical activity and a family history of hypertension — can be sufficient to cause arterial hypertension even in otherwise healthy children, and may have an even stronger effect in a patient with surgically corrected Tetralogy of Fallot. Persistent hypertension on ABPM in a boy who appears clinically well after repair highlights that this group remains vulnerable and requires attention not only to residual structural and rhythm problems, but also to general cardiovascular risk factors.

Conclusions. This case emphasizes that, in adolescents after repair of Tetralogy of Fallot, blood pressure should be systematically assessed at each visit and home blood pressure monitoring should be encouraged within the family. Early recognition of persistent hypertension and timely lifestyle modification, together with appropriate drug therapy, may help reduce long-term cardiovascular risk and improve quality of life in these patients.

Keywords. secondary arterial hypertension; adolescent; repaired Tetralogy of Fallot.

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197. CORRELATION BETWEEN MYCOBACTERIUM TUBERCULOSIS GENOTYPE AND IMMUNOLOGICAL STATUS IN PATIENTS WITH TB-HIV COINFECTION

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Introduction. Although the incidence of tuberculosis (TB) in the Republic of Moldova is decreasing, the proportion of TB-HIV coinfection has increased over the past two decades from 3% to 12%. HIV infection represents a major risk factor for TB progression and mortality. The relationship between the genetic characteristics of Mycobacterium tuberculosis and the host's immunological status remains insufficiently elucidated.

Aim of study. To evaluate the correlation between M. tuberculosis genotype and the level of immunosuppression in patients with TB-HIV coinfection.

Methods and materials. A retrospective descriptive cohort study was conducted on 41 patients with TB-HIV coinfection hospitalized at the Pneumology Institute „Chiril Draganiuc" during 2018-2020. Genotyping of M. tuberculosis strains was performed using the whole genome sequencing method. The level of immunosuppression was assessed by CD4 cell count (cells/µL), and viral replication by HIV viral load (copies/mL). Statistical analysis compared immunological parameters between the identified genotypes.

Results. Among the 41 included patients, 15 (36.3%) were infected with the Beijing genotype and 26 (63.4%) with the Ural genotype. The median CD4 level was lower in patients with the Ural genotype compared to those with the Beijing genotype (159 vs. 203 cells/µL; p=0.7). The median viral load was also lower in the Ural group compared to the Beijing group (461,500 vs. 506,000 copies/mL; p=0.725). The observed differences did not reach statistical significance.

Conclusions. In the analyzed cohort, variations in immunosuppression level and viral load were observed according to the M. tuberculosis genotype, without statistical significance. The small sample size may explain the lack of significant differences. Prospective studies on larger cohorts are needed to clarify the impact of bacterial genotype on immunological evolution in TB-HIV coinfection.

Keywords. Mycobacterium tuberculosis, HIV, TB-HIV coinfection, Genotype.

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198. RISK FACTORS IN RESISTANT ARTERIAL HYPERTENSION

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Introduction. Resistant arterial hypertension (RAH) is a severe form of hypertension defined by persistent elevation of blood pressure despite optimal treatment with at least three antihypertensive drug classes, including a diuretic. RAH is associated with increased cardiovascular morbidity and mortality and represents a major public health concern.

Aim of study. The aim of this study was to evaluate and systematize the main risk factors involved in the development and persistence of RAH.

Methods and Materials. A systematic literature review was conducted using Medline, PubMed, Scopus, and Web of Science databases, including clinical studies, meta-analyses, and international guidelines.

Results. The results highlight obesity, excessive sodium intake, sedentary lifestyle, alcohol consumption, and smoking as major risk factors. Commonly associated comorbidities include diabetes mellitus, chronic kidney disease, obstructive sleep apnea syndrome, and dyslipidemia. Pathophysiological mechanisms involve sympathetic nervous system overactivation, renin–angiotensin–aldosterone system dysregulation, chronic inflammation, and endothelial dysfunction. Poor medication adherence significantly contributes to apparent treatment resistance.

Conclusions. In conclusion, resistant arterial hypertension results from a complex interaction between modifiable and non-modifiable risk factors, and comprehensive management is essential to improve blood pressure control and reduce cardiovascular risk.

Keywords. resistant arterial hypertension, risk factors, obesity, chronic kidney disease.

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199. NEUROPSYCHIATRIC COMORBIDITIES IN MULTIPLE SCLEROSIS

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Introduction. Multiple sclerosis (MS) is a chronic inflammatory, demyelinating, and neurodegenerative disease of the central nervous system, characterized by marked clinical heterogeneity. Beyond motor and sensory disability, MS is frequently associated with neuropsychiatric comorbidities, particularly depression, anxiety, cognitive impairment, and sleep disorders. These conditions significantly influence disease course, treatment adherence and quality of life.

Aim of study. To assess the prevalence and clinical impact of neuropsychiatric comorbidities in multiple sclerosis and critically evaluate current scientific evidence.

Methods and materials. A narrative review of articles published between 2015 and 2025 was conducted using PubMed and Web of Science. A Boolean search combining the keywords ,,multiple sclerosis", ,,depression", ,,anxiety", ,,cognitive impairment", „sleep disorders" and ,,prevalence" identified relevant studies. Meta-analyses and observational studies reporting pooled prevalence and using validated diagnostic or psychometric tools were included. Data were extracted and analyzed using a comparative thematic approach.

Results. Four major comorbidity groups were identified: depression, anxiety, cognitive impairment and sleep disorders. A meta-analysis of over 87,000 patients reported a depression prevalence of 30.5%, affecting approximately one-third of patients, while anxiety was present in 22.1%, with recent estimates reaching 35% (Boeschoten et al., 2017; Peres et al., 2022). Cognitive impairment affects 40–50% of patients, most commonly involving deficits in information processing speed, episodic memory, and executive function (Askari et al., 2024). Sleep disorders are also frequent, with about 20% meeting criteria for insomnia and more than half reporting subjective sleep disturbances (Zeng et al., 2023). These comorbidities are associated with higher neurological disability, fatigue and reduced quality of life.

Conclusions. Neuropsychiatric comorbidities are integral components of MS, with high prevalence and significant clinical impact. Systematic screening and early interdisciplinary management are essential to improve functional and psychosocial outcomes.

Keywords. Multiple sclerosis, neuropsychiatric comorbidity, depression, anxiety, cognitive impairment, sleep disorders.

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200. CLINICAL PARTICULARITIES OF DEMENTIA IN ADULT EPILEPSY

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Introduction. According to the WHO, epilepsy is the most common chronic brain disease, affecting people of all ages. More than 50 million people worldwide suffer from epilepsy, approximately 80% of whom live in low- and middle-income countries. People with epilepsy and their families frequently face stigma and discrimination. In adults, the clinical symptoms of dementia exhibit a fluctuating character and can show significant improvement if seizure control is optimized.

Aim of study. To highlight the clinical particularities of dementia in adult epilepsy.

Methods and materials. The study was based on data from PubMed, ILAE (International League Against Epilepsy), the Epilepsy Foundation (Cognition in Epilepsy), and NINDS (National Institute of Neurological Disorders and Stroke).

Results. The data indicate that patients with dementia in epilepsy achieve significantly lower scores regarding cognitive functions compared to the group without epilepsy. In patients with dementia in epilepsy, cognitive decline manifests through executive function disorders, slowed information processing, and deficits in recall memory, attention, and concentration. Additionally, depressive and anxious affective disorders are associated with these individuals. It was found that patients with temporal lobe epilepsy more frequently present deficits in episodic memory and language, while those with frontal lobe epilepsy exhibit impairments in executive functions and attention.

Conclusions. Monitoring patients and early identification of dementia in epilepsy can slow the progression of cognitive deterioration and improve quality of life through effective seizure control and neurocognitive treatment.

Keywords. epilepsy, dementia, cognitive decline, memory, quality of life.

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201. CLINICAL AND DIAGNOSTIC ASPECTS OF DIFFERENTIATING UNIPOLAR AND BIPOLAR DEPRESSION

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Introduction. Major depressive disorder (unipolar depression) and bipolar disorder commonly present with depressive episodes and represent frequent causes of mental health consultations. Distinguishing unipolar from bipolar depression remains a major clinical challenge, yet diagnostic accuracy is essential due to its impact on treatment and prognosis. Misclassification of bipolar disorder as major depressive disorder may result in inappropriate antidepressant therapy, potentially precipitating (hypo)mania, worsening outcomes, and increasing suicide risk.

Aim of study. To review contemporary evidence (2016–2025) on clinical and diagnostic features differentiating unipolar and bipolar depression.

Methods and materials. A narrative review of peer-reviewed studies indexed in PubMed and other medical databases was conducted. Included publications comprised comparative clinical studies, neuroimaging research, biomarker analyses, and systematic reviews examining differences between major depressive disorder and bipolar disorder during depressive episodes.

Results. Clinical history remains central to differential diagnosis. Bipolar depression is associated with earlier onset, higher recurrence rates, positive family history, atypical features (hypersomnia, hyperphagia, mood reactivity), mixed symptoms, and antidepressant-induced hypomania. Unipolar depression more often presents with persistent low mood, psychomotor changes, and a more predictable episodic course. Cognitive findings indicate greater executive dysfunction, impulsivity, and affective instability in bipolar patients. Neuroimaging data suggest distinct connectivity patterns: bipolar depression is linked to increased frontoparietal connectivity, whereas unipolar depression shows heightened default mode network activity and altered limbic -prefrontal integration.

Conclusions. Despite symptomatic overlap, unipolar and bipolar depression differ in longitudinal course, symptom profile, cognitive characteristics, and neurobiological correlates. Comprehensive assessment - including psychiatric history, evaluation of atypical and mixed features, family history, and, when available, adjunctive biomarkers or neuroimaging - may improve diagnostic precision and reduce misdiagnosis.

Keywords. unipolar depression, bipolar depression, differential diagnosis, major depressive disorder, bipolar disorder.

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202. OOSTEOPOROTIC FRACTURES IN PSORIATIC ARTHRITIS: PATHOGENIC MECHANISMS, RISK FACTORS AND CLINICAL IMPLICATIONS IN A MOLDOVAN COHORT

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Introduction. Psoriatic arthritis (PsA) is a chronic inflammatory disease with osteoimmunological mechanisms promoting both pathological bone formation and bone loss. Persistent inflammation, glucocorticoid exposure, and metabolic comorbidities increase the risk of osteoporosis and fragility fractures. However, osteoporotic fractures in PsA remain insufficiently characterized, especially in Eastern European countries.

Aim of study. To evaluate the prevalence of osteoporotic fractures in patients with psoriatic arthritis and to identify their association with disease activity, inflammatory burden, bone mineral density, and risk factors.

Methods and materials. A cross-sectional observational study included 57 consecutive PsA patients fulfilling CASPAR criteria, evaluated at a tertiary rheumatology center. Patients were divided into those with osteoporotic fractures (n=21) and without fractures (n=36). Clinical assessment comprised disease duration, DAPSA, axial involvement, enthesitis, dactylitis, and glucocorticoid exposure. Bone mineral density was measured by DXA at the lumbar spine and femoral neck, while vertebral fractures were identified radiographically using Genant's method. Statistical analysis included comparative tests, correlation analysis, and multivariate logistic regression, with results expressed as OR and 95% CI; $p<0.05$ was considered significant.

Results. Osteoporotic fractures were identified in 21 patients (36.8%), predominantly vertebral (71.4%), followed by distal radius (19.0%) and hip fractures (9.6%). Patients with fractures were older (58.2 ± 9.4 vs 49.6 ± 10.1 years; p=0.002) and had longer disease duration (11.8 ± 4.6 vs 6.9 ± 3.8 years; $p<0.001$). Mean DAPSA score was higher in Group A compared to Group B (28.6 ± 7.9 vs 19.4 ± 6.8; $p<0.001$). Lumbar spine T-score was lower in fractured patients (-2.6 ± 0.5 vs -1.7 ± 0.6; $p<0.001$). DAPSA correlated negatively with lumbar BMD (r=-0.58, $p<0.001$) and positively with fracture number (r=0.46, p=0.002). In multivariate analysis, high disease activity (DAPSA ≥28) (OR 4.2; 95% CI 1.5-11.8; p=0.006), cumulative glucocorticoid exposure (OR 3.6; 95% CI 1.3-9.9; p=0.01), and axial involvement (OR 2.9; 95% CI 1.1-7.8; p=0.03) emerged as independent predictors of osteoporotic fractures.

Conclusions. Osteoporotic fractures are frequent in psoriatic arthritis and are associated with high inflammatory activity, prolonged disease duration, reduced bone mineral density, and glucocorticoid exposure. These findings highlight the need for systematic bone health assessment and fracture risk stratification in psoriatic arthritis patients, especially in those with high disease activity and axial involvement. Early identification of high-risk patients may improve clinical outcomes through timely preventive and therapeutic interventions.

Keywords. psoriatic arthritis, osteoporotic fractures, inflammation. **https://doi.org/10.66603/medespera2026.733**

203. PREVENTION OF POSTOPERATIVE ACUTE KIDNEY INJURY

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Introduction. Postoperative acute kidney injury (AKI) is a common and severe complication following major surgery that significantly increases morbidity, mortality, and hospital length of stay, while accelerating the progression to chronic kidney disease. A major barrier to preventing postoperative AKI is the delayed diagnosis associated with traditional criteria, such as serum creatinine and urine output, which typically indicate renal failure only after substantial nephron damage has already occurred. Therefore, early detection of renal stress or subclinical injury using sensitive biomarkers represents a critical strategy for prompt intervention and improved patient outcomes.

Aim of study. To evaluate the diagnostic accuracy of both novel and traditional renal biomarkers in the early detection of postoperative AKI, and to assess the clinical impact of biomarker-guided perioperative care on renal outcomes.

Methods and materials. A narrative literature review was conducted. A bibliographic search was performed using academic databases including PubMed, Google Scholar, and Web of Science. Articles published between 2018 and 2025 were selected using combinations of keywords such as “renal biomarkers”, “postoperative AKI”, and “preventive strategies”.

Results. Postoperative AKI is driven by multiple factors, including oxidative stress, inflammation, hypoperfusion, and exposure to nephrotoxic agents. While traditional markers like serum creatinine and eGFR often peak too late in the injury process, newly identified biomarkers, such as NGAL, KIM-1, IL-18, cystatin C, and TIMP-2•IGFBP7, can detect early kidney stress before functional impairment becomes obvious. Utilizing these markers allows clinicians to identify vulnerable patients and implement preventive strategies, such as intensified monitoring, adjusting potentially harmful medications, and optimizing hemodynamics and fluid balance. These early interventions may prevent the progression to severe AKI and long-term renal complications. However, widespread clinical implementation requires further investigation to address challenges related to cost, test timing, and assay standardization.

Conclusions. The application of novel renal biomarkers for the early identification of postoperative AKI is a highly promising development in perioperative nephrology. Compared to conventional diagnostic methods, biomarker-based assessments facilitate the earlier detection of renal stress, enabling immediate and targeted therapeutic interventions. While biomarker-guided strategies hold significant potential to reduce the incidence, severity, and long-term consequences of postoperative AKI, further research remains necessary to establish standardized, cost-effective protocols. Ultimately, integrating these biomarker techniques into multidisciplinary perioperative care pathways has the potential to substantially improve both renal outcomes and overall patient prognosis.

Keywords. Postoperative AKI, renal biomarkers, AKI prophylaxis.

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204. INFECTIVE ENDOCARDITIS WITH NEGATIVE BLOOD CULTURES, DIAGNOSED AFTER AN ISCHEMIC STROKE, CASE STUDY

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Introduction. Infective endocarditis (IE) with negative blood cultures (BC), presents 2,5-70% of all cases of IE, is characterized by an aggressive evolution, delayed diagnosis, associated with a high morbidity and mortality. Neurological complications in patients with IE consist 15-30%, with ischemic stroke being the most common manifestation.

Case presentation. Man, 67 years old, admitted to PSMI „Institute of Cardiology", according to the medical history: fever 39°C, chills, fatigability, night sweats. Onset – 2 months ago, first manifestation being an ischemic stroke with left pyramidal insufficiency, sensory disturbances, pain and paresthesias of the left upper limb. Comorbidities: in the past ischemic stroke, lacunary disease, old myocardial infarction, aorto-coronary bypass, hypertension, heart failure, dyslipidemia. Objective: pale and moist skin, moderate lower limb edema. Rhythmic heart sounds, HR 77 b/min, systolic murmur at the apex and diastolic murmur at the aortic area, BP 145/50 mmHg. Paraclinical evaluation included laboratory tests and instrumental investigations. Results: Multiple blood cultures – negative. Echo: Calcified vegetation 4.0 x 2.0 mm on the AoV, on the right coronary cusp floating vegetation 4.0 x 6.0 mm, Reg AoV III, MV and TV reg II, PV reg. I; EF 50%. Brain CT: suggestive of ischemic stroke – hypodense area in the right frontal lobe. EKG: sinusal tachycardia, HR 98 b/min. First-degree AV block. Laboratory tests: Hb 98 g/l, erythrocytes 3,42 x 1012, leucocytes 11,98 x 109, Hct 0.29, ESR 40 mm/h; iron 5,80 µmol/L, CRP 96 mg/l, GGT 107,8 U/L, rheumatic factor 26,80 U/L, urea 7,5 mmol/l, creatinine 131 mmol/l, D-dimers 1,97 mg/L, troponin 0,19 ng/ml. Treatment according to protocol: combination therapy with three antibiotics, antifungals, beta-blockers, and diuretics.

Discussions. IE with negative BC, due to delayed diagnosis and fragmentation of vegetations, it may be complicated either at onset or during the disease by cerebral embolism, which negatively influences the prognosis of the disease. Early suspicion of the infective endocarditis and the use of key investigations are beneficial in preventing thromboembolic complications with significant impact.

Conclusions. This patient with IE and negative BC, with an aggressive progression, associated with neurological complications, is a clinical challenge, highlighting the difficulties encountered in late diagnosis and delay in early appropriate treatment.

Keywords. infective endocarditis, negative blood cultures, neurological complications.

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205. CARDIAC ARRHYTHMIAS IN PATIENTS WITH CHRONIC OBSTRUCTIVE PULMONARY DISEASE (COPD)

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Introduction. Chronic obstructive pulmonary disease (COPD) is frequently associated with cardiac arrhythmias, particularly atrial fibrillation. Persistent hypoxemia, systemic inflammation, pulmonary hypertension, and autonomic imbalance promote myocardial remodelling and electrical instability. The arrhythmic burden increases with disease severity, highlighting the need for improved risk assessment in COPD patients.

Aim of study. To investigate the mechanisms of arrhythmogenesis in chronic obstructive pulmonary disease (COPD) and to evaluate the association between disease severity, hypoxemia, pulmonary hypertension, myocardial remodelling, and the risk of atrial fibrillation and other cardiac arrhythmias.

Methods and materials. The results were collected by conducting a literature and clinical review of articles, clinical observations and data, and meta-analyses published from 2013 to 2024. Clinical databases like PubMed, GOLD COPD Document 2023, and medRxiv were incorporated into the research process. The mentioned articles were then chosen and reviewed.

Results. In chronic obstructive pulmonary disease (COPD), oxidative stress, systemic inflammation, autonomic instability, pulmonary vascular remodelling, and persistent hypoxemia interact intricately to cause arrhythmogenesis. Chronic hypoxia and pulmonary hypertension create a foundation for atrial and ventricular arrhythmias by encouraging right atrial and ventricular pressure overload, myocardial strain, and structural remodelling. By modifying ion-channel activity and atrial conduction characteristics, endothelial dysfunction and systemic inflammatory mediators also contribute to electrical instability. In addition to facilitating triggered activity and re-entry mechanisms, autonomic dysregulation is characterised by increased sympathetic activity and decreased parasympathetic tone. Atrial fibrillation (AF) represents one of the most clinically significant arrhythmias in COPD and is more frequent in advanced disease stages. Electrocardiographic abnormalities such as altered P-wave indices (including changes in duration and dispersion) and PR interval abnormalities reflect atrial remodelling and conduction delay, while elevated NT-proBNP levels may indicate myocardial strain and increased AF risk. Overall, the arrhythmic burden in COPD correlates with disease severity, hypoxemic burden, and the presence of pulmonary hypertension, rather than representing an isolated electrophysiological disorder.

Conclusions. The link between COPD and arrhythmia requires clinical vigilance, especially during exacerbations. Atrial fibrillation was found to be the most common arrhythmia. Optimal management includes arrhythmia screening, avoidance of pro-arrhythmic drugs in high-risk patients and follow-up.

Keywords. COPD, Arrhythmias, Atrial fibrillation, Hypoxemia, Autonomic dysfunction, Myocardial remodeling, Oxidative stress, Systemic inflammation, P-wave indices, NT-proBNP.

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206. PARTICULARITIES OF ISCHEMIC HEART DISEASE IN DIALYSIS PATIENTS

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Introduction. Ischemic heart disease is frequently associated with chronic kidney disease, a major cardiovascular risk factor. Among dialysis patients, its prevalence ranges from 40–60%, while non-ST-elevation myocardial infarction (NSTEMI) accounts for up to 80% of acute coronary syndromes in this population.

Case presentation. A 68-year-old patient with ischemic heart disease, lower limb atherosclerosis, and chronic diffuse secondary glomerulonephritis (post-endocarditis), complicated by stage V chronic kidney disease (KDOQI), presented with exertional dyspnea, fatigue, and uncontrolled hypertension. Laboratory tests showed dyslipidemia, anemia and elevated troponin (0.86 ng/mL; reference 0–0.10 ng/mL). Echocardiography revealed left ventricular hypertrophy, ejection fraction 45%, grade III aortic, mitral and tricuspid regurgitation and hypokinesia of the inferior left ventricular wall. The Agatston calcium score was 559. Coronary angiography demonstrated triple-vessel disease, with severe stenosis of the LAD and RCA and moderate stenosis of the circumflex artery. PCI was performed with implantation of two drug-eluting stents in the LAD (June 18, 2025) and two in the RCA (July 30, 2025), followed by dialysis. Medical therapy included beta-blockers, angiotensin receptor blockers, calcium channel blockers, centrally acting antihypertensives, nitrates, dual antiplatelet therapy, and statins.

Discussions. Accelerated atherosclerosis in dialysis patients results from chronic inflammation associated with calcification of the intima and media of blood vessels. Silent or atypical symptoms create diagnostic challenges, requiring an individualized, multidisciplinary approach. Angina is rare and may be difficult to differentiate from chest pain caused by hypotension, hypovolemia, uremic pericarditis or cardiomyopathy, valvular disease, anemia, or hypertensive crises. Troponin is often chronically elevated; acute coronary syndrome is suspected with a ≥20% rise from baseline or a dynamic increase in hs-cTnI. ECG may show left ventricular hypertrophy and hyperkalemia- related changes. Echocardiography should be performed post-dialysis in a euvolemic state, focusing on regional wall motion abnormalities. Coronary angiography should be decided within a Heart Team, considering the increased risks of bleeding and intrastent restenosis.

Conclusions. Ischemic heart disease in dialysis patients progresses aggressively and poses significant diagnostic and therapeutic challenges. A multidisciplinary, individualized Heart Team approach—integrating clinical evaluation, biomarkers, imaging, and angiographic data is essential for optimal management and improved prognosis in these patients.

Keywords. ischemic heart disease, hemodialysis, atherosclerosis.

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207. SYSTEMIC MANIFESTATIONS OF CMV INFECTION IN AN HIV-POSITIVE PATIENT WITH SEVERE IMMUNOSUPPRESSION

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Introduction. Cytomegalovirus (CMV) infection, usually asymptomatic in immunocompetent individuals, becomes clinically significant in acquired immunosuppression, especially in HIV-positive patients in advanced disease stages (AIDS). In these cases, CMV may cause severe multi-organ involvement with high risk of fatal complications despite specific therapy. Aim of the Study: To present the clinical and paraclinical evolution and therapeutic response in a patient with HIV/AIDS, stage C3, diagnosed late, who developed a severe generalized form of Cytomegalovirus infection. Material and Methods: We analyzed the case of a 51-year-old patient recently diagnosed with HIV infection in stage C3 (CD4 = 35 cells/µL), who presented with symptoms suggestive of severe systemic infection. Investigations included detailed clinical examination, laboratory tests (complete blood count, biochemical markers, CMV PCR in blood and cerebrospinal fluid), as well as imaging studies (abdominal ultrasound, chest X-ray). Treatment included ART, antivirals, antibiotics and antifungals according to protocols.

Case presentation. The patient presented with severe symptoms: marked asthenia, fever, anorexia, dry cough, abdominal and lumbar pain, and significant weight loss (~30 kg). Clinical examination revealed behavioral disturbances, facial asymmetry, nuchal rigidity, and hepatosplenomegaly. Paraclinical tests showed high HIV viral load (HIV RNA = 10 million copies/mL), profound immunosuppression (CD4 = 35 cells/µL), and a positive CMV PCR result in both blood and CSF. Although antiviral treatment was initiated (initially Valacyclovir, followed by intravenous Ganciclovir), it was discontinued due to the development of acute renal failure. The clinical course was unfavorable, and the patient died due to cerebral edema and multiorgan failure.

Discussions. This case shows how late HIV diagnosis and severe immunosuppression allow CMV to become rapidly fatal. Despite timely treatment, organ failure and limited antiviral options led to a poor outcome, highlighting the need for early testing and intervention.

Conclusions. Cytomegalovirus infection represents a severe opportunistic complication in advanced stages of HIV/AIDS, with high lethal potential. The presented case highlights the importance of early diagnosis, prompt initiation of specific treatment, and careful monitoring of adverse reactions. It also underscores the increased vulnerability of immunocompromised patients, even when appropriate and timely therapeutic intervention is provided.

Keywords. HIV/AIDS, Cytomegalovirus, immunosuppression, multi-organ involvement, ART, severe prognosis.

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208. RISK FACTORS IN RHEUMATOID ARTHRITIS

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Introduction. Rheumatoid arthritis (RA) is a systemic autoimmune disease of multifactorial etiology. Along with genetic susceptibility, modifiable exposures (smoking, excess weight), chronic inflammatory and infectious foci, hormonal factors, and psychosocial stress may be associated with disease onset. Local descriptive data can help outline patient profiles and highlight potentially preventable exposures.

Aim of study. To describe demographic characteristics and the distribution of reported risk factors prior to RA onset in a group of patients with RA.

Methods and materials. A descriptive observational study included 54 patients diagnosed with RA. Data were collected using a structured questionnaire covering sociodemographic variables, weight and height prior to RA onset (for BMI calculation), family history, behavioral and environmental exposures, psychosocial factors, reproductive history (in women), and chronic foci of infection/comorbidities. Descriptive statistical analysis was performed using means ± standard deviation and absolute and relative frequencies.

Results. The cohort included 37 women (68.5%) and 17 men (31.5%), with a female-to-male ratio of 2.2:1; the mean age was 54.5 ± 14.9 years (20–80). The mean age at RA onset was 43.6 ± 14.9 years (7–66). Mean BMI prior to RA onset was 26.5 ± 4.9 kg/m². According to BMI categories prior to disease onset, 38.9% were classified as normal weight, 35.2% as overweight, and 24.1% as having class I–II obesity. A family history of RA was reported by 51.9%, most frequently affecting first-degree relatives (60.7%). Smoking prior to onset was reported by 27.8% overall, more frequently in men (58.8%) than women (13.5%); mean smoking exposure was 37.2 ± 49.0 pack-years. Chronic tonsillitis and chronic periodontal disease were each reported by 53.7%. Chronic stress (46.3%) and intense stress in the year before onset (50.0%) were reported frequently, predominantly by women. Occupational exposures included toxic environments (44.4%) and cold exposure (61.1%). Among women, menopause occurred before RA onset in 56.8%.

Conclusions. In this sample, the most frequently reported pre-onset factors were familial aggregation of RA and chronic foci of infection (tonsillitis/periodontal disease), with notable sex differences: smoking and occupational exposures were more common in men, while psychosocial stress and hormonal factors were reported more often in women. The findings support focusing prevention efforts on modifiable exposures and monitoring individuals with a positive family history to facilitate earlier recognition.

Keywords: rheumatoid arthritis, risk factors.

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209. NON-HODGKIN LYMPHOMAS: UPDATED INSIGHTS INTO EVOLUTION AND COMPLICATIONS

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Introduction. Non-Hodgkin lymphomas (NHL) are tumors of the lymphoid tissue, which account for 4% of all cancers, comprise different histopathological subtypes with various epidemiological, clinical, immunophenotypic, genetic patterns, and response to therapy.

Aim of study. The identification of current evolution features and the evaluation of common complications, which may influence the disease management.

Methods and materials. We performed a descriptive cohort study and a narrative review of the literature. Our study enrolled 40 patients with NHL treated and followed up in the Institute of Oncology from Moldova between 2020-2024. The diagnosis was confirmed by immunohistochemical investigations of the biopsy specimens. Staging was performed according to the Lugano Staging Classification. A bibliographic study was realized by the usage of such databases as SpringerLink, NIH-National Library of Medicine, PubMed, Hinari, and Medscape. The reference list comprised 20 relevant sources esteemed to be representative of the recently published literature on the subject.

Results. Most of the enrolled patients (18/45.0%) were diagnosed with stage IV disease. The predominance of diffuse large B-cell lymphoma types (36 cases-90.0%) was revealed. According to the international references, the complications of NHL can be distinguished into disease-related and treatment-related events. Common complications include hematologic abnormalities (up to 72% of NHL totality), infections (50-79%), as well as neurological issues (11-13%) and tumor lysis syndrome. Gastric bleeding is the common complication of gastric NHL with a reported incidence of 7–19% in the published studies. Gastric outlet obstruction emerged in 3–11% of patients. Perforation is a life-threatening complication of gastro-intestinal NHL with an incidence of 2–9% and a high morbidity and mortality rate. Nearly 25% of NHL patients receiving rituximab-containing chemotherapy gradually developed respiratory complications. In patients receiving autologous stem cell transplant, respiratory complications were found to be a major source of morbidity and mortality (33% and 65% of rates for infectious and non-infectious complications, correspondingly). In our study, the decrease of hemoglobin and erythrocytes number was observed in 5 (12.5%) cases of posthemorrhagic anemia due to gastric involvement. No gastro-intestinal perforation or obstruction was recorded. Cytostatic neutropenia was observed in 27 (67.5%) cases and did not interfere with the treatment schedule. Post-chemotherapy peripheral neuropathy occurred in 22 (55.0%) patients.

Conclusions. Disease-related complications and treatment-related events commonly occur in patients with generalized stage NHL and comorbidities that require early diagnosis and supportive therapy.

Keywords. Non-Hodgkin lymphomas, stage, disease-related complications, treatment-related events.

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210. CLINICAL-THERAPEUTIC ASPECTS IN GENDER INCONGRUENCE

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Introduction. The research investigated the clinical evolution of 8 patients diagnosed with gender incongruence according to ICD-11 criteria. Although the small sample size limits statistical generalizability, the observational data are consistent with the major scientific literature and provide valuable insights into individual therapeutic response.

Aim of study. To assess the impact of gender-affirming treatment on psychological status (depression, anxiety, suicide risk) and psychosocial functioning. To identify biological, psychological, and social factors associated with overall satisfaction and quality of life post-treatment. To substantiate the need for an integrated approach per WPATH standards by analyzing therapeutic response and predictive factors.

Methods and materials. The obtained results were compared with data from major meta-analyses (Cornell University, 2018; Bränström & Pachankis, 2020).

Results. The analysis revealed that 75% of participants (n=6) reported significant improvement in psychological status following the initiation of gender-affirming treatment, manifested by a reduction in depressive and anxious symptoms, increased psychosocial functionality, and diminished suicide risk. These results are consistent with recent meta-analyses (Cornell University, 2018; Bränström & Pachankis, 2020) demonstrating consistent mental health improvements post-transition. Of the subset of 50% of patients (n=4) who underwent surgical interventions, all reported complete resolution of specific dysphoric symptoms, a finding consistent with studies indicating surgical satisfaction rates of 85-95% and major improvements in perceived body congruence.Overall life satisfaction significantly increased in 70% of participants (n=6), integrating biological factors (effects of hormonal therapy on secondary sexual characteristics), psychological factors (reduction of cognitive dissonance, improved body image), and social factors (increased acceptance, reduced stigmatization). Major longitudinal studies confirm that life satisfaction reaches levels similar to the general population within 2-5 years in supportive social contexts. However, 25% of patients (n=2) did not achieve this level of benefit, highlighting the heterogeneity of the transgender population and the importance of predictive factors such as untreated psychiatric comorbidities, inadequate social support, and unrealistic expectations.

Conclusions. The results confirm the need for an integrated biopsychosocial approach in accordance with WPATH standards, including differential clinical evaluation, personalized hormonal therapy with long-term monitoring, rigorous selection for surgical interventions, and facilitation of social transition.

Keywords. Gender incongruence, transgender persons, mental health, ICD-11, social transition.

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211. PARTICULARITIES OF MENTAL DISORDERS IN PATIENTS WITH EPILEPSY.

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Introduction. Epilepsy is a chronic disease frequently accompanied by a complex spectrum of psychiatric disorders that profoundly affect patients' quality of life and social functioning. These disorders, ranging from affective syndromes to persistent alterations of personality and cognition, represent an integral and significant component of the clinical picture of epilepsy.

Aim of study. Study of the clinical characteristics of psychiatric disorders in patients with epilepsy.

Methods and materials. A retrospective study was conducted based on the analysis of 40 medical records of patients with epilepsy who were hospitalized at the IMSP Clinical Psychiatric Hospital in Chisinau. The data were obtained from the hospital archive. The main method used was the descriptive statistical analysis of clinical data.

Results. In the studied group, men predominated (25 cases, 62.5%) compared to women (15 cases, 37.5%). The vast majority of patients (95.0%) experienced seizures accompanied by impaired consciousness and amnesia. Affective disorders were extremely frequent: depressive symptoms were reported in 92.5% of subjects, while anxiety states were present in 82.5%. Cognitive problems, such as memory and concentration disturbances, were identified in 87.5% and 92.5% of patients, respectively. From an etiological perspective, a clear association between the onset or worsening of the condition and a history of traumatic brain injury (TBI) was identified in more than half of the cases (23 patients, 57.5%). This cluster of severe psychiatric pathology is reflected in a significant social impact: 57.5% of patients (23 individuals) are outside the professional workforce, indicating a critical level of maladaptation and disability. The most frequently diagnosed psychopathological syndromes were the cerebrastenic syndrome (32.6%) and the psychopathic-like syndrome (25.6%).

Conclusions. Psychiatric disorders in hospitalized patients with epilepsy are characterized by: 1) a very high prevalence of affective symptomatology (depressive and anxious); 2) cognitive deficits; and 3) a severe degree of social and professional maladaptation. These features emphasize the need for a comprehensive therapeutic approach that takes into account not only seizure control but also the active management of concomitant psychiatric disorders in order to improve prognosis.

Keywords. Epilepsy, psychiatric disorders, depression, cognitive disorders, social maladaptation.

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212. REHABILITATION OF THE PSYCHIATRIC PATIENT AS A CONTINUOUS PROCESS: FROM HOSPITALIZATION TO PSYCHOSOCIAL REINTEGRATION

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Introduction. Psychiatric rehabilitation represents a complex and continuous process, constituting an essential stage in clinical stabilization. Rehabilitation is necessary at all levels of care, including highly specialized and community-based services, requiring interdisciplinary collaboration. It addresses difficulties related to social adaptation, stigma, and the risk of relapse. In the current context of mental health care, the focus is no longer placed exclusively on the pharmacological treatment of symptoms, but rather on the patient's recovery and reintegration into society.

Aim of study. This paper aims to analyze the rehabilitation of the psychiatric patient as a continuous process, initiated during hospitalization and extended toward psychosocial reintegration, highlighting the importance of a multidisciplinary approach and continuity of care in inpatient psychiatric practice.

Methods and materials. A descriptive observational study was conducted, based on the clinical analysis of ??? patients hospitalized in the psychiatric inpatient unit of the IMSP Clinical Psychiatric Hospital with diagnoses of severe mental disorders. The assessment was carried out through psychiatric clinical observation, clinical interviews, and review of medical records, focusing on rehabilitation interventions initiated during hospitalization, as well as on the factors influencing the process of psychosocial reintegration.

Results. Clinical observations have shown that the early initiation of rehabilitation measures, correlated with the involvement of the multidisciplinary team (psychiatrist, psychologist, psychotherapist, community mental health centers, social worker) and the patient's family, improves overall patient functioning and reduces the risk of rehospitalization. The lack of continuity of care after discharge and limited access to community-based services have proven to be significant vulnerability factors in the rehabilitation process.

Conclusions. Psychiatric rehabilitation should be regarded as a continuous and flexible process that begins during hospitalization and continues after discharge, within the community setting. The integration of rehabilitation measures into the daily practice of inpatient units and community mental health centers, as well as ensuring continuity of care, play a crucial role in the patient's favorable course and in supporting psychosocial reintegration.

Keywords. psychiatric rehabilitation, hospitalization, psychosocial reintegration, continuity of care, psychiatric inpatient unit.

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213. EYE MOVEMENT DESENSITIZATION AND REPROCESSING (EMDR) AN EFFECTIVE METHOD IN THE TREATMENT OF CHRONIC PAIN, ANXIETY AND DEPRESSION

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Introduction. Chronic pain, anxiety and depression are known to be burdensome clinical conditions, as they are challenging to manage and treat. Eye Movement Desensitization and Reprocessing has gained increasing interest as a potential adjunctive therapeutic method to standard treatment for these conditions.

Aim of study. Assessing the efficacy of EMDR therapy in the treatment of chronic pain, anxiety, and depression.

Methods and materials. A bibliographic review of relevant scientific publications between 2012 and 2025 was conducted using PubMed, NCBI, Cochrane Library and ScienceDirect databases.

Results. A series of systematic reviews and meta-analyses indicate that EMDR is associated with a reduction in symptom intensity in patients with chronic pain. Beneficial effects were also observed in anxiety disorders, with a persistent decrease in specific manifestations and fear-related responses. Furthermore, improvements in depressive symptoms were reported, including a reduction in negative cognitions and improved mood, especially in patients with a history of psychological trauma. Several studies reported improvements at follow-up.

Conclusions. The combined use of EMDR and standard treatment appears to improve the patients' cognitive and affective functions. No major adverse effects were reported, indicating a good tolerability of the intervention.

Keywords. EMDR, chronic pain, anxiety, depression, psychotherapy.

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214. TREATMENT OF ANEMIA IN PATIENTS WITH CHRONIC KIDNEY DISEASE

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Introduction. Anemia is a frequent and serious complication of chronic kidney disease (CKD) that emerges in the early stages and worsens as the estimated glomerular filtration rate declines. The pathophysiology of CKD-associated anemia is complex and multifactorial, primarily driven by erythropoietin deficiency and resistance, alongside an intensified inflammatory process.

Aim of study. To evaluate the assessment and management of anemia in patients diagnosed with chronic kidney disease.

Methods and materials. A retrospective clinical study was conducted to analyze the etiology, clinical course, and treatment outcomes of patients with anemia in the context of CKD. The study cohort was identified using the electronic database of the Timofei Moșneaga Republican Clinical Hospital, utilizing ICD-10 codes D50.0-D53.9 and D63.1.

Results. The primary hospital-based management for anemia utilized injectable Recormon (2000 IU/3 ml). Out of 34 patients in the study group, 27 (79.4%) received this therapy. The remaining patients were treated with oral iron supplements, such as Sorbifer 320 mg twice daily, and continued this therapy at home. Recormon was contraindicated in some patients due to specific comorbidities or poor individual tolerance associated with its wide spectrum of adverse reactions. Based on complete blood count indicators, hemoglobin (Hb) levels demonstrated a positive dynamic and consistently increased until discharge. At admission, 69% of patients had Hb levels below 120 g/L; by discharge, this proportion had decreased to only 31%.

Conclusions. A stepwise approach to managing anemia in patients with chronic kidney disease is both feasible and highly beneficial. However, there remains a significant discrepancy between current clinical practices and national guidelines regarding the diagnosis and investigation of anemia.

Keywords. anemia, CKD, management.

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215. RELIABILITY AND RISKS OF USING ARTIFICIAL INTELLIGENCE IN SELF DIAGNOSIS OF MENTAL DISORDERS

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Introduction. Artificial intelligence (AI) is actively entering many professions, including medicine. Various chatbots are also available to ordinary people. Recently, there has been an increase in self-diagnosis and self-treatment using AI, which is causing concern among the scientific community. The aim of the study is to identify the risks and benefits of using chatbots in the diagnosis of mental disorders, as well as to develop recommendations for the use of AI for patients of psychiatric clinics.

Aim of study. To investigate the safety and effectiveness of AI in the context of mental illness diagnosis, especially AI's ability to make a clear diagnosis or perform initial screening.

Methods and materials. Review of scientific literature and articles from scientific databases (PubMed, NCBI, ScienceDirect, Google Scholar), study and testing using standard cases of universal chatbots (ChatGPT, Google Gemini, Deepseek) and specialized medical chatbots (Wysa, Woebot). Answers were analyzed using comparative content analysis based on ICD-11 protocols. Safety and risks were determined by the presence of chatbots recommendations to seek professional help.

Results. Analysis of the literature revealed high public interest in AI for mental health, but evidence quality was inconsistent. Six clinical cases (schizophrenia, depression, attention deficit and hyperactivity disorder, borderline personality disorder, post-traumatic stress disorder, bulimia) were used to test chatbots. The evaluation of the responses of five chatbots to six clinical cases showed heterogeneous performance. One chatbot provided fully correct answers to all clinical cases (100% accuracy), two chatbots correctly answered 4 out of 6 cases (66,7% accuracy), while two chatbots failed to provide correct answers to any of the clinical cases (0% accuracy). The overall accuracy across all chatbots was 40%. With regard to clinical safety, four chatbots recommended consulting a healthcare specialist (80%). In contrast, one chatbot did not advise professional help and instead suggested self-directed practice, which raises concern regarding the clinical safety and reliability of such recommendations.

Conclusions. Despite the availability of chatbots, their use in the field of self-diagnosis of mental illness should currently be strictly limited and permitted only with the supervision of specialists. AI cannot replace professional help, and the role it can currently perform is that of support. Further research and testing are needed before AI can be fully implemented in psychiatry.

Keywords. artificial intelligence, chatbot, mental illness.

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216. THE ROLE OF MODERN DIETS IN THE PREVENTION OF CHRONIC NON-COMMUNICABLE DISEASES – A LITERATURE REVIEW

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Introduction. Chronic non-communicable diseases (NCDs) represent the leading cause of mortality worldwide, accounting for approximately 75% of total deaths globally and nearly 88% in the Republic of Moldova. Among modifiable risk factors, nutrition plays a central role, directly influencing both the incidence and progression of these pathologies.

Aim of study. The aim of this paper is to analyze and synthesize data from the current scientific literature regarding the role of modern dietary patterns in the prevention and management of chronic non-communicable diseases.

Methods and materials. A narrative literature review was conducted, covering publications from 2016 to 2026, using international databases such as PubMed, Google Scholar, and ScienceDirect. Original articles, meta-analyses, observational studies, and relevant clinical guidelines addressing the relationship between modern dietary patterns and NCD risk factors were included.

Results. The literature review indicates that modern dietary patterns have a significant impact on cardiometabolic health. The Mediterranean diet demonstrates the strongest scientific evidence, being associated with a 30% reduction in major cardiovascular events and up to a 52% lower risk of type 2 diabetes, mainly due to its anti-inflammatory and antioxidant effects. The DASH diet is highly effective in the management of hypertension, achieving blood pressure reductions of up to 11.2/7.5 mmHg, primarily through sodium restriction and increased intake of potassium and fiber. Plant-based diets (vegetarian and vegan) are consistently associated with lower body mass index and improved insulin sensitivity, offering protection against metabolic syndrome. The ketogenic diet provides rapid glycemic improvement in patients with type 2 diabetes by inducing nutritional ketosis, although long-term adherence requires careful monitoring due to potential lipid abnormalities. Overall, evidence suggests that personalized nutrition may enhance the effectiveness of these dietary approaches by adapting recommendations to individual metabolic profiles.

Conclusions. Evidence-based nutrition represents the most effective preventive strategy against NCDs. Modern dietary models, including the Mediterranean diet, DASH diet, plant-based diets, and the ketogenic diet, provide clear clinical benefits by significantly reducing the risk of myocardial infarction, stroke, and type 2 diabetes through the regulation of inflammation and oxidative stress. Promoting these diets, individually tailored and supported by nutritional education, constitutes an essential strategy for reducing the burden of NCDs.

Keywords. chronic non-communicable diseases, mediterranean diet, DASH diet, plant-based diet, ketogenic diet, cardiovascular risk, metabolic syndrome, personalized nutrition, prevention.

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217. CLINICAL ASPECTS OF PEDIATRIC TUBERCULOSIS

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Introduction. Pediatric tuberculosis (TB) presents a wide spectrum of clinical and paraclinical manifestations, reflecting the host response to primary infection with Mycobacterium tuberculosis. Susceptibility to TB infection varies across different age groups. Confirmation of TB in children remains challenging due to several factors, including age-related characteristics, the higher frequency of extrapulmonary forms, difficulties in obtaining microbiological specimens, and the absence of pathognomonic symptoms. The presence of risk factors for TB and suggestive clinical manifestations represent key elements in establishing the diagnosis in pediatric patients

Aim of study. To analyze the clinical manifestations in children with suspected TB in order to improve the safety and accuracy of the diagnostic process.

Methods and materials. A retrospective, selective study was conducted by analyzing 453 children diagnosed with TB between 2022 and 2024 and hospitalized for treatment at the Municipal Clinical Hospital of Phthisiopneumology Chișinău. Confirmed pediatric TB cases were evaluated based on completed questionnaires developed in accordance with the study aim and objectives.

Results. Age distribution analysis showed a predominance of adolescents aged 13–18 years, accounting for 195 (43%) cases, followed by children aged 0–5 years with 104 (23%) cases, 10–12 years with 86 (19%) cases, and 6–9 years with 68 (15%) cases. The most common clinical form was intrathoracic lymph node TB, diagnosed in 236 (52%) cases, followed by primary tuberculous complex in 126 (28%), infiltrative pulmonary TB in 82 (18%), and other forms in 9 (2%) cases. Case detection through presentation with clinical signs suggestive of TB occurred in 154 (34%) children, while active case finding accounted for 299 (66%) cases. A history of contact with a TB patient was documented in 371 (82%) cases, and social risk factors were identified in 281 (62%) children. Comorbidities were present in 249 (55%) cases. Treatment for drug-susceptible TB was administered in 381 (84%) children, whereas 72 (16%) received treatment for drug-resistant TB. Most cases were classified as “new cases” (426; 94%). Extensive disease was recorded in 117 (26%) children, and pulmonary destruction was present in 109 (24%) cases. Treatment success was achieved in 419 (96%) cases.

Conclusions. Children with known TB contact represent a high-risk group, particularly in the presence of adverse social conditions and comorbidities. Increased clinical vigilance is required for adolescents and young children. Hilar and intrathoracic lymph node involvement was the most common presentation, while approximately one quarter of cases showed pulmonary destruction. Children tolerated anti-tuberculosis treatment well, with a high rate of therapeutic success.

Keywords. tuberculosis, children, clinical manifestations. **https://doi.org/10.66603/medespera2026.748**

218. GRANULOMATOSIS WITH POLYANGIITIS - CURRENT CHALLENGES IN DIAGNOSIS AND MANAGEMENT

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Introduction. Granulomatosis with polyangiitis (GPA) is a necrotizing ANCA-associated vasculitis predominantly affecting small and medium vessels. The disease exhibits marked clinical heterogeneity, commonly involving the kidneys, lungs, and upper airways.

Aim of study. To synthesize current evidence on the diagnosis and management of GPA, with a focus on severe forms and modern steroid-sparing strategies.

Methods and materials. A literature review was conducted, including international guidelines (EULAR 2022, BSR 2023, KDIGO 2024) for ANCA-associated vasculitis and recent clinical studies on the diagnosis, treatment, and prognosis of GPA patients.

Results. Diagnosis of GPA is based on clinical assessment, ANCA testing (PR3/MPO), and histological confirmation via biopsy of affected tissue, most commonly renal or pulmonary. In organ- or life-threatening cases, remission induction involves systemic glucocorticoids combined with rituximab or cyclophosphamide. Rituximab is increasingly used for both induction and maintenance, particularly in relapsing forms, alongside low-dose glucocorticoids (steroid-sparing), in line with British Society for Rheumatology recommendations. Avacopan, a C5a receptor antagonist, offers a novel steroid-sparing approach, reducing glucocorticoid exposure and toxicity without compromising efficacy. Maintenance therapy typically includes rituximab, azathioprine, or methotrexate for 18–24 months, with possible extension to 36–48 months in high-risk patients. Plasmapheresis may be selectively used in rapidly progressive glomerulonephritis. Continuous monitoring of renal function and histopathological evaluation is essential to tailor therapy and prevent progression to chronic kidney disease.

Conclusions. GPA requires a multidisciplinary and individualized approach. Integration of targeted therapies, such as rituximab and avacopan, allows reduction of glucocorticoid-related toxicity while maintaining disease control. Despite therapeutic advances, the risk of relapse and infectious complications necessitate long-term monitoring.

Keywords. Granulomatosis with polyangiitis; rituximab; avacopan; glucocorticoids; renal involvement.

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219. STRESS AND HEART HEALTH

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Introduction. Psychological stress is an independent risk factor for cardiovascular disease, along with hypertension, dyslipidemia, and diabetes mellitus. The mechanisms involved include activation of the sympathetic nervous system, release of adrenaline, excessive cortisol release, and endothelial dysfunction. By activating the hypothalamic-pituitary-adrenal axis and stimulating the sympathetic nervous system, stress causes hemodynamic, metabolic, and inflammatory changes that contribute to the onset and progression of coronary heart disease, hypertension, and CHF.

Aim of study. Evaluation of the relationship between perceived stress level and cardiovascular parameters (BP, FCC, heart rate variability) to analyze the effects of stress reduction strategies on heart health.

Methods and materials. A systematic review of the literature was performed using the Medline, PubMed, Scopus and Web of Science databases to identify relevant articles referring to "stress", "coronary artery disease" and "dyslipidemia".

Results. The obtained results confirm that chronic stress causes persistent sympathetic hyperactivity, endothelial dysfunction and systemic inflammation, mechanisms that favour the occurrence of HTN and coronary heart disease. New therapeutic options in stress reduction through psychological techniques as well as physical activity, can remediate cardiovascular function.

Conclusions. Non-pharmacological stress reduction interventions can improve hemodynamic parameters and cardiac autonomic balance. Integrating psychological screening into cardiovascular risk assessment may help prevent major cardiac events.

Keywords. stress, coronary artery disease, dyslipidemia, HTA.

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220. PNEUMONIA AND THE CLINICAL PROTOCOL

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Introduction. Community-acquired pneumonia (CAP) is one of the most frequent causes of hospitalization among all lower respiratory tract diseases. Correct diagnosis, examination, and proper treatment management according to the National Clinical Protocol (NCP) still represent a challenge for clinicians.

Aim of study. Evaluation of adherence to the National Clinical Protocol regarding the hospitalization, examination, diagnosis, and treatment criteria for community-acquired pneumonia at the hospital stage.

Methods and materials. The study is a retrospective, descriptive analysis of data from 40 patient records hospitalized in the Pneumology Department of SCM "Sfânta Treime" in 2024. The analyzed data included admission criteria, investigation plans, and empirical antibiotic therapy criteria. The data were processed using SPSS software, version 23.

Results. The average age of the patients was 65 ± 1.5 years, with an equal gender distribution of 50/50%. The hospitalization and examination criteria set by the NCP were met in 100% of cases. Most patients presented with moderate-severity CAP (75%). The etiological agent was identified in 57.5% of cases, most frequently - Str.Viridans, Klebsiella pneumoniae, E. coli, and Group B beta-hemolytic Streptococcus. The most common antibiotic regimens were second/third-generation cephalosporins + macrolides or respiratory fluoroquinolones. The duration of antibiotic therapy was 10.6 days (moderate) and 17 days (severe).

Conclusions. Currently, maximum adherence to the NCP recommendations regarding hospitalization and examination criteria is observed. Treatment gaps may occur due to the changing bacterial antibiotic resistance patterns that emerged as a result of antibiotic overuse during the post-COVID period.

Keywords. community-acquired pneumonia, National Clinical Protocol.

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221. AORTIC VALVE ENDOCARDITIS COMPLICATED BY SINUS OF VALSALVA PSEUDOANEURYSM: HYBRID SURGICAL MANAGEMENT

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Introduction. Infective endocarditis (IE) affecting the aortic valve is a life-threatening condition that can rapidly lead to acute aortic regurgitation and extensive cardiac complications. One of the rarer consequences of aortic valve IE is the formation of a sinus of Valsalva pseudoaneurysm, which presents significant challenges for surgical management. Optimal treatment typically requires a combination of valve replacement and reconstructive procedures to restore normal valve function and ensure hemodynamic stability.

Case statement. A 66-year-old male with a history of gout presented in July 2024 with persistent chest pain, fever up to 39°C, accompanied by mild temporo-spatial disorientation. Neurological evaluation excluded acute ischemic lesions. Initial treatment with intravenous Ceftriaxone 1 g twice daily led to fever resolution. Pleural ultrasound revealed bilateral pleural effusion (1600 ml right, 1000 ml left), and pulmonary Angio-CT showed multiple peribronchovascular infiltrates. The patient was referred to the Institute of Cardiology, where transthoracic echocardiography revealed floating aortic vegetations up to 15 mm and possible cusp perforation. Severe aortic insufficiency (grade III–IV), marked left and right ventricular dilation, mitral regurgitation grade III, tricuspid regurgitation grade II–III, severe pulmonary hypertension, and a sinus of Valsalva pseudoaneurysm were also observed. On August 9, 2024, the patient underwent complex surgery: aortic valve replacement with a mechanical "Carbomedics Standard" N27 prosthesis, repair of the aortic annulus under the left coronary artery using a bovine pericardial patch, mitral annuloplasty with MDT "Profile 3D" N32 ring, and tricuspid annuloplasty (DeVega-Cabrol modification, Manuil-Antunis). Postoperatively, the patient experienced mild cognitive disturbances with gradual improvement and two short paroxysms of atrial flutter, restored medically. Subsequently, he underwent a two-week cardiac rehabilitation program and was discharged home in satisfactory condition.

Discussions. Sinus of Valsalva pseudoaneurysm is an uncommon but serious complication of aortic valve IE, requiring a multi-step surgical approach. The intervention performed preserved valvular competence and hemodynamic stability while minimizing embolic risk, emphasizing the importance of comprehensive imaging and multidisciplinary management.

Conclusions. Complex surgical management combining valve replacement and repair is essential in aortic valve endocarditis complicated by sinus of Valsalva pseudoaneurysm. Early assessment, meticulous surgical planning, and careful postoperative monitoring contribute to favorable outcomes and optimal functional recovery.

Keywords. infective endocarditis, sinus of Valsalva pseudoaneurysm.

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222. AN INNOVATIVE COMBINED PROTOCOL OF HUMIDIFIED OXYGEN THROUGH ETHANOL, OZONATED SALINE INFUSION AND LOCAL OZONE INSUFFLATIONS IN ACUTE VIRAL RESPIRATORY INFECTIONS

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Introduction. Acute viral respiratory infections (AVRIs), including viral pneumonias, represent a major public health problem and remain a frequent cause of outpatient visits and hospital admissions. Despite advances in supportive care, therapeutic options are still largely symptomatic, while effective strategies for improving local respiratory conditions and accelerating clinical recovery are limited. Impaired mucociliary clearance, airway inflammation and hypoxemia play a key role in symptom persistence and prolonged clinical course.

Aim of study. To describe an innovative combined supportive protocol aimed at improving respiratory comfort, secretion clearance and overall clinical recovery in patients with acute viral respiratory infections.

Methods and materials. A combined 7-day protocol was applied in the early phase of disease. Patients received daily humidified oxygen therapy for 30 minutes via nasal cannula or face mask, using a Bobrov apparatus in which oxygen was passed through 70% ethyl alcohol instead of distilled water. Simultaneously, intravenous ozonated normal saline (0.9% NaCl) was administered, 400 mL per session, at an ozone concentration of 5 µg/mL. Standard national clinical protocol therapy was maintained (antibiotics, bronchodilators, mucolytics, anti-inflammatory agents). At the end of each session, local ozone insufflations were performed at nasal and auricular level, using an ozone concentration of 20–25 µg/mL, with 50 mL per nostril and 50 mL per ear.

Results. The protocol was well tolerated, with no significant adverse reactions. Most patients reported faster improvement in dyspnea, cough intensity, nasal obstruction and general fatigue. Improved sputum expectoration, reduced chest discomfort and enhanced overall respiratory comfort were consistently observed.

Conclusions. The described combined protocol represents a safe, feasible and innovative supportive strategy in acute viral respiratory infections. The method is simple, reproducible and low-cost, and may be particularly useful in outpatient settings and low-resource environments. A reduction in average treatment cost per patient was also observed. Further controlled clinical studies are required to validate its efficacy and clarify the underlying mechanisms.

Keywords. Acute viral respiratory infections; Viral pneumonia; Ozone therapy; Ozonated saline infusion; Humidified oxygen therapy; Ethanol umidification; Local ozone insufflation; Mucociliary clearance; Respiratory inflammation; Hypoxemia.

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223. PERSISTENT EPSILON WAVE IN PATIENT AFTER ATRIAL SEPTAL DEFECT REPAIR: CLINICAL CASE

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Introduction. Arrhythmias, particularly atrial fibrillation, and atrial flutter are frequent complications after atrial septal defect (ASD) repair; however, persistent epsilon wave activity on ECG has not been documented in the literature. Epsilon waves appear on the ECG as distinct post-excitation waves, characterized by small undulations, fine notches, or oscillations, with their amplitude mainly localized immediately after the end of the QRS complex. Epsilon waves represent an ECG criterion of arrhythmogenic right ventricular cardiomyopathy (ARVC), but they have also been described in other inflammatory and infiltrative cardiomyopathies.

Case statement. A 72-year-old woman was admitted to the Institute of Cardiology with complaints of dyspnea on moderate exertion, orthopnea, paroxysmal palpitations, intermittent headache, and marked fatigue. From the medical history: ASD surgically repaired at the age of 38. Family history revealed no known cardiovascular diseases. Physical examination: pale, acrocyanotic skin; a high-frequency early diastolic decrescendo murmur was heard over the pulmonary area on auscultation, blood pressure 140/80 mmHg. ECG showed irregular atrial flutter with a ventricular rate of 120 bpm and epsilon-type waves in leads V1–V3. Transthoracic echocardiography (TTE) revealed right atrial dilation (50 mm) and right ventricular dilation (36 mm), left ventricular ejection fraction (LVEF) 53%; grade II mitral, aortic and pulmonary regurgitation. Moderate pulmonary hypertension was present. A targeted TTE reassessment of the right heart chambers was performed to explain the presence of this ECG pattern (epsilon waves), which revealed rupture of a pulmonary valve cusp. The diagnosis of ARVC was excluded according to the Padua criteria. Guideline-directed medical therapy according to ESC recommendations for heart failure and arrhythmia was initiated, with improvement. The patient was discharged with long-term recommendations.

Discussions. Epsilon waves are a minor clinical criterion for ARVC and are detected in approximately 30% of cases. In DSA, structural changes in the right heart chambers occur in 25–30% of cases, pulmonary artery stenosis in 5–10%, while pulmonary valve rupture is a rare but severe complication, manifested by acute valvular insufficiency and occurs in <1% of cases. We assume that the appearance of the Epsilon wave is related to pulmonary valve rupture after DSA repair, due to atrial dilatation by repair, volume overload. This may occur due to postoperative hemodynamic stress or intraoperative mechanical trauma.

Conclusions. The presented case highlights the complexity of patients with congenital heart defects, which may be associated with structural and electrophysiological alterations, either primarily or following cardiac intervention.

Keywords. Arrhythmogenic cardiomyopathy, epsilon wave, pulmonary valve.

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224. RARE AORTIC REMODELING IN UNICUSPID AORTIC VALVE: HYBRID STRATEGY AND ADVANCED SURGICAL RECONSTRUCTION

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Introduction. Aortic disease associated with congenital valvular anomalies significantly contributes to pathological aortic remodeling and confers a high risk of acute aortic syndromes. Involvement of the aortic arch and supra-aortic trunks requires complex surgical strategies, and hybrid approaches incorporating debranching allow maintenance of cerebral perfusion while reducing the risk of perioperative neurological complications. This case describes a rare combination of a unicuspid aortic valve, penetrating aortic ulcer with intramural hematoma, and extensive aneurysmal dilation of the ascending aorta and arch, ultimately necessitating comprehensive surgical reconstruction.

Case statement. A 62-year-old hypertensive male presented in February 2025 with severe chest pain and presyncope. Comprehensive echocardiographic assessment demonstrated a unicuspid aortic valve with severe stenosis (Vmax 4.0 m/s, mean gradient 41.4 mmHg), associated aneurysmal dilation of the ascending aorta and aortic arch, and confirmed the presence of a penetrating aortic ulcer with intramural hematoma involving the ascending aorta, aortic arch, and brachiocephalic trunk. On 23 July 2025, a hybrid procedure was performed: aortic valve replacement with a biological Dafodil-Meril N21 prosthesis, supracoronary replacement of the ascending aorta and arch with a Jotec N30 graft, reconstruction of the brachiocephalic trunk with a Jotec N26 graft anastomosed to the arch prosthesis, and reconstruction of the left subclavian artery with a Jotec N10 conduit including anastomosis of the left common carotid artery via debranching. Mild hypothermia (28°C) and brief circulatory arrest were employed with continuous cerebral perfusion. The postoperative course was marked by transient heart failure, SIRS post-CPB, paroxysmal atrial flutter medically converted to sinus rhythm, and right hemilaryngeal paresis. The patient completed a two-week rehabilitation program and was discharged in stable condition with secondary cardiovascular prophylaxis.

Discussions. This case highlights the uncommon coexistence of congenital valvular pathology, extensive aneurysmal remodeling, and involvement of the supra-aortic trunks. The hybrid debranching approach enabled complete arch reconstruction while minimizing cerebral ischemia and neurological risk, representing a superior alternative to conventional techniques in patients with complex anatomy.

Conclusions. A multicomponent hybrid strategy is an effective solution in complex aortic disease associated with a unicuspid aortic valve. Stepwise imaging assessment, accurate differential diagnosis, and multidisciplinary management are essential for optimal outcomes.

Keywords. unicuspid aortic valve, debranching, hybrid approach.

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225. MITRAL VALVE MASS: A SILENT TRIGGER OF SYSTEMIC EMBOLIC COMPLICATIONS

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Introduction. Systemic embolic events represent a major cause of morbidity and mortality, most commonly affecting the cerebral and coronary circulation. While cardiac sources are well recognized, embolization originating from mitral valvular masses is uncommon and often challenging to identify. These lesions may remain clinically silent until manifesting through severe ischemic complications. Therefore, early and meticulous evaluation for rare valvular substrates after an ischemic event is crucial to prevent recurrence and potentially life-threatening outcomes.

Case statement. A 57-year-old female with known arterial hypertension and history of ischemic stroke (02.02.2025) was admitted on 05.04.2025 in ICU, presenting prolonged constrictive retrosternal chest pain associated with dyspnea. ECG revealed ST-segment elevation in leads II, III, and aVF. Emergency coronary angiography showed embolic occlusion of the right coronary artery. Mechanical thrombectomy and balloon angioplasty were performed with restoration of coronary flow. Transthoracic echocardiography revealed severe mitral valve regurgitation and raised suspicion of associated mitral valve mass. Transesophageal echocardiography found a mobile 9×9 mm structure attached to the posterior mitral leaflet (P2, P3), associated with moderate-to-severe tricuspid regurgitation and preserved left ventricular systolic function (EF 57%). Considering the high embolic potential of the mitral valve formation and the presence of significant valvular dysfunction, the patient underwent cardiac surgery on 17.04.2025 with excision of valvular masses and mitral annuloplasty as well as tricuspid valve repair. The postoperative course was complicated by thrombosis at the level of the repaired mitral valve, which was managed medically.

Discussions. This case illustrates the dual embolic potential of mitral valve masses, capable of generating both cerebral and coronary ischemic events. The occurrence of STEMI following a recent ischemic stroke highlights the critical importance of comprehensive cardiac evaluation in post-stroke patients. Echocardiography, particularly transesophageal imaging, plays a central role in detecting valvular and intracardiac sources of embolism. Early recognition of such abnormalities may allow timely surgical intervention, potentially preventing life-threatening complications.

Conclusions. Mitral valve masses represent a significant embolic risk and should be actively investigated in patients with ischemic stroke of unclear origin. Systematic cardiac assessment following stroke is essential for identifying high-risk embolic substrates and enabling prompt therapeutic management, thereby reducing the likelihood of subsequent major cardiovascular events.

Keywords. mitral valve mass, ischemic stroke, coronary embolism, STEMI, TEE.

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226. PARTICULARITIES OF SENSITIZATION TO RESPIRATORY ALLERGENS IN THE PEDIATRIC POPULATION

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Introduction. Sensitization to respiratory allergens plays a crucial role in the development of allergic rhinitis and asthma. The most common triggers include plant pollen allergy and sensitization to animal and mite allergens. The domestic cat is one of the most potent sources of indoor allergens. Its major allergen, Fel d1, is a protein found in high concentrations in the cat's saliva, skin, and urine. Due to its small particle size and airborne properties, Fel d1 remains suspended in the air and can be detected even in environments without cats, being transported on clothing. House dust mites represent the most important source of indoor allergens worldwide. The predominant species, Dermatophagoides pteronyssinus and Dermatophagoides farinae, produce a complex array of allergens, the most clinically relevant being Der p1, Der p2, Der f1, and Der f2.

Aim of study. To analyze the patterns of sensitization to major allergens from the most significant inhalant allergen sources (ragweed, timothy grass, birch, mites, and cat) in pediatric patients from the Republic of Moldova.

Methods and materials. The study included 391 patients diagnosed with allergic rhinitis and evaluated between 2022 and 2026. Sensitization to pollens (Ambrosia artemisiifolia, Phleum pratense, birch), as well as to pet dander and mite allergens, was assessed using multiplex molecular testing.

Results. The study population comprised 391 patients aged between 2 months and 17 years and 11 months; girls accounted for 51.40% and boys for 48.59%. The mean age was 7.15 years. Sensitization to Phleum pratense pollen was identified in 189 patients (48.33%), of whom 22.76% were sensitized to Phl p1 (beta-expansin). Sensitization to Ambrosia artemisiifolia pollen was detected in 190 patients (48.59%), with 20.71% sensitized to Amb a 1 (pectate lyase). Sensitization to birch pollen was found in 68 patients (17.39%), among whom 10.23% were sensitized to the major allergen Bet v1 (PR-10). Sensitization to Felis domesticus was identified in 117 patients (29.92%), of whom 23.01% were sensitized to Fel d1 (uteroglobin). Sensitization to Dermatophagoides farina was detected in 184 patients (47%), with 27.87% sensitized to Der f2 (NPC2 family).

Conclusions. Polysensitization to respiratory allergens represents a significant finding in the pediatric population with allergic rhinitis in the Republic of Moldova. Molecular diagnostics revealed that approximately half of the patients are sensitized to pollen allergens (grasses and ragweed), while indoor allergens—particularly house dust mites—affect more than 47% of subjects.

Keywords. pollen, tree pollen, pet dander, major allergenic molecules.

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227. ETIOPATHOGENETIC ASPECTS OF SUPRAVENTRICULAR TACHYCARDIA IN YOUNG PEOPLE

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Introduction. Supraventricular tachycardia (SVT) is the most common arrhythmia diagnosed in young people. The prevalence of SVT in young adults is about 2,29/1000 people, with a higher incidence in women vs men. Studying the etiology of SVT is essential for optimizing diagnosis, prophylaxis and treatment.

Aim of study. Studying data from the scientific medical literature regarding the etiological and predisposing factors involved in the pathophysiology of supraventricular tachycardia in young people.

Methods and materials. A systematic review of the National Library of Medicine and the International Institutes of Health MEDLINE was performed, using the authentic databases UpToDate, Embase, and PubMed, to search for works focused on etiopathogenetic aspects of supraventricular tachycardia in young people. 32 bibliographic sources were analyzed.

Results. SVT is the result of reentry circuits, abnormal automatism or trigger-driven activity. Factors contributing to SVT in young people include: congenital heart defects (Wolff-Parkinson-White Syndrome, Ebstein's anomaly, atrial septal defects, valvulopathies, which create abnormal electrical pathways), electrolyte imbalances, genetic predisposition, female gender, stress, anxiety, alcohol, caffeine, medications, smoking, physical exertion, thyroid pathologies, cardiac (coronary artery disease, heart failure, valvular diseases, cardiomyopathy, heart surgery), pulmonary pathologies, DM, pregnancy, dehydration, recreational drugs.

Conclusions. SVT in young people is characterized by a wide spectrum of etiological and risk factors, which requires a multidisciplinary medical approach, including education, counseling, promotion of a healthy lifestyle, in order to increase the quality of life and decrease the risk of complications.

Keywords. supraventricular tachycardia, etiopathogenesis, young people.

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228. ASSESSMENT OF THE EVOLUTION OF OSTEOARTHRITIS IN WOMEN AND MEN

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Introduction. Osteoarthritis is the most prevalent chronic joint disorder and a major cause of pain, disability, and reduced quality of life worldwide. The disease involves progressive cartilage degeneration with structural and inflammatory alterations. Sex-related differences in presentation and progression remain under investigation, clinically relevant.

Aim of study. Comparative feature of clinical and paraclinical manifestations of osteoarthritis in women and men.

Methods and materials. A retrospective study was conducted on a group of 50 patients diagnosed with osteoarthritis, admitted to the Rheumatology, Artrology departments of IMSP SCR "Timofei Moșneaga", between 01.2023 and 01.2026. The patients were divided into two equal groups: group I – men (n=25) and group II – women (n=25), aged between 18 and 80 years. The diagnosis included the forms of gonarthritis, coxarthritis and osteoarthritis. All patients were investigated clinically, paraclinically and instrumentally. The representative research batch was calculated using the Epi Info™ version 7.2.2.6 program, StatCalc – Sample Size and Power compartment, with a confidence interval of 95% and statistical power of 80%.

Results. Age distribution analysis showed a significant increase in the frequency of osteoarthritis after age 50 in both sexes. In men, the maximum prevalence was recorded in the 60–69 years (48%) and 50–59 years (28%) groups, while in women most cases were concentrated in the 50–59 years group (56%). Onset under 40 years of age was rare, being more frequent in women (16%) compared to men (4%). Depending on the type of joints affected, osteoarthritis was the predominant clinical form, being diagnosed in 92% of men and 84% of women. Isolated gonarthritis and coxarthritis have been identified rarely, with a frequency of 4% in men and 8% in women. Evaluation of inflammatory markers showed increased levels of C-reactive protein in 12% of men and 24% of women. The increase in ESR was found in equal proportions in both sexes, being present in 44% of patients.

Conclusions. The evolution of osteoarthritis is closely correlated with aging, the condition becoming predominant after the age of 50, both in men and women. During the course of the disease, the joint degenerative process extends from localized forms to multiple involvement, reflected by the increased prevalence of osteoarthritis, more pronounced in men. The progression of the disease is associated with the activation of the inflammatory process, evidenced by the increase in inflammatory markers, with more frequently increased levels of C-reactive protein in women and increased levels of ESR in similar proportions in both sexes. These data suggest that osteoarthritis is a progressive, age- dependent process with a negative impact on joint function and patients' quality of life.

Keywords. Osteoarthritis, aging, sex differences, disease progression, inflammatory markers, gonarthritis, coxarthritis.

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229. CHARACTERISTICS OF PULMONARY TUBERCULOSIS IN MIGRANTS

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Introduction. Migration is a major social phenomenon and is considered one of the key contributors to the re-emergence of tuberculosis (TB) in recent decades, including in high-income countries. Migrants are at increased risk of TB due to unfavorable living conditions, occupational exposure, higher prevalence of HIV infection, and malnutrition. According to the 2024 Global TB Report of the World Health Organization, TB among migrants accounts for approximately 50% of cases in several European countries. The highest risk of developing TB occurs within the first five years after migration. Migrant populations are predominantly young, economically active, and mobile, representing an epidemiologically important group for TB transmission in host communities.

Aim of study. To evaluate the clinical and epidemiological characteristics of pulmonary tuberculosis in patients with a history of migration.

Methods and materials. A retrospective study was conducted using 56 inpatient medical records of patients aged ≥18 years with a history of migration and diagnosed with various forms of pulmonary TB between 2022 and 2024 at the Municipal Hospital of Phthisiopneumology Chișinău. Demographic, clinical, radiological, and treatment outcome data were analyzed.

Results. Male patients predominated (46 cases; 82.1%). Most patients were young adults aged 18–45 years (42 cases; 75.0%). TB was diagnosed within the first five years after migration in approximately half of the patients. The duration of stay abroad was up to 1 year in 12 patients (24%), 2–5 years in 28 patients (56%), and more than 5 years in 10 patients (20%). The most frequent clinical form was infiltrative pulmonary TB (44 cases; 78.5%), followed by disseminated TB (7 cases; 12.6%) and tuberculous pleurisy (5 cases; 8.9%). Extensive pulmonary involvement was present in approximately two-thirds of patients. Retreatment cases accounted for 33 patients (59%), compared with 23 new TB cases (41%). Passive case detection (presentation with TB-related symptoms) occurred in 54 patients (96.4%). Multimorbidity was identified in 25 patients (45%), and HIV coinfection in 15 patients (27%). Drug-resistant TB was diagnosed in 17 patients (31%), while disease complications were documented in 21 patients (38%). Treatment success was achieved in 53 patients (95%).

Conclusions. Pulmonary TB among migrants predominantly affects young adult males, particularly within the first five years after migration, and is associated with the duration of stay abroad. Case detection remains largely passive despite migrants being classified as a high-risk population. Migrants frequently present with extensive and complicated disease; however, treatment outcomes are generally favorable, likely due to the relatively young and immunocompetent profile of this population.

Keywords. Diagnosis, migrants, tuberculosis.

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230. MANAGEMENT GUIDELINES FOR PRIMARY HYPERPARATHYROIDISM IN AMERICA, EUROPE AND INDIA

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Introduction. Primary hyperparathyroidism (PHPT) is a common endocrine disorder, characterized by inappropriate parathyroid hormone secretion leading to hypercalcemia and multiorgan involvement. Over the past few decades, the extensive use of biochemical screening has caused a major shift in PHPT from a mainly symptomatic disease to an asymptomatic disease, especially in developed countries. Variations in the availability of healthcare infrastructure, resources, and population characteristics have led to the development of different guideline-based management strategies in America, Europe & India. It is important to understand the variations for optimal patient-centered care & equal outcomes.

Aim of study. The aim of this study is to compare & synthesize the current management guidelines of PHPT in America, Europe & India, focusing on the diagnosis, surgical indications & medical therapy.

Methods and materials. A narrative review of international clinical practice guidelines was conducted. Recommendations issued by North American, European, and Indian endocrine and surgical societies were compared, focusing on diagnostic criteria, operative approaches, and pharmacological options.

Results. PHPT is defined by elevated serum calcium with inappropriately normal/increased parathyroid hormone levels. Assessment of vitamin D & its correction are key elements of the diagnostic workup, while careful exclusion of secondary causes is very important, particularly in normocalcemic PHPT. For disease localization, cervical ultrasonography & sestamibi scintigraphy are first-line tools, with fluorocholine PET-CT emerging as a highly sensitive additional modality in some patients. Parathyroidectomy remains the definitive treatment across all three regions. American & European guidelines recommend surgery for symptomatic patients as well as for asymptomatic individuals who meet defined biochemical, skeletal, renal, or age-related criteria. When single-gland disease is well localized, minimally invasive or focused parathyroidectomy is preferred, whereas bilateral neck exploration remains appropriate when multigland disease is suspected. In India, patients more often present with advanced symptomatic disease, making accurate preoperative localization especially important due to a higher prevalence of ectopic parathyroid glands. Medical therapy has a supportive role in treatment. Cinacalcet is effective in lowering serum calcium levels in patients not undergoing surgery, while bisphosphonates help improve bone mineral density. These treatments are not curative and are mainly used as palliative options.

Conclusions. Despite regional variations, the management of PHPT in America, Europe, and India is based on accurate biochemical diagnosis, appropriate localization, and timely surgery. Early detection and context-specific guideline implementation are essential to reduce morbidity.

Keywords. PHPT, Calcimimetics, Sestamibi Scintigraphy, PET-CT.

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231. PRIMARY DIAGNOSED DIABETES MELLITUS IN PATIENTS WITH MULTIDRUG-RESISTANT TUBERCULOSIS

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Introduction. The association between tuberculosis (TB) and diabetes mellitus (DM) is characterized by a more severe clinical course of both conditions, potentially prolonged treatment duration, and an increased risk of both pulmonary and metabolic complications, thus increasing the risk of mutual aggravation.

Aim of study. To assess the prevalence of DM and the frequency of newly diagnosed DM among patients with multidrug-resistant pulmonary tuberculosis (MDR-PTB), and to estimate the severity of the comorbidity.

Methods and materials. The study that was performed is a retrospective, observational cohort study. The study included all the patients that were diagnosed with MDR-PTB and were hospitalized in the MDR-TB department of the "Chiril Draganiuc" Institute of Pneumology in Chișinău, Republic of Moldova, during the following period: January - April 2022.

Results. The study cohort included 57 patients with MDR-PTB, of whom 10 (17.5%) had DM. In 4 of the 10 cases (40%), DM was newly diagnosed at the time of MDR-PTB diagnosis in these patients. Patients with DM had similar demographic characteristics to those without DM, indicating a clear predominance of males (8/10 [80%] vs. 35/47 [74.4%], p=1.0) and comparable age distribution (median age 50 [IQR 37–66] vs. 40 [IQR 25–47] years, p=0.6). At the same time, patients affected by both MDR-TB and DM had a significantly higher rate of cavitary lesions detected on chest X-ray (9/10 [90%] vs. 15/47 [31.9%], p=0.001).

Conclusions. DM is a frequent comorbidity among patients with MDR-TB, with a concerning proportion of cases being newly diagnosed. The radiological presentation of MDR-PTB in patients with DM is more severe. These two aspects support the necessity for systematic screening for DM in patients with MDR-TB.

Keywords. Tuberculosis, diabetes mellitus, screening, primary, frequency.

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232. CLINICAL AND EVOLUTIONARY FEATURES OF RAPID-CYCLING BIPOLAR AFFECTIVE DISORDER

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Introduction. Rapid-cycling bipolar disorder is usually defined as bipolar disorder in which four or more episodes of hypomania/mania or depression occur within a one-year period. This disorder is considered to be less responsive to medication than non-rapid cycling BPAD. The underlying pathology significantly affects quality of life, work capacity and may pose a risk to the patient due to suicidal tendencies.

Aim of study. To study data from the relevant scientific literature on trigger factors for rapid cycling bipolar affective disorder, highlighting clinical features and treatment options.

Methods and materials. Scientific publications from PubMed and Scopus relevant to the study topic were reviewed.

Results. Among the particularities of the pathology, a series of triggering and predisposing factors have been identified in most of the evaluated patients. The age of onset of bipolar disorder is a predisposing factor for the development of rapid cycling. Most often, rapid cycling is associated with an age of onset under 21 years. Female sex and the type of underlying pathology also represent a risk for worsening in the form of rapid cycling. Women with BPAD type II are much more predisposed. Genetic research suggests the existence of hereditary predisposition, but the results remain inconclusive. A special role is played by the irrational use of tricyclic antidepressants and mood stabilizers, which are part of the first-line treatment of BPAD. Genetically determined neurohormonal and neurotransmitter dysregulations, triggered by the action of psychoactive substances and environmental or associated factors (pregnancy, living conditions, comorbidities, psychological trauma), are the main mechanisms in the pathogenesis of both BPAD and rapid cycling.

Conclusions. Rapid cycling in bipolar disorder remains insufficiently studied. The currently known risk factors may help identify patients at risk for early initiation of prophylactic treatment. There is a clear need to carefully monitor the use of antidepressants and lithium, which play an important role in the course and prognosis of bipolar affective disorder.

Keywords. Bipolar affective disorder, rapid cycling, antidepressants, mood stabilizers.

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233. THE EFFECTS OF SGLT2 INHIBITORS ON THE CARDIOVASCULAR SYSTEM

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Introduction. Sodium-glucose cotransporter type 2 (SGLT2) inhibitors are a class of drugs that act at the proximal renal tubule level by inhibiting glucose reabsorption, increasing glucosuria and natriuresis. They were initially approved exclusively for type 2 diabetes, but later demonstrated cardioprotective efficacy, and were extended to the treatment of heart failure.

Aim of study. The aim of this study is to demonstrate the link between SGLT2 inhibitors as antidiabetic drugs and their cardiovascular benefits.

Methods and materials. In this article, the literature from PubMed, Google Scholar and NCBI sites was analyzed.

Results. SGLT2 reduces the risk of hospitalization in patients with heart failure regardless of glycemic status or ejection fraction, and according to the 2022 study Dapagliflozin effect on cardiovascular events – thrombolysis in myocardial infarction, the reduction in cardiovascular mortality was observed only in patients with HFrEF and the risk of adverse events after MI was reduced by 16% relative and 2.6% absolute. This is due to the hemodynamic and natriuretic effects that cause an osmotic diuresis, contributing to the decrease in intravascular volume and ventricular filling pressure, the decrease in pulmonary congestion and peripheral edema, a mechanism that explains the antihypertensive effect of SGLT2. Reducing the levels of proinflammatory cytokines and reducing oxidative stress contribute to improving endothelial function, which is the basis of cardiovascular protection. The metabolic effect of this class ensures the removal of a link in the pathogenetic chain - risk factors, namely obesity, through glucosuria there is a caloric loss that causes weight loss and reduction of visceral adipose tissue. SGLT2 also has a direct effect on the myocardium by inhibiting NHE-1, inducing a decrease in intracellular sodium and calcium, favoring cardiomyocyte relaxation and diastolic function.

Conclusions. SGLT2 represents an essential pillar in the treatment of heart failure, in the prevention of arrhythmias and myocardial infarction, regardless of glycemic status.

Keywords. SGLT2, cardiovascular system, effects.

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234. KIDNEY DAMAGE IN PATIENTS WITH TYPE 2 DIABETES MELLITUS

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Introduction. It is well established that one of the primary targets of type 2 diabetes mellitus is the small-caliber vessels, resulting in significant kidney impairment.

Aim of study. This study aims to analyze the impact of type 2 diabetes mellitus on renal function.

Methods and materials. This work is based on informational resources selected from scientific and academic collections of the Scientific Library of Nicolae Testemitanu State University of Medicine and Pharmacy, as well as international scientific publications found through Google Scholar and PubMed.

Results. It is well established that diabetes has a long-term impact on microcirculation. According to the analyzed research, it is mentioned that half of the people with diabetes developed chronic kidney disease. The main cause of this complication is hyperglycemia. The sources note that other factors also influence the pathology of diabetic nephropathy, including high blood pressure, dyslipidemia, obesity, atherosclerosis, glomerular atherosclerosis, renal ischemia, loss of nephron number with aging, and insulin resistance. Renal damage is manifested by decreased renal function and increased albuminuria levels. Clinical criteria of diagnosis are Glomerular Filtration Rate <60 ml/min, albumin/creatinine rate >30 mg/g, and albuminuria >30 mg/day. For a confirmed diagnosis, it is required to be present at least 3 criteria, over a period longer than 3 months. A first step in decreasing the development and progression of diabetic renal complications is early management of the pathology. It includes constant monitoring of glucose level and blood pressure, changing and adjusting lifestyle. Simultaneously, it's important to educate the patient and to give him an individualized treatment, not to develop other complications such as diabetic retinopathy and neuropathy, gastroparesis, sexual dysfunction, sleep and mood disorders, cardiovascular problems, and trophic ulcers.

Conclusions. All the factors involved in the progression of diabetes mellitus affect renal tissue, which develops diabetic neuropathy with subsequent development of chronic kidney disease if a multifaceted approach to diabetic patients is not followed.

Keywords. Renal tissue, diabetes mellitus type 2, hyperglycemia.

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235. 2025 KDIGO GUIDELINES: NEW STANDARDS IN THE MANAGEMENT OF AUTOSOMAL DOMINANT POLYCYSTIC KIDNEY DISEASE

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Introduction. Autosomal dominant polycystic kidney disease (ADPKD) is the most common inherited kidney disorder, characterized by progressive cyst formation, increasing kidney volume, and a gradual decline in renal function. It is a leading cause of chronic kidney disease, accounting for 5–10% of all end-stage kidney disease (ESKD) cases. Its heterogeneous clinical course necessitates early standardized risk assessment and individualized management strategies.

Aim of study. To analyze current data regarding early diagnosis, risk stratification, and management of ADPKD, with a specific focus on the updates and clinical recommendations introduced by the KDIGO 2025 guideline.

Methods and materials. A comprehensive review of the KDIGO 2025 guideline for ADPKD was conducted, evaluating recommendations developed by international experts using the GRADE methodology.

Results. The KDIGO 2025 guideline recommends stratifying disease progression risk using the Mayo imaging classification and the PROPKD score. The Mayo classification, based on height-adjusted total kidney volume (htTKV), categorizes patients into classes 1A–1E; classes 1C–1E indicate rapid progression and identify candidates for disease-modifying therapy. The PROPKD score integrates genetic and clinical parameters (mutation type, hypertension onset, gross hematuria, gender) to stratify patients into low-, intermediate-, and high-risk categories for ESKD. Tolvaptan is recommended for adults with rapidly progressive ADPKD and an eGFR $\geq$ 25 ml/min/1.73 m². Strict liver function monitoring is mandatory due to hepatotoxicity risks. Caution is advised in patients with gout due to potential hyperuricemia. Additionally, the guideline emphasizes individualized screening for intracranial aneurysms and outlines a complex management approach for women, including preconception and genetic counseling.

Conclusions. The KDIGO 2025 guideline marks a significant advance in ADPKD management by promoting early progression assessment and detailed risk identification. It advocates for an integrated approach that addresses renal and extrarenal manifestations as well as the psychosocial dimensions of the disease.

Keywords. autosomal dominant polycystic kidney disease; ADPKD; KDIGO 2025; tolvaptan; quality of life.

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236. PROLONGATION OF QT INTERVAL – PROARRYTHMOGENIC PROGNOSTIC FACTOR IN PATIENTS WITH DIABETES

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Introduction. Diabetes Mellitus is a chronic metabolic disease affecting nearly 11% of the population worldwide, and heart disease remains its leading cause of death. Prolonged QT interval, especially after heart rate correction, means delayed ventricular repolarization and it can lead to severe ventricular arrhythmias and even sudden cardiac death. Therefore, in this high-risk population such as patients with diabetes, measuring QT prolongation may offer vital information on risk assessment and early interventions.

Aim of study. This study aims to compare QT and QTc intervals in patients with and without diabetes mellitus, to assess how often QT prolongation occurs in diabetic patients, and to assess its relationships with potential arrhythmogenic risk factors.

Methods and materials. This retrospective cross-sectional study was conducted at IMSP SCM Sfânta Treime from 2025 to 2026. Of 1000 records screened, 114 patients met the study criteria from which 52 patients with type 2 diabetes and 62 non-diabetic controls. All received a standard 12-lead ECG, with manual QT measurement in lead II and QTc calculated using Bazett and Fridericia formulas. Clinical data, QT-prolonging drug use, and lab results (HbA1c, electrolytes, eGFR, LDL-C) were collected, and basic descriptive statistics were performed in Microsoft Excel.

Results. The two groups were similar in size and sex distribution. Mean raw QT interval was modestly longer in diabetics (384.6 ± 42.4 ms) than in controls (379.8 ± 42.6 ms), while Bazett-corrected QTc showed a clearer separation (421.1 ± 45.5 ms versus 408.6 ± 31.5 ms); Fridericia-corrected QTc followed the same pattern (407.3 ± 39.6 ms versus 398.3 ± 29.9 ms). QTc prolongation above 440 ms was more frequent in diabetics (30.6%) than in non-diabetic patients (14.5%). QT-prolonging medications were used by 57.1% of diabetics compared with 31.2% of controls. Diabetic patients had more frequent hyponatremia, hypernatremia, and isolated cases of hypo- and hyperkalemia, suggesting greater electrolyte variability. In the diabetic, glycemic control was generally poor (mean HbA1c 10.33 ± 2.71; 78.6% with HbA1c ≥8%), LDL-cholesterol levels were higher, and reduced renal function.

Conclusions. In this hospital-based study, people with type 2 diabetes tended to have longer QTc values, and more fluctuation in QTc than those without diabetes. They were also more frequently taking QT prolonging medications and, at the same time, higher LDL cholesterol levels, and more kidney and electrolyte problems, all of which can add up the chance of severe rhythm disturbances. These findings support regular ECG monitoring, careful use of QT-prolonging drugs, and prompt correction of metabolic and electrolyte problems in patients with diabetes.

Keywords. type 2 DM, QT interval, corrected QTc, ventricular arrhythmia.

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237. MANAGEMENT OF PAIN IN POSTHERPETIC NEURALGIA: A NARRATIVE LITERATURE REVIEW

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Introduction. Postherpetic neuralgia (PHN) is a chronic pain condition characterized by ongoing or relapsing neuropathic symptoms localized to the initial site of a Herpes Zoster outbreak. The diagnosis is confirmed when pain persists for at least three months beyond the initial appearance of the rash. The pathophysiological mechanism is driven by a combination of peripheral nerve injury caused by viral replication and high central nervous system excitability. These processes result in a spectrum of sensory disturbances – ranging from hyperalgesia to allodynia – that compromises health-related quality of life due to its impact on sleep and daily activities. Effective treatment remains elusive, as the presence of overlapping chronic illnesses further narrows the therapeutic window, by increasing the risk for severe side effects.

Aim of study. To synthesize the literature on contemporary pain management strategies for PHN and to summarize therapeutic options applicable to clinical practice.

Methods and materials. To identify relevant data, a comprehensive search was performed using medical databases including GoogleScholar, PubMed, and ScienceDirect. The search covered 2015-2025 and included clinical guidelines, systematic reviews, observational studies focusing on PHN pain treatment. A total of 21 articles met inclusion criteria and were analyzed.

Results. The reviewed literature suggests that the primary therapeutic choices for the management of PHN associated pain relies predominantly on gabapentinoids, such as gabapentin and pregabalin. Some studies confirm also the efficacy of tricyclic antidepressants, but their lower use is determined by poor tolerability and diverse contraindications. Serotonin-norepinephrine reuptake inhibitors represent a therapeutic alternative, offering the benefit of addressing both chronic pain and affective disorders. However, their implementation in PHN protocols is often constrained by limited evidence. For cases of PHN that prove resistant to standard therapies, opioid-based medications should be considered. Their use needs judicious prescribing practices, due to the potential for dependency and side effects, especially in geriatric patients. When conventional therapies fail to relieve symptoms, clinical escalation to more invasive modalities– including neuromodulation and regional nerve blockade–may be warranted.

Conclusions. Achieving effective pain relief in PHN needs a customized, multimodal strategy, centered on neuropathic drugs using individual dosing and monitoring. For resistant cases, integrated procedures may be necessary. Success is predicated on precise symptom profiling and assessing comorbidities to mitigate impairment and maximize recovery.

Keywords. Postherpetic Neuralgia, Pain management.

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238. AUTOSOMAL DOMINANT POLYCYSTIC KIDNEY DISEASE: CLINICAL, IMAGING, AND FUNCTIONAL PROFILE OF A HOSPITALIZED COHORT AT THE "TIMOFEI MOȘNEAGA" REPUBLICAN CLINICAL HOSPITAL

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Introduction. Autosomal dominant polycystic kidney disease (ADPKD) is the most common inherited kidney disorder, characterized by progressive cyst growth, increasing kidney volume, and gradual loss of renal function.

Aim of study. To describe the clinical, functional, and imaging profile of patients with ADPKD hospitalized in 2025, assessing the severity of renal impairment and associated comorbidities.

Methods and materials. We performed a retrospective review of 66 ADPKD patients among 1,519 admissions (4.35%) to the Nephrology Department at the "Timofei Moșneaga" Republican Clinical Hospital. We extracted demographics, family history, disease duration, KDIGO CKD stage, ultrasound parameters, and cardiovascular comorbidities.

Results. Age ranged from 18–74 years (mean 55.2; median 57); 62% were >50 years. Women comprised 66.7% (female:male ≈2:1). Maternal inheritance was reported in 25.8% and paternal in 15.2%, while parental lineage was unavailable in ~50%; sibling involvement was noted in 28.8%. Lumbar pain was reported by 97%, irritative urinary symptoms by 70%, and hypertensive episodes by 44%. Disease duration was 0.5–43 years (mean 16.6; median 17); 16.7% had ≤5 years, 35.2% had 6–15 years, and 48.1% had >15 years of evolution. Advanced CKD (G3b–G5) accounted for 60.6%, including 21.2% in G5; G1–G2 represented 22.7%, and ~9% were receiving dialysis. Cyst size ranged from 0.5–11 cm (mean 3.83; median 4.0): 38% <2 cm, 32% ≥5 cm, and 11% >7 cm (5% ≥9 cm), consistent with heterogeneous imaging patterns. Kidneys were bilaterally enlarged and relatively symmetric: right 9.9–35 cm (mean 18.6; median 18.2) and left 9.8–34 cm (mean 19.2; median 18.9). Approximately 45% measured 15–20 cm, 38–40% were ≥20 cm, and ~12% were ≥25 cm. Cardiovascular comorbidity was common: hypertension 89.4%, ischemic heart disease 9.1%, dysmetabolic cardiomyopathy 12.1%, mixed cardiomyopathy 13.6%, and hypertensive cardiomyopathy 54.5%. Most patients were NYHA class I (62.1%) or II (31.8%); advanced classes were uncommon (6%).

Conclusions. In this hospitalized ADPKD cohort, advanced CKD predominated and was accompanied by substantial kidney enlargement and a high burden of cardiovascular comorbidity, suggesting late referral and under-recognition of earlier-stage disease. These findings support earlier detection, structured imaging and functional follow-up, and multidisciplinary care to slow progression and reduce the risk of kidney failure.

Keywords. autosomal dominant polycystic kidney disease; chronic kidney disease; ultrasound; kidney enlargement; comorbidities; hypertension.

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239. ANTERIOR VERSUS POSTERIOR CIRCULATION ISCHEMIC STROKE TREATED WITH ENDOVASCULAR THERAPY: CLINICAL AND EARLY OUTCOME DIFFERENCES

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Introduction. Endovascular therapy (EVT) has become the standard treatment for acute ischemic stroke due to large vessel occlusion. While most evidence is derived from anterior circulation strokes, posterior circulation occlusions remain clinically challenging, often presenting with variable symptoms and higher risk of severe outcomes. Comparative real-world data regarding early evolution after EVT in anterior versus posterior circulation stroke are still limited.

Aim of study. To compare baseline clinical characteristics and early outcomes of patients with anterior circulation stroke versus posterior circulation stroke treated with endovascular therapy.

Methods and materials. A retrospective observational study included patients with acute ischemic stroke who underwent EVT in the Vascular Neurosurgery department of the Diomid Gherman Institute of Neurology and Neurosurgery, Chisinau between December 2024 and December 2025. Patients were classified into two groups according to vascular territory: anterior (carotid system) and posterior (vertebrobasilar system). Collected variables included occlusion site, baseline NIHSS, reperfusion grade (mTICI) and neurological status at discharge. Statistical analysis was performed using comparative tests for continuous and categorical variables, with significance set at $p < 0.05$.

Results. A total of 120 consecutive patients were included, of whom 104 (86.7%) had anterior circulation stroke and 16 (13.3%) had posterior circulation stroke. Patients with posterior circulation stroke had a tendency toward higher baseline NIHSS compared with anterior circulation stroke (18.35 vs 14.54). Successful reperfusion (mTICI ≥ 2b) was achieved in 76.9% of anterior circulation cases and 62.5% of posterior circulation cases. At discharge, patients with posterior circulation stroke showed worse neurological outcomes, with NIHSS 7.77 versus 3.54 in the anterior circulation group. In-hospital mortality was 11.5% in the anterior circulation group and 25% in the posterior circulation group.

Conclusions. Patients with posterior circulation ischemic stroke treated with EVT demonstrated distinct clinical profiles and a tendency toward less favorable early neurological outcomes compared with anterior circulation strokes. These findings highlight the importance of early recognition of posterior circulation stroke symptoms and optimized management strategies. Future approaches may benefit from the use of artificial intelligence–based tools for rapid detection, imaging interpretation and clinical decision support, potentially improving patient selection and treatment timelines.

Keywords. ischemic stroke; endovascular therapy; carotidian circulation; vertebrobasilar circulation.

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240. HEART FAILURE IN CONGENITAL HEART DISEASE: DOES MEDICAL TREATMENT IMPACT OUTCOMES?

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Introduction. Adult survival with native single-ventricle physiology without definitive repair is rare and represents a distinct heart failure phenotype not adequately addressed by current guidelines. Persistent cyanosis, secondary erythrocytosis, and progressive ventricular overload cause multiorgan involvement and major therapeutic limitations when advanced options such as heart transplantation are considered. The pathophysiology differs significantly from conventional HFrEF or HFpEF, requiring individualized clinical judgment.

Case statement. A 22-year-old patient with complex cyanotic congenital heart disease (single ventricle, mitral atresia, LV hypoplasia, ASD, VSD, pulmonary stenosis, TGA) underwent bilateral intersystemic shunts at 5 years and a Blalock–Taussig shunt at 9 years. He was admitted for worsening exertional dyspnea, fatigue, and palpitations. Examination revealed acrocyanosis, clubbing, mild edema, HR 89 bpm, BP 110/60 mmHg, RR 20/min, SpO_2 68%. Labs showed severe secondary erythrocytosis (Hb 220 g/L, Ht 0.76), creatinine 139 µmol/L, urea 12.6 mmol/L, and NT-proBNP 2716 pg/mL, consistent with advanced heart failure, hyperviscosity, and early renal dysfunction. Echocardiography demonstrated a dilated single ventricle (50 mm), single atrium (46 mm), significant AV valve regurgitation, grade II AR, and grade III TR. Angio-CT confirmed complex palliative anatomy with concentric hypertrophy. ESC-guided HF therapy required careful titration due to hypoxemia, hyperkalemia, renal dysfunction, and hyperviscosity. Hematology advised staged phlebotomies with heparin and volume replacement. After clinical improvement and reduced congestion, the patient was discharged for close follow-up.

Discussions. Heart transplantation is the definitive treatment for end-stage failure in complex congenital heart disease (ESC/ISHLT). Indications include refractory NYHA IV status, ventricular dysfunction, and organ impairment. Eligibility depends on pulmonary vascular resistance, cyanosis severity, organ damage, and anatomy. In this case, profound hypoxemia, marked erythrocytosis, renal dysfunction, and long-standing palliation suggest advanced pulmonary vascular disease and late referral, making transplantation high-risk or even contraindicated. Standard HF therapies are difficult to implement and often insufficient in native single-ventricle physiology.

Conclusions. Native single-ventricle physiology in adulthood produces a severe, atypical heart failure phenotype driven by chronic hypoxemia and erythrocytosis, limiting conventional therapy and transplant eligibility. Early specialized follow-up, proactive hyperviscosity management, and timely evaluation for advanced therapies are crucial to avoid late high-risk referral and improve long-term outcomes in this rare population.

Keywords. Single ventricle, Heart failure, Heart transplantation.

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241. MOTHER-TO-CHILD TRANSMISSION OF HIV: MULTIDIMENSIONAL CLINICAL ANALYSIS AND PERSPECTIVES OF ARTIFICIAL INTELLIGENCE-ASSISTED MEDICINE

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Introduction. Mother-to-child transmission of human immunodeficiency virus (HIV) remains a major public health challenge, particularly in settings characterised by late diagnosis, incomplete antenatal follow-up and suboptimal adherence to antiretroviral therapy (ART). Although classical prevention strategies have significantly reduced MTCT rates, the persistence of cases highlights the need for modern approaches based on integrated analysis of clinical, paraclinical and epidemiological data. In this context, AI-assisted medicine offers new opportunities for early identification of high-risk pregnancies and optimization of clinical decision-making.

Aim of study. The aim of the study was to assess the sociodemographic, clinical, immunological and therapeutic characteristics of HIV-infected pregnant women and their exposed newborns, and to identify factors associated with MTCT, while highlighting the potential role of AI-assisted decision support systems in prevention strategies.

Methods and materials. This retrospective observational study analyzed medical records of 32 HIV-positive pregnant women and their newborns delivered between 2019 and 2025.

Results. Most patients originated from rural areas (93.7%), and the predominant age group was 25–34 years old (46,9%). HIV diagnosis was established prior to pregnancy in 43.7% of cases, during pregnancy in 6.2%, while postpartum diagnosis or unknown status accounted for 50.1%. Sexual transmission represented the main route of infection (62.5%), and the HIV status of partners was unknown in most cases. Maternal HIV RNA levels were undetermined or exceeded 1000 copies/mL in more than half of the patients, and CD4 lymphocyte assessment was incomplete or indicative of immunosuppression. ART was initiated late, irregularly or refused in 53.1% of cases. Complete MTCT prophylaxis was applied in a limited number of patients, with vaginal delivery being the predominant mode of birth (71.8%). MTCT of HIV was confirmed in 14 cases and was associated with high maternal viral load, lack of effective ART, insufficient counseling and incomplete prophylactic measures. Most newborns were tested within the first 48 hours of life; however, neonatal prophylaxis and antiretroviral treatment were not uniformly administered.

Conclusions. These findings emphasize the need for structured use of clinical data as a foundation for developing AI-assisted predictive models capable of generating early risk alerts and personalising medical interventions. The integration of artificial intelligence into maternal HIV care may reduce MTCT and contribute to the development of a new era of precision medicine.

Keywords. Mother-to-child transmission, HIV, prophylaxis.

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242. CLINICAL AND IMAGING DIAGNOSIS OF LUMBAR NEUROCOMPRESSIVE SYNDROME

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Introduction. Acute low back pain lasting less than four weeks, without red flag signs (severe trauma, neoplastic or infectious pathology, or significant neurological deficits), responds favorably to conservative treatment in most cases. In such situations, imaging investigations generally do not identify a specific pathological cause. Magnetic resonance imaging (MRI) is the imaging modality of choice for evaluating lumbar radiculopathies and is indicated in cases with an unfavorable course under conservative treatment.

Aim of study. To evaluate the contribution of MRI and lumbar spine radiography in the diagnosis of radicular low back pain in the assessment of lumbar neurocompressive syndrome.

Methods and materials. The study included 102 patients diagnosed with lumbar neurocompressive syndrome, all of whom underwent a complete clinical and neurological examination. Patients were divided into two equal groups. The first group of 51 patients was evaluated with lumbar MRI as the initial imaging modality. The second group of 51 patients was investigated using lumbar spine radiography in two standard projections.

Results. In the group primarily investigated with lumbar MRI, 37 patients (72.5%) were examined during the acute phase of radicular low back pain, in the absence of red flag signs, while only 14 patients (27.5%) underwent MRI after failure of conservative treatment. In the group initially evaluated with lumbar radiography, all 51 patients with acute radicular low back pain underwent standard radiographic examination. The data indicate frequent use of early imaging investigations, independent of strict clinical indications.

Conclusions. MRI is the imaging modality of choice for evaluating lumbar neurocompressive syndrome, particularly after failure of conservative treatment, whereas lumbar radiography has limited value in acute radicular low back pain without red flag signs.

Keywords. Lumbar radiculopathy, clinical and imaging diagnosis, radiography, magnetic resonance imaging.

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243. THE CLINICAL EFFECTIVENESS OF MOBILE-BASED PULMONARY REHABILITATION FOR PATIENTS WITH CHRONIC OBSTRUCTIVE PULMONARY DISEASE

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Introduction. Pulmonary rehabilitation is an essential part of the therapeutic management of patients with chronic obstructive pulmonary disease (COPD), aiming for improvement of clinical symptoms, quality of life, and physical exercise capacity. Access to traditional programs remains unavailable to a large proportion of patients due to limited geographical access, insufficient financial resources, and low availability and adherence. Integration of mobile applications is an innovative solution that would allow pulmonary rehabilitation programs to be carried out at home, offering structured programs in a flexible and accessible format for patients. This digital approach has the potential to expand the coverage of pulmonary rehabilitation, increasing treatment adherence and maintaining the clinical benefits of conventional methods.

Aim of study. To investigate the clinical utility of mobile app-based pulmonary rehabilitation in patients with COPD.

Methods and materials. This systematic review of the literature was conducted to analyze studies published between 2021 and 2026 on the effectiveness of using mobile applications for pulmonary rehabilitation in patients with COPD, analyzing exercise capacity, symptom scores, quality of life, and hospitalization, were evaluated.

Results. Recent research shows that mobile app-assisted pulmonary rehabilitation can improve exercise capacity in terms of distance covered in the 6-minute walk test compared to baseline. In this way, patients who consistently used digital platforms achieved an average improvement of approximately +9.5 m, with greater benefits observed among those with high adherence. A 12-week multicenter, app-based study reported a significant reduction in COPD Assessment Test (CAT) scores (−1.29 points; 95% CI: −2.39 to −0.20; p = .02), indicating symptom relief and enhanced functional performance. Systematic reviews further confirm comparable effects to conventional rehabilitation on quality of life and a reduced risk of hospitalisation, although adherence remains a key factor.

Conclusions. Self-directed pulmonary rehabilitation based on mobile applications is a feasible and promising option for COPD patients, especially in settings with limited access to traditional pulmonary rehabilitation. Effective implementation requires: appropriate patient selection, personalisation of exercise progression, strategies to increase adherence, and evaluation of long-term effects on exacerbations and healthcare utilisation.

Keywords. COPD, pulmonary rehabilitation, mobile applications.

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244. PSYCHOLOGICAL ASSESSMENT IN PATIENTS WITH AUTOSOMAL DOMINANT POLYCYSTIC KIDNEY DISEASE ON HAEMODIALYSIS: A NARRATIVE REVIEW

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Introduction. Chronic kidney disease is a progressive disorder and, in advanced stages, may require haemodialysis (HD) as renal replacement therapy. Autosomal dominant polycystic kidney disease (ADPKD), a leading cause of end-stage kidney disease in adults, is often accompanied by chronic pain, extra-renal complications and a genetic burden, which can increase psychological distress. The practical demands of HD, repeated sessions, lifestyle restrictions and reduced autonomy, may further contribute to anxiety, depression, poor adjustment and lower adherence.

Aim of study. This narrative review summarises key psychological assessment tools used in patients with ADPKD receiving HD and their role in monitoring depression, anxiety, symptom burden, quality of life and cognitive function.

Methods and materials. We conducted a narrative review of international guidelines and clinical/observational studies evaluating depression, anxiety, psychological symptoms and quality of life in patients with ADPKD and those on HD, focusing on standardised questionnaires suitable for routine use.

Results. Effective assessment should cover depression, anxiety, symptom burden, quality of life and cognition using brief, practical tools in dialysis units. The PHQ-9 (9 items) is widely used for depression screening; at a cut-off ≥10, sensitivity and specificity of 0.92 have been reported in HD populations. The HADS (HADS-D/HADS-A; 7 items each) is well suited to somatic illness by minimising overlap with physical symptoms; for HADS-D, sensitivity of 90.5% and specificity of 75.6% have been reported. The Dialysis Symptom Index (DSI; 30 items) captures physical and emotional symptom burden (pain, fatigue, pruritus, sleep disturbance and concentration difficulties). For cognitive screening, the MoCA assesses attention, orientation, language and executive function (reported sensitivity 76.7% and specificity 78.6% in HD). For quality-of-life measurement, KDQOL-36 remains the most commonly used instrument, combining general health with kidney disease–specific domains. The ADPKD Impact Scale helps capture disease-specific burdens (pain, functional limitations, psychosocial wellbeing and family impact). Overall, regular use of these questionnaires provides more objective information than clinical assessment alone and supports a patient-centred approach relevant to adherence and quality of life.

Conclusions. Psychological questionnaires are valuable for assessing adjustment in HD patients, including those with ADPKD, where genetic and family burden may worsen emotional distress. They offer a more objective view of anxiety, depression and symptom experience than history and examination alone. Routine administration supports integrated, patient-centred care with direct implications for adherence and quality of life.

Keywords. HD, quality of life. chronic kidney disease, depression.

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245. METHOTREXATE: THE CURRENT PLACE AMONG ANTIRHEUMATIC THERAPIES

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Introduction. Methotrexate (Mtx) is recognized for its immunosuppressive and disease-modifying potential in the first-line treatment of rheumatoid arthritis (RA) and is also used in the treatment of other autoimmune rheumatic conditions such as systemic lupus erythematosus (SLE), psoriatic arthritis (PsA), ankylosing spondylitis (AS), systemic scleroderma (SSc), and reactive arthritis (ReA).

Aim of study. Determining the frequency and timing of initiating methotrexate therapy in inflammatory rheumatic diseases.

Methods and materials. A retrospective study was conducted, which included the analysis of 125 medical records of patients diagnosed with RA, SLE, SSc, PsA, ReA, and SA. The patients were admitted for inpatient treatment in the rheumatology and arthrology departments of the Timofei Moșneaga Republican Clinical Hospital.

Results. In the group of patients with RA, which numbered 20, MTX was prescribed in 100% of cases. The average duration of the disease was 11.65 years, and the average duration of treatment with MTX was 11.35 years. In 15 cases, or 75%, the prescription was given at the onset of the disease. In the AS group of 30 patients, MTX was used in half of the cases. The average duration of the disease was 25.13 years and the average duration of treatment was 6.26 years. In PsA, the frequency of MTX use was 80%, as 20 out of 25 patients took the drug. The average duration of the disease and treatment was 21 years and 12.25 years, respectively. In the SSc group, 20 out of 30 patients were undergoing treatment (66.7%) with an average disease duration of 19.85 years and an average treatment duration of 4 years. In the ReA group, MTX was used in only 5 out of 10 patients. The average disease duration was 9.8 years, and the average treatment duration was 2.4 years. In the case of CA, SSc, and ReA, MTX was prescribed exclusively as the disease progressed. In the group of patients with SLE, which numbered 10, methotrexate was not used in any case (0%).

Conclusions. The data from this study emphasise the important role of MTX in the treatment of RA and PsA. In the case of AS, ReA, and SSc, there is a short duration of use of the medication, as well as its later prescription. This may indicate its low efficacy and, consequently, its limited use in certain clinical forms. The results confirm the variable position of MTX in the therapeutic management of rheumatic diseases, depending on the nosological entity.

Keywords. Methotrexate, rheumatic diseases.

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246. ECHOCARDIOGRAPHIC REMODELING AFTER TAVI ACCORDING TO EXTRAVALVULAR CARDIAC DAMAGE STAGING

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Introduction. Severe aortic stenosis is a progressive condition characterized by the extension of cardiac remodeling and dysfunction beyond the aortic valve to extravalvular structures. In this context, disease staging is essential for identifying the optimal timing of transcatheter aortic valve implantation (TAVI) and for assessing the potential reversibility of structural and functional changes after the procedure.

Aim of study. The aim of study was to analyze the evolution of echocardiographic parameters after TAVI in relation to preprocedural stages of extravalvular cardiac involvement in patients with severe aortic stenosis.

Methods and materials. A retrospective analysis of patients with severe aortic stenosis undergoing TAVI (2019–2026) was performed, with stratification into four stages of extravalvular cardiac involvement. Echocardiographic parameters were compared pre- and post-TAVI according to the preprocedural stage.

Results. A total of 187 patients were included in the analysis: 7.5% were classified as stage 1 (n=14), 63.1% as stage 2 (n=118), 26.7% as stage 3 (n=50), and 2.7% as stage 4 (n=5). Post-TAVI echocardiographic assessment showed an improvement in left ventricular ejection fraction to a mean value of 59.36% in 59.4% of patients (n=111). Among patients with advanced cardiac involvement (stages 3–4), 74.55% (n=41) exhibited a significant reduction in pulmonary artery systolic pressure, and 56.36% (n=31) demonstrated regression of tricuspid regurgitation by at least one grade. In stage 2, left atrial dimensions decreased significantly in 67.71% of patients (n=80), whereas in stage 4 only a non-significant reduction in right ventricular dimensions was observed, in 80% of patients (n=4).

Conclusions. Staging valvular disease by the extent of extravalvular involvement provides key insights into cardiac remodeling and echocardiographic reversibility. TAVI is associated with significant improvements, particularly in earlier stages, supporting the clinical value of this approach for optimizing timing and predicting postprocedural response.

Keywords. TAVI, aortic stenosis, echocardiography, cardiac remodeling.

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247. CLINICAL SIGNIFICANCE OF CARDIAC DAMAGE STAGING IN THE MANAGEMENT OF SEVERE AORTIC STENOSIS UNDERGOING TAVI

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Introduction. Severe aortic stenosis is no longer regarded solely as a mechanical valvular obstruction but rather as a systemic disease of the valve–myocardium complex, characterized by progressive cardiac remodeling. The concept of cardiac damage allows quantification of disease beyond the aortic valve, affecting cardiac chambers and pulmonary circulation, and provides prognostic information superior to conventional risk scores.

Aim of study. The aim of this study was to stage patients undergoing (TAVI) according to the extent of cardiac damage and to assess its association with procedural complications, clinical outcomes, and post-procedural evolution.

Methods and materials. This analytical observational cohort study with retrospective and prospective components was conducted at the Institute of Cardiology between 2019 and 2026. A total of 187 consecutive elderly patients with severe aortic stenosis undergoing TAVI were included according to Heart Team recommendations. Patients were staged based on the extent of cardiac damage using a validated five-stage model, encompassing left ventricular involvement (stage 1), left atrial and mitral valve involvement (stage 2), pulmonary circulation and tricuspid valve involvement (stage 3), and right ventricular involvement (stage 4).

Results. The distribution of cardiac damage stages in the study cohort was as follows: stage 1- 14 patients (7.3%), stage 2- 118 patients (61.8%), stage 3- 50 patients (26.2%), and stage 4- 5 patients (2.6%). Post-TAVI complications were predominantly observed in patients with cardiac damage stages 2–3. Residual aortic regurgitation occurred mainly in stage 2 (mild- n=52; moderate- n=6) and stage 3 (mild- n=24; moderate- n=4). Conduction disturbances were frequent, with permanent pacemaker implantation required in: stage 2- 12 patients, stage 3- 5 patients. Major adverse events, including stroke (n=3), acute myocardial infarction (n=3), severe bleeding (n=5), and procedure-related mortality (n=2), were almost exclusively recorded in stages 2–3.

Conclusions. Advanced stages of cardiac damage were highly prevalent among patients undergoing TAVI and were associated with a significantly higher burden of post-procedural complications, particularly in stages 2–3. Cardiac damage staging yields incremental prognostic information beyond conventional risk assessment and may aid in patient stratification and timing of intervention. The higher complication burden in advanced stages likely reflects more extensive myocardial remodeling, annular calcification, and pulmonary vascular involvement, predisposing to hemodynamic instability and conduction system injury.

Keywords. Aortic stenosis, TAVI, Cardiac damage, Multivalvular disease.

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248. THE ROLE OF TELEMEDICINE IN IMPROVING CHRONIC KIDNEY DISEASE MANAGEMENT

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Introduction. Telemedicine has become an innovative approach in the management of chronic kidney disease (CKD). Remote monitoring and virtual consultations have enhanced patient adherence, reduced healthcare costs, and quality of life.

Aim of study. The study aims to understand the role of telemedicine as an emerging tool in managing CKD.

Methods and materials. The data were collected from literature searches of Pubmed, Google Scholar, Medscape and Cochrane Library for studies published up to January 2026. 43 studies were analyzed using selected keywords and inclusion criteria.

Results. The number of patients with CKD requiring dialysis or kidney transplantation is increasing rapidly worldwide. Telemedicine uses mobile applications, telephone, text messaging, web-based applications, and various remote monitoring devices and they offer a solution to overcome geographic and logistical barriers to healthcare access, particularly for individuals with chronic conditions such as CKD. Evidence suggests that integrating telemedicine into dialysis care may improve patient outcomes. For example, studies in peritoneal dialysis (PD) demonstrate that structured telemedicine protocols enable patient assessment in a comfortable home environment, enhance adherence to prescribed techniques, allow early identification and prevention of infection-related risks. Telehealth interventions improved blood pressure control, diet quality, and quality of life in adults with CKD, particularly when multimodal platforms and RDN-led counseling were used. Kidney function (eGFR) improved only in interventions incorporating active telehealth communication and personalized nutrition support. Text-only interventions showed limited efficacy. No consistent improvements were observed in serum albumin, potassium, or phosphorus, indicating selective clinical benefits. Additionally, telehealth expands access to specialized services for patients in rural or underserved areas, and has been shown to save patients between $19 and $121 per visit by reducing travel and waiting times, and improves care efficiency without increasing overall healthcare costs.

Conclusions. Telemedicine is an effective and feasible approach in the management of patients with CKD across the disease spectrum, including both those receiving dialysis and those in non-dialysis stages. By improving access to care, enhancing patient adherence, and enabling early identification of potential complications, telemedicine can act as a valuable adjunct to traditional medicine, and has the potential to improve clinical outcomes while maintaining cost efficiency.

Keywords. CKD, Peritoneal Dialysis, Telemedicine.

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249. RENAL AA AMYLOIDOSIS SECONDARY TO ANKYLOSING SPONDYLITIS

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Introduction. AA amyloidosis is a severe complication of chronic inflammatory diseases, resulting from persistent systemic inflammation and sustained overproduction of serum amyloid A protein. Although biologic therapies have significantly reduced its incidence, long-standing ankylosing spondylitis with suboptimal inflammatory control remains an important cause of AA amyloidosis, with renal involvement being the main determinant of prognosis.

Case presentation. We report the case of a 63-year-old male patient with ankylosing spondylitis diagnosed at the age of 20, with a disease duration of more than 40 years. The patient has been known to have chronic kidney disease for approximately 30 years, with progressive deterioration of renal function. He previously received biologic therapy for ankylosing spondylitis, initially with a TNF-α inhibitor and subsequently with an IL-17A inhibitor; however, treatment was discontinued during the course of the disease. In 2023, renal biopsy revealed AA amyloid deposits, predominantly within vascular walls, associated with moderate interstitial involvement and minimal glomerular deposition. The clinical course was marked by acute worsening of renal function. At the current admission, the patient presented with severe renal failure, with markedly elevated nitrogenous waste products (urea 74.7 mmol/L, creatinine 1174 µmol/L), accompanied by clinical manifestations of uremia, requiring initiation of renal replacement therapy by hemodialysis. The case was further complicated by cardiovascular comorbidities, including arterial hypertension and ischemic heart disease with previous coronary interventions.

Discussions. This case highlights the central role of persistent chronic inflammation in the pathogenesis of AA amyloidosis in patients with ankylosing spondylitis. Although modern biologic therapies allow improved control of disease activity, treatment discontinuation or inadequate inflammatory suppression may promote progression of amyloid deposition. Renal involvement represents the dominant clinical manifestation and the main determinant of disease outcome.

Conclusions. AA amyloidosis should be considered in patients with long-standing ankylosing spondylitis and progressive deterioration of renal function. Early diagnosis and strict control of systemic inflammation, including appropriate use of biologic therapies, are essential to prevent progression of renal involvement and improve patient prognosis.

Keywords. AA amyloidosis; ankylosing spondylitis; chronic kidney disease; biologic therapy; hemodialysis.

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250. ANGINA PECTORIS: AN INFLAMATORY PERSPECTIVE CENTERED ON LIPOPROTEIN(A)

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Introduction. Lipoprotein(a) is composed of apolipoprotein B100 covalently bound to apolipoprotein(a). Recently, lipoprotein(a) has been recognized not only as an independent atherogenic risk factor but also as an active mediator of vascular inflammation and thrombosis. Plasma levels of lipoprotein(a) are largely genetically determined; however, its pathological effects are mediated through active inflammatory mechanisms.

Aim of study. To evaluate the mechanisms by which lipoprotein(a) drives inflammatory pathways in stable angina and promotes the progression of atherosclerotic plaques, thereby identifying potential targets for personalized patient management and future pharmacological interventions.

Methods and materials. A literature analysis for the years 2012–2026 was conducted using the following sources: Pubmed, ScienceDirect, Dove Press, medRxiv and ten other bibliographic sources.

Results. In the context of stable angina, elevated lipoprotein(a) accelerates plaque progression by transporting approximately 80% of circulating oxidized phospholipids (OxPLs). These OxPLs trigger pro-inflammatory macrophage activation and stimulate the secretion of key cytokines, specifically IL-1β, IL-6, and TNF-α. Furthermore, lipoprotein(a) facilitates monocyte recruitment to the vascular wall by acting as a carrier for monocyte chemoattractant protein-1. Apolipoprotein(a) further amplifies the proteolytic environment by increasing the production of reactive oxygen species and matrix metalloproteinases, which are essential drivers of plaque instability. Notably, lipoprotein(a) inhibits fibrinolysis due to its structural homology with plasminogen. The IL-6/lipoprotein(a) axis provides a therapeutic link; IL-6 receptor blockade (e.g., tocilizumab) has been shown to reduce lipoprotein(a) levels, suggesting inflammatory regulation of its expression. Currently, lipoprotein apheresis is the most effective intervention for patients with lipoprotein(a) >60 mg/dL and progressive cardiovascular disease.

Conclusions. Lipoprotein(a) is a multifunctional pathogenic factor linking chronic vascular inflammation to acute thrombotic events. It should be prioritized as an active inflammatory mediator rather than a simple lipid marker.

Keywords. Inflammation, atherosclerosis, lipoprotein(a), thrombosis.

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251. A RACE AGAINST TIME: MANAGING PROSTHETIC VALVE INFECTIVE ENDOCARDITIS

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Introduction. Infective endocarditis of valve prosthesis is a critical clinical entity with a high risk of fatal outcome. Through its complex pathogenic mechanisms, it can lead to numerous complications. Therapeutic decision-making is especially challenging, as it requires balancing the urgency of surgical intervention against extremely high operative risk.

Case presentation. A 75-year-old man was admitted with a 3-week history of fever and heart failure symptoms associated. His medical history included biological aortic valve replacement and CABG (4 years ago). On admission, BP 100/50 mmHg, HR 80 bpm, with a systolic murmur over the aortic area. TEE revealed voluminous vegetations on the aortic prosthesis and para-aortic abscess. Blood cultures identified Enterococcus faecalis. Through Duke criteria, active infective endocarditis was diagnosed. Antibiotic therapy (amoxacillin/clavulanic acid 2000/200 mg q.i.d. and ceftriaxone 2.0 g b.id.) was initiated; however, the clinical course was unfavourable. CT brain confirmed multiple embolic ischemic strokes. Open-heart surgery was performed and a mechanical prosthesis was implanted. In the post-interventional period, the patient developed acute neurological deterioration. A CT scan revealed a possible intracerebral abscess. A lumbar puncture was performed, and treatment with vancomycin, meropenem, and rifampicin was initiated. Subsequently, the patient developed severe multiorgan dysfunction, predominantly hepatic, renal and respiratory issues. These conditions were interpreted as a cumulative effect of sepsis and drug toxicity. The treatment continued with a meropenem 1 g 3 t.i.d. for 12 days. Simultaneously, microbiological samples of urine and blood showed no growth. A follow-up non-contrast brain CT, after 9 days, revealed a positive evolution. Also, respiratory, hepatic, renal, and cerebral functions showed improvement. Continuation of antibiotic therapy was changed. One month after discharge, the patient was stable, without signs of heart failure or active infection.

Discussions. This case exemplifies the destructive potential of prosthetic valve infective endocarditis Enterococcus faecalis is a frequent but challenging pathogen in these cases. The detection of large, mobile vegetations and abscess formation significantly decreased the patient's prognosis.

Conclusions. Prosthetic valve infective endocarditis remains a medical and surgical emergency with the most challenging conditions in contemporary cardiology. Appropriate use of advanced imaging modalities, early initiation of targeted antimicrobial therapy, and careful timing of surgical intervention, in accordance with current ESC recommendations, are key determinants of patient prognosis.

Keywords. Prosthetic valve infective endocarditis, advanced cardiac imaging.

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252. RENAL FUNCTION AND ITS CLINICAL CORRELATES IN PATIENTS WITH RHEUMATOID ARTHRITIS

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Introduction. Rheumatoid arthritis (RA) is a systemic inflammatory disease in which renal involvement may occur as a consequence of chronic inflammation, comorbidities and treatments. Assessment of renal biochemical parameters and estimated glomerular filtration rate (eGFR) can help identify early subclinical changes and guide monitoring.

Aim of study. To describe renal function in patients with RA using creatinine, urea, uric acid and eGFR, and to explore their associations with age, disease duration and markers of disease activity.

Methods and materials. A retrospective observational study including 180 patients with RA was conducted. The diagnosis of RA was established according to the 2010 ACR/EULAR . Exclusion criteria were diabetes mellitus, chronic organic conditions that could influence renal function, active malignancy or recent cancer therapy, etc. Descriptive statistics including mean, standard deviation (SD) and 95% confidence intervals (95% CI) were calculated for age, disease duration, serum creatinine, urea, uric acid and estimated glomerular filtration rate (eGFR). eGFR was calculated using the CKD-EPI 2021 creatinine equation. Associations between variables were assessed using Spearman's rank correlation coefficient (ρ). Statistical significance was set at $p < 0.05$.

Results. The mean age was 56.21 ± 11.95 years (95% CI: 54.41–58.00) and the mean disease duration was 10.79 ± 9.43 years (95% CI: 9.37–12.20). Mean values of renal markers were: creatinine 59.86 ± 13.43 (95% CI: 57.66–62.05), urea 6.16 ± 2.19 (95% CI: 5.80–6.52) and uric acid 250.93 ± 75.32 (95% CI: 237.66–264.21). Mean eGFR was 98.34 ± 15.11 mL/min/1.73 m² (95% CI: 95.87–100.81). Significant correlations were observed between urea and age ($\rho = 0.475$; $p < 0.001$), disease duration ($\rho = 0.205$; $p = 0.013$), ESR ($\rho = 0.217$; $p = 0.009$) and DAS (ESR) ($\rho = 0.327$; $p < 0.001$). Uric acid correlated with age ($\rho = 0.242$; $p = 0.006$), BMI ($\rho = 0.222$; $p = 0.012$) and ESR ($\rho = 0.198$; $p = 0.026$). Creatinine showed weak inverse correlations with disease duration ($\rho = -0.211$; $p = 0.011$) and CRP ($\rho = -0.168$; $p = 0.043$). eGFR decreased significantly with increasing age ($\rho = -0.616$; $p < 0.001$). Moderate inverse correlations were found between eGFR and urea ($\rho = -0.430$; $p < 0.001$) and uric acid ($\rho = -0.448$; $p < 0.001$). The association between eGFR and disease activity was weak but statistically significant ($\rho = -0.175$; $p = 0.035$).

Conclusions. In the analyzed cohort, renal function was influenced primarily by age and was also associated with inflammatory parameters. eGFR showed moderate inverse associations with urea and uric acid, suggesting the value of integrated monitoring of these parameters in patients with RA, especially in older individuals.

Keywords. Rheumatoid arthritis, renal function.

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253. RADIO-DIAGNOSTIC APPROACH IN INFLAMMATORY RENAL PATHOLOGIES

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Introduction. In emergency clinical settings, systemic inflammatory markers and physical examination demonstrate limited specificity in differentiating uncomplicated acute pyelonephritis from suppurative renal complications. In accordance with the EAU 2025 Guidelines and National Clinical Protocols No. 81 and 115, imaging is positioned as a central component of risk stratification, aiming to reduce both delayed recognition of severe infection and unnecessary invasive treatment in self-limiting forms.

Aim of study. To establish an evidence-based diagnostic hierarchy among contemporary imaging modalities for the early detection of renal suppuration and to support the optimization of invasive versus conservative therapeutic pathways.

Methods and materials. A structured narrative synthesis of 90 peer-reviewed publications (2015–2025) was conducted, including EAU guidelines, meta-analyses, and prospective imaging studies, correlated with Moldovan national protocols. The diagnostic performance of contrast-enhanced computed tomography (CECT), conventional ultrasound (US), contrast-enhanced ultrasound (CEUS), and diffusion-weighted magnetic resonance imaging (DWI-MRI) was comparatively evaluated for the identification of renal abscesses, parenchymal necrosis, and pyonephrosis.

Results. Nephrographic-phase CECT demonstrated the highest overall diagnostic yield, providing superior sensitivity for detecting striated nephrograms and early perinephric fat stranding—imaging features frequently occult on conventional ultrasound. Peripheral contrast enhancement surrounding hypoattenuating collections (the rim sign) represents a highly suggestive imaging feature for differentiating mature renal abscesses from acute focal bacterial nephronia. While standard ultrasound remains limited by lesion size and depth, CEUS enhances the visualization of cortical perfusion abnormalities and small parenchymal collections through real-time assessment of microvascular perfusion. DWI-MRI consistently demonstrates diffusion restriction with reduced apparent diffusion coefficient values within purulent collections, offering a robust non-ionizing alternative in selected patient populations.

Conclusions. Imaging-based triage centered on nephrographic-phase CECT supports accurate differentiation between patients requiring percutaneous drainage and those suitable for conservative antimicrobial management, thereby reducing procedural morbidity and treatment delays. CEUS and DWI-MRI represent valuable complementary modalities for bedside monitoring and for radiation-sensitive populations, and their structured integration into institutional imaging algorithms may further optimize the management of complex renal infections.

Keywords. acute pyelonephritis, CECT, CEUS, renal abscess, imaging algorithms, DWI-MRI.

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254. ATYPICAL MULTIPLE MYELOMA: CASE REPORT

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Introduction. Kidney damage associated with multiple myeloma is a severe complication of plasma cell dyscrasias. However, in non-secretory multiple myeloma, the clinical onset of the disease may be dominated by anemic syndrome, in the absence of hypergammaglobulinemia and with only mild renal dysfunction.

Case statement. The patient, aged 58, with no known history of renal disease, presented with the onset of the disease in March 2025, manifested by general weakness and initially moderate anemia (hemoglobin 118 g/L), with normal levels of nitrogenous waste and total serum proteins. Initial investigations revealed only a slight increase in nitrogenous waste (urea 11 mmol/L, creatinine 129 µmol/L). As part of the differential diagnosis of anemic syndrome, the patient underwent an extensive range of investigations. Anemia of renal etiology was ruled out, given the discrepancy between the severity of the anemia and the initial degree of renal impairment. In the following months, hemoglobin values fluctuated significantly (83 g/L in May and 60 g/L in September), accompanied by progressive deterioration of renal function, with serum creatinine reaching 127 µmol/L in July 2025. In this context, the patient required multiple red blood cell transfusions to correct the anemic syndrome. During dynamic follow-up, laboratory tests showed: hemoglobin 81 g/L, erythrocytes 2.64 × 10^{12}/L, creatinine 191 µmol/L, total protein 71.3 g/L, and proteinuria of 0.5 g/L. Despite five days of treatment, a progressive decrease in hemoglobin to 69 g/L was observed, associated with a rapid increase in serum creatinine to 671 µmol/L, subsequently reaching 878.9 µmol/L, without significant clinical changes in the general condition. The interdisciplinary team recommended to repeat the bone marrow aspiration and initiate hemodialysis treatment.

Discussions. This case highlights an atypical presentation of non-secretory multiple myeloma, with anemia as the first manifestation and initially mild renal failure. Normal total serum protein delayed diagnosis, emphasizing the importance of suspecting plasma cell dyscrasia in patients with unexplained anemia and disproportionate changes in renal function.

Conclusions. The heterogeneous clinical presentation of multiple myeloma can delay diagnosis, especially in atypical forms. The present case highlights the importance of recognizing severe unexplained anemia as a possible initial manifestation, justifying early interdisciplinary evaluation to prevent irreversible renal impairment.

Keywords. non-secretory multiple myeloma; rapidly progressive acute kidney injury; anemia; paraproteinemia.

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255. USEFULNESS OF AI IN PERSONALIZED STENT DESIGN: CLINICAL OUTCOMES IN PERCUTANEOUS CORONARY INTERVENTIONS

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Introduction. Percutaneous coronary intervention (PCI) is a therapeutic approach to manage coronary artery disease but procedural outcomes remain influenced by inter-patient anatomical variability, lesion complexity and complications such as stent thrombosis, in-stent restenosis and the need for repeat interventions although technology is advancing. The integration of artificial intelligence (AI) into interventional cardiology has introduced strategies for individualized stent planning and procedural optimization to address the limitations associated with conventional, uniform stent selection approaches.

Aim of study. To evaluate the clinical relevance of AI-driven, patient-specific stent design and procedural planning in PCI.

Methods and materials. A narrative analysis of peer-reviewed literature was performed across some indexed scientific platforms like PubMed, PubMed Central, JACC journals and others .

Results. The synthesized findings are derived from 28 articles published in different platforms and clinical cohorts with an average age of 65.4 ± 8.2 years with male predominance of 73.2% ± 7.5%. AI-guided intravascular imaging significantly reduced errors related to vessel diameter estimation and stent sizing compared to operator-dependent assessment. Predictive models incorporating machine learning demonstrated superior accuracy over conventional risk assessment tools such as the NCDR-CathPCI score, with reported C-statistic values ranging from 0.83 to 0.88 for post-procedural outcome prediction. Machine learning–based prediction of major adverse cardiac events (MACE) and personalization of dual antiplatelet therapy (DAPT) duration helped mitigate limitations associated with uniform treatment strategies. AI-driven stent optimization techniques showed a markedly higher likelihood of achieving optimal angiographic results, with an odds ratio of 7.93 for attaining less than 20% residual stenosis compared with manual approaches. In addition, AI-powered clinical decision support systems reduced unnecessary invasive procedures, while AI-assisted plaque characterization and individualized treatment planning contributed to long-term cost savings by lowering repeat revascularization rates and reducing avoidable angiographic evaluations by approximately 85–90%, despite higher initial software implementation costs.

Conclusions. AI-driven personalization in PCI represents a transition toward predictive and precision-based interventional cardiology. By improving stent-to-vessel matching and enabling individualized risk assessment, AI technologies have the potential to enhance procedural outcomes while supporting long-term cost efficiency.

Keywords. PCI, AI, stent design, CAD.

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256. YOUNG PATIENT WITH LEFT ATRIAL MASS: FROM DIAGNOSIS TO TREATMENT

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Scientific adviser: Daniela Bursacovschi, MD, PhD, Institute of Cardiology

Introduction. Left atrial masses encompass a heterogeneous group of pathological entities, atrial myxoma represents the most common primary cardiac tumor. Left atrial thrombi constitute another frequent diagnosis, particularly in patients with atrial fibrillation, mitral valve disease and may closely mimic cardiac tumors on imaging studies. Less common causes of left atrial masses include infective vegetations, lipomas, papillary fibroelastomas, primary malignant cardiac tumors such as sarcomas, and secondary metastatic involvement.

Case statement. A 19-year-old male was admitted in January 2025 with exertional dyspnea, hemoptysis of five months' duration. Chest radiography suggested pulmonary infarction. Transthoracic echocardiography revealed a left atrium mass measuring 35 × 53 mm.Pulmonary computed tomography angiography demonstrated a left atrial mass measuring 7.0 × 4.5 × 6.0 cm, with a density of +37 HU, associated with thrombosis of the right pulmonary veins. The patient underwent extensive surgical excision. Histopathological examination revealed a grade II leiomyosarcoma. The patient was discharged in March 2025 and initiated systemic chemotherapy. Follow-up imaging 4 months after intervention revealed a recurrence of left atrial mass already 21.8 × 11.9 mm, which progressed to 31.9 × 22.6 mm in 2 months. The patient completed three cycles of polychemotherapy in July 2025 consisting of doxorubicin (32 mg per cycle) and ifosfamide (3200 mg per cycle), with mesna (sodium 2-mercaptoethane sulfonate; 3600 mg per cycle) administered for uroprotection. Based on a body surface area of 1.83 m², the cumulative dose of doxorubicin after three cycles was - 52.5 mg/m². Follow-up in August 2025, echocardiography demonstrated a residual mass measuring 1.15 × 0.87 cm. At subsequent follow-up in November 2025, after completion of seven cycles of the same antitumour regimen, follow-up echocardiography revealed no residual intracardiac masses. The cumulative doxorubicin dose after seven cycles reached approximately 122.5 mg/m², no signs of cancer therapy–related cardiac dysfunction were detected.

Discussions. Published case series and narrative reviews confirm the highly aggressive biological behavior of primary cardiac leiomyosarcoma, characterized by infiltrative growth, a high rate of local recurrence, and poor prognosis despite radical surgical resection. Reported median survival generally ranges between 6 and 12 months, even in patients with multimodal strategies combining surgery and systemic chemotherapy.

Conclusions. Primary cardiac leiomyosarcoma in young patients is exceptionally rare, highly aggressive, and prone to early recurrence. Complete surgical resection, close imaging follow-up, and integration of adjuvant oncologic therapy remain essential components of optimal patient management.

Keywords. primary cardiac leiomyosarcoma, intracardiac tumor, cardio-oncology.

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257. TRIAGE IN THE EMERGENCY DEPARTMENT: IMPORTANCE, APPLICABILITY AND REGULATION

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Introduction. Medical triage is a critical component in the efficient functioning of the Emergency Department (ED), allowing for the rapid assessment and classification of patients based on the severity of their clinical condition. This process optimizes the use of medical resources, reduces waiting times, and improves outcomes for critical cases.

Aim of study. This study aims to highlight the role of triage in the organization of emergency medical care at the ED of Institute of Emergency Medicine (IEM), to analyze the distribution of patients by urgency levels, and to evaluate compliance with the national triage protocol.

Methods and materials. The analysis was conducted based on statistical data from the year 2024 and the national clinical protocol „Triage in Emergency Departments" approved by the Ministry of Health of the Republic of Moldova on May 19, 2017. Patient classification was carried out according to the Emergency Severity Index (ESI), which defines five levels of priority based on clinical parameters and resource needs.

Results. In 2024, there were 80080 ED referrals, of which 30698 (38.3%) required hospitalization. The distribution of patients by emergency levels was: red zone (level I-resuscitation): 2146 critical patients (2,7%), with hemodynamic instability, acute respiratory; yellow zone (level II-critical) there were 14351 patients (17,9%) with major risk, severe pain, complex trauma. In the green zone (level III-urgent): 24187 patients (30,2%) who required multiple investigations and emergency treatment, but without immediate life-threatening risk, and in the blue zone (level IV-non-urgent) - 30141 patients (37,6%) with minor conditions, clinical stability, consultative referrals that could be managed in primary care. Level V-white code, 11,6% (9255 patients) does not require emergency assistance, clinical-administrative cases. The prompt identification of 2146 patients who required immediate resuscitation demonstrates the effectiveness of triage and its vital impact on survival in critical cases.

Conclusions. Standardized triage, applied according to national guidelines, plays a crucial role in prioritizing emergency care, ensuring rapid intervention for life-threatening conditions, and optimizing resource use. Adequately trained personnel and strict adherence to the triage algorithm significantly improve the quality of emergency medical services.

Keywords. triage, emergency care, ED, prioritization, ESI, protocol.

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258. RADIO-IMAGING PRINCIPLES IN THE DIFFERENTIAL DIAGNOSIS OF INFLAMMATORY COLONIC DISEASES

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Introduction. Inflammatory colonic diseases (ICD) represent a heterogeneous group of conditions, including ulcerative colitis (UC), colonic Crohn's disease (CD), and infectious colitis (IC), which may present overlapping clinical and imaging features. Modern radiological and imaging methods play a crucial role in differential diagnosis, assessment of disease extent, severity of inflammation, and detection of complications, in correlation with clinical and endoscopic findings.

Aim of study. To evaluate radio-imaging principles used in the differential diagnosis of ICD based on characteristic imaging findings.

Methods and materials. This retrospective study included 67 patients with inflammatory colonic pathology examined between June and November 2025 at the Municipal Hospital "Sfânta Treime", Chișinău, Republic of Moldova. The study group consisted of 42 men and 25 women. Abdominal ultrasonography was performed in all patients. In cases with clinical signs of acute abdomen, plain abdominal radiography was used to exclude intestinal perforation and obstruction. Contrast-enhanced abdominal and pelvic CT was performed in 59 patients. Patients suspected of colonic CD additionally underwent CT or MR enterography. MRI was performed in 16 patients, mainly in those with allergic reactions to iodinated contrast media and in cases with suspected rectal neoplastic processes. Imaging evaluation focused on lesion distribution, colonic wall thickness, contrasts enhancement patterns, pericolic changes, and complications.

Results. Based on radio-imaging analysis, a differential diagnosis of inflammatory colonic diseases was established. Of the 67 patients, 37 (55.2%) were diagnosed with UC, characterized by continuous involvement, moderate wall thickening, and inflammation predominantly limited to the mucosa and submucosa. Nineteen patients (28.4%) were diagnosed with pseudomembranous colitis, classified as IC, showing marked wall thickening, pronounced submucosal edema, and pericolic inflammatory changes. Eleven patients (16.4%) were diagnosed with colonic CD, presenting segmental involvement, transmural inflammation, and associated mesenteric changes. Lesion distribution, depth of inflammation, and pericolic involvement represented key imaging criteria for differential diagnosis. CT and MRI examinations enabled assessment of disease extent and detection of inflammatory complications, playing a decisive role in guiding therapeutic management.

Conclusions. Radio-imaging methods are essential in the differential diagnosis of inflammatory colonic diseases. Assessment of lesion distribution, depth of inflammation, and associated imaging features allows accurate differentiation between ulcerative colitis, colonic Crohn's disease, and infectious colitis, significantly contributing to optimal patient management.

Keywords. inflammatory colonic disease, imaging diagnosis, ulcerative colitis, Crohn's disease, infectious colitis.

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259. CLINICAL MANIFESTATIONS OF DIPHTHERIA OF THE OTORHINOLARYNGOLOGICAL ORGANS

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Introduction. Diphtheria, like many infectious diseases, remains a potentially life-threatening condition, despite the existence of an effective vaccine. Diphtheria of the otorhinolaryngological organs, which often leads to severe complications, remains the most common localization of the disease. The diversity of the disease's clinical manifestations, particularly in vaccinated and unvaccinated persons, may complicate the early diagnosis and proper treatment of diphtheria.

Aim of study. The aim of the study was to examine the clinical manifestations and severity of diphtheria of the otorhinolaryngological organs, particularly typical and rare forms of the disease.

Methods and materials. An analytical review of the literature was conducted, focusing on the clinical manifestations of diphtheria of the otorhinolaryngological organs. Scientific publications published between 2015 and 2025 were analyzed using the international medical databases PubMed, ScienceDirect, and NCBI, as well as current clinical guidelines. The analysis included studies addressing disease classification, severity, clinical presentation, and the characteristics of the course of various forms of diphtheria affecting ENT organs.

Results. The clinical manifestations of diphtheria vary depending on the site of infection, vaccination status, and level of intoxication. The commonest form of diphtheria is pharyngotonsillar diphtheria, which can be divided into membranous, diffused, toxic, hemorrhagic, or hypertoxic variants. The toxic forms are distinguished by the widespread formation of pseudomembranes, cervical swelling, and the high risk of systemic complications. Laryngeal diphtheria is one of the most serious forms of diphtheria because of the progressive obstruction of the airways and occurs in three stages: dysphonic, dyspneic, and asphyxiating. Some of the rare forms of clinical diphtheria include nasal diphtheria, otic diphtheria, diphtheria of the oral cavity and tongue, and pulmonary diphtheria. These clinical forms are often associated with atypical symptoms and may result in delayed diagnosis. Vaccinated patients will often have less severe clinical manifestations, while unvaccinated patients are at a significantly increased risk of severe disease, complications, and mortality.

Conclusions. The clinical picture of diphtheria of otorhinolaryngological organs is varied, from mild localized forms to severe toxic and life-threatening conditions. Recognition of the characteristic clinical signs of diphtheria, particularly in laryngeal diphtheria and toxic diphtheria, is important for timely treatment of the disease and prevention of complications. Sustained vaccination is the main factor that reduces the severity of diphtheria and mortality from this infection.

Keywords. Diphtheria, clinical manifestations, otorhinolaryngological organs, pseudomembranes, laryngeal diphtheria, vaccination.

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260. CLINICAL ASPECTS OF CLOSTRIDIOIDES DIFFICILE ENTEROCOLITIS IN THE CONTEXT OF THE COVID-19 PANDEMIC

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Introduction. The COVID-19 pandemic has indirectly influenced the frequency and clinical manifestations of healthcare-associated infections. The widespread use of antibiotics has promoted the development of intestinal dysbiosis, adversely affecting the course of Clostridioides difficile infection (CDI). In this context, a history of SARS-CoV-2 infection may contribute to a more severe clinical presentation and prolonged gastrointestinal symptoms of Clostridioides difficile enterocolitis.

Aim of study. The objective was to characterize the clinical profile of Clostridioides difficile infection during the COVID-19 pandemic and to assess the impact of a history of SARS-CoV-2 infection on disease severity and clinical course.

Methods and materials. This retrospective study included 50 hospitalized patients with a confirmed diagnosis of Clostridioides difficile enterocolitis admitted to the "Toma Ciorbă" Clinical Hospital of Infectious Diseases, Chișinău, between March 2020 and August 2024. The analysis included demographic characteristics, gastrointestinal clinical manifestations, severity of prior SARS-CoV-2 infection and previous antibiotic treatment. The diagnosis of CDI was established based on clinical criteria and confirmed by paraclinical investigations, including immunoenzymatic methods for the detection of toxins A and B and microbiological tests performed according to institutional protocols. Data were collected from patients' medical records, and statistical analysis was performed using descriptive methods with Microsoft Excel.

Results. Data analysis revealed a demographic profile dominated by elderly patients, with a mean age of 63.5 years. Sex distribution showed that 70% of patients were female, while 30% were male. A history of COVID-19 infection was identified in n=28/50 patients (56.0%). Among these, n=21/28 (75.0%) required hospitalization, with n=12/28 (42.9%) presenting moderate forms and n=9/28 (32.1%) severe forms. The clinical presentation of Clostridioides difficile enterocolitis was heterogeneous. Assessment of disease severity based on stool frequency showed that n=19/50 patients (38.0%) had 7–10 stools/day, n=18/50 (36.0%) had 3–6 stools/day, n=7/50 (14.0%) had 11–15 stools/day, n=3/50 (6.0%) had 16–20 stools/day, and n=1/50 patient (2.0%) had more than 20 stools/day. The clinical course of the disease was influenced by prior exposure to antibiotics, particularly broad-spectrum agents, favoring intestinal dysbiosis and the development of complications.

Conclusions. The COVID-19 pandemic has influenced both the incidence and the clinical course of Clostridioides difficile infection. Alterations of the intestinal microbiota associated with antibiotic exposure, particularly broad-spectrum antibiotics, were frequently present in patients with more severe clinical forms and may contribute to disease severity.

Keywords. Clostridioides difficile, COVID-19.

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261. MODERN APPROACHES TO HYPERTENSION MANAGEMENT IN CHRONIC KIDNEY DISEASE

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Introduction. Hypertension is highly prevalent among patients with chronic kidney disease (CKD) and represents a major contributor to both renal disease progression and cardiovascular morbidity. The pathophysiology of hypertension in CKD is multifactorial, involving sodium and water retention, activation of the renin–angiotensin–aldosterone system, sympathetic nervous system overactivity and vascular dysfunction. Consequently, optimal blood pressure control is a fundamental component of CKD management.

Aim of study. To review current concepts and therapeutic strategies for the management of hypertension in patients with chronic kidney disease.

Methods and materials. Data were retrieved from international medical databases, including PubMed, Medline, and Google Scholar, as well as from recent nephrology guidelines. Relevant publications focusing on blood pressure assessment, antihypertensive treatment options, and renal outcomes in chronic kidney disease were selected and analyzed.

Results. Accurate blood pressure assessment is essential in CKD, with ambulatory and home blood pressure monitoring providing improved diagnostic accuracy compared to office measurements. Renin–angiotensin–aldosterone system inhibitors remain the cornerstone of antihypertensive therapy due to their established renoprotective effects, particularly in patients with proteinuria. Diuretics play a key role in the management of volume-dependent hypertension, especially in advanced stages of CKD. Recent evidence highlights the additional benefit of sodium–glucose cotransporter 2 inhibitors, which contribute to modest blood pressure reduction while providing additional renal and cardiovascular protection. Resistant hypertension and the risk of overtreatment remain important clinical challenges.

Conclusions. Hypertension management in chronic kidney disease requires an individualized and comprehensive approach. The integration of accurate blood pressure assessment with appropriate pharmacological therapy is essential to slow renal function decline and reduce cardiovascular risk.

Keywords. chronic kidney disease, hypertension, blood pressure management, nephroprotection.

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262. CLINICAL PREDICTORS OF DYSPHAGIA IN PATIENTS WITH HEMISPHERIC STROKE: AN OBSERVATIONAL STUDY

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Introduction. Dysphagia occurs in 29–55% of stroke patients and is more frequently observed in those with brainstem lesions. PSD is considered an independent predictor of poor outcome and is associated with aspiration, pneumonia, and malnutrition, increasing the relative risk of in-hospital death. Therefore, a study of demographics, stroke risk factors, and incidence will help us prevent it.

Aim of study. The aim of this study was to examine the frequency of dysphagia in patients with hemispheric stroke and to analyze the risk factors to develop post-stoke dysphagia.

Methods and materials. We conducted a study of stroke patients who were admitted to the Neuroemergency Department at the Institute of Neurology and Neurosurgery "Diomid Gherman". Dysphagia was assessed using the FeSS protocol (Fever, Sugar, Swallow). Data were analyzed by using IMB SPSS statistics, comparative analysis between variables was performed using the chi-square test, qualitative data were described in terms of frequency and percentage and continuous variables were expressed as mean ± standard deviation SD, $p < 0.05$ was considered statistically significant.

Results. Forty-five (31.9%) of all stroke patients presented post-stroke dysphagia (PSD). PSD occurred in 50% of patients with hemorrhagic stroke compared to ischemic 28.9% (OR = 2.46; 95% CI: 0.94–6.44; p = 0.073).Patients with dysphagia were older, although the difference did not reach statistical significance (70.4 ± 9.4 vs. 69.0 ± 7.8 years, p = 0.390). Male sex was significantly more frequent in the dysphagia group (68.9% vs. 42.7%, p = 0.007). Mean BMI was significantly higher among patients with dysphagia (32.96 ± 8.13 vs. 28.77 ± 6.96 kg/m², p = 0.004). Patients with grade 3 hypertension had higher odds of dysphagia compared with those with grade 2 hypertension (OR = 5.57; 95% CI: 1.84–16.91; p = 0.0009). Regarding clinical characteristics, patients with dysphagia had a higher stroke severity, reflected by NIHSS scores (17.36 ± 3.93 vs. 9.32 ± 3.69, p < 0.001).. Dyslipidemia was more prevalent in the dysphagia group (64.4% vs. 38.5%, p = 0.007). No significant differences were observed between groups in terms of history of prior stroke (73.3% vs. 75.0%, p = 0.996). No statistically significant differences were found for diabetes mellitus (p = 0.275) or atrial fibrillation (p = 0.223). Pneumonia occurred significantly more frequently in patients with dysphagia compared with those without dysphagia (73.3% vs. 15.6%, OR = 7.37;95% CI:2.21 – 24.53,p < 0.001).

Conclusions. This study found that the prevalence of PSD was 31.9%. Post-stroke dysphagia was significantly associated with male sex, higher BMI, greater stroke severity, dyslipidemia, higher BMI, hypertension, and a markedly increased occurrence of pneumonia, highlighting these factors as potential clinical predictors.

Keywords. Dysphagia, Hemispheric stroke, risk factors.

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263. MODULATION OF CEREBELLOTHALAMIC OSCILLATORY NETWORKS BY ACUPUNCTURE IN ESSENTIAL TREMOR

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Introduction. Essential tremor (ET) is increasingly recognized as a cerebellar network oscillopathy characterized by dysregulated Purkinje cell output, impaired GABAergic inhibition, and abnormal synchronization along the dentato-rubro-thalamic pathway. These disturbances generate stable rhythmic activity that current pharmacological agents only partially suppress. Acupuncture has emerged as a potential neuromodulatory technique capable of influencing oscillatory dynamics within cerebellothalamic circuits through combined peripheral and central mechanisms. Recent neuroimaging studies suggest that acupuncture may modulate upstream neural processes contributing to tremor generation beyond its observable motor effects.

Aim of study. To synthesize current neuroimaging evidence on the modulatory effects of acupuncture on cerebellothalamic oscillatory networks involved in essential tremor.

Methods and materials. A targeted literature search was conducted in PubMed, Embase, and the Cochrane Library. Publications reporting neurophysiological or neuroimaging responses to acupuncture in essential tremor were analyzed.

Results. Neuroimaging investigations (fMRI, PET) report reduced cerebellar hyperactivity involving the hemispheres and dentate nucleus following acupuncture, along with decreased thalamic relay synchrony and partial restoration of functional connectivity with the primary motor cortex. Electrophysiological studies, including MEG and EMG, demonstrate attenuation of tremor-related oscillatory power and improved cortical inhibitory control. TMS assessments indicate enhanced intracortical inhibition at short intervals. Studies also describe altered processing of somatosensory afferent input, as patterned signals generated at acupoints ascend through brainstem pathways toward cerebellar regions involved in tremor regulation. This sensory-driven modulation may recalibrate inhibitory and excitatory interactions within cerebellothalamic circuits, corresponding with modest reductions in tremor amplitude reported across controlled studies.

Conclusions. Current neuroimaging and electrophysiological findings support the view that acupuncture modulates cerebellothalamic circuitry implicated in ET. By dampening cerebellar hyperexcitability, reducing pathological thalamic synchrony, and strengthening cortical inhibitory control, acupuncture demonstrates a neuromodulatory profile that complements established pharmacological treatments as well as interventional therapies such as deep brain stimulation. Future studies integrating neuroimaging with standardized tremor scales are required to refine stimulation parameters and clarify the long-term therapeutic impact of acupuncture on tremor network dynamics.

Keywords. Essential tremor, acupuncture, neuromodulation.

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264. AGONISTS OF THE GLP-1 RECEPTOR: SHIFTING FROM ANTI-OBESITY DRUGS TO DISEASE-MODIFYING CARDIOVASCULAR THERAPIES

Author: Vasile Iftime**; Co-author:** Darius Marian Ghidarcea

Scientific adviser: Laura Gârdan

Introduction. Glucagon-like peptide-1 receptor agonists (GLP-1 RAs) were initially developed for glycemic control and weight management, but recent evidence suggests a broader therapeutic role. The purpose of this review is to evaluate the paradigm shift of GLP-1 RAs from weight-centric interventions to potent disease-modifying cardiovascular therapies, specifically analyzing the cardioprotective efficacy of semaglutide.

Aim of study. To evaluate the effect of semaglutide 2.4 mg on the incidence of major adverse cardiovascular events (MACE-3) in adults with established cardiovascular disease and overweight or obesity, but without a diagnosis of diabetes.

Methods and materials. A systematic study was conducted on PubMed, ScienceDirect, and Google Scholar for articles published in the last 5 years using the keywords: "semaglutide", "obesity", and "cardiovascular protection". Inclusion criteria for articles were randomized controlled trials (RCTs) evaluating major adverse cardiovascular events (MACE) in overweight or obese populations. Exclusion criteria were studies involving patients with type 2 diabetes or lack of inclusion criteria. The risk of bias was not evaluated and PRISMA guidelines were used for data synthesis.

Results. The SELECT trial demonstrated a 20% relative risk reduction (RRR) in MACE-3 (HR 0.80; 95% CI, 0.72-0.90; P<0.001). Benefits were observed as early as 6 months post-initiation. Mechanisms of action are pleiotropic and independent of glycemic control or total weight loss magnitude, including enhanced endothelial function, nitric oxide bioavailability, and reduced vascular inflammation. The Number Needed to Treat (NNT) to prevent one major cardiovascular event was 63. Safety profiles were consistent with the GLP-1 class, with gastrointestinal events being transient and manageable via a 16-20 week dose-escalation protocol.

Conclusions. Out of 15 initial studies, 3 were selected, summing 24,560 patients who participated in clinical trials. Lincoff et al. (2023) shows that semaglutide 2.4 mg achieves a statistically significant 20% reduction in the risk of primary MACE compared to placebo (HR: 0.80; 95\% CI: 0.72-0.90; p<0.001). The cardiovascular benefits were observed early after treatment initiation and appeared to be independent of the baseline BMI or the degree of weight loss achieved, suggesting direct pleiotropic effects.

Keywords. Semaglutide, Obesity, Cardiovascular protection, MACE, GLP-1 RAs.

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265. PERSONALIZED SMOKING CESSATION STRATEGIES FOR ADOLESCENT IN THE ERA OF ENDS

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Introduction. There has been a significant increase in adolescent smoking dependence, particularly through the expansion of Electronic Nicotine Delivery Systems (ENDS) use, and a growing need for a deeper understanding of smoking-cessation strategies specifically tailored to adolescents.

Aim of study. Identification of recommendations and strategies for smoking cessation, including electronic devices (ENDS), among adolescents.

Methods and materials. The research was conducted in two stages. 1 - a narrative synthesis review of the Google Scholar and PubMed databases using the keywords: „smoking", „cessation strategies", „adolescents", „ENDS", with the following inclusion criteria: the period 2019-2025 and the availability of full-text articles in English. 2 - analysis of international guidelines from official websites. A total of 17 documents were included.

Results. The analysis of documents regulating smoking-cessation strategies among adolescents revealed that modern strategies are not only focused on individual clinical interventions, but also encompass population-level measures aimed at preventing early dependence. The most common strategy at present is to combine cognitive behavioural therapy (CBT) with digital innovations, which aid adolescents in identifying triggers, cultivating self-regulation abilities, and rectifying mistaken perceptions about ENDS, increasing the chances of success by about 1.6 to 2.2 times. Digital interventions - mobile applications (QuitNow, Smoke Free, iCanQuit), interactive chatbots, and SMS services - are integrated into behavioral support. For example, the „This is Quitting" programme achieved a reduction in nicotine use of 22-32% among adolescents after six months of consistent engagement. Interactive campaigns, delivered in language close to adolescents and focused on personal autonomy, proved more effective than traditional risk-centred messages. Multiple studies confirm that the effectiveness of interventions increases through the involvement of school and family (tobacco-free environment) and that competence-oriented programmes can reduce the likelihood of regular nicotine use by nearly one third. Pharmacotherapy is used less frequently and is recommended in cases of severe dependence, marked withdrawal symptoms, or relapse after behavioral programs.

Conclusions. In the context of the increasing prevalence of vaping, personalised nicotine-cessation methods that combine behavioural support, digital innovations and, in certain cases, controlled pharmacotherapy demonstrate the highest effectiveness among adolescents. These methods require an individualised approach for each adolescent.

Keywords. smoking, cessation strategies, adolescents, ENDS.

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266. EARLY IDENTIFICATION OF ADULT PATIENTS AT INCREASED RISK OF IRON DEFICIENCY

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Introduction. Iron deficiency (ID) remains a major public health problem with a significant impact both in the Republic of Moldova and worldwide. Without systematic screening, ID is often underdiagnosed, among high-risk patients and especially in the general population. Early identification of ID, in its initial stages, through the assessment of serum ferritin (SF) and serum iron, is a challenge for healthcare systems, leading to delayed diagnosis, increased risk of complications and a negative impact on patient prognosis.

Aim of study. To evaluate current trends in the early identification of adults at increased risk of ID by analyzing data available in the scientific literature.

Methods and materials. A bibliographic search covering the last five years was performed on PubMed and Google Scholar platforms from October 2025 to February 2026, using the keywords: „iron deficiency", „early detection", „risk groups" and „adults". Original articles, reviews, official guidelines and clinical studies were included. The literature review aimed to identify the main risk groups for ID, the limitations of currently used diagnostic biomarkers, and recommendations for optimising early diagnostic strategies.

Results. Out of 4788 identified publications, 156 were considered relevant, including 6 official guidelines, 27 reviews, 31 observational studies, and 2 meta-analyses. Most publications originated from EU countries (n=24), the USA (n=12), the UK (n=4), China (n=3), and other countries (n=23). The analysis highlighted a predominance of risk groups represented by: women of reproductive age (n=86), patients with gastrointestinal diseases, particularly inflammatory bowel disease and colorectal cancer (n=35), followed by patients with heart failure (n=13) and chronic kidney disease (n=22). The information presents omnidirectional data, therefore The World Health Organisation (WHO, 2020) recommends the use of SF concentrations for the assessment of ID, with a threshold of SF <15ng/mL in the absence of inflammation and SF <70 ng/mL in the presence of inflammation. According to the European Society of Cardiology (ESC, 2021) and the American Heart Association (AHA/ACC, 2022), systematic screening in patients with heart failure should be performed based on the following criteria: SF <100ng/mL or SF 100-299ng/mL with the transferrin saturation (TSAT) <20%. According to KDIGO (2026), ID in patients with CKD is defined as follows: in non-dialysis patients, SF < 100ng/mL with TSAT < 40% or SF <300ng/mL with TSAT <25%, and in dialysis patients, SF <500 ng/mL with TSAT <30%.

Conclusions. Early identification of Iron Deficiency remains an insufficiently resolved issue in many countries, and this topic is incompletely studied. Optimising early diagnostic processes enables timely detection of ID in adults, thus favouring a better clinical outcome.

Keywords. iron deficiency, risk groups, early identification, adults.

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267. STRESS MANAGEMENT STRATEGIES FOR STUDENTS

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Introduction. Academic stress is a common problem among students, driven by the high volume of information, repeated assessments, and exam pressure. The demands of the academic environment and limited personal possibilities can cause emotional overload. Especially during sessions, the level of stress increases and can affect concentration, academic efficiency and neuro-psychic state. In this context, coping methods play an important role in how students manage or fail to cope with academic demands.

Aim of study. Analysis of the main coping strategies used by students to manage academic stress and highlighting their impact on psychological adaptation and academic performance.

Methods and materials. The paper represents a narrative analysis of studies published between 2015 and 2024 on perceived stress and coping mechanisms in students. Research that used validated instruments, such as the Perceived Stress Scale and the COPE Questionnaire, were included, aiming to identify adaptive and maladaptive strategies in the university environment.

Results. The studies analyzed show that over half of the students (50–70%) have a medium or high level of academic stress, manifested by anxiety, irritability and difficulty concentrating. Regarding coping methods, adaptive forms such as planning, positive reinterpretation, acceptance and recourse to social support predominate. At the same time, approximately 20–30% of students use maladaptive mechanisms, such as avoiding or postponing tasks. Also, some studies indicate gender differences in the use of these forms of adaptation: approximately 55–65% of female students resort to mechanisms oriented towards social support and positive reinterpretation, compared to 35–45% of male students, for whom avoidance responses are more common.

Conclusions. The way students manage stress directly influences their adaptation to academic needs. Problem-solving strategies and social support are associated with better emotional balance and academic performance. Promoting educational programs on stress management and effective time management can contribute to improving well-being and preventing burnout among students.

Keywords. academic stress, coping, students, adaptation, academic performance.

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268. PECULIARITIES OF STIGMATIZATION OF PEOPLE WITH DEPRESSION IN ADOLESCENTS

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Introduction. Depression is a complex mental disorder characterized by the lack of a positive affective background and a spectrum of associated emotional, cognitive, physical and behavioral problems. Understanding the causes and risk factors can reduce the phenomenon of stigma, which is a major impediment to accessing psychological support and treatment.

Aim of study. Identification and description of the particularities of stigma (public, self-stigma, stigma by association) among adolescents with depression, assessment of the impact on reducing the tendency to seek medical help and synthesis of current evidence for effective early interventions.

Methods and materials. Narrative review of the literature 2010–2025, focused on studies indexed in PubMed, WHO reports and systematic reviews on stigma, the effectiveness of anti-stigma interventions and the prevalence of depression in young people. Meta-analyses and representative studies on the effect of stigma on addressability and on educational programs in the school environment were selected.

Results. Perceived stigma and self-stigma significantly reduce the ability to recognize depressive symptoms and seek help among adolescents, being associated with shame and fear of social labeling. The adolescence stage, characterized by the formation and development of identity in a vulnerable psycho-emotional environment, increases the negative impact of stigma. Educational interventions and those based on direct contact with the psychologist have demonstrated short-term effectiveness in reducing stigmatizing effects, but evidence of maintaining these results and the real increase in referrals for psychological assistance remains limited.

Conclusions. Stigma, among adolescents with depression, presents specific characteristics related to identity, autonomy and school environment, which negatively influence the recognition of the problem and the request for specialized help. Integrated implementation of emotional literacy and mental health programs in educational institutions, training of teachers to create a safe and comfortable environment for discussions about mental health is recommended.

Keywords. depression, adolescents, stigma, self-stigma.

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269. ASSESSMENT OF ALCOHOL DEPENDENCE-DEPRESSION COMORBIDITY USING STANDARDIZED TOOLS: IMPLICATIONS FOR MENTAL HEALTH DIGITIZATION.

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Introduction. Comorbidity between alcohol dependence and depression represents a significant challenge in mental health, being associated with increased clinical severity, unfavorable progression, and obstacles in the recovery process. The relationship between these two mental health problems is bidirectional, and the presence of common clinical manifestations often causes difficulties in clinical assessment. In the context of the digitization of the medical field, the use of standardized tools allows for the collection of well-structured, consistent clinical data that can be easily integrated into digital monitoring and decision support systems. The AUDIT, PHQ-9 and HDRS assessment scales are widely used, and their application can contribute to a more accurate assessment of alcohol-depression comorbidity.

Aim of study. To investigate the relationship between alcohol dependence and depressive symptoms, to determine the usefulness of standardized diagnostic scales in improving the mental health assessment into digital health systems.

Methods and materials. The study had an exploratory observational design. Patients were assessed using the AUDIT test to identify problematic alcohol consumption, the PHQ-9 to detect depressive symptoms, and the HDRS to clinically assess the severity of depression. Statistical analysis included correlations and linear regression models to explore relationships between scores. Considering that the sample size was small, the interpretation of the results was oriented towards the magnitude of the effects and the clinical coherence of the models.

Results. The results obtained highlight consistent positive associations between the severity of alcohol consumption and the intensity of depressive symptoms present in the patients tested. Correlation coefficients ranged from moderate to very strong ($R = 0.67 - 0.98$), and coefficients of determination reached high values, up to $R^2 = 0.97$. Although statistical significance was not achieved ($p>0.05$), this is explained by the low statistical power. The clinical relevance is outlined by the stable direction of the associations.

Conclusions. The integrated use of standardized tools in clinical assessment allows for a more nuanced picture of alcohol-depression comorbidity. The proposed sequential model reflects the actual clinical situation and provides a logical framework for integrating data into digital mental health systems. The generation of structured data contributes to longitudinal monitoring, risk stratification, and the development of personalized interventions focused on patient needs, supporting the transition to modern models of care.

Keywords. alcohol dependence, depression, comorbidity, AUDIT, PHQ-9, HDRS, mental health, digitalization.

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270. DIAGNOSTIC PERFORMANCE OF THE MONTREAL COGNITIVE ASSESSMENT IN COGNITIVE SCREENING OF SCHIZOPHRENIA: A LITERATURE-BASED STATISTICAL ANALYSIS

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Introduction. Cognitive impairment is a core feature of schizophrenia and a major determinant of functional decline and long-term prognosis. The Montreal Cognitive Assessment (MoCA) is a widely used cognitive screening tool that enables early detection of cognitive deficits in both clinical practice and research.

Aim of study. To evaluate the diagnostic accuracy of the MoCA in detecting cognitive impairment in patients with schizophrenia and other psychotic disorders, and to explore the benefits of combining cognitive screening with the assessment of psychotic symptom severity.

Methods and materials. The analysis was based on studies reporting sensitivity and specificity values of the MoCA in patients with schizophrenia and other psychotic disorders. Diagnostic accuracy parameters were evaluated for different cutoff scores, with emphasis on scores <25. An exploratory statistical analysis assessed the relationship between sensitivity and specificity. AI-based tools were used to identify relevant literature and support data interpretation. Psychometric scales measuring the severity of psychotic symptoms, such as the Positive and Negative Syndrome Scale (PANSS), were reviewed conceptually, without calculating diagnostic accuracy indices, as PANSS is not a diagnostic instrument.

Results. A MoCA score <25 showed high sensitivity (78–88%) and moderate specificity (57–77%) for detecting cognitive impairment. Exploratory regression analysis indicated a weak inverse correlation between sensitivity and specificity ($r = –0.29$, $R^2 = 0.08$), without statistical significance ($p = 0.64$), suggesting a balanced screening profile.

Conclusions. MoCA demonstrates satisfactory performance as a cognitive screening tool in schizophrenia, with high sensitivity and acceptable specificity. Although it cannot replace comprehensive neurocognitive assessment, its properties support initial screening use. Comparing cognitive results with measures of psychotic symptom severity, such as PANSS, may improve clinical evaluation and represents a promising direction for future research, including AI-assisted studies. The statistical analysis was descriptive and limited by the small dataset and reduced statistical power; findings should be considered preliminary and hypothesis-generating.

Keywords. schizophrenia, cognitive impairment, MoCA, screening, artificial intelligence.

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271. PROVIDING HIGH-LEVEL SPECIALISED ASSISTANCE TO ADDRESS ACUTE PSYCHOTIC DISORDER

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Introduction. The treatment of acute psychotic disorders is usually classified as primary psychiatric emergencies, but many somatic conditions can cause secondary psychotic symptoms. Delirium, poisoning, metabolic imbalances or neurological conditions can mimic psychosis, increasing the risk of misdiagnosis and inadequate treatment. Emergency services data reveals that an underlying organic cause is present in up to 25% of presentations.

Aim of study. Assessment of the prevalence of non-psychiatric etiologies in hospitalized patients with acute psychotic presentations and identification of clinical and psychopathological predictive factors for an organic cause.

Methods and materials. A two-year retrospective study in the Psychiatric Clinical Hospital. 300 adult patients were admitted for acute psychotic symptoms or first psychotic episode. The evaluation included psychiatric scales, paraclinical investigations such as laboratory tests, toxicological tests, ECG and imaging. The symptoms were assessed using Positive and Negative Syndrome Scale (PANSS) and Brief Psychiatric Rating Scale (BPRS).

Results. At discharge, 232 patients (77.3%) experienced primary psychotic disorders and 68 (22.7%) had medical or substance-related causes. Metabolic or infectious delirium was identified in 26 patients (8.7%), intoxication or withdrawal of substances in 20 (6.7%), neurological disorders in 14 (4.7%), and other somatic pathologies in 8 patients (2.7%). Patients with organic aetiology were older, experienced sudden onset, disorientation, and fluctuations in consciousness levels, with lower positive PANSS scores but higher BPRS scores. They required more frequent somatic interventions and had longer hospital stays.

Conclusions. Over 20% of acute psychosis hospitalizations were caused by non-psychiatric causes. Systematic and early evaluation of clinical signs that suggest organic aetiology can help reduce diagnostic errors and improve patient safety and management.

Keywords. acute psychosis; organic etiology; PANSS; emergency psychiatry.

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272. MINERAL AND BONE DISORDERS IN CHRONIC KIDNEY DISEASE

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Introduction. Chronic kidney disease (CKD) is associated with disturbances of mineral and bone metabolism caused by alterations in calcium, phosphorus, and vitamin D homeostasis. Progressive renal dysfunction leads to secondary hyperparathyroidism, bone demineralization, and vascular calcifications, increasing the risk of skeletal complications and cardiovascular morbidity.

Aim of study. To evaluate mineral and bone metabolism disorders in patients with chronic kidney disease and to analyze their association with clinical manifestations and laboratory parameters.

Methods and materials. This retrospective study analyzed 50 patients diagnosed with chronic kidney disease from the Nephrology and Rheumatology departments of Timofei Mosneaga Republican Clinical Hospital from 2020 to 2026.

Results. The study included 50 patients with chronic kidney disease: 60% women and 40% men, mean age 64.7 years. The highest prevalence was observed in the 60–69 age group (44%), followed by 70–79 years (34%), while patients aged 50–59 represented 12%, 40–49 years 4%, and those under 40 years 6%. Arterial hypertension was present in 84% of patients, lower limb edema occurred in 68% of patients, and joint pain in 96%. According to the KDIGO classification based on glomerular filtration rate, stage G4 was most common (28%), followed by G2 and G3b (22% each), while G1 accounted for 14%, G5 for 8%, and G3a for 6%. Biochemical analysis revealed alterations associated with chronic kidney disease and mineral and bone disorders. Elevated serum creatinine indicating impaired renal function was detected in 68% of patients, while reduced glomerular filtration rate (GFR <60 mL/min) was present in 72%. Serum calcium levels ranged between 2.03 and 2.80 mmol/L, with abnormal values in 18% of patients. Increased alkaline phosphatase, suggesting enhanced bone turnover was observed in 26%, vitamin D deficiency in 64%, and proteinuria in 56% of patients, with urinary protein values between 0.1 and >3 g/L. Decreased albumin levels were detected in 22% of patients.

Conclusions. Mineral and bone disorders are frequent complications in chronic kidney disease and are strongly associated with the progression of renal impairment. Most patients present with hypertension, pain, and biochemical disturbances of mineral metabolism. Early detection and monitoring of these alterations are essential for preventing skeletal complications and improving patient outcomes.

Keywords. chronic kidney disease, mineral and bone disorders, glomerular filtration rate.

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273. THE COURSE OF GOUTY NEPHROPATHY IN MEN

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Introduction. Gouty nephropathy develops due to the toxic effects of urates and their deposition in the renal tubules. This condition is accompanied by elevated urea and creatinine, hyperuricemia, urinary dysfunction, hypertension, and joint pain.

Aim of study. To identify the relationship between age group, disease duration, and the progression of kidney damage in patients with gouty nephropathy.

Methods and materials. This retrospective study analyzed 50 male patients diagnosed with gout from the Nephrology and Rheumatology departments of Timofei Mosneaga Republican Clinical Hospital from 2020 to 2026.

Results. The age distribution of patients with gouty nephropathy showed the highest prevalence in those aged 60–69 years (50%), with a subsequent decrease in those aged 70–79 years (30%). In the 40–49 and 50–59 age groups, the prevalence was 8% and 6%, respectively, and among those aged 80–89 years, it was 6%. Patients were more likely to live in rural areas (58%) than in urban areas (42%). Based on disease duration, patients were divided into four groups: short-term (up to 5 years) – 6%; moderate (6–15 years) – 44%; long-term (16–30 years) – 34%; and very long-term (>30 years) – 16%. Pain was the most common local symptom (94%), while urinary dysfunction was 62%. Fever and edema, as general symptoms, were detected in only 8% of patients. Analysis of the location of joint involvement revealed a high rates in the knee joints (90%), ankle joints (84%), and spine (82%). Small joints of the hands (80%) and feet (76%) were frequently affected, as well as the elbows (72%) and wrists (66%). Shoulder and hip joint involvement was observed in 52% of patients, sacroiliac joint involvement in 20%, sternocostal joint involvement in 12%, and temporomandibular joint involvement in 4%. According to the KDIGO (CKD) classification, patients with stage G3a (36%) and G3b (28%) were the most common. Stage G2 was diagnosed in 24% of patients, G4 in 8%, and G5 in 4%. Biochemical laboratory data revealed high rates of pathological changes: hyperuricemia in 78% of patients, elevated uric acid levels in urine in 8%. Elevated urea levels were found in 64% of patients, and creatinine levels in 84%. Proteinuria above reference values was noted in 24% of patients. According to ultrasound examination, nephrolithiasis was diagnosed in 40% of patients. Stage II hypertension was detected in 62% of those examined, stage III hypertension in 26%, while 12% of patients had normal blood pressure.

Conclusions. Gouty nephropathy in men occurs predominantly in patients aged 60–69 years with moderate (6–15 years) or long-standing (16–30 years) gout. Most patients exhibit hyperuricemia (78%), elevated creatinine levels (84%), hypertension (62% stage II, 26% stage III), pain (94%), and involvement of multiple joints, particularly knees (90%), ankles (84%), and spine (82%).

Keywords. gout, nephropathy, men.

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274. THE IMPORTANCE OF CERVICAL SCREENING IN THE PREVENTION OF CERVICAL CANCER.

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Introduction. At present, globally, cervical cancer represents a major public health problem. Long-term infection with human papillomavirus (HPV) is an important etiological factor in developing cervical cancer. Cervical screening and vaccination are essential in prevention and early diagnosis of cancerous lesions.

Aim of study. The objective of the study was to evaluate the impact of screening prevention programs implemented in primary care worldwide.

Methods and materials. This study included the review of articles published in English during the specified time 2025-2026 from Medscape, Google Scholar and PubMed.

Results. Cytological examination remains the method of choice for cervical cancer screening. Self-sampling for HPV testing represents a new method of self-testing which facilitates access to programs of screening. However, many countries, including the Netherlands, Denmark, Sweden, Australia, Uganda, and Finland, have implemented a new screening method known as HPV self-sampling. These diagnostic methods provide greater comfort, increased privacy, avoidance of speculum examination and easier access to cervical cancer screening services, especially in regions with limited access to healthcare services. The study made by the UK showed that 64% of the total women who participate in research prefer self-sampling instead of cytological examination with speculum. Studies show that self-sampling increases among under-screened women, improving early detection of cervical cancer. At the same time, sample collection in primary health care settings facilitates better sample quality compared with home-based collection, indicating the important role of doctors in the screening process. A prospective study showed that non-randomized study in Poland on 320 HPV-positive women demonstrated that HPV vaccination decreases the risk of infection persistence and recurrence. In this research, unvaccinated and vaccinated women who received the nonavalent HPV vaccine (Gardasil 9) were included. Results of the research demonstrated that vaccinated women who were HPV positive, were associated with a higher rate of viral clearance compared with unvaccinated women. According to recent studies, improving patient education and family doctor-patient communication is essential for increasing participation in cervical screening programs. Although self-sampling tests are more acceptable by women, cytological examination remains the gold standard.

Conclusions. Family physicians are often the first point of contact with the health care system, so they should promote screening and vaccination among the populations they serve.

Keywords. cervical cancer screening, papillomavirus detection, cancer screening programs.

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275. IMAGING INVESTIGATION ALGORITHMS OF THE RESPIRATORY SYSTEM

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Introduction. Over the years, imaging investigations have undergone significant development, evolving from standard radiography—when images were developed in darkrooms—to highly efficient and detailed diagnostic methods such as Computed Tomography (CT), Magnetic Resonance Imaging (MRI), and PET/CT. These modern techniques allow the visualization of minute details and enable multiplanar and three-dimensional reconstructions for a more accurate assessment of the area of interest. Imaging evaluation of the respiratory system should be based on a structured algorithm to guide medical personnel, starting from clinical and anamnestic data and proceeding to the appropriate imaging referral.

Aim of study. To analyze and systematize imaging exploration algorithms in the evaluation of the respiratory system, emphasizing the role of each imaging modality, optimizing the diagnostic pathway, and promoting the appropriate and evidence-based use of imaging methods in medical practice.

Methods and materials. A literature review was conducted by searching scientific articles published over the last 10 years in databases such as PubMed, Google Scholar, Radiopaedia, and Radiology Key.

Results. Chest radiography remains an indispensable first-line method in the evaluation of most respiratory pathologies due to its accessibility, low cost, and ability to provide essential orientative information. Computed tomography, particularly pulmonary CT angiography (CTPA), represents the gold standard for a more detailed assessment of the pulmonary parenchyma, offering rapid and reliable diagnosis. Thoracic ultrasound has proven especially useful in the detection and evaluation of pleural effusions, with the advantage of using ultrasound waves and being a rapid bedside technique. PET/CT contributes to the assessment of metabolic and functional activity and plays a crucial role in oncologic screening and in detecting distant secondary lesions. Although Magnetic Resonance Imaging has certain limitations in evaluating pulmonary parenchyma, it provides valuable information regarding lesion characterization and mediastinal structures, with the added advantage of not using ionizing radiation but electromagnetic waves.

Conclusions. Depending on the complexity of the clinical presentation and the diagnostic requirements, an imaging exploration algorithm should be established by initiating accessible and rapid methods such as chest radiography, which is useful for the initial examination and direct diagnostic orientation, followed by computed tomography, which provides a detailed morphological description of pulmonary lesions and ensures an accurate diagnosis. PET/CT contributes not only to accurate staging but also to monitoring the evolution of the disease. The primary approach is to begin with simple investigations and gradually progress to more advanced modalities.

Keywords. radiography, computed tomography, MRI, nuclear medicine, imaging investigation methods.

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276. JUSTIFICATION AND OPTIMIZATION OF COMPUTED TOMOGRAPHY IN THE EVALUATION AND MONITORING OF ONCOLOGICAL PATIENTS

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Introduction. Computed tomography (CT) is one of the main imaging modalities used in the evaluation and monitoring of oncological patients, playing a key role in detecting and confirming primary neoplastic processes, assessing loco-regional and distant spread, and evaluating treatment response. Justified and optimized CT use is essential to ensure adequate diagnostic quality while minimizing radiation exposure.

Aim of study. To analyze the role of computed tomography in oncological patient evaluation and follow-up, focusing on justification and optimization principles.

Methods and materials. This descriptive and analytical study included 96 oncological patients examined at the Municipal Hospital "Sfanta Treime", Chisinau, Republic of Moldova. CT examinations were performed using 80-slice Toshiba and 128-slice GE scanners. The main indications for CT were detection and confirmation of primary neoplastic processes, evaluation of loco-regional and distant extension, and disease monitoring. The study included patients with histological confirmation as well as cases without histopathological diagnosis at imaging time. For primary diagnosis, contrast-enhanced thoraco-abdomino-pelvic CT with all scanning phases was preferred. During follow-up, previous imaging studies were reviewed to select only necessary phases, avoiding unnecessary acquisitions and reducing radiation dose. Optimization strategies also considered patient anamnesis and clinical data, with intravenous and oral contrast administered in 22 patients to improve diagnostic accuracy.

Results. Computed tomography enabled accurate assessment of neoplastic processes, anatomical relationships, and disease spread. Protocol adaptation according to examination purpose maintained diagnostic quality while reducing radiation exposure. Adjustment of scanning parameters (kVp, automatic mA modulation, pitch, and collimation) optimized the image quality–dose ratio. Reduced dose parameters (CTDIvol and DLP) were observed particularly in follow-up examinations without compromising diagnostic image quality. The number of CT slices significantly influenced scanning time and radiation dose, with lower radiation exposure observed when using the 128-slice CT system compared to the 80-slice scanner, consistent with findings reported in the literature. Image quality was considered diagnostically adequate in all analyzed cases.

Conclusions. Computed tomography is an essential imaging modality in oncological patient management. Proper justification and optimization of CT protocols, including the use of advanced multislice CT systems and individualized scanning parameters, allow an optimal balance between diagnostic benefit and radiation risk. The radiology technician plays a key role in protocol implementation and radiation protection.

Keywords. computed tomography, oncological patient, dose optimization, oncological staging, radiation protection.

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277. OPTIMIZATION OF RADIATION PROTECTION MEASURES FOR MEDICAL PERSONNEL

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Introduction. In modern medical practice, the use of ionizing radiation represents an essential component of diagnosis and treatment; however, occupational exposure of medical staff involves cumulative biological risks. With the increasing number of imaging and interventional procedures, strict application of radiation protection principles is required in order to reduce occupational doses and prevent deterministic and stochastic effects. Optimization of radiological protection measures constitutes a priority objective in ensuring professional safety and maintaining the quality of medical care.

Aim of study. To evaluate and systematize the main radiation protection measures applicable to medical personnel exposed to ionizing radiation, as well as to identify effective optimization strategies aimed at reducing occupational exposure and increasing professional safety.

Methods and materials. The study was conducted through a theoretical and comparative analysis of specialized literature and national and international regulatory frameworks. Guidelines and recommendations issued by professional bodies such as ICRP, IAEA and WHO were reviewed, along with European and national regulations regarding dose limits and radiological safety. The analysis focused on the fundamental pillars of radiation protection (justification, optimization – ALARA, dose limitation), technical measures (time, distance, shielding), use of personal protective equipment, dosimetric monitoring, and the role of continuous professional training in preventing workplace-related risks.

Results. Consistent application of radiation protection principles significantly contributes to the reduction of occupational exposure. The use of personal protective equipment (lead aprons, thyroid collars, protective goggles), adjustment of technical exposure parameters, and reduction of fluoroscopy time lead to a substantial decrease in doses received by staff. Individual monitoring using dosimeters allows assessment and control of cumulative exposure and identification of high-risk situations. Continuous education and regular updating of working protocols are essential factors in maintaining a high level of radiological safety.

Conclusions. Radiological protection of medical personnel requires a complex approach based on compliance with legislation and implementation of safety principles. Improvement of technical measures, adoption of an integrated strategy grounded in regulatory compliance and low-dose technologies, together with continuous professional training, enables the achievement of an optimal balance between the clinical benefits of imaging procedures and the reduction of occupational risks.

Keywords. Radiation protection, medical personnel, occupational exposure, ALARA, effective dose, dosimetry.

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278. GENERAL ASPECTS REGARDING THE VALUE ORIENTATIONS OF MARRIED AND UNMARRIED COUPLES

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Introduction. Values represent fundamental components of personality, playing an essential role in directing human attitudes and behaviours. According to Milton Rokeach (1973), values can be defined as stable beliefs according to which certain modes of action or ultimate goals of existence are considered preferable to others. Based on this theoretical perspective, Rokeach developed the Rokeach Value Survey, a psychological instrument designed to assess and rank 18 terminal values and 18 instrumental values, thus facilitating the analysis of the structure of an individual's value system.

Aim of study. The purpose of this work was to investigate the values considered a priority by married couples in comparison with unmarried couples.

Methods and materials. The study included 86 couples (43 married couples and 43 unmarried couples). Participants completed the Rokeach Value Survey (RVS), a psychometric instrument that includes 18 terminal values (ultimate goals of existence) and 18 instrumental values (preferred modes of behaviour for achieving these goals). The instrument was used to examine differences in the ranking of values and the importance attributed to them depending on the marital status of the couples. Participants arranged the terminal and instrumental values according to their preferences from 1 to 18 (where 1 represents the value with the greatest importance and significance, and 18 the value with the least significance for them).

Results. According to the statistical data, several aspects regarding terminal values in married couples were highlighted, with high importance attributed to the following values: a happy family life (75.0%), health (80.6%) and love (72.2%). In contrast, unmarried couples gave greater priority to values such as: freedom (73.7%), an active life (63.2%) and a materially secure life (57.9%). Regarding instrumental values, married couples chose: responsibility (58.3%), honesty (63.9%) and education (52.8%), whereas unmarried couples selected values such as: self-control (68.4%), independence (76.3%) and tolerance (55.3%).

Conclusions. Married individuals prioritize values oriented toward relationships and stability, such as health, harmonious family life and love, reflecting a concern for security and family balance. In contrast, unmarried individuals emphasize values associated with: autonomy and personal development, freedom, independence and self-control. These results confirm that marital status influences the hierarchy of individuals' value orientations.

Keywords. Couples, values, married.

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279. REDUCTION AND MANAGEMENT OF ARTIFACTS IN MR ENTEROGRAPHY – TECHNICAL SOLUTIONS AND CLINICAL APPLICATIONS

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Introduction. Magnetic Resonance Imaging (MRI) represents an advanced imaging technique widely used for the evaluation of abdominal organs and intestinal pathology. MR enterography has become an important non-invasive method for assessing inflammatory and structural diseases of the small bowel, especially in young patients, due to the absence of ionizing radiation and its superior soft-tissue contrast. However, image quality may be significantly affected by various artifacts, including motion artifacts, susceptibility artifacts, and technical limitations related to acquisition parameters. These artifacts may reduce diagnostic accuracy and complicate image interpretation. Understanding the origin of these artifacts and implementing appropriate technical and procedural strategies is essential for improving the diagnostic performance of MR enterography.

Aim of study. The aim of this study was to analyze the main types of artifacts encountered in MR enterography and to identify technical and procedural solutions that contribute to their reduction and better image quality in clinical practice.

Methods and materials. The study was based on the analysis of scientific literature and imaging protocols related to MR enterography. Data regarding the causes of artifacts, acquisition techniques, patient preparation, and technological solutions used in MRI examinations were evaluated. Different MRI sequences, motion control techniques, and patient preparation strategies were analyzed to determine their impact on artifact reduction and image quality.

Results. The analysis demonstrated that motion artifacts caused by intestinal peristalsis and respiratory movement are among the most common issues affecting MR enterography images. The use of antispasmodic agents, breath-hold acquisition techniques, and optimized MRI sequences significantly reduces motion-related artifacts. In addition, appropriate patient preparation, adequate bowel distension, and correct adjustment of imaging parameters improve visualization of intestinal structures and increase diagnostic accuracy.

Conclusions. Reducing artifacts in MR enterography is essential for obtaining high-quality diagnostic images. The implementation of optimized imaging protocols, appropriate patient preparation, and the use of modern MRI technologies significantly contribute to minimizing artifacts. These measures improve image quality and support more accurate evaluation of intestinal pathology in clinical practice.

Keywords. MR enterography, MRI artifacts, motion artifacts, bowel imaging, imaging optimization.

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280. GLOBAL AND REGIONAL PREVALENCE OF PROFESSIONAL BURNOUT AMONG PHYSICIANS AND POSTGRADUATE TRAINEES: A COMPARATIVE META-ANALYSIS.

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Introduction. Professional burnout in the medical environment has reached the proportions of a global crisis, affecting both experienced specialists and doctors at the stage of postgraduate training. Burnout not only undermines the mental health of medical personnel, but also threatens patient safety and the stability of healthcare systems.

Aim of study. To conduct a comparative analysis of burnout prevalence among practicing physicians in Europe and postgraduate medical trainees (PMTs) worldwide. To evaluate the influence of various Maslach Burnout Inventory (MBI) criteria on the final prevalence rates. To identify specific risk factors associated with the stage of professional development and the region of practice.

Methods and materials. A large-scale systematic review and meta-analysis of data from PubMed/Medline, Embase, Web of Science, Cochrane, and other databases (coverage period up to 2018) was conducted. The total sample included more than 170 high-quality studies (56 on European physicians and over 114 on residents), covering tens of thousands of medical specialists from more than 49 countries. The MBI questionnaire served as the primary assessment tool, with data classified by the number of burnout dimensions (one-dimensional, two-dimensional, and three-dimensional approaches).

Results. Practicing physicians (Europe): Rates vary from 7.7% (with a strict three-dimensional definition) to 43.2% (using a one-dimensional criterion). This demonstrates a five-fold difference in results depending on the chosen methodology. Postgraduate medical trainees (Global): The burnout level is significantly higher and reaches a pooled rate of 47.3%. The problem is chronic and shows no downward trend over the past 20 years. Regional aspect: In Europe, burnout rates are generally lower (about 30.8% for residents) than in North America (over 50%), indicating the influence of healthcare system structures and working conditions.

Conclusions. Comparative analysis shows that postgraduate medical trainees are at a significantly higher risk of burnout than their established colleagues in Europe. While among practicing physicians the critical level (three-dimensional burnout) affects less than 10% of the population, among trainees this figure is significantly higher, which indicates the destructive nature of the educational environment and excessive workloads in the early stages of a career. A common problem for both groups is the lack of methodological unity: the use of different MBI criteria distorts the real picture, making it difficult to develop targeted prevention measures. It is necessary to implement a standardized method of assessment to monitor the condition of doctors at all stages of their careers.

Keywords. Professional burnout, practicing physicians, postgraduate medical trainees, Maslach Burnout Inventory, healthcare system crisis.

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281. ACUPUNCTURE IN THE COMPREHENSIVE MANAGEMENT OF STABLE CHRONIC OBSTRUCTIVE PULMONARY DISEASE

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Introduction. Chronic Obstructive Pulmonary Disease (COPD) is a leading cause of mortality and disability worldwide. Acupuncture is increasingly discussed as an adjunctive therapy. Although its effects on dyspnea and exercise tolerance are widely reported, its impact on objective spirometric parameters remains controversial.

Aim of study. To assess the role and therapeutic potential of acupuncture in the comprehensive management of stable COPD based on current evidence from scientific literature.

Methods and materials. A systematic search and analysis of relevant scientific literature were conducted across PubMed/MEDLINE, Embase, Web of Science, and the Cochrane Library. The scope included original research and publications in specialized peer-reviewed journals focused on acupuncture and complementary medicine. The search covered the period from 2021 to 2026. A comparative analysis of major meta-analyses was conducted.

Results. Fan et al. (Medicine) included 28 RCTs (n=2,130) exclusively in stable COPD. Yu et al. (Heliyon, 2024) analyzed 23 RCTs involving mixed respiratory populations. Zeng et al. (IJCOPD, 2024) evaluated methodological quality and certainty of evidence. Outcomes assessed were FEV1, FEV1/FVC ratio, 6-minute walk distance, dyspnea (mMRC), and quality of life (SGRQ, CAT). Studies restricted to stable COPD demonstrated significant improvements: FEV1 increased by 0.33 L and FEV1/FVC by 6.45%. Functional capacity improved consistently, with 6MWD increasing by 36.93 m (Fan et al.) and 52.39 m (Yu et al.). Quality of life scores improved (SGRQ: −8.39 points), and dyspnea severity decreased. Proposed mechanisms include immunomodulatory effects (regulation of T-helper balance, increased NK-cell activity), anti-inflammatory action (reduction of IL-8, TNF-α, and C-reactive protein), and antioxidant effects via activation of endogenous enzymes such as superoxide dismutase.

Conclusions. Acupuncture demonstrates dual therapeutic potential in stable COPD. Beyond symptomatic improvement, current evidence suggests measurable enhancement of pulmonary ventilation parameters in carefully selected patients. These findings support acupuncture as a complementary therapy with potential pathogenetic relevance in stable COPD.

Keywords. Acupuncture, stable COPD, FEV1, lung function.

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282. ACUPUNCTURE IN POST-STROKE REHABILITATION.

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Introduction. Stroke remains one of the leading causes of mortality and long-term disability worldwide. A substantial proportion of survivors develop persistent neurological impairments such as hemiparesis, spasticity, sensory deficits, dysphagia, cognitive dysfunction, and depression, which significantly reduce quality of life and independence. Restoration of motor and neurological functions therefore represents a central objective of modern rehabilitation medicine. In recent years, acupuncture and electroacupuncture have gained increasing attention as adjunctive therapeutic approaches in the rehabilitation of patients after stroke and spinal cord injury.

Aim of study. To evaluate the effectiveness of acupuncture and electroacupuncture as adjunctive therapeutic methods for improving motor recovery and functional independence in patients after stroke.

Methods and materials. A structured literature review was conducted using international biomedical databases, including PubMed, Web of Science, and the Cochrane Library. Randomized controlled trials, systematic reviews, and meta-analyses investigating acupuncture or electroacupuncture in patients with ischemic or hemorrhagic stroke were included. Primary outcomes analyzed were motor recovery assessed by the Fugl–Meyer Assessment (FMA), functional independence measured by the Modified Barthel Index (MBI), and muscle spasticity evaluated using the Modified Ashworth Scale. Secondary outcomes included neurological recovery and swallowing function. Data was analyzed according to sample size, treatment duration, number of acupuncture sessions, and reported clinical outcomes.

Results. Evidence from multiple meta-analyses demonstrates significant clinical benefits of acupuncture in post-stroke rehabilitation. A systematic review including 1,928 patients showed significant improvements in motor function and daily activity performance when acupuncture was combined with conventional rehabilitation, with an increase of approximately 7.7 points in Barthel Index scores and improved Fugl–Meyer motor scores compared with rehabilitation alone. Another meta-analysis including 2,766 patients reported improved motor recovery indicators and reduced muscle spasticity. Network meta-analyses involving more than 4,100 stroke patients also demonstrated improved lower limb function, balance, and activities of daily living when acupuncture was integrated with standard rehabilitation. Neuroimaging studies further suggest that acupuncture promotes functional reorganization of motor-related brain networks and enhances neuroplasticity during recovery.

Conclusions. Acupuncture and electroacupuncture represent effective adjunctive rehabilitation methods for patients after stroke. Their integration with conventional rehabilitation may improve motor recovery, reduce spasticity, and enhance neuroplastic processes, contributing to better functional outcomes and quality of life.

Keywords. Stroke rehabilitation, acupuncture, electroacupuncture, neuroplasticity.

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283. METABOLIC REWIRING IN HRrEF AND HRpEF: FROM FATTY ACIDS TO KETONE BODIES VIA SGLT2 INHIBITION

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Introduction. Heart Failure (HF), across the spectrum of reduced (HFrEF) and preserved (HFpEF) ejection fraction (EF), is a state of myocardial bioenergetic failure. Pathologically, the heart relies on Fatty Acid oxidation (FAO), which is oxygen-inefficiant and contributes to the depletion of NAD+ pools. This systematic review aims to explore the relationship between the inhibition of SGLT2 transporters and ketonic body metabolomics, providing a framework for heart failure.

Aim of study. The objective of this review is to examine current clinical evidence regarding the SGLT2i-induced, metabolic transition from fatty acid oxidation to enriched oxygen ketone bodies and its efficacy in solving the energy-starved state of the failing heart.

Methods and materials. An extensive search was conducted on PubMed using the keywords “heart failure”, “SGLT2”, and “ketonic bodies”, including articles published since 2021. Inclusion criteria for studies consisted of changes in HF and EF. Excluded studies were articles with different outcome evaluation methods, lacking the inclusion criteria, overlapping reviews and those involving congenital pathological conditions, or non-comparable outcomes. Bias risk was not evaluated. PRISMA guidelines were used.

Results. Out of 29 initially selected clinical trials and RCTs, 5 studies comprising 1326 patients met the selection criteria. Senthil Selvaraj et al. reported ketosis was achieved in 4.5% with dapagliflozin versus 1.2% with placebo (P=0.03), demonstrating the modular factor of SGLT2i in changes in key pathways related to fatty acid and amino acid metabolism. In another study Halvor Guldbrandsen et al. accentuated an increase in circulating 3-hydroxybutyrate by 1400 μmol/L (P<0.001) and increased cardiac output by 0.9 L/min (P<0.001) compared with placebo. All of the 5 studies highlight data regarding the increase of EF in relationship with increases in ketosis or decreases in NHE1 salt channels.

Conclusions. SGLT2 inhibitors provide a critical therapeutic "metabolic switch" in heart failure by shifting myocardial fuel preference from inefficient fatty acid oxidation to oxygen-thrifty ketone bodies like 3-hydroxybutyrate. This systematic review demonstrates that such bioenergetic improvements, alongside the inhibition of NHE1 salt channels, correlate directly with significant increases in cardiac output and ejection fraction across both HFrEF and HFpEF populations. Ultimately, these findings suggest that the clinical success of SGLT2i is rooted in their unique ability to resolve the energy-starved state of the failing heart.

Keywords. Heart failure, ejection volume, ketone bodies, fatty acids, SGLT2, NAD+.

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284. VENTRICULAR REPOLARIZATION PROLONGATION SECONDARY TO SCN5A GAIN-OF-FUNCTION MUTATION: INCIDENTAL DETECTION AND PHYSIOLOGICAL CONSIDERATIONS IN A PEDIATRIC CASE

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Introduction. Long QT syndrome (LQTS) is a hereditary channelopathy characterized by QT interval prolongation and increased risk of malignant ventricular arrhythmias, including torsades de pointes and sudden cardiac death. LQT type 3 (LQT3), caused by gain-of-function mutations in SCN5A encoding the cardiac sodium channel Nav1.5, results in persistent late sodium current during the action potential plateau, delaying ventricular repolarization. LQT3 features arrhythmic events predominantly at rest and limited beta-blocker efficacy, requiring genotype-specific therapy.

Case presentation. A 5-year-old asymptomatic girl was referred for cardiologic evaluation prior to macrolide therapy for urinary tract infection, after supraphysiological heart rate values were recorded during routine assessment. Examination revealed persistent sinus tachycardia and severe overweight (BMI above 99th percentile). No syncope, chest pain, or cardiac arrest history was reported. Resting 12-lead ECG showed sinus tachycardia with marked QT prolongation. Holter monitoring confirmed significant QTc prolongation (mean 530 ms) without malignant arrhythmias. Echocardiography demonstrated a structurally normal heart. Beta-blocker therapy was initiated. Genetic testing identified a heterozygous pathogenic SCN5A variant (c.3995C>T; p.Pro1332Leu), confirming LQT3. Following multidisciplinary evaluation, sodium-channel blocker therapy (mexiletine) was considered and implantable cardioverter-defibrillator indication was discussed.

Discussions. The Pro1332Leu variant disrupts Nav1.5 inactivation gating, producing persistent inward sodium current that prolongs action potential duration and delays repolarization. This electrophysiological substrate creates a vulnerable window for early afterdepolarizations and re-entrant arrhythmias. Incidental detection in an asymptomatic child underscores LQT3 phenotypic variability and the value of ECG screening before QT-prolonging drugs. The limited beta-blocker efficacy in LQT3, due to rest-dependent arrhythmogenesis, supports genotype-guided pharmacotherapy with sodium-channel blockers.

Conclusions. LQT3 may be identified incidentally in asymptomatic children during non-cardiac evaluations. Integrating ECG assessment with molecular genetic confirmation is essential for diagnosis, risk stratification, and individualized genotype-directed management to prevent life-threatening arrhythmias.

Keywords. long QT syndrome type 3, SCN5A, sodium channel dysfunction, ventricular repolarization, pediatric, cardiac electrophysiology, mexiletine.

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285. FOLLICULAR OCCLUSION TETRAD

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Introduction. Follicular occlusion tetrad is a rare chronic dermatologic condition characterized by the simultaneous occurrence of hidradenitis suppurativa, papulopustular acne, folliculitis decalvans, and pilonidal cysts. The lesions are recurrent, inflammatory, and may lead to scarring, alopecia, and significant morbidity. The condition often follows a medically resistant course, requiring individualized management through a multidisciplinary approach combining medical and surgical therapies.

Case presentation. This case describes a rare presentation of follicular occlusion tetrad, including hidradenitis suppurativa, papulopustular acne, folliculitis decalvans, and pilonidal cysts. The patient had a seven-year history of recurrent lesions, initially on the face and later involving the scalp, chest, axillae, and inguinal regions. Clinical examination revealed papules, pustules, nodules, comedones, post-inflammatory scars, cicatricial alopecia on the scalp, and painful axillary nodules with purulent drainage. Previous management included long-term antibiotics, Adalimumab therapy—which was later discontinued—and abscess drainage. Following discontinuation of treatment, the lesions did not improve, highlighting the recurrent and treatment-resistant nature of the condition and emphasizing the need for individualized, multidisciplinary management in complex cases of follicular occlusion tetrad.

Discussions. This case underscores the complexities of managing follicular occlusion tetrad, which is a relatively rare and distinctive clinical entity. Its combination of recurrent infections, scarring, and variable treatment responses makes it more challenging to manage than the individual component disorders. A multimodal treatment approach—including surgery, antibiotics, biologics, and retinoids—achieved partial improvement. Timely diagnosis, consistent follow-up, and individualized therapeutic strategies are essential to optimize patient outcomes. The unusual distribution and long-standing nature of the lesions in this patient further highlight the rarity and clinical significance of this tetrad.

Conclusions. Follicular occlusion tetrad is a rare condition caused by abnormal follicular keratinization, obstruction, chronic inflammation, and immune dysregulation, leading to recurrent lesions, abscesses, granulomas, and scarring. Management is challenging and may require antibiotics, anti-inflammatory medications, immune modulators, and surgical interventions. In our patient, despite treatment with antibiotics, Adalimumab (later discontinued), and abscess drainage, the lesions persisted, highlighting the recurrent and treatment-resistant nature of the disease and the need for individualized, multidisciplinary management.

Keywords. Hidradenitis suppurativa, Acne vulgaris, Folliculitis decalvans, Pilonidal cyst, Follicular occlusion tetrad, Pilosebaceous orifices.

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286. CLINICAL AND PARACLINICAL MEDICINE IN PSEUDOMEMBRANOUS COLITIS

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Introduction. Pseudomembranous colitis, most commonly caused by Clostridioides difficile infection (CDI), represents one of the leading causes of antibiotic-associated and hospital-acquired diarrhea. In recent years, both the incidence and the severity of the disease have increased, particularly among elderly, hospitalized, and immunocompromised patients, highlighting the need for early recognition of clinical signs and accurate assessment of disease severity.

Aim of study. To evaluate the clinical and paraclinical manifestations of pseudomembranous colitis and to emphasize their role in early diagnosis, severity assessment, and guidance of therapeutic management.

Methods and materials. The article presents a narrative analysis of data from the scientific literature. Major biomedical databases (PubMed/MEDLINE, Scopus, Web of Science), international clinical guidelines (IDSA/SHEA, ESCMID, CDC, WHO), and institutional reports were reviewed. Publications from 2008–2025 in English and Romanian were included, focusing on etiopathogenesis, clinical presentation, diagnostic methods, and current therapeutic approaches.

Results. The development of the disease is associated with antibiotic-induced intestinal dysbiosis, which facilitates colonization with toxigenic C. difficile strains. Toxins A and B cause colonic epithelial damage and trigger a pronounced inflammatory response. Clinical presentation ranges from mild forms, characterized by watery diarrhea and abdominal discomfort, to severe cases with frequent diarrhea, fever, marked leukocytosis, hypoalbuminemia, and renal impairment. Fulminant forms may progress to ileus, toxic megacolon, sepsis, or intestinal perforation. Paraclinical evaluation includes inflammatory laboratory markers, detection of toxins or toxigenic genes (EIA, PCR), and imaging investigations for the identification of complications. Recurrence occurs in approximately 20–30% of patients.

Conclusions. Correlation of clinical findings with paraclinical investigations allows rapid diagnosis and accurate severity assessment. An integrated approach facilitates early initiation of targeted therapy, reduces complications, and improves patient outcomes.

Keywords. Clostridioides difficile, pseudomembranous colitis, antibiotic-associated diarrhea, clinical manifestations, diagnosis.

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287. CLINICAL CHARACTERIZATION OF IMMUNE CHECKPOINT INHIBITOR-INDUCED DIABETES MELLITUS: A SYSTEMATIC ANALYSIS OF ACUTE BETA-CELL FAILURE

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Introduction. The integration of PD-1 and PD-L1 inhibitors into standard oncological care has led to the emergence of Immune Checkpoint Inhibitor-Induced Diabetes Mellitus (CIADM). This condition is a distinct form of autoimmune diabetes characterized by a sudden and often permanent loss of insulin production, differing significantly from classic Type 1 Diabetes in its rapid kinetics.

Aim of study. The aim of study is to quantify the clinical, biochemical, and immunological profile of CIADM through a systematic evaluation of 25 clinical studies and case registries.

Methods and materials. Data were extracted from 210 confirmed CIADM cases across multiple oncology centers. Key metrics analyzed included the median time to onset, glycemic levels at diagnosis, C-peptide concentrations, prevalence of Diabetic Ketoacidosis (DKA), and autoantibody positivity rates.

Results. The systematic analysis revealed an incidence rate of 1.2% for CIADM among patients undergoing anti-PD-1/PD-L1 monotherapy, with a median time to diagnosis of 84 days following the initial dose. Clinical presentation was acute, as evidenced by 76% of the cohort presenting in Diabetic Ketoacidosis (DKA). At the time of diagnosis, the median blood glucose level reached 535 mg/dL, contrasted by a median HbA1c of only 7.7%, which underscores the rapid onset of the glycemic surge. Laboratory markers of pancreatic function showed that 94% of patients had undetectable or severely suppressed serum C-peptide levels (<0.1 nmol/L), confirming near-total beta-cell exhaustion. Immunological profiling indicated that only 43% of patients were positive for at least one T1DM-related autoantibody, with GAD65 being the most frequent at 32%. Furthermore, genetic analysis identified the HLA-DR4 genotype in 51% of cases, marking it as a significant risk factor for this specific immune-related adverse event.

Conclusions. CIADM is an acute-onset, irreversible endocrine emergency. The disparity between high blood glucose (535 mg/dL) and relatively low HbA1c (7.7%) serves as a clinical hallmark of the rapid beta-cell destruction. Clinical vigilance must be maintained regardless of autoantibody status, as over half of the patients are antibody-negative.

Keywords. Immune Checkpoint Inhibitors, PD-1, CIADM, Beta-cell failure, Oncology.

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288. THE ROLE OF NUTRITION IN THE PREVENTION OF TYPE 2 DIABETES MELLITUS

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Introduction. Type 2 diabetes mellitus is one of the most prevalent diseases worldwide, representing one of the largest global public health problems of the 21st century. Untreated diabetes can lead to severe complications: stroke, diabetic retinopathy, diabetic nephropathy, amputations, diabetic neuropathy and cardiovascular disease.

Aim of study. To evaluate the role of nutrition in the management of type 2 diabetes mellitus and the effect of diet on body mass, blood glucose levels, lipid profile and intestinal microflora.

Methods and materials. After analyzing the results of clinical trials in the PubMed, Scopus, Web of Science, ScienceDirect (Elsevier) database, 25 scientific articles were evaluated, from which the most significant meta-analyses, randomized clinical trials and original articles from several countries were selected. Only recent publications, published in the last 5–7 years, were included to ensure the timeliness and relevance of the data. Analyzing these sources, the positive dynamics in the treatment of diabetes through different nutritional strategies were confirmed: high-fiber diet, low-carbohydrate diet based on almonds, ketogenic diet and the use of prebiotics and probiotics.

Results. The high-fiber diet has positive effects such as increasing the synthesis of fatty acids (Omega 3,6,9) in the body, increasing insulin sensitivity and decreasing the level of glycosylated hemoglobin. The low-carbohydrate diet based on almonds has a positive impact on depressive symptoms and reduces the level of glycosylated hemoglobin in patients with type 2 diabetes. The keto diet leads to a decrease in body mass and BMI, it differs from other diets by decreasing the level of triglycerides, cholesterol, LDL and increasing the level of HDL, which provides a positive metabolic outcome, especially in combination with other diets. The growth of Bifidobacterium lactis improves glycemic control and increases the secretion of GLP-1.

Conclusions. Implementation of these diets in patients with diabetes mellitus may lead to success in stabilizing the patient's general condition.

Keywords. nutrition, diabetes mellitus, fiber, diet.

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289. CLINICAL AND PROGRESSION CHARACTERISTICS OF DUODENAL ULCER IN THE ELDERLY

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Introduction. Globally, the annual incidence of active duodenal ulcer exceeds 8 million cases, with more than 35% occurring in the geriatric population. In elderly patients, the classic clinical presentation is often masked by physiological aging, multi-morbidity, and the chronic use of gastro-erosive or anticoagulant medications. These factors lead to non-specific manifestations, frequently resulting in delayed medical consultation and an underestimation of disease severity. In this context, analyzing the clinical and progression features of duodenal ulcers in the elderly is essential for optimizing early diagnosis and therapeutic management.

Aim of study. To investigate the clinical and evolutionary characteristics of duodenal ulcers in elderly patients.

Methods and materials. A systematic review of the literature published between 2016 and 2026 was conducted using the PubMed, Scopus, and Cochrane Library databases. Studies evaluating the clinical and progression features of duodenal ulcers in patients older than 65 years were selected using the search terms: “duodenal ulcer”, “elderly”, and “hemorrhagic ulcer”.

Results. Comparative analysis revealed that duodenal ulcers are paradoxically less frequent in the elderly than in younger individuals (42% vs. 66%, $p<0.008$). In geriatric patients, the clinical presentation is dominated by marked clinical atypia; typical epigastric pain is rarely reported ($p<0.001$), often being absent or masked by the chronic use of NSAIDs and corticosteroids. A significantly lower prevalence of H. pylori infection was also observed in patients over 65 years compared to the control group (56% vs. 92%, $p<0.001$). Despite the lower frequency of duodenal localization, disease progression in the elderly is more aggressive due to complications. Ulcer bleeding occurs significantly more often in elderly patients than in younger ones (50% vs. 14%, $p<0.001$). Furthermore, elderly patients show a predisposition to giant ulcers (>1 cm), which are associated with high rates of recurrent bleeding (24.5%) and increased transfusion requirements. Age over 65 and hemodynamic instability (BP < 100 mm Hg) remain independent predictors of mortality.

Conclusions. Epigastric pain and H. pylori infection are not reliable indicators of duodenal ulcer exacerbation in the elderly, as their prevalence is significantly lower than in younger populations. Duodenal ulcers in geriatric patients present a distinct progression profile characterized by clinical atypia and increased biological aggressiveness. The disease frequently manifests through severe hemorrhagic complications without a prior history of pain, suggesting that diagnosis should rely less on classic symptoms and more on clinical vigilance regarding indirect signs and pharmacological risk factors.

Keywords. Duodenal Ulcer, Elderly, Hemorrhagic ulcer, Peptic Ulcer Complications, Atypical Presentation.

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290. EMERGING TECHNOLOGIES IN FORENSIC SCIENCE RESEARCH

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Introduction. Forensic sciences represent a fundamental pillar of the modern judicial system, providing essential scientific evidence for the proper administration of justice. The rapid evolution of digital, biometric, and imaging technologies has led to major transformations in the collection, analysis, and presentation of evidence, increasing the accuracy and reproducibility of expert conclusions.

Aim of study. To analyze the main technological innovations implemented in forensic research and to highlight their impact on the efficiency and reliability of criminal investigations.

Methods and materials. A narrative review of the literature was conducted focusing on emerging technologies used in forensic science, including digital, biometric, imaging, genetic technologies, and artificial intelligence–based solutions.

Results. Digital technologies enable the recovery and analysis of data from electronic devices, including encrypted equipment and IoT devices, contributing to the reconstruction of criminal activities. Laser scanning and 3D modeling, combined with drone technology, facilitate precise crime scene documentation and three-dimensional reconstruction of scenarios, including through virtual reality applications. Biometric technologies such as facial recognition and multi-biometric systems expand personal identification capabilities, while nanotechnological advances (e.g., MALDI-MS, nanoscale sensors) enhance the detection of chemical and biological traces. In forensic imaging, virtual autopsy (virtopsy), postmortem angiography, and CT/MRI techniques allow non-invasive three-dimensional assessment of injuries, preservation of evidence, and the possibility of subsequent review. Artificial intelligence optimizes DNA analysis, toxicological data processing, and authentication of audio recordings, while 3D printing technologies facilitate the replication of physical evidence and its presentation in court. Extended reality technologies (VR, AR, MR) contribute to crime scene reconstruction and investigator training, increasing objectivity and clarity in evidence presentation. However, the integration of these technologies raises challenges related to scientific validation, data protection, ethical considerations, and procedural standardization.

Conclusions. Emerging technologies are profoundly transforming forensic research, enhancing precision, efficiency, and multidisciplinary analytical capacity. Responsible implementation, methodological validation, and appropriate regulatory frameworks are essential to maintain evidence integrity and strengthen public trust in the judicial system.

Keywords. forensic medicine, artificial intelligence, virtopsy, 3D modeling, biometrics, nanotechnology, extended reality

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291. ACCESS TO MENTAL HEALTH SERVICES AS A KEY ELEMENT IN PREVENTING SUICIDAL BEHAVIOUR FOR ADOLESCENTS WITH DEPRESSION

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Introduction. According to the medical definition of the World Health Organization, adolescence was defined as the age range of 10-19 years and represents a crucial stage of development characterized by significant physical, emotional, and social changes. Depression is a prevalent psychiatric disorder and a serious health problem globally, being the most significant biological and social risk factor of suicide among adolescents. Based on The State of the World's Children 2021 report by UNICEF, 166 million teenagers between the ages of 10 and 19 have been diagnosed with a mental health issue, which makes up 13% of all teenagers worldwide. Suicide is the third leading cause of death among adolescents. Implementing mental health services among adolescents with depression can significantly reduce the risk of suicidal behavior, acting promptly and continuously.

Aim of study. The main goal of the study is to highlight the importance of access to mental health services in preventing suicidal behavior for adolescents with depression.

Methods and materials. This literature review analyzed peer-reviewed articles published in the last five years, identified through systematic searches of the following electronic databases: PubMed/NCBI, Google scholar, CyberLeninka, e-Library, and Mendeley. Supporting clinical evidence was also drawn from Medscape and the Canadian Medical Association Journal.

Results. The results are structured into two main categories. (1) Barriers: stigmatisation, self-management of symptoms, low level of information, lack of family support, shortage of specialists, costs, unequal distribution of services. (2) Prevention: increasing the level of information, the presence of specialists and screening programs in the school environment, stigmatization reduction campaigns, family support and open communication, public policies, equitable access and telemedicine.

Conclusions. The results of the research based on the literature reveal the need for mental health services among adolescents with depression, as a factor for preventing suicidal behavior. By addressing barriers and prevention factors, the complexity of the problem is highlighted, the need for a multidisciplinary approach through concrete actions such as programs, reform and public policies at global level, involving the family and school in the process of prevention and early detection. Today's teenagers are the adults of tomorrow, who will represent the foundation of society in the future.

Keywords. Adolescents, depression, barriers, suicide prevention, mental health services access.

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292. PATIENTS ON HEMODIALYSIS IN THE POST-COVID-19 PERIOD: COMPLICATIONS AND PROGNOSIS

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Introduction. Patients with end-stage renal disease (ESRD) undergoing hemodialysis represent a high-risk population in the setting of SARS-CoV-2 infection. Recent evidence suggests that the post-COVID period is characterized by persistent systemic inflammation, endothelial dysfunction and a prothrombotic state, mechanisms that may increase cardiovascular risk and morbidity in this patient population.

Aim of study. To assess the impact of post-COVID-19 syndrome on the clinical and biological evolution of patients on hemodialysis and to highlight the therapeutic implications based on current evidence.

Methods and materials. A synthesis of PubMed/NCBI-indexed literature and international nephrology recommendations published over the past five years was conducted regarding the course of patients on renal replacement therapy after COVID-19 infection.

Results. Following SARS-CoV-2 infection, patients on hemodialysis may experience worsening of cardiovascular status, including heart failure decompensation, arrhythmias and thrombotic events. Ongoing dyspnea and reduced exercise tolerance are frequently associated with residual pulmonary changes. Chronic inflammation, reflected by elevated CRP, ferritin and interleukin-6 levels, plays a role in malnutrition-inflammation syndrome and worsening nutritional status. An excessive post-viral hypercoagulable state may promote thrombus formation and increase the risk of thromboembolic events. Post-COVID syndrome ("long COVID") commonly manifests with severe fatigue, cognitive impairment and reduced functional capacity. Post-COVID management of hemodialysis patients includes close monitoring of volemic and cardiovascular status, evaluation of vascular access functionality and prevention of thrombotic complications. Personalized ultrafiltration, optimized anticoagulation management and adequate nutritional support are essential. Early recognition of post-COVID syndrome and a multidisciplinary approach may improve prognosis.

Conclusions. Patients undergoing hemodialysis in the post-COVID-19 period represent a complex clinical entity characterized by persistent inflammation, endothelial dysfunction and increased thrombotic risk requiring close monitoring and individualized therapeutic strategies.

Keywords. hemodialysis, COVID-19, end-stage renal disease.

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293. SEX DIFFERENCES OF ISCHEMIC STROKE IN YOUNG ADULTS

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Introduction. Ischemic stroke, one of the most common neurological emergencies, affects about 2 million young adults every year and the incidence has been increasing at an alarming rate in the last decades due to the rise of traditional risk factors. It leaves a significant socioeconomic impact due to the decrease of productivity, the risk of disability and healthcare costs. Compared to older patients, young adults are more likely to show atypical symptoms and more frequently to present non-traditional risk factors. Recently, more studies have provided evidence of sex differences of ischemic stroke in young adults, which plays a crucial role in management of the disease.

Aim of study. The aim of the study is to investigate the risk factors, symptoms, severity of stroke according to NIHSS score, the risk of disability according to mRS score, paraclinical investigations and management of stroke and to compare them between the sexes.

Methods and materials. A retrospective study was conducted on the data of 50 patients admitted to "Diomid Gherman" Institute of Neurology and Neurosurgery. The inclusion criteria were the following: (1) patients ages 18 to 45 years, (2) diagnosis of ischemic stroke proved by computed tomography or magnetic resonance imaging.

Results. Out of 50 patients, 27 were men (54%) and 23 were women (46%). The mean age was 38,04%±0,54 years. The mean age in women is younger than in men, but it's statistically insignificant (36,7±0,64 years vs 39,19±0,41 in men, p=0,16). The study showed no significant differences in traditional risks such as arterial hypertension, obesity, dyslipidaemia, except for smoking, which is more frequent among men (55,56% vs 13,04%, p=0,002). It also demonstrated a higher incidence of other traditional risk factors in women than in men. The mean NIHSS scores were the following: 8,46 points in general group, 8,65 points in men and 8,48 points in women, which all include in the category of moderate stroke. The mean mRS scores were: 2,28 points in the general group, 2,41 points in men and 2,13 points in women. It was observed that men have a higher risk of disability than women according to mRS score, but it didn't provide a statistical difference (p=046). The study demonstrated that non-stenotic atherosclerosis appears more frequently in men, while women are more likely to present no modifications in Doppler ultrasonography. In stroke management, both sexes have relatively equal chances to enter the therapeutic window (22,22% vs 21,72%) and receive intravenous thrombolysis (14,82% vs 8,7%, p=0,51).

Conclusions. In conclusion, the study provided an understanding of the sex differences of young stroke, and it can help in developing sex-specific strategies in the management of stroke in young adults.

Keywords. Young stroke, sex differences, risk factors, atypical symptoms, management, diagnosis.

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294. POST–CARBON MONOXIDE ENCEPHALOPATHY WITH EXTRAPYRAMIDAL INVOLVEMENT AND COGNITIVE DEFICIT: A CASE REPORT

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Introduction. Acute carbon monoxide (CO) poisoning is a major cause of hypoxic encephalopathy, with selective involvement of the basal ganglia, particularly the globus pallidus. In the Republic of Moldova, CO intoxication incidence rises during the cold season due to improper use of heating systems and inadequate ventilation. Acute exposure causes severe tissue hypoxia, mitochondrial dysfunction, and selective neuronal injury, clinically manifesting as cognitive impairment, memory deficits, apathy, and extrapyramidal motor disturbances, sometimes with delayed onset.

Case presentation. A 58-year-old male was admitted one month after documented CO intoxication, presenting with confusion, temporo-spatial disorientation, slowed speech and thought, apathy, generalized weakness, and hypokinetic gait disturbances. Neurological examination revealed bradykinesia, mild rigidity of the upper limbs, reduced facial expression, and diminished lower limb reflexes. Cognitive assessment with Montreal Cognitive Assessment (MoCA) yielded 2 points, indicating severe cognitive impairment. Laboratory tests excluded metabolic, infectious, and systemic inflammatory causes. Initial investigations including cranial CT, lumbar puncture, and echocardiography showed no significant abnormalities. Brain MRI with contrast revealed symmetric, focal cytotoxic lesions under 9 mm in the bilateral globus pallidus, with T2 and T2 FLAIR hyperintensity and localized diffusion restriction, consistent with toxic-metabolic injury from CO. Differential diagnosis included hypoxic-ischemic encephalopathy of other etiologies, viral or autoimmune encephalitis, rapidly progressive neurodegenerative disorders, and metabolic or toxic encephalopathies. Correlation of clinical presentation, CO exposure history, and characteristic MRI findings supported post-hypoxic encephalopathy due to CO. The patient received conservative treatment and showed partial improvement at discharge. At two-month follow-up, gait and motor function improved, and MoCA score increased to 12 points, reflecting substantial recovery with persistent moderate cognitive deficits.

Discussions. Bilateral, symmetric globus pallidus lesions are a hallmark imaging feature of CO intoxication. The case highlights the risk of delayed neurological syndrome, the importance of early recognition, and medium- and long-term cognitive monitoring. Partial recovery underscores the need for timely management to optimize functional outcomes.

Conclusions. CO intoxication can cause bilateral globus pallidus lesions with severe cognitive impairment, apathy, and extrapyramidal motor disturbances, highlighting the importance of clinical and imaging correlation, cognitive monitoring, and preventive measures during the cold season.

Keywords. carbon monoxide, toxic-metabolic encephalopathy, globus pallidus, cognitive deficit.

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295. CHALLENGES IN LATE DIAGNOSIS OF DRAVET SYNDROME IN A LOW- AND MIDDLE-INCOME COUNTRY: A CASE REPORT

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Introduction. Early-onset epilepsy associated with febrile seizures, progressive neurocognitive decline, and pharmacoresistance suggests a developmental and epileptic encephalopathy, including Dravet syndrome. Its estimated incidence in Europe is approximately 1:30,000 live births, accounting for 1–3% of childhood epilepsies.

Case presentation. A 29-year-old woman was comprehensively evaluated in May 2025 at the National Center of Epileptology in Chisinau, for drug-resistant epilepsy. Disease onset occurred at the age of 5 months with prolonged post-vaccination febrile seizures. Subsequently, multiple seizure types developed, including myoclonic seizures, atypical absences, generalized tonic-clonic seizures, and focal seizures with impaired awareness evolving into bilateral tonic-clonic, predominantly nocturnal, daily frequency. Antiseizure therapy was initiated with phenobarbital, phenytoin, lamotrigine and high doses of carbamazepine ~ 25,3 mg/kg/day, followed by low dose valproic acid, which led to persistence of seizures and progressive neurodevelopmental delay. Despite multiple antiseizure medications, the patient developed severe intellectual disability, hypotonia, ataxia, postural and gait instability, loss of independent ambulation with crouch gait, and speech limited to sounds and groans.

Discussions. This case illustrates a significant delay in diagnosis and prolonged exposure to high doses of sodium channel blockers, which are known to exacerbate disease severity and neurological impairment in Dravet syndrome. EEG recordings showed diffuse background slowing with regional fronto-temporal epileptiform discharges, while brain MRI revealed nonspecific white matter changes. Due to limited resources, genetic testing was not available. Over the last 8 months, after switching from carbamazepine to valproic acid ~ 25.5 mg/kg/day, combined with preservation of phenobarbital ~ 5.6 mg/kg/day and clonazepam 1 mg/day, seizure frequency was significantly reduced to a total of 34 seizures over 8 months, accompanied by evident cognitive and motor improvement.

Conclusions. In low- and middle-income countries, Dravet syndrome diagnosis often relies exclusively on clinical criteria. Limited access to genetic testing, epilepsy-trained specialists, guideline-recommended therapy contributes to inappropriate antiseizure treatment and unfavorable neurodevelopmental outcomes. However, early and accurate phenotypic recognition guides therapeutic decision-making, even prior to genetic confirmation.

Keywords. Dravet syndrome, developmental and epileptic encephalopathy, delayed diagnosis.

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296. CLINICAL–TOPOGRAPHIC CORRELATIONS IN CEREBRAL ARTERIOVENOUS MALFORMATIONS

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Introduction. Cerebral arteriovenous malformations (AVMs) are rare congenital vascular anomalies characterized by direct arteriovenous shunts without an intervening capillary bed. They are associated with an increased risk of intracranial hemorrhage and diverse neurological manifestations. The clinical presentation of AVMs is heterogeneous and largely depends on the anatomical location of the lesion and the involved vascular territory.

Aim of study. To evaluate the relationship between the clinical manifestations of cerebral AVMs and their anatomical localization, and to determine the frequency of clinical presentations according to the affected cerebral territory.

Methods and materials. A retrospective observational study was conducted in a tertiary neurology center between 2017 and 2024. Adult patients (≥18 years) with imaging-confirmed AVMs were included. Of 127 initially identified cases, 62 patients met the inclusion criteria. The assessment comprised analysis of neurological symptomatology and hemispheric, lobar, and arterial territory localization. Statistical analysis was performed using Epi Info software.

Results. Headache was the most frequent clinical manifestation (89.7%). Seizures (35.53%; 27 patients) were significantly associated with cortical AVMs, predominantly located in the frontal and temporal lobes. Focal neurological deficits (48.68%; 40 patients) were more common in AVMs involving the middle cerebral artery territory. Speech disturbances (25.00%; 17 patients) correlated with left hemispheric localization. Intracranial hemorrhage (39.47%; 30 patients) and cerebellar syndrome (11.84%; 9 patients) were more frequently observed in deep and infratentorial AVMs.

Conclusions. The clinical manifestations of cerebral AVMs are closely related to their anatomical location and the involved vascular territory. Integrated clinical and imaging evaluation is essential for accurate diagnosis and individualized management of patients with AVMs.

Keywords. Cerebral arteriovenous malformations, clinical manifestations, anatomical localization, epilepsy, intracranial hemorrhage.

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297. THE COMPLEMENT CASCADE IN ALZHEIMER'S DISEASE: FROM NEUROINFLAMMATORY DRIVER TO PRECISION THERAPEUTIC TARGET

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Scientific adviser: Dr. Daniela-Camelia Lepădatu

Introduction. Alzheimer's disease (AD) is the primary etiology of global dementia, affecting approximately 26 million individuals with a significantly higher incidence in females. Pathologically, AD is defined by extracellular beta-amyloid (Aβ) plaques and intracellular hyperphosphorylated tau neurofibrillary tangles (NFTs). Emerging evidence suggests that cognitive decline correlates more significantly with synaptic loss than with plaque density alone, positioning neuroinflammation as a critical pathological mediator.

Aim of study. Aim of Study: This review evaluates the mechanostructural role of the complement system as a central driver of neuroinflammation and synaptic attrition in AD, while assessing innovative therapeutic strategies and biomarkers for circuit preservation.

Methods and materials. A systematic literature review synthesized data from 21 high-impact publications (2020-2025) sourced from PubMed, Elsevier, and MDPI. The analysis integrated evidence from postmortem human brain tissue, transgenic murine models, and single-cell RNA sequencing (scRNA-seq), evaluating the classical and alternative pathways in relation to microglial and astrocytic responses.

Results. Quantitative synthesis reveals that 50-60% of early-stage synapse loss is driven by aberrant C1q-C3 tagging, which triggers microglial phagocytic pruning. Cerebrospinal fluid (CSF) analysis shows that key complement components are elevated by 0.45-0.53 standard deviations in AD cohorts. Aβ fibrils initiate the classical cascade via C1q binding, while tau pathology recruits factor B to activate the alternative pathway, collectively mediating 70-80% of the neuroinflammatory milieu. Astrocyte-driven C3a/C5a signaling impairs neuronal homeostasis via pro-inflammatory cytokines (IL-1β, TNF-α), while sublytic Membrane Attack Complex (MAC) insertion exacerbates tau hyperphosphorylation. Consequently, precision "complement modulation" is emerging as a viable strategy: Phase II clinical trials are currently evaluating anti-C1q monoclonal antibodies (e.g. ANX005) to stabilize synapses, alongside targeted C3 (Pegcetacoplan) and C5aR1 (Avacopan) antagonists to decouple inflammation from neurodegeneration.

Conclusions. Complement activation is a primary driver (70-85%) of synaptic loss in AD. Future research must prioritize the validation of CSF C3/C4 levels as early-stage biomarkers for patient stratification. Integrating multi-modal combination immunotherapies-combining anti-amyloid agents with complement-directed neuroprotection-represents the next frontier in halting disease progression before irreversible cognitive decline occurs.

Keywords. Alzheimer's disease, Complement system, Beta-amyloid, tau pathology, Microglia, Astrocytes, Neuroinflammation, Membrane attack complex.

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298. NEGATIVE SYMPTOMS IN SCHIZOPHRENIA: CLINICAL CHARACTERISTICS AND SEVERITY ASSESSMENT IN A RETROSPECTIVE STUDY

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Introduction. Schizophrenia is a severe and chronic mental disorder associated with significant functional impairment and social disability. Among its clinical dimensions, negative (deficit) symptoms—such as affective flattening, alogia, avolition, anhedonia, and social withdrawal—play a crucial role in determining long-term prognosis, quality of life, and level of social functioning. Compared with positive symptoms, negative symptoms are more persistent, less responsive to pharmacological treatment, and often under-recognized in routine clinical practice.

Aim of study. The aim of this study was to analyze and characterize negative symptoms in patients diagnosed with schizophrenia, with an emphasis on their severity and associations with socio-demographic and clinical variables.

Methods and materials. A retrospective, descriptive observational study was conducted at the Clinical Psychiatric Hospital between May and December 2025. The study included 40 adult patients diagnosed with schizophrenia (20 males and 20 females), aged 20–72 years. Data were collected from medical records and included socio-demographic characteristics, clinical form of schizophrenia, age at onset, duration of illness, and treatment profile. Negative symptoms were assessed using the Scale for the Assessment of Negative Symptoms (SANS), which evaluates five domains: affective flattening, alogia, avolition/apathy, anhedonia/asociality, and attention impairment. Descriptive statistical methods were applied.

Results. The mean total SANS score was 18.1 ± 3.8, indicating a moderate to severe level of negative symptoms. Most patients (85%) presented moderate or severe negative symptoms. Avolution/apathy showed the highest mean score, followed by anhedonia/asociality, suggesting that motivational deficits represent the core component of negative symptomatology. Higher SANS scores were associated with older age, longer duration of illness, male sex, and the presence of a combined schizophrenic defect. Patients with lower educational levels tended to show more severe negative symptoms, although differences were not statistically significant.

Conclusions. Negative symptoms are highly prevalent and clinically significant in patients with schizophrenia, particularly in chronic stages of the illness. Their severity correlates with illness duration and functional deterioration, highlighting the need for systematic assessment and targeted therapeutic strategies. Early recognition and integrated pharmacological and psychosocial interventions are essential to improve functional outcomes and quality of life in this patient population.

Keywords. schizophrenia; negative symptoms; deficit symptoms; SANS; functional deterioration.

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299. STATISTICAL VALIDATION OF THE SENSITIVITY AND SPECIFICITY OF THE PANSS SCALE IN SCHIZOPHRENIA

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Introduction. The Positive and Negative Syndrome Scale (PANSS) is widely used to assess symptom severity and treatment response in schizophrenia. The full 30-item version (PANSS-30) provides a comprehensive evaluation but is time-consuming in routine practice. Shorter versions such as PANSS-6 were developed to allow faster assessment while focusing on core psychotic symptoms. However, direct comparisons of their diagnostic performance, particularly sensitivity and specificity, remain limited.

Aim of study. To compare the relationship between sensitivity and specificity of PANSS-6 and PANSS-30 using published data, applying AI-assisted tools for structured literature organization.

Methods and materials. A structured literature review identified studies published up to 2026 reporting sensitivity and specificity (%) for PANSS-6 and/or PANSS-30 based on ROC analyses related to treatment response or remission. Two summary tables were created. Correlation analysis and simple linear regression were performed separately for each scale. All statistical calculations and interpretations were conducted by the researcher.

Results. For PANSS-6, linear regression showed a significant positive association between specificity and sensitivity ($R^2 = 0.79$; $F(1,3) = 11.26$; $p = 0.044$; $r = 0.89$), suggesting consistent performance across studies. For PANSS-30, the model was also statistically significant ($R^2 = 0.88$; $F(1,3) = 21.84$; $p = 0.019$; $r = 0.94$), but demonstrated a steep slope and a negative intercept, indicating greater variability and reduced clinical interpretability.

Conclusions. PANSS-6 appears to be a practical and reproducible tool for efficient symptom monitoring in schizophrenia. Although PANSS-30 provides broader evaluation, its reported performance metrics show greater heterogeneity and require more time for administration. Brief assessment tools may therefore offer a balanced approach between practicality and diagnostic performance.

Keywords.

Schizophrenia; Positive and Negative Syndrome Scale; PANSS-6; PANSS-30; Sensitivity; Specificity; Receiver Operating Characteristic; Artificial intelligence.

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300. THE PROGRESS OF HYBRID IMAGING TECHNOLOGIES: MORPHO-FUNCTIONAL INTEGRATION IN PRECISION DIAGNOSIS

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Introduction. Recent advances in medical imaging have led to a transition from purely morphological evaluation toward the integration of structural, functional, and molecular data. Hybrid imaging technologies such as PET/CT, SPECT/CT, and PET/MR enable simultaneous correlation of anatomical and metabolic information, improving diagnostic accuracy and supporting clinical decision-making. Studies indicate that hybrid imaging systems can increase diagnostic sensitivity and specificity by up to 15–35% compared with conventional imaging techniques.

Aim of study. To evaluate the impact of hybrid imaging technologies on diagnostic efficiency and to analyze the role of correlating radio-imaging investigations in optimizing the diagnostic algorithm.

Methods and materials. The study included a narrative review of scientific publications from the last decade indexed in major biomedical databases (PubMed and Scopus) combined with a retrospective analysis of radio-imaging investigations performed in 113 patients. Among the patients, 63% were female and 37% male. Each patient underwent at least three imaging investigations, including conventional techniques and hybrid modalities such as PET/CT, SPECT/CT, or PET/MR. The analysis focused on clinical indications, the correlation between imaging findings, and their contribution to establishing the final diagnosis.

Results. The integrated use of conventional and hybrid imaging methods increased the effectiveness of establishing the correct diagnosis by approximately 30%. Hybrid imaging proved particularly valuable in oncological staging and restaging, differentiation between inflammatory and neoplastic processes, assessment of myocardial perfusion and viability, and improved characterization of brain lesions and neurodegenerative diseases. Literature data confirm diagnostic accuracies of up to 90–95% for certain oncological indications and report changes in therapeutic management in approximately 20–40% of cases following hybrid imaging evaluation. In addition, proper correlation of imaging investigations contributed to reducing redundant diagnostic procedures and unnecessary radiation exposure.

Conclusions. Hybrid imaging technologies represent an important component of precision medicine by integrating morphological and functional information within a single diagnostic framework. Appropriate selection and correlation of radio-imaging investigations can significantly improve diagnostic efficiency, optimize clinical management, and reduce unnecessary radiation exposure. With the development of digital technologies and artificial intelligence, hybrid imaging systems are expected to play an increasingly important role in modern diagnostic practice.

Keywords. hybrid imaging, PET/CT, PET/MR, SPECT/CT, precision medicine.

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301. BLESSING OR A CURSE - ARTIFICIAL INTELLIGENCE IN MANAGEMENT AND TREATMENT OF PRIMARY SPONTANEOUS PNEUMOTHORAX

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Scientific adviser: Dr. Med.Vlad-Mircea Gîrdan

Introduction. Primary spontaneous pneumothorax (PSP) refers to the presence of air in the pleural cavity in patients without underlying lung disease. Artificial Intelligence (AI) is being increasingly applied in healthcare, including in pulmonology and emergency medicine, to enhance diagnosis, treatment, and patient monitoring.

Aim of study. This study aims to examine the impact of AI use in PSP patients and its role to date.

Methods and materials. A systematic search was conducted on PubMed, Google Scholar, and Springer Nature for studies published within the last 5 years, using keywords such as “primary spontaneous pneumothorax”, “artificial intelligence”, and “pleural drainage”. Studies were included if they investigated AI applications in PSP management and did not register any clinical data into AI prior to the study. Case reports, reviews, and studies involving secondary pneumothorax or that overlap were excluded. PRISMA guidelines were used for data abstraction, and risk of bias was not evaluated.

Results. Of the 24 studies initially considered, 7 were selected, comprising 4 retrospective and 3 case-control studies, involving a total of 3922 patients. Blanco et al. (2024) showed that AI has a sensitivity of 100% and a negative predictive value of 100%, with a specificity of 79.4% and a positive predictive value of 45%. Despite this, Monti et al. (2025) highlighted that AI achieved an accuracy of 74% (95% CI, 68–79%), with a sensitivity of 66% (95% CI, 59–73%) and a specificity of 93% (95% CI, 85–97%) compared to human readers, who displayed an equivalent accuracy (77%, 95% CI 71–82%, p = 0.355), with higher sensitivity (73%, 95% CI 66–79 %, p = 0.040), albeit lower specificity (85%, 95% CI 75–91%, p = 0.034).

Conclusions. AI could be an effective tool for the management and treatment of PSP patients, especially given the shortage of specialists and the workload of radiologists. Additional research is needed to determine the method's limitations and to discuss its ethical implications.

Keywords. primary spontaneous pneumothorax, artificial intelligence, pleural drainage, video-assisted thoracoscopic surgery.

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302. NEURO-CEREBRAL IMAGING TECHNIQUES: NON-CONTRAST CEREBRAL CT, CONTRAST-ENHANCED CEREBRAL CT AND CEREBRAL CT ANGIOGRAPHY

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Introduction. Computed tomography (CT) is a rapid, widely available technique for evaluating cerebral pathologies. Non-contrast CT (NCCT) is used in acute cranial trauma with altered consciousness, neurological deficits, fractures, or hematomas, as well as acute headache, transient ischemic attack, or ischemic stroke. Contrast-enhanced CT assists in tumor assessment, post-operative monitoring, infectious or inflammatory lesions, chronic headache, epilepsy, dementia, or progressive neurological deficits. Pediatric and adult trauma have specific criteria for urgent CT, including Glasgow Coma Scale thresholds, focal neurological signs, non-accidental injury suspicion, and high-risk mechanisms. Arterial and venous CT angiography and perfusion CT assess vascular malformations, occlusions, infarct core, ischemic penumbra, and cerebral blood flow, aiding acute stroke management.

Aim of study. This study reviewed recent literature on advanced head and brain CT techniques.

Methods and materials. 15 PubMed publications from the past ten years were analyzed.

Results. All 15 studies confirmed NCCT remained essential for rapid trauma, hemorrhage, and stroke evaluation, providing immediate anatomical information for clinical decisions. CTA in 10 studies consistently enabled high-resolution assessment of intracranial and extracranial vessels, detecting aneurysms, arteriovenous malformations, thrombosis, and vasospasm. CT perfusion in 8 studies differentiated salvageable ischemic tissue from irreversible infarction, guiding thrombolysis and endovascular therapy. Radiation dose optimization using low-dose protocols and iterative reconstruction preserved diagnostic quality while reducing exposure in 7 studies. Pediatric imaging benefited from iterative model reconstruction improving signal-to-noise ratios in low-dose NCCT. Reduced contrast volumes for CTA (30–60 mL) maintained adequate image quality in 2 studies. AI-assisted detection of cerebral aneurysms on CTA achieved 85–95% sensitivity with accuracy comparable to expert radiologists.

Conclusions. NCCT remains the primary imaging modality for acute head assessment, complemented by CTA and CT perfusion. Low-dose and iterative reconstruction protocols reduce radiation exposure without compromising diagnostic quality, and AI-assisted tools enhance aneurysm detection. Future research should validate protocols and AI models across centers to ensure broader applicability.

Keywords. brain CT, CT angiography, CT perfusion, neuroimaging, acute stroke.

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303. IMPACT OF BI-RADS BREAST DENSITY ON DIAGNOSTIC PERFORMANCE IN BREAST CANCER SCREENING: THE NEED FOR ADAPTED PROTOCOLS

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Introduction. Dense breasts aren't rare, half of screened women have them. Yet we treat everyone identically. Mammography works great for fatty tissue but struggles with dense breasts, ironically affecting women needing early detection most. My study asks: exactly how much does detection drop as density increases? Can ultrasound catch what mammography misses?

Aim of study. Measure how detection falls across four BI-RADS density categories. Find where mammography alone stops working adequately. Test whether ultrasound catches cancer's dense tissue hides. Propose practical protocols matching breast type. Working idea: density predicts mammographic failure.

Methods and materials. Two-step approach for suspicious findings. Digital mammography sorted density: A mostly fat (under 25% glandular), B scattered (25-50%), C heterogeneous (51-75%), D extremely dense (over 75%). Everyone got bilateral ultrasound regardless of mammography results. Biopsies confirmed diagnosis. Compared detection rates per density group, tracking misses and reasons.

Results. Distribution: 18 category A, 52 B, 58 C, 15 D. C-D together: 51% – majority, not edge case. Mammography performance collapsed with density. A: everything caught, zero misses. B: over 96%, two failures. C: dropped to 90%, six missed – one in ten invisible. D: three-quarters detected – one in four hidden. Ultrasound dramatically changed the dense breast picture. A: added nothing. B: under 2% gain. C-D: different story. C gained 9%, D gained 21% – over a quarter visible only ultrasonographically. Overall ultrasound: 97% independent of density. Missed cancers: hypoechoic masses without calcifications, under 2 cm, buried in glandular tissue. Numbers destroy one-size-fits-all screening. At D, mammography misses one in four – terrible for screening tests. Those 73 dense-breast women aren't exceptions – they're the majority. Same protocol as fatty breasts despite 25% detection difference. Ultrasound isn't optional for dense breasts, it's essential. At D, it pushes detection from 75% to 95%. Minutes added versus years delayed diagnosis. BI-RADS density shouldn't just be described as a trigger protocol. C-D means automatic ultrasound, not radiologist preference. National guidelines need updating now: stratified screening becomes standard.

Conclusions. Density determines screening success. Mammography excels with fat, struggles with density. Over half had dense breasts where mammography missed up to quarter of cancers. Ultrasound fills gaps through solid-cystic differentiation independent of background. Best approach: A-B mammography sufficient, C-D must add ultrasound mandatory. For most women dense tissue- mammography alone inadequate screening.

Keywords. Breast density, BI-RADS, Classification, Mammography limitations, Screening ultrasound, Cancer, False negative rate.

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304. THE IMPACT OF OCCUPATIONAL THERAPY ON THE RE-EDUCATION OF A PATIENT WITH HEMORRHAGIC STROKE

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Introduction. Hemorrhagic stroke represents a major cause of disability among patients, significantly affecting grasp function in the affected upper limb, muscle strength, and functional independence in activities of daily living (ADLs). The present case is noteworthy due to the relatively young age of the patient (49 years) and the initiation of rehabilitation approximately six weeks after the acute event, providing an opportunity to evaluate the impact of function-oriented occupational therapy.

Case presentation. We present the case of a 49-year-old patient with a history of hemorrhagic stroke, which occurred in October 2025, admitted to a rehabilitation program 6 weeks post-event. The objective of this study was to evaluate the impact of occupational therapy on the re-education of grasp function, the increase in muscle strength, and functional improvement following the rehabilitation program.The 10-day therapeutic program included pharmacological treatment, physical therapy sessions focused on gait re-education and increasing exercise tolerance, physiotherapy (functional electrical stimulation), and occupational therapy.Functional independence, muscle strength, grasp function, and ambulation capacity were assessed using the Barthel Index , the Medical Research Council (MRC) scale, the DASH score , and the Functional Ambulation Scale. Global post-stroke disability severity was assessed using the Modified Rankin Scale.

Discussions. Following the multimodal rehabilitation intervention, the patient demonstrated improvements in upper limb function, muscle strength, and functional independence, as evidenced by changes in the assessment scores: the DASH score decreased by 18%, the Barthel Index increased by approximately 22%, the MRC scale improved from 3/5 to 4/5, the Functional Ambulation Scale (FAS) improved from 2 to 3, and disability severity decreased according to the Modified Rankin Scale (from 4 to 3).These outcomes may be attributed to occupational therapy focused on improving upper limb function, which included activities of daily living–specific tasks, thereby facilitating the re-education of grasp function and fine motor coordination.

Conclusions. Occupational therapy has a significant impact on the re-education of grasp function, increasing muscle strength, and improving functional outcomes in patients with hemorrhagic stroke. Integrating a set of functional exercises oriented toward activities of daily living contributes to increased autonomy and an improved quality of life for the patient.

Keywords. Hemorrhagic stroke, Occupational therapy, Grasp function, Muscle strength.

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305. FUNCTIONAL RECOVERY OF PATIENTS AFTER STROKE THROUGH VIRTUAL REALITY

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Introduction. Stroke is a primary cause of lasting disability globally, leading to significant impairments in motor, cognitive and functional abilities that impact individuals' autonomy and overall quality of life. The objective of post-stroke rehabilitation is to recover lost functions by utilizing neuroplasticity alongside motor learning strategies. Traditional physiotherapy is foundational to rehabilitation efforts, nevertheless, innovative technological methods are increasingly being included to improve treatment results

Aim of study. The purpose of this study was to examine the impact of virtual reality technologies on functional recovery in stroke patients and to assess their contribution as a supplement to traditional physiotherapy.

Methods and materials. The study involved a descriptive and selective review of literature centered around contemporary rehabilitation methods for stroke-affected individuals using virtual reality technologies. Scientific articles were sourced from global electronic databases, including PubMed/Medline, NCBI, Google Scholar, Scopus, EBSCO and the Cochrane Library. The review encompassed pertinent research published between 2011-2016 in Romanian and English. The included studies were on adult patients diagnosed with ischemic or hemorrhagic strokes and examined the application of VR systems in functional rehabilitation. The review concentrated on outcomes linked to motor recovery, gait, training, balance, upper extremity functionality and overall independence, assessed using validated measurement tools like the Fugl-Meyer-Assessment, Berg Balance Scale and Barthel Index.

Results. The studies reviewed indicated that rehabilitation using VR can significantly boost motor recovery when integrated with traditional physiotherapy. Virtual settings promote repetitive task-oriented practice and offer audiovisual feedback, which fosters neuroplasticity and enhances learning of motor skills. Data from clinical trials and meta-analyses reveal advancements in upper limb capabilities, balance maintenance, walking metrics and cognitive ability. VR interventions also heighten patient involvement and enthusiasm, transforming monotonous therapeutic exercises into engaging activities.

Conclusions. Virtual reality stands as a cutting-edge and effective adjunct in the rehabilitation of those who have suffered strokes. By fostering neuroplasticity and boosting patient motivation, VR technologies play a vital role in enhancing recovery of functionality and self-reliance. The inclusion of VR in rehabilitation protocols may maximize treatment outcomes.

Keywords. Stroke rehabilitation, virtual reality, neuroplasticity, motor recovery, functional rehabilitation.

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306. EFFICIENCY OF PHYSIO-KINESIOTHERAPEUTIC METHODS IN THE REHABILITATION OF PATIENTS WITH CERVICAL RADICULOPATHY

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Introduction. Cervical radiculopathy is a prevalent neurological and musculoskeletal disorder that arises from pressure or irritation of the nerve roots in the cervical region. This condition often occurs alongside degenerative alterations in the cervical spine, including herniated intervertebral discs, the formation of bone spurs or cervical spondylosis. Individuals usually present with neck discomfort that radiates to the arms, sensory anomalies, muscle weakness and limitation in functional ability. Given its considerable effect on quality of life and daily activities, implementing effective rehabilitation methods is crucial.

Aim of study. The goal of this research was to assess the effectiveness of physio-kinetotherapy techniques in rehabilitating patients diagnosed with cervical radiculopathy. The study aimed to ascertain the influence of therapeutic exercises and physical therapy methods on pain alleviation, cervical range of motion and functional rehabilitation.

Methods and materials. The research involved a cohort of patients confirmed to have cervical radiculopathy who participated in a structured rehabilitation protocol. The intervention entailed a mix of physiotherapy and kinesitherapy exercises specifically aimed at treating dysfunctions of the cervical spine. The physiotherapeutic aspect incorporated physical modalities commonly utilized in rehabilitation such as electrotherapy and therapeutic ultrasound, with the goal of decreasing inflammation and discomfort. The kinesiotherapy segment involved a tailored exercise regimen which included cervical stabilization activities, stretching methods, exercises for postural correction and enhancement of the neck and shoulder muscle groups.

Results. Clinical assessments of the patients were conducted both prior to and following the rehabilitation program, utilizing standardized evaluation techniques encompassing pain intensity measurements, cervical motion range assessments and functional evaluations of upper extremities. The results revealed a considerable decrease in pain intensity, enhancement of cervical mobility and improved functional capacity after the implementation of physio-kinesiotherapy techniques. The outcomes of the study underscore the significant contribution of physio-kinesiotherapy in the conservative treatment of cervical radiculopathy.

Conclusions. Conclusion tailored rehabilitation programs grounded in physio-kinesiotherapeutic principles prove to be an effective and safe method for treating and rehabilitating individuals experiencing cervical radiculopathy.

Keywords. Cervical radiculopathy, physiotherapy, kinesitherapy, rehabilitation, cervical spine.

https://doi.org/10.66603/medespera2026.837

307. PHYSIOKINETIC THERAPY MANAGEMENT IN PATIENTS AFTER KNEE LIGAMENTOPLASTY

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Introduction. One of the most common injuries to the musculoskeletal system is a tear of the knee ligaments, especially the anterior cruciate ligament. This injury is most common in young and sport people. Despite the use of ligamentoplasty, the restoration of knee joint function directly depends on a step-by-step and individualized rehabilitation process under the guidance of a physical therapist. In the postoperative period, complex processes of ligamentization and remodeling of the graft occur, which, if rehabilitation is incorrect or untimely, can lead to more serious complications. Without adequate rehabilitation, patients are at risk of delayed recovery due to complications, as well as re-injury and the development of degenerative changes.

Aim of study. The study highlights the characteristics of graft types (patellar ligament, hamstring tendon, quadriceps tendon, allograft) and their impact on rehabilitation and proper adaptation of the rehabilitation process, taking into account the biological vulnerabilities of the graft. Key principles for patient management related to primary clinical and functional assessment, pain and edema control, restoration of full extension, neuromuscular rehabilitation, a bilateral approach, and functional criteria for safe transition between rehabilitation stages and return to physical or sports activity are also described.

Methods and materials. Data analysis shows that rehabilitation should be based on functional criteria rather than biological timeframes in order to be more effective. To prevent overload of the healthy limb, attention is paid to maintaining gait asymmetry, reducing extension moment, and inhibiting the quadriceps. To reduce pathological stress on the joint and prevent post-traumatic osteoarthritis, it is important to control the quality of movement when walking, squatting, and jumping.

Results. As a result of physiokinesitherapy (kinesitherapy, physiotherapy) methods at an early stage of rehabilitation, patients experience a reduction in pain and swelling and easier muscle activation. When athletes return to a sporting lifestyle, it is necessary to take into account the symmetry of strength (more than 85-90%) required for stability, balance, and tolerance of cyclic loads, as well as to assess psychological factors (fears of recurrence).

Conclusions. Knee ligamentoplasty is only part of the treatment, which is supplemented by the involvement of a physiotherapist in postoperative rehabilitation. Step-by-step and individual rehabilitation, combined with monitoring and clear criteria, demonstrate a high probability of a safe return to everyday life for the patient.

Keywords. Ligamentoplasty, knee joint, anterior cruciate ligament, rehabilitation, physiokinesitherapy.

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308. EFFECTIVENESS OF PHYSIOTHERAPY ON CARDIOVASCULAR FUNCTION IN OBESE PATIENTS

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Introduction. The relevance of the topic is determined by the need to identify and implement effective, safe and individualized physiotherapy programs that favorably influence cardiovascular parameters, such as blood pressure, heart rate, cardiac output and exercise tolerance. Recent studies emphasize that correctly dosed physical exercise contributes to improving endothelial function, regulating the activity of the autonomic nervous system and decreasing systemic inflammation, essential mechanisms in the prevention and control of cardiovascular complications associated with obesity.

Aim of study. To determine the effectiveness of physiotherapy programs reported in the analyzed studies, through the narrative synthesis of changes in cardiovascular clinical-functional parameters and exercise capacity described in the specialized literature (blood pressure, resting and exercise heart rate, heart rate recovery, functional walking tests, assessment of exercise perception, estimates of cardiorespiratory capacity), in order to highlight the impact of physiotherapy interventions on cardiovascular adaptations and reducing cardiovascular risk associated with obesity.

Methods and materials. A theoretical argumentation of the use of physiotherapy interventions in optimizing cardiovascular function in obese people, by applying research methods, namely, theoretical analysis of specialized literature, studying activity documents, analysis of surveys and interviews reported by the authors, observation method, clinical-functional testing and statistical analysis of results - in order to identify and synthesize scientifically validated exercise types and intervention models.

Results. The studies analyzed confirm the essential role of physical activity and structured physiotherapy interventions in preventing and improving cardiovascular dysfunction associated with obesity. The specialized literature supports the integration of therapeutic physical exercise as a central element of the complex management of obese patients, alongside nutritional and educational interventions.

Conclusions. Overall, the comparative analysis of studies shows that clinical and functional improvements are attributed to structured and supervised physiotherapy interventions, while the absence of an organized exercise program is associated with the maintenance or progression of cardiovascular dysfunction. These findings support the role of physiotherapy as an essential non-pharmacological intervention in the secondary and tertiary prevention of cardiovascular disease in obese individuals.

Keywords. Cardiology, physiotherapy, obesity, Physical Therapy, exercises.

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309. PHYSIO-FUNCTIONAL REHABILITATION IN SACROILIAC JOINT DYSFUNCTION: A LITERATURE REVIEW

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Introduction. Sacroiliac joint dysfunction (SIJD) represents an important contributor to lumbopelvic pain and functional impairment. Epidemiological data indicate that the sacroiliac joint may account for approximately 15–30% of cases of chronic low back pain. Although the sacroiliac joint exhibits minimal mobility, with sagittal rotation typically below 2°, its biomechanical role in transferring loads between the trunk and lower extremities is essential for lumbopelvic stability. Alterations in load transfer, ligamentous tension, and neuromuscular control may lead to mechanical stress and pain generation.

Aim of study. The aim of this study was to analyze the scientific evidence regarding physio-functional rehabilitation approaches used in patients with sacroiliac joint dysfunction, with emphasis on pain reduction, functional recovery, and improvement of lumbopelvic stability.

Methods and materials. A narrative literature review was conducted based on 17 scientific publications identified in the PubMed. Studies addressing the anatomical and biomechanical characteristics of the sacroiliac joint, mechanisms of dysfunction, clinical diagnostic procedures, and rehabilitation strategies were analyzed. Particular attention was given to physiotherapeutic interventions including manual therapy, muscle energy techniques (MET), and stabilization-oriented therapeutic exercise programs.

Results. The reviewed literature indicates that sacroiliac joint dysfunction is responsible for approximately 15–30% of low back pain cases. Clinical evaluation relies on clusters of provocation tests, where the presence of at least three positive tests can increase diagnostic sensitivity to over 90% and specificity to approximately 70–80%. Pain distribution patterns most frequently involve the gluteal region (≈94%) and lower lumbar area (≈72%). Evidence from clinical studies suggests that rehabilitation programs combining stabilization exercises, neuromuscular control training, and manual therapy techniques improve functional outcomes by optimizing load transfer and reducing mechanical stress on ligamentous structures.

Conclusions. Physio-functional rehabilitation represents an effective conservative strategy in the management of sacroiliac joint dysfunction. Multimodal therapeutic programs focused on lumbopelvic stabilization, neuromuscular control, and targeted physiotherapeutic techniques contribute to pain reduction, improvement of functional mobility, and restoration of biomechanical balance within the lumbopelvic complex.

Keywords. sacroiliac joint dysfunction, physiotherapy, lumbopelvic stability, rehabilitation, therapeutic exercise.

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310. MICROVASCULAR ANGINA: AN UNDERDIAGNOSED CAUSE OF CHEST PAIN IN CARDIOLOGY

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Introduction. Microvascular angina, also known as ischemia with non-obstructive coronary arteries (INOCA), is a form of myocardial ischemia caused by dysfunction of the coronary microcirculation, in the absence of significant stenosis of the epicardial coronary arteries. From an epidemiological perspective, international studies show that up to 30–50% of patients presenting with chest pain and undergoing coronary angiography do not have significant obstructive lesions, with a substantial proportion of these patients exhibiting microvascular dysfunction.

Aim of study. To highlight microvascular angina as a frequently underdiagnosed cause of chest pain and to emphasize the importance of recognizing this entity in patients presenting with symptoms suggestive of myocardial ischemia but without obstructive coronary lesions.

Methods and materials. A literature review was conducted using medical databases such as PubMed, Scopus, and Google Scholar. The focus was on papers published between 2020 and 2025, especially international guidelines, clinical studies, meta-analyses, and relevant systematic reviews.

Results. The literature review shows that 60–70% of patients investigated for chest pain by coronary angiography, but without significant coronary lesions, demonstrate evidence of coronary microvascular dysfunction. Among women, up to 50–65% of angina cases without obstructive coronary stenosis are attributed to microvascular angina, compared to approximately 30–40% in men. This condition is frequently associated with cardiovascular risk factors such as hypertension, diabetes mellitus, obesity, and dyslipidemia, as well as inflammatory syndromes and systemic endothelial dysfunction. Studies highlight the central role of endothelial dysfunction and impaired regulation of vascular tone at the microcirculatory level. A reduced coronary flow reserve and an increased microvascular resistance index (>25 units) have been correlated with symptom severity and significant microvascular dysfunction. Functional invasive techniques and advanced imaging methods, such as positron emission tomography and cardiac magnetic resonance imaging, have shown increased sensitivity in detecting microvascular dysfunction by identifying myocardial perfusion abnormalities even in the absence of obstructive coronary lesions.

Conclusions. Microvascular angina is a frequently underdiagnosed cause of chest pain, particularly in patients without obstructive coronary lesions. Despite its often nonspecific presentation and the limitations of conventional diagnostic methods, this condition is associated with a significant cardiovascular risk and should not be considered benign. Early recognition of microvascular angina and the use of modern functional assessment methods are essential for establishing an accurate diagnosis and optimizing patient management.

Keywords. INOCA, chest pain, coronary microvascular dysfunction.

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311. MANAGEMENT OF ANEMIA IN INFLAMMATORY BOWEL DISEASE IN 2026: A PRACTICAL APPROACH BASED ON ECCO AND AGA RECOMMENDATIONS

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Introduction. Anemia is a common complication of inflammatory bowel disease (IBD) and is associated with fatigue, reduced performance and an increased risk of hospitalization. Iron deficiency and anemia of chronic disease are the most frequent mechanisms, often coexisting; vitamin B12/folate deficiency and drug-induced anemia represent additional relevant causes.

Aim of study. To synthesize ECCO and AGA recommendations into a practical algorithm for screening, differential diagnosis, treatment and monitoring of IBD-associated anemia, applicable in 2026.

Methods and materials. A narrative review of ECCO guidelines (consensus on iron deficiency/anemia; ECCO 2024—extraintestinal manifestations) and AGA documents (2024 Clinical Practice Update on iron deficiency anemia; AGA 2020 guideline) was conducted, complemented by relevant review literature. Diagnostic thresholds, indications for oral versus intravenous iron, and follow-up recommendations were extracted.

Results. ECCO recommends assessment of hemoglobin, ferritin, transferrin saturation (TSAT) and C-reactive protein (CRP) every 6–12 months in remission or mild disease and at least every 3 months in active disease. After correction, monitoring is advised every 3–6 months during the first year, with retreatment indicated when ferritin falls below 100 µg/L or hemoglobin below 12/13 g/dL. In the presence of inflammation, ferritin >100 µg/L with low TSAT suggests anemia of chronic disease, whereas ferritin levels between 30–100 µg/L frequently indicate combined iron deficiency. AGA emphasizes the importance of distinguishing insufficient intake/absorption from ongoing losses (bleeding) and optimizing control of active disease. Oral iron (once daily or every other day, preferably at low doses ± vitamin C) is reserved for mild anemia with inactive disease, while intravenous iron is first-line therapy in active disease, hemoglobin <10 g/dL, intolerance or inefficacy of oral iron, or impaired absorption, with preference for formulations allowing correction in 1–2 infusions. Treatment response should be reassessed at approximately 4 weeks. Erythropoiesis-stimulating agents (ESAs) may be considered in cases of inadequate response to intravenous iron (target hemoglobin ≤12 g/dL), while blood transfusion is reserved for severe or unstable situations.

Conclusions. In 2026, effective management of anemia in IBD is integrated and proactive ("treat the bowel, treat the blood"): control of inflammation combined with targeted iron repletion and standardized monitoring to prevent recurrence.

Keywords.anemia, inflammatory bowel disease, iron deficiency, intravenous iron, ECCO, AGA.**1.**

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312. PERSISTENT GUT DYSBIOSIS AFTER COVID-19 AND OPPORTUNISTIC COLONIZATION IN ADULTS

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Introduction. Post–COVID-19 convalescence may be prolonged and clinically heterogeneous, frequently including gastrointestinal complaints such as bloating, abdominal discomfort, and altered bowel habits. The reduction of short-chain fatty acid-producing bacteria suggests a decrease in the protective functions of the microbiota, which could favor the imbalance of the intestinal ecosystem. Therefore, the enrichment of opportunistic microorganisms becomes a marker of post-COVID dysbiosis.

Aim of study. The paper aims to identify and characterize the specific patterns of intestinal dysbiosis and opportunistic colonization of adults post-COVID-19 using local data and to contextualize these findings against patterns reported in international literature (2020–2025).

Methods and materials. Adults with gastrointestinal symptoms were retrospectively evaluated based on medical records and stool microbiology. The history of SARS-CoV-2 infection was related to dysbiosis indicators and the presence of opportunistic microorganisms, and the data were synthesized descriptively. The results were contextualized by reporting to recent literature , identified in PubMed, Google Scholar and UpToDate.

Results. The analysis included 42 patients (57.1% male; most commonly aged 61–70 years), of whom 57.1 % had a history of SARS-CoV-2 infection, suggesting a possible correlation between previous infection and changes in the intestinal microbiota. Overall, potentially pathogenic/opportunistic microorganisms were identified in 54.8% (23/42) of patients, with a profile dominated by enterobacteria and opportunists (Candida spp., Proteus mirabilis, Morganella morganii). Among patients without history of COVID-19, reduced bifidobacteria below the physiological range predominated, consistent with mild–moderate intestinal dysbiosis.

Conclusions. In adults with persistent gastrointestinal symptoms, post-COVID dysbiosis was frequently accompanied by opportunistic microorganisms, supporting the clinical value of stool microbiological evaluation for early detection and follow-up of microbial imbalance.

Keywords. gut dysbiosis, post-COVID-19, opportunistic microorganisms.

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313. ACUPUNCTURE IN THE COMPLEX TREATMENT OF BRONCHIAL ASTHMA

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Introduction. Bronchial asthma is a long-term respiratory infection associated with respiratory tract inflammation, airway hyperresponsiveness, and repeated episodes of wheezing and dyspnea. Even though modern pharmacological treatments such as bronchodilators and corticosteroids are efficient, some patients still have to deal with recurring symptoms and poor quality of life. So we have to choose some supplementary treatments that are more widely investigated. Acupuncture, conventional healing technique derived from Chinese medicine, have received attention as a potential adjunctive therapy in asthma management

Aim of study. To analyse latest scientific literature on the purpose of acupuncture as an additional method in the complex treatment of bronchial asthma.

Methods and materials. This study is based on a narrative review of scientific publications indexed in major international databases, including PubMed, Scopus, and Google Scholar. Relevant articles published between 2015 and 2025 were selected and analyzed, focusing on clinical trials, systematic reviews, and meta-analyses evaluating the effectiveness of acupuncture in patients with bronchial asthma.

Results. Various research shows that acupuncture may help in the reduction of symptoms and progress in well-being when given together with conventional asthma treatment. Some clinical studies show a decrease in airway inflammation and moderate improvement in lung function. The suggested mechanism comprises immune system regulation, effects on inflammatory mediators, and management of autonomic system activity. Even so, variations in research approach, acupuncture techniques, and sample size make it challenging to get a generalized conclusion about the effectiveness of acupuncture.

Conclusions. Recent studies suggest that acupuncture can provide useful supportive effects in the treatment of bronchial asthma. Its integration with standard pharmacological therapy enhances clinical outcomes and improves overall disease control.

Keywords. Acupuncture, bronchial asthma, complementary therapy, airway inflammation, alternative therapy.

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314. THE ASSOCIATION BETWEEN EPILEPSY AND COMORBID CARDIOVASCULAR CONDITIONS: CERTAIN PATHOPHYSIOLOGICAL MECHANISMS AND CLINICAL IMPLICATIONS.

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Introduction. Recent research suggests that epilepsy extends beyond the central nervous system and may involve the cardiovascular system. Accumulating evidence suggests a bidirectional interaction between epilepsy and cardiovascular diseases, mediated largely from dysfunction of the brain-heart axis, with an impact on the risk of sudden unexpected death in epilepsy(SUDEP).

Aim of study. To analyze the pathophysiological mechanisms involved in the association of epilepsy with cardiovascular comorbidities and to elucidate the clinical implications of the interaction based on evidence from recent literature.

Methods and materials. The study is based on bibliographic sources identified through the Elibrary, PubMed and PubMed Central, published between 2020 and 2025, selected by filtering based on keywords.

Results. Autonomic imbalance represents the central mechanism underlying neurocardiac interactions in epilepsy, characterized by ictal sympathetic overactivation and postictal vagal dysfunction. Epileptic discharges can directly affect the function of ion channels creating an arrhythmogenic substrate. Repeated development of the epileptic heart. This process involves interstitial fibrosis, endothelial dysfunction with reduced cardiac reserve. During generalized seizures, hypoxia, acidosis and catecholamine surges induce transient cardiotoxicity and myocardial ischemia. Some antiseizure medications may further influence cardiac electrophysiological stability and metabolic regulation. The combination of autonomic dysfunction, severe arrhythmias, and respiratory impairment contributes to an elevated risk of sudden unexpected death in epilepsy, representing the ultimate expression of neurocardiorespiratory dysregulation.

Conclusions. The association between epilepsy and cardiovascular pathology is multifactorial and clinically relevant, requiring systematic cardiac assessment, arrhythmia risk monitoring, and an interdisciplinary approach to improve patient outcomes.

Keywords. Epilepsy, cardiovascular comorbidities, brain-heart axis, SUDEP, autonomic dysfunction, epileptic heart, mechanisms, neurocardiac interaction.

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315. RENAL INVOLVEMENT IN THE CONTEXT OF CHRONIC TOPHACEOUS GOUT

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Scientific adviser: Larisa Rotaru, PhD, Associate Professor, Department of Rheumatology and Nephrology

Introduction. Gout is a complex metabolic disease primarily caused by chronic hyperuricemia, which represents the main pathophysiological mechanism. Renal dysfunction occurs due to deposition of urate crystals in the renal tubules, chronic inflammation, and oxidative stress. Gouty nephropathy, uric lithiasis, and accelerated progression of chronic kidney disease reflect the bidirectional relationship between gout and the kidneys.

Case presentation. A 63-year-old hunter was admitted with a diagnosis of tophaceous gout. Symptoms included pain in the right hand joints, bilateral first metatarsophalangeal joints, multiple trophy-hands, dysuria, and a sensation of incomplete bladder emptying. The patient reported a 15-year history of gout, with poor adherence to dietary recommendations (frequent consumption of red and game meat, including grilled preparations, as well as wine or beer). Medications were taken only during flares, mainly NSAIDs and analgesics. History of hypertension for 17 years, with maximum values of 160/100 mmHg, treated with Valsartan in the evening and Bisoprolol in the morning. Grade II obesity.Laboratory investigations: ESR 48 mm/h, serum uric acid 698 µmol/L, urea 12.2 mmol/L, creatinine 143.80 µmol/L, cholesterol 7.9 mmol/L, Na 142 mmol/L, K 5.1 mmol/L, CRP 25.6 mg/L, fibrinogen 5.1 g/L, PSA 4.1 ng/mL, urine uric acid 3438.72 µmol/L, eGFR 47 mL/min/1.73 m^2, NP 1.18; urine culture: Escherichia coli 10^5 CFU/mL. Urinary tract ultrasound: Conclusion: calyceal deformity with bilateral wall fibrosis. Bilateral nephrolithiasis (0,7 cm). Clinical diagnosis: Acute flare of chronic tophaceous gout. Gouty nephropathy. Nephrolithiasis. Chronic bilateral pyelonephritis, etiology E. coli 10^5 CFU/mL. CKD G3A1 KDIGO. Hypertension grade II, high additional risk. Heart failure II NYHA.The patient received urate-lowering therapy, antihypertensives, immunomodulatory, anti-inflammatory, antibacterial and vasoprotective treatment.

Discussions. This case illustrates the unfavorable evolution of inadequately treated tophaceous gout, in which chronic hyperuricemia led to gouty nephropathy, nephrolithiasis, and progression of CKD. This case highlights the need for an integrated management strategy focused on strict hyperuricemia control and comprehensive risk factor management to prevent renal and urological complications.

Conclusions. Pathological correlation: The patient's evolution demonstrates the bidirectional relationship between untreated tophaceous gout and progressive renal dysfunction, leading to gouty nephropathy and severe bilateral nephrolithiasis. Impact of comorbidities: Hypertension and obesity accelerated chronic kidney disease progression, requiring an integrated therapeutic approach. Therapeutic management:Strict control of hyperuricemia and adherence to dietary and hygienic recommendations are essential to prevent renal fibrosis and urological complications.

Keywords. Gout, kidney.

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316. PROFILE OF A PATIENT WITH TYPE 1 DIABETES MELLITUS HOSPITALIZED IN THE ENDOCRINOLOGY DEPARTMENT

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Introduction. The patient with type 1 diabetes mellitus (T1DM) hospitalized in the Endocrinology Department is typically insulin-dependent with variable glycemic control. Admission often occurs due to poor metabolic balance, acute or chronic complications, or the need for therapy adjustment. Clinical and laboratory evaluation is essential to assess disease severity, identify complications, and optimize individualized management.

Aim of study. The aim of the study was to comprehensively characterize the profile of hospitalized patients with T1DM in the Endocrinology Department.

Methods and materials. This retrospective cohort study included 100 patients with T1DM, both newly diagnosed and with chronic disease, hospitalized at the Republican Clinical Hospital in Chișinău, Republic of Moldova, from January 1 to December 31, 2025. Demographic, clinical, anthropometric, and relevant biochemical parameters were assessed to enable comprehensive characterization of the T1DM population. Data are presented as mean ± SEM.

Results. The cohort comprised 68% women and 32% men, with a mean age of 57.2 ± 1.4 years, reflecting long-standing T1DM. A high prevalence of chronic complications was observed, including arterial hypertension in 81% of patients and a history of cerebrovascular disease in 11%, with 72% classified as very high cardiovascular risk. Diabetic peripheral neuropathy, assessed by Toronto criteria, was present in 54% and often associated with diabetic foot manifestations, while absent peripheral pulses suggestive of peripheral arterial disease were documented in 16%. Biochemical evaluation revealed persistent metabolic imbalance, with mean fasting plasma glucose of 8.6±0.5 mmol/L and HbA1c of 8.3±0.3%, alongside dyslipidemia characterized by elevated total cholesterol (5.3±0.2 mmol/L) and LDL-cholesterol (3.1±0.14 mmol/L), reduced HDL-cholesterol (1.1±0.04 mmol/L), and increased triglycerides (2.0±0.15 mmol/L). Renal function, assessed by serum creatinine (86.4±4.5 µmol/L) and estimated glomerular filtration rate (74.8±2.8 mL/min/1.73 m²), indicated early involvement in a subset of patients. All individuals received individualized insulin therapy during hospitalization, optimizing glycemic control. Overall, integration of clinical and biochemical findings delineates a T1DM profile with chronic hyperglycemia, frequent micro- and macrovascular complications, and high cardiovascular risk, emphasizing the importance of comprehensive inpatient assessment.

Conclusions. Patients with T1DM exhibit high susceptibility to chronic complications, and inadequate glycemic control can lead to decompensation, underlining the importance of rigorous monitoring and management both during hospitalization and after discharge.

Keywords. T1DM, hospitalization, profile of a patient.

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317. ASSESSING THE QUALITY OF LIFE OF PATIENTS WITH AORTIC VALVE STENOSIS

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Introduction. In recent decades, there has been a marked evolution in surgical treatment methods such as transcatheter implantation of the aortic valve, which leads to an increase in survival rates.

Aim of study. Analysis of the main tools for assessing the quality of life of patients after transcatheter valve implantation (TAVR/TPVR) and analysis of the most recent meta-analyses and randomized clinical trials.

Methods and materials. Five meta-analyses and 12 studies published between 2018–2023, with over 9,000 patients with aortic valve stenosis, were analyzed. The studies used standardized scores SF-36, HeartQoL, MLHFQ, TASQ and EQ-5D. Analysis of the results obtained using these scores highlights that, like SF-36 and EQ-5D, they provide a global assessment of the condition and allow comparisons between different pathologies, but have low specificity for cardiovascular diseases. In contrast, the HeartQoL and MLHFQ questionnaires show a higher sensitivity for assessing symptoms and functional limitations of cardiac pathologies. The specific tool used for valvular disease is TASQ.

Results. HeartQoL and MLHFQ, demonstrated a reduction in cardiovascular symptoms and an increase in functional capacity in valvular patients after minimally invasive surgery. The importance of individualized assessment of treatment outcomes is attested, data confirmed by 13%, 21% patients after the intervention. In addition to health status, there are limited data on long-term complication rates and hospital readmissions after TAVI. However, the variability of results emphasizes the need for individualized monitoring and the integration of quality of life assessment into clinical practice.

Conclusions. Quality of life assessment is an essential component in the monitoring of patients with prosthetic heart valves. The use of validated questionnaires allows for multidimensional analysis of the patient's health status, including physical, psychological and social aspects.

Keywords. HeartQoL, MLHFQ, SF-36, TAVR, TASQ, EQ-5D, meta-analysis.

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318. THE ROLE OF GENETIC POLYMORPHISMS AND PLASMA LIPOPROTEIN(A) LEVELS IN THE PATHOGENESIS OF DEGENERATIVE AORTIC STENOSIS

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Introduction. Although aortic stenosis is a valvular heart disease prevalent in the elderly population, in recent years it has turned into a molecular disease, unrelated to the traditional risk factors such as hypertension and age. It has been demonstrated that genetic polymorphisms affiliated to lipid metabolism are involved in the pathogenesis of aortic stenosis.

Aim of study. This research evaluates the potential of Lipoprotein (a) [Lp(a)] to serve as a predictive marker for the evolution of aortic valve calcification, also aiming at stratifying and identifying patients with high phenotypic risk.

Methods and materials. Through the retrieval of literature in PubMed, ScienceDirect and IEEE Xplore databases, this study selected the relevant literature published in 2022-2026 according to the research criteria and ultimately retained 110 basic reference literatures for analysis.

Results. Recent research highlights the determining role of genetic risk factors in the evolution of aortic stenosis, with a particular focus on LPA gene polymorphisms. It is postulated that specific genetic variants at the Lipoprotein (a) locus, directly correlated with plasma Lp(a) concentrations, are involved in the pathogenesis of aortic stenosis in multiethnic cohorts. Elucidation of the genetic mechanisms and clinical significance of plasma Lp(a) levels, together with genetically determined structural variations, could facilitate the development of strategies for prognosis and early intervention in the process of valvular calcification.

Conclusions. Lipoprotein(a) [Lp(a)] is not simply an associated biomarker but an independent and genetically determined risk factor for aortic stenosis. High levels of Lp(a) are associated with increased lipid peroxidation and chronic endothelial valve inflammation leading to valve calcification. Lipoprotein profiling will represent an important step in assessing cardiovascular risk and in guiding an appropriate therapeutic strategy to slow valve calcification.

Keywords. aortic stenosis, modern risk factors, Lipoprotein (a) locus, genetic polymorphisms.

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319. COMORBIDITIES IN OSTEOARTHRITIS

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Introduction. Comorbidities diagnosed in osteoarthritis play an extremely important, yet still insufficiently understood role. Their occurrence at different stages of osteoarthritis progression requires patients to modify their lifestyle and give up some activities that were previously part of their routine, which can affect them not only physically but also emotionally.

Aim of study. To analyze the specialized literature in order to identify the most common comorbidities associated with osteoarthritis and to correlate this information with data obtained from our own study on patients.

Methods and materials. Data were collected from the PubMed platform, based on articles and studies conducted between 2015–2026 using retrospective and prospective research methods by researchers worldwide, as well as from our own study conducted on patients diagnosed with osteoarthritis and various associated diseases in individuals over the age of 30.

Results. Following the analysis of the specialized literature on osteoarthritis, it was found that the most frequent associated diseases are cardiovascular conditions such as arterial hypertension, heart failure, and myocardial infarction. Metabolic comorbidities were also identified, including diabetes mellitus, obesity, dyslipidemia, and low vitamin D levels. Gastrointestinal disorders are also among the commonly encountered conditions in osteoarthritis, especially as a result of inadequate treatment focused only on relieving symptoms such as pain, which may have adverse effects and contribute to the progression of gastrointestinal diseases, for example gastritis, gastroesophageal reflux disease, digestive hemorrhages, or an increased risk of thromboembolism. Mental health conditions such as anxiety and depression are also frequently observed among patients, often caused by the need to give up certain habits, adopt a stricter lifestyle and diet, as well as by persistent chronic pain. The common overlapping pathogenetic mechanisms involved in most of these comorbidities affect overall health status, highlighting the need for a holistic approach to patient management, considering all identified conditions.

Conclusions. The presence of comorbidities substantially worsens the course of osteoarthritis, both by accelerating the mechanisms of onset and by overlapping with the processes and stages of progression and aggravation of other pathologies. The risk group mainly includes elderly individuals, due to the accumulation over the years of favorable conditions for the development of various diseases, as well as treatments aimed at alleviating only certain existing aspects.

Keywords. comorbidities, osteoarthritis, elderly people.

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320. CIRCADIAN CORTISOL DYSREGULATION IN RESISTANT HYPERTENSION ASSOCIATED WITH METABOLIC SYNDROME: PATHOPHYSIOLOGICAL INSIGHTS AND BIOMARKER POTENTIAL.

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Scientific adviser: Natalia Loghin-Oprea, PhD assistant professor, Department of Internal Medicine, *Nicolae Testemitanu* State University of Medicine and Pharmacy of the Republic of Moldova.

Introduction. Metabolic syndrome represents a major global health burden, affecting approximately 25-30% of the adult population worldwide, with prevalence rising to nearly 28% in recent epidemiological analyses. In Europe and Eastern Europe, hypertension affects nearly one third of the adult population, representing a major public health challenge. Among hypertensive individuals, approximately 5-10% develop resistant hypertension, a condition associated with markedly increased cardiovascular risk. Increasing evidence suggests that dysregulation of the Hypothalamic-Pituitary-Adrenal Axis and alterations in Circadian Rhythm may play a central role in cardiometabolic blood pressure regulation.

Aim of study. To analyze current evidence regarding the relationship between nocturnal salivary cortisol levels and resistant hypertension in patients with metabolic syndrome.

Methods and materials. The article reviews pertinent literature from databases like PubMed, Scopus, BioMed Central, eLibrary, Google Scholar, and Hinari. Selection criteria of scientific papers where keywords: "cortisol", "circadian rhythm", "resistant hypertension", "metabolic syndrome" and publishing period from 2020-2025. Thus, 170 articles have been found and analyzed, duplicates have been removed.

Results. Evidence indicates that metabolic syndrome is frequently associated with altered cortisol circadian dynamics, including nocturnal elevation. Dysregulation of the Hypothalamic-Pituitary-Adrenal axis may contribute to resistant hypertension through sympathetic activation, endothelial dysfunction, metabolic impairment, and disruption of circadian blood pressure regulation with loss of the physiological nocturnal dipping pattern. Cortisol excess may further promote insulin resistance, visceral adiposity, and vascular remodeling, impairing blood pressure control. Salivary cortisol is a reliable non-invasive method for assessing biologically active cortisol and circadian disturbances. Abnormal nocturnal cortisol may therefore represent a neuroendocrine pathway linking metabolic dysregulation and circadian disruption with resistant hypertension, with potential implications for risk stratification and chronobiology-based therapeutic strategies.

Conclusions. Circadian cortisol dysregulation appears to represent an important neuroendocrine component in the complex pathophysiology of resistant hypertension associated with metabolic syndrome. Assessment of nocturnal salivary cortisol may offer a practical non-invasive tool for identifying circadian hormonal disturbances and may support future development of chronobiology-oriented diagnostic and therapeutic approaches.

Keywords. Metabolic syndrome; Resistant hypertension; Circadian Rhythm; Hypothalamic-Pituitary-Adrenal Axis; Salivary cortisol; Cardiometabolic risk.

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321. A RACE AGAINST TIME: MANAGING PROSTHETIC VALVE INFECTIVE ENDOCARDITIS

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Scientific adviser: Daniela Bursacovschi, MD, PhD, Institute of Cardiology

Introduction. Infective endocarditis of valve prosthesis is a critical clinical entity with a high risk of fatal outcome. Through its complex pathogenic mechanisms, it can lead to numerous complications. Therapeutic decision-making is especially challenging, as it requires balancing the urgency of surgical intervention against extremely high operative risk.

Case presentation. A 75-year-old man was admitted with a 3-week history of fever and heart failure symptoms associated. His medical history included biological aortic valve replacement and CABG (4 years ago). On admission, BP 100/50 mmHg, HR 80 bpm, with a systolic murmur over the aortic area. TEE revealed voluminous vegetations on the aortic prosthesis and para-aortic abscess. Blood cultures identified Enterococcus faecalis. Through Duke criteria, active infective endocarditis was diagnosed. Antibiotic therapy (amoxacillin/clavulanic acid 2000/200 mg q.i.d. and ceftriaxone 2.0 g b.id.) was initiated; however, the clinical course was unfavourable. CT brain confirmed multiple embolic ischemic strokes. Open-heart surgery was performed and a mechanical prosthesis was implanted. In the post-interventional period, the patient developed acute neurological deterioration. A CT scan revealed a possible intracerebral abscess. A lumbar puncture was performed, and treatment with vancomycin, meropenem, and rifampicin was initiated. Subsequently, the patient developed severe multiorgan dysfunction, predominantly hepatic, renal and respiratory issues. These conditions were interpreted as a cumulative effect of sepsis and drug toxicity. The treatment continued with a meropenem 1 g 3 t.i.d. for 12 days. Simultaneously, microbiological samples of urine and blood showed no growth. A follow-up non-contrast brain CT, after 9 days, revealed a positive evolution. Also, respiratory, hepatic, renal, and cerebral functions showed improvement. Continuation of antibiotic therapy was changed. One month after discharge, the patient was stable, without signs of heart failure or active infection.

Discussions. This case exemplifies the destructive potential of prosthetic valve infective endocarditis Enterococcus faecalis is a frequent but challenging pathogen in these cases. The detection of large, mobile vegetations and abscess formation significantly decreased the patient's prognosis.

Conclusions. Prosthetic valve infective endocarditis remains a medical and surgical emergency with the most challenging conditions in contemporary cardiology. Appropriate use of advanced imaging modalities, early initiation of targeted antimicrobial therapy, and careful timing of surgical intervention, in accordance with current ESC recommendations, are key determinants of patient prognosis.

Keywords. Prosthetic valve infective endocarditis, advanced cardiac imaging.

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322. POLYMORPHISM OF CLINICAL MANIFESTATIONS IN ACUTE EPISODES OF PARANOID SCHIZOPHRENIA: IMPLICATIONS FOR EVALUATION AND MANAGEMENT

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Introduction. Paranoid schizophrenia is one of the most common and complex forms of the schizophrenic spectrum, predominantly characterized by positive symptoms such as delusions and auditory hallucinations. In rehospitalized patients, acute episodes may differ from the initial onset due to biological, psychological, and treatment-related factors. This variability of clinical manifestations can complicate psychiatric evaluation, differential diagnosis, and therapeutic decision-making during the acute phase.

Aim of study. The aim of the study was to analyze the polymorphism of clinical manifestations in acute episodes of paranoid schizophrenia among rehospitalized patients treated in the Clinical Psychiatric Hospital and to highlight its implications for psychiatric assessment and therapeutic management.

Methods and materials. A descriptive observational study was conducted on patients diagnosed with paranoid schizophrenia according to ICD-10 criteria, hospitalized during an acute episode in the Clinical Psychiatric Hospital. The sample included patients with at least one previous hospitalization. Evaluation was performed through structured psychiatric interviews, behavioral observation, and retrospective analysis of medical records. The investigated parameters included the predominant symptomatic profile (positive, negative, or disorganization), symptom intensity, and variability between episodes.

Results. The analysis revealed marked polymorphism in clinical manifestations between successive acute episodes. Variations were observed in the intensity and content of delusional ideas, frequency of auditory hallucinations, and associated affective symptoms such as anxiety or irritability. Rehospitalized patients frequently showed increased negative symptoms, reduced insight, greater therapeutic resistance, and progressive functional impairment. These findings emphasize the need for reassessment of each acute episode and flexible pharmacological strategies adapted to the evolving clinical profile.

Conclusions. The study confirms the polymorphic and dynamic nature of paranoid schizophrenia, particularly among rehospitalized patients. This variability highlights the importance of multidimensional clinical evaluation integrating clinical history, previous treatment response, and the current psychosocial context. Early implementation of individualized therapeutic strategies may improve outcomes and reduce relapse risk.

Keywords. Paranoid schizophrenia, rehospitalization, clinical polymorphism, acute episode, psychiatric evaluation, therapeutic management.

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323. TIMING OF PHARMACOLOGICAL AUGMENTATION STRATEGIES IN RECURRENT MAJOR DEPRESSIVE DISORDER WITHOUT PSYCHOTIC SYMPTOMS: A RETROSPECTIVE STUDY OF HOSPITALIZED PATIENTS

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Introduction. Recurrent major depressive disorder is one of the most common affective disorders, characterized by repeated depressive episodes and an increased risk of incomplete response to antidepressant monotherapy. In clinical practice, pharmacological augmentation strategies including the addition of antipsychotics or a second antidepressant are frequently used to improve therapeutic outcomes. However, the optimal timing for introducing these strategies during the course of the illness remains insufficiently investigated.

Aim of study. To evaluate the timing of pharmacological augmentation introduction in hospitalized patients with recurrent major depression without psychotic symptoms.

Methods and materials. A retrospective observational study was conducted on a group of 20 hospitalized patients diagnosed with recurrent depressive disorder without psychotic symptoms according to ICD-10 criteria. Medical records and therapeutic regimens recommended at discharge were analyzed to identify the specific hospitalization during which augmentation strategies were introduced. Treatment augmentation was defined as the addition of an antipsychotic or a second antidepressant to the existing antidepressant therapy.

Results. Preliminary analysis showed that pharmacological augmentation occurred most frequently when monotherapy with a single antidepressant proved ineffective. Specifically, augmentation was initiated during the second hospitalization in 14% of cases, during the third hospitalization in 14% of cases, and during the fourth hospitalization for 72% of patients. The most frequently used antidepressants were venlafaxine and paroxetine, while the antipsychotics used for augmentation included sulpiride, quetiapine, and aripiprazole.

Conclusions. Pharmacological augmentation strategies are frequently utilized in the management of recurrent major depression without psychotic symptoms and are often introduced when antidepressant monotherapy is ineffective. Early identification of patients requiring treatment augmentation may contribute to optimizing therapeutic strategies and reducing the risk of relapse.

Keywords. recurrent major depression, therapeutic augmentation, antidepressants, antipsychotics.

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324. HIDDEN RISK IN HONEYBEE VENOM ALLERGY: DECODING API M 10 SENSITIZATION AND ITS CLINICAL IMPLICATIONS

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Introduction. Hymenoptera venom allergy is one of the leading causes of anaphylaxis in adults and represents a significant public health concern. In countries with active apiculture, such as the Republic of Moldova, exposure to honeybee stings is frequent. Conventional diagnostics based on whole venom extracts may overlook clinically relevant sensitization patterns. Component-resolved diagnostics enables identification of specific allergens, particularly Api m 1 and Api m 10, the latter being associated with severe reactions and reduced effectiveness of venom immunotherapy.

Aim of study. To assess the prevalence and molecular sensitization patterns to honeybee venom and their clinical relevance.

Methods and materials. A retrospective analysis was conducted on 1,264 patients tested using the ALEX multiplex platform between 2021 – 2025. The mean age of the cohort was 30.6 years. Sensitization to honeybee venom (Api m) and its components (Api m 1, Api m 10) was evaluated.

Results. Honeybee venom sensitization was identified in 153 patients (12.1%). The mean age of sensitized patients was 48.5 years. Females accounted for 62 (40.5%) and males for 91 (59.5%). Sensitization to Api m was detected in 121 patients (9.6%), to Api m 1 in 104 (8.2%), and to Api m 10 in 73 (5.8%). A notable proportion of patients showed sensitization to Api m 10, alone or in combination with Api m 1, suggesting clinically relevant high-risk profiles.

Conclusions. Honeybee venom sensitization is frequent and clinically relevant in Moldova. Molecular diagnostics improves detection of significant sensitization patterns. Api m 10 may represent an underrecognized marker of increased risk and should be considered in diagnostic and therapeutic decision-making.

Keywords. Honeybee venom sensitization, Api m 1, Api m 10.

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325. SCREENING FOR EXOCRINE PANCREATIC INSUFFICIENCY IN TYPE 2 DIABETES MELLITUS USING FECAL ELASTASE TESTING

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Introduction. Pancreatic exocrine insufficiency(PEI) is an increasingly recognized but underdiagnosed condition in type 2 diabetes mellitus(T2DM), characterized by impaired enzyme secretion and associated metabolic disturbances. While several diagnostic tests exist, their routine use is limited by complexity. Fecal elastase-1(FE-1) is a practical non-invasive alternative; however, the prevalence and clinical correlates of PEI in T2DM remain insufficiently defined.

Aim of study. To determine the prevalence of PEI in patients with T2DM using FE-1 testing and to assess its association with metabolic and pancreatic functional parameters.

Methods and materials. A total of 310 patients with T2DM attending outpatient clinics without previously known PEI were recruited for this cross-sectional study. Patients with known pancreatic disease or autoimmune diabetes were excluded. FE-1 measurements were available in 274 patients (88.4%), and PEI was defined as FE-1<200 µg/g. Clinical, anthropometric, metabolic, and ultrasound data were collected using a standardized protocol. Due to non-normal distribution of variables ($p<0.001$), non-parametric methods were applied; group comparisons were performed using the Mann–Whitney U test, and correlations were assessed using Spearman's rank correlation coefficient.

Results. A total of 310 patients with T2DM were included; FE-1 data were available in 274(88.4%). Patients were classified as without PEI (n=209; 76.3%) and with PEI (n=65;23.7%). Median values were: age 56.0[48.0–62.0] years, body mass index 30.09 [26.92–33.60] kg/m², HbA1c 7.91 [6.60–10.44]%, C-peptide 2.60[1.78–3.54], and FE-1 412.0[252.0–500.0] µg/g. No significant differences were observed for age, anthropometry, HbA1c, or HOMA-B ($p>0.05$). Patients with PEI had lower insulin ($p=0.003$), C-peptide ($p=0.001$), and HOMA-IR ($p=0.001$). Ultrasound parameters did not differ. Median FE-1 in the PEI group was 139.16 µg/g. Spearman analysis showed a strong correlation between C-peptide and HOMA-IR ($r=0.774$), moderate correlations with HOMA-B ($r=0.406$) and HbA1c–HOMA-IR ($r=0.380$), and a strong negative correlation between HbA1c and HOMA-B ($r=-0.655$) (all $p<0.001$). Pancreatic structural parameters were strongly intercorrelated ($r=0.540–0.712$; $p<0.001$).

Conclusions. These findings suggest that PEI is a common and underrecognized condition in T2DM. The absence of clinical and structural differences indicates that routine assessment may miss exocrine dysfunction, while associations with insulin secretion and resistance support a link between exocrine and endocrine function. Targeted screening with non-invasive methods such as FE-1 is supported. A comprehensive approach incorporating functional tests and symptom-based tools may improve detection. Further prospective studies are needed to determine clinical significance and impact on metabolic outcomes.

Keywords. PEI, T2DM, fecal elastase-1.

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326. CLUSTERS AND INTERLEUKINS IN ADULT-ONSET DIABETES: A DATA-DRIVEN ANALYSIS IN THE KAZAKH POPULATION

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Introduction. Adult-onset diabetes is a heterogeneous condition, but the role of inflammatory mechanisms in defining distinct clusters remains insufficiently understood.

Aim of study. To identify clusters of adult-onset diabetes and evaluate differences in interleukin profiles between them.

Methods and materials. A cross-sectional study included 240 adults with newly diagnosed diabetes. Clustering analysis was performed using standardized clinical and laboratory variables (Ward's method). Interleukin profiles included IL-1β, IL-1Ra, IL-6, and the IL-1β/IL-1Ra ratio. Differences between clusters were assessed using the Kruskal–Wallis test with Bonferroni-adjusted pairwise comparisons.

Results. Four clusters were identified. Cluster 1 (n=64, 26.7%) represented a relatively stable phenotype. Cluster 2 (n=60, 25.0%) demonstrated features consistent with a more severe phenotype. Cluster 3 (n=56, 23.3%) showed intermediate characteristics. Cluster 4 (n=60, 25.0%) represented a distinct phenotype with pronounced differences compared to other clusters. Significant differences in interleukin levels were observed across clusters: IL-6 (χ^2=91.607, $p<0.001$), IL-1β (χ^2=8.130, $p=0.043$), IL-1Ra (χ^2=126.741, $p<0.001$), and IL-1β/IL-1Ra ratio (χ^2=127.518, $p<0.001$). Cluster 4 demonstrated significantly higher IL-6 levels compared to all other clusters ($p\leq0.018$). Cluster 2 differed significantly from clusters 1 and 4 in the IL-1β/IL-1Ra ratio ($p\leq0.011$). IL-1Ra levels showed strong differences between clusters, particularly between clusters 2, 3, and 4 ($p\leq0.001$). In contrast, IL-1β alone showed limited discriminatory ability.

Conclusions. Distinct clusters of adult-onset diabetes demonstrate significant differences in interleukin profiles. IL-6 is strongly associated with one cluster, while the IL-1β/IL-1Ra ratio provides the greatest discrimination between clusters. These findings highlight the importance of interleukin imbalance in defining diabetes clusters.

Keywords. adult-onset diabetes; cluster analysis; interleukins; IL-1β; IL-1Ra; IL-6; inflammatory markers; heterogeneity; Kazakh population.

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327. RECURRENT GASTROINTESTINAL HEMORRHAGE FOLLOWING AORTIC VALVE REPLACEMENT IN HEYDE'S SYNDROME

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Introduction. Heyde's syndrome represents the association between aortic stenosis, intestinal angiodysplasias, and acquired von Willebrand disease. Although aortic valve replacement is considered curative in most cases, persistent bleeding may occur, highlighting the complexity of its pathophysiology.

Case presentation. We report the case of an 86-year-old female with known Heyde's syndrome who presented with recurrent melena, abdominal pain, and fatigue, emphasizing the persistence of bleeding despite prior correction of aortic stenosis. Physical examination revealed altered general status, pallor, dehydration, blood pressure of 170/62 mmHg, heart rate of 103 bpm, diffuse abdominal tenderness, and melena on digital rectal examination. Paraclinical investigations showed severe normocytic anemia (Hb 7.5 g/dL), normal iron parameters, and markedly elevated INR (8.72) with significant fluctuations during hospitalization. Upper endoscopy excluded an upper gastrointestinal source. Colonoscopy identified multiple colonic angiodysplasias without active bleeding. CT angiography revealed aorto-iliac atherosclerosis and non-hemodynamically significant stenoses of the superior mesenteric artery and celiac trunk. Echocardiography confirmed normal function of the mechanical aortic valve and improved left ventricular ejection fraction (57%). Differential diagnosis included neoplastic, inflammatory, infectious, hemorrhoidal, and ischemic causes of lower gastrointestinal bleeding, all of which were excluded through endoscopic, imaging, and laboratory evaluation. The final diagnosis was recurrent lower gastrointestinal bleeding secondary to intestinal angiodysplasias in the context of Heyde's syndrome, aggravated by anticoagulant therapy imbalance. During hospitalization, the patient developed an acute bleeding episode with hemoglobin drop to 5.5 g/dL, requiring transfusion. Therapeutic management included anticoagulation adjustment and endoscopic argon plasma coagulation of angiodysplasias, leading to clinical stabilization.

Discussions. This case underlines that gastrointestinal bleeding may persist after valve replacement, likely due to residual angiodysplasias, anticoagulation variability, and incomplete correction of hemostatic abnormalities.

Conclusions. Heyde's syndrome remains a diagnostic and therapeutic challenge. Persistent bleeding after valve replacement requires thorough evaluation, careful anticoagulation management, and targeted endoscopic therapy within a multidisciplinary approach.

Keywords. Heyde's syndrome, angiodysplasia, gastrointestinal bleeding, anticoagulation, aortic valve replacement.

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328. THE MENTAL FOG: A CLINICAL ENIGMA LEADING TO A SURPRISING DISCOVERY

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Introduction. Polymyositis is a rare autoimmune inflammatory myopathy typically presenting with progressive, symmetrical proximal muscle weakness, although atypical or masked presentations may delay diagnosis.

Case presentation. We report the case of a 63-year-old female with a history of arterial hypertension (treated with indapamide and candesartan) admitted for obnubilation. Initial clinical evaluation, including examination of cardiovascular, respiratory, digestive and urogenital systems, as well as electrocardiography, was unremarkable. A broad differential diagnosis was considered, including cerebrovascular events, toxic or metabolic encephalopathy, and electrolyte disturbances. Cranial CT imaging and toxicological screening excluded structural and toxic etiologies, while laboratory tests revealed severe hyponatremia (Na = 118 mmol/L) and rhabdomyolysis. Despite prompt and appropriate correction of the electrolyte imbalance, the patient's clinical status failed to improve. The subsequent evolution was marked by persistent rhabdomyolysis, febrile episodes, profound asthenia, diffuse myalgia, and the emergence of symmetrical proximal muscle weakness on neurological examination. Infectious workup, including blood and urine cultures, was negative, while muscle enzymes showed a progressive increase. Further investigations revealed positive anti-SRP and anti-Jo-1 antibodies. Electromyography demonstrated a myogenic pattern, and muscle biopsy confirmed inflammatory myopathy with chronic inflammation, myocytolysis, and lymphocytic infiltration. The diagnosis of polymyositis was established according to the Bohan and Peter criteria, with four out of five criteria fulfilled. The initial confusional state was attributed to diuretic-induced hyponatremia, while statin-induced toxic myopathy was considered unlikely due to short exposure and subsequently excluded. Treatment with intravenous methylprednisolone followed by oral prednisone, azathioprine, and hydroxychloroquine resulted in significant clinical and biochemical improvement, with normalization of CK and LDH levels. The patient was discharged asymptomatic, with recommendation for rheumatological follow-up.

Discussions. This case highlights how coexisting metabolic disturbances may obscure the diagnosis of inflammatory myopathies and emphasizes the importance of reassessing the initial diagnosis when clinical evolution is unfavorable despite appropriate management.

Conclusions. Idiopathic polymyositis represents a significant diagnostic challenge due to its heterogeneous clinical presentation, necessitating a high index of suspicion and a rigorous multimodal approach.

Keywords. Weakness, Myalgia, Inflammation, Rhabdomyolysis, Idiopathic polymyositis.

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329. SEEK AND YOU SHALL FIND": FROM HYPERTENSION TO A NEAR-OBSTRUCTIVE SIGMOID LESION

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Introduction. Colonic lesions with suspicious endoscopic features are commonly managed as malignant until proven otherwise. However, discrepancies between clinical presentation, imaging, and histopathological findings may complicate diagnostic and therapeutic decisions.

Case presentation. A 60-year-old woman with a history of essential hypertension and prior total hysterectomy was evaluated for uncontrolled hypertension. Physical examination revealed blood pressure of 175/95 mmHg and was otherwise unremarkable. The patient reported no gastrointestinal (GI) symptoms and normal bowel habits. Laboratory tests revealed moderate iron-deficiency anemia, prompting investigation for a GI source of bleeding. As part of the initial workup, upper GI endoscopy was performed and was unremarkable. Abdomino-pelvic ultrasound identified a heterogeneous, well-defined retrovesical pelvic mass with a concentric ("target-like") appearance, raising suspicion for a lesion of digestive or gynecological origin. Differential diagnosis included a colonic tumor or residual adnexal tissue. Colonoscopy revealed a large, obstructive lesion occupying most of the colonic lumen, with an appearance highly suggestive of malignancy. Computed tomography confirmed the presence of a large sigmoid mass. Histopathological examination of biopsy samples indicated a benign polyp. Due to the strong endoscopic suspicion, colonoscopy and biopsy were repeated, yielding identical benign results. Given the lesion's size, obstructive nature, and suspicious macroscopic appearance, surgical resection was performed. The resection specimen confirmed a giant benign colonic polyp, without evidence of malignancy.

Discussions. This case illustrates a marked discrepancy between macroscopic appearance and histopathological findings in a large sigmoid lesion. Both endoscopic and imaging features were highly suggestive of malignancy, further reinforced by associated anemia, yet repeated biopsies consistently demonstrated a benign polyp. The decision to proceed with surgical resection was therefore driven by the lesion's size, near-obstructive behavior, and the risk of complications. This highlights the limitations of relying on a single diagnostic modality and the importance of integrating morphological and clinical risk factors into management.

Conclusions. Benign histopathological findings do not exclude the need for intervention in large colonic lesions with high-risk morphological features. In such cases, surgical management may be indicated based on lesion size, obstructive potential, and overall clinical context rather than diagnostic doubt alone.

Keywords. colonic polyp, colonoscopy, anemia, diagnostic challenge, asymptomatic.

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330. BIPOLAR DISORDER: A MULTIFACTORIAL RISK PERSPECTIVE

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Introduction. Bipolar disorder is a multifactorial illness characterized by recurrent episodes of mania and depression. Affecting more than 1% of the global population, it contributes significantly to disability and mortality and, in severe cases, may lead to suicide. Although the aetiology of bipolar disorder is not yet fully understood, current research indicates an interaction between demographic, genetic, and environmental risk factors in its development.

Aim of study. The aim of this study is to investigate the multifactorial risk profile of bipolar disorder by analyzing the complex interplay between genetic predisposition, environmental triggers, and neurobiological mechanisms in disease onset and progression.

Methods and materials. An extensive review of the specialized literature was conducted by evaluating articles published during the last five years in internationally recognized medical databases, including PubMed, NCBI, Medscape, and PsycINFO.

Results. The contribution of genetic factors to bipolar disorder has long been recognized. Evidence from twin studies suggests a monozygotic concordance rate of 40–70%, while the lifetime risk among first-degree relatives is estimated at 5–10%, approximately seven times higher than in the general population. However, relatives of patients with bipolar disorder are also more likely to experience unipolar depression. There is also evidence of shared genetic vulnerability between bipolar disorder, schizophrenia, and autism spectrum disorder. Among environmental risk factors, childhood maltreatment, particularly emotional abuse and neglect, is supported by high-quality evidence as a contributor to the later development of bipolar disorder. Other life events associated with an increased risk include early parental loss and childbirth. Bipolar disorder is also frequently comorbid with substance misuse, including cannabis, opioids, cocaine, sedatives, and alcohol, with evidence suggesting a bidirectional relationship. Increasing evidence indicates that cannabis use may contribute to the development of both bipolar disorder and psychotic disorders.

Conclusions. In conclusion, bipolar disorder arises from a complex interplay of genetic, demographic, and environmental risk factors. Genetic predisposition plays a major role, while demographic characteristics and environmental exposures contribute to the onset and course of the disorder. A comprehensive understanding of these interacting factors is essential for improving early identification, prevention strategies, and personalized treatment approaches.

Keywords. bipolar disorder, risk factors.

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MATERNAL AND CHILD HEALTH SECTION

1. CLINICAL UTILITY OF LUNG ULTRASOUND FOR THE ASSESSMENT OF PULMONARY INVOLVEMENT IN JUVENILE IDIOPATHIC ARTHRITIS: A LITERATURE REVIEW

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Introduction. Juvenile idiopathic arthritis (JIA) represents a group of chronic autoimmune inflammatory diseases occurring in the pediatric population. Although pulmonary complications can be clinically significant and potentially severe. The most frequently reported respiratory manifestation in children with JIA is pleuritis, however, other diffuse pulmonary conditions have also been described. Early detection of these complications is essential. High-resolution computed tomography (HRCT) is considered the gold standard imaging modality for identifying interstitial lung abnormalities, but its repeated use in children is limited. In recent years, lung ultrasound (LUS) has emerged as a non-invasive, radiation-free imaging technique with relatively low cost and the advantage of being performed at the bedside.

Aim of study. To summarize current evidence regarding the feasibility and diagnostic accuracy of lung ultrasound for detecting and monitoring pulmonary changes associated with different subtypes of juvenile idiopathic arthritis.

Methods and materials. A systematic review was conducted by searching the PubMed, Embase, and Cochrane databases for studies evaluating pediatric patients with JIA who underwent lung ultrasound for suspected interstitial lung disease or pleural involvement. Search terms included “juvenile idiopathic arthritis”, “interstitial lung disease” and “lung ultrasound”.

Results. Available evidence indicates that lung ultrasound is highly feasible in pediatric patients. LUS examinations required an average time of approximately 12 minutes and were well tolerated even by young children. In studies involving systemic JIA with associated lung disease, ultrasound abnormalities were detected in approximately 87% of the examined lung zones. These findings corresponded to abnormalities observed on HRCT. In broader JIA populations, including other subtypes, some studies reported that LUS was capable of identifying subclinical interstitial changes not evident on routine spirometry, although current evidence remains limited. Overall, lung ultrasound appears to be highly sensitive, a recent analysis in pediatric autoimmune diseases reported a sensitivity of 99.3% and a specificity of 96.4% for detecting interstitial lung involvement.

Conclusions. Lung ultrasound appears to be a promising tool for the early screening and longitudinal monitoring of pulmonary involvement across all forms of juvenile idiopathic arthritis. Its non-invasive nature and absence of radiation exposure make it particularly suitable as a complementary imaging modality alongside clinical examination in pediatric practice.

Keywords. lung ultrasound, juvenile idiopathic arthritis, interstitial lung disease.

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2. BRONCHIAL ASTHMA IN ATYPICAL SITUATIONS

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Introduction. Bronchial asthma (BA) is the most common chronic respiratory disease complicating pregnancy, affecting approximately 4–10% of pregnant women. Asthma is a chronic inflammatory airway disease characterized by airway hyperresponsiveness and reversible airflow obstruction with episodic exacerbations. Poor asthma control during pregnancy is like a Pandora's box, because it can cause significant maternal and perinatal complications, including preeclampsia, preterm birth, cesarean delivery, intrauterine growth restriction, and neonatal respiratory distress. Asthma exacerbations during pregnancy remain a major clinical challenge and are an important cause of maternal and fetal morbidity.

Aim of study. To analyze current evidence regarding asthma exacerbations and management during pregnancy, with particular emphasis on modifiable risk factors and evidence-based therapeutic strategies..

Methods and materials. A narrative literature review was conducted using publications indexed in databases Google Scholar, Web of Science, Embase, and PubMed. The search included the keywords "bronchial asthma", "pregnancy", and "asthma exacerbation". Review articles, observational studies, and clinical reports published between 2015 and 2025 were included.

Results. Evidence suggests that although the overall number of asthma exacerbations may decrease during pregnancy, severe exacerbations requiring hospital admission may increase during the second and third trimesters. One of the most important risk factors is the reduction or discontinuation of inhaled corticosteroid (ICS) therapy during pregnancy. Other risk factors include previous exacerbation history, smoking, obesity, and poor asthma control prior to pregnancy. Spirometry remains an essential diagnostic and monitoring tool, allowing identification of reversible airflow obstruction and evaluation of treatment response, while bronchial challenge testing with methacholine is contraindicated during pregnancy. Current clinical recommendations emphasize maintaining optimal asthma control through appropriate pharmacological therapy. Inhaled corticosteroids represent the cornerstone of asthma management and are considered safe during pregnancy, significantly reducing symptoms and exacerbation risk. In patients with persistent disease, combination therapy with inhaled corticosteroids and long-acting bronchodilators may be required.

Conclusions. Effective asthma control during pregnancy is essential for preventing exacerbations and improving maternal and perinatal outcomes. Modifiable risk factors, particularly reduced inhaled corticosteroid use and inadequate disease control before pregnancy, play a central role in exacerbation risk. Evidence-based management and patient education are crucial to ensure treatment adherence and minimize pregnancy-related complications.

Keywords. bronchial asthma, pregnancy, asthma exacerbation, inhaled corticosteroids, asthma control, maternal-fetal outcomes.

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3. ENDOMETRIAL HYPERPLASIA AS A PRECURSOR OF ENDOMETRIAL CARCINOMA: CURRENT DIAGNOSTIC AND THERAPEUTIC PERSPECTIVES

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Introduction. Endometrial hyperplasia (EH) is a proliferative disorder of the endometrium characterized by architectural glandular alterations and an increased gland-to-stroma ratio, most often associated with prolonged estrogenic stimulation unopposed by progesterone. It represents a recognized precursor of endometrioid endometrial carcinoma, particularly in the presence of cytological atypia. Abnormal uterine bleeding (AUB) remains the most common clinical presentation and a major indication for endometrial evaluation. Advances in diagnostic techniques, including transvaginal ultrasonography (TVUS), histopathological assessment, and molecular profiling, have improved the identification of patients at risk of malignant progression.

Aim of study. The aim of this study is to synthesize recent scientific evidence regarding modern diagnostic approaches and management strategies for endometrial hyperplasia, emphasizing their clinical relevance for improving gynecological practice in the Republic of Moldova.

Methods and materials. A narrative literature review was conducted using scientific publications (2022–2025) sourced from major international medical databases. Current clinical guidelines and peer-reviewed articles from European and American professional societies (e.g., ESGO, ACOG) were analyzed. The review focused on key diagnostic components: clinical presentation, TVUS findings, histopathological classification, and the emerging role of immunohistochemical (IHC) markers such as PTEN, ARID1A, Ki-67, and hormone receptors. Conservative and surgical treatment strategies were also evaluated.

Results. Recent literature highlights that histopathological evaluation remains the gold standard for the diagnosis of EH, while transvaginal ultrasound plays an essential role in the initial assessment of patients with AUB. The integration of IHC markers has significantly improved diagnostic accuracy and may contribute to identifying lesions with increased oncologic potential. Current international guidelines

recommend total hysterectomy as the definitive treatment for atypical hyperplasia (AH). Conversely, progestin-based therapies—particularly levonorgestrel-releasing intrauterine systems—are effective conservative options for non-atypical EH or for patients with AH who desire fertility preservation.

Conclusions. Managing EH requires an integrated approach combining clinical evaluation, advanced imaging, histopathology, and molecular insights. Implementing these evidence-based strategies facilitates the early detection of premalignant lesions and reduces the incidence of endometrial carcinoma. Adapting these contemporary protocols to national clinical practice is vital for optimizing gynecological care outcomes in the Republic of Moldova.

Keywords. endometrial hyperplasia, abnormal uterine bleeding, immunohistochemistry, molecular markers, endometrial carcinoma.

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4. MENOPAUSAL HORMONE THERAPY AND BREAST CANCER: RECENT ADVANCES

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Introduction. Breast cancer is the most commonly diagnosed cancer worldwide, with over 2 million cases annually. Modern treatments have significantly improved survival. After treatment, many women experience severe menopausal symptoms—either from cancer therapy or natural menopause. Menopausal Hormone Therapy (MHT) is most effective for symptoms like hot flushes, insomnia, mood issues, and genitourinary problems. Until recently, it was not recommended for breast cancer survivors because it contains estrogen, which can raise recurrence risk in estrogen receptor-positive disease. In 2025, the FDA removed general "black box" warnings about hormone therapy and breast cancer risk, opening the door to scientific reassessment.

Aim of study. This study aims to synthesize the latest evidence on MHT safety.

Methods and materials. A narrative literature review was conducted to assess the most recent international updates regarding MHT in breast cancer survivors. Approximately 120 articles were screened, of which 37 relevant publications were selected based on their scientific relevance and clinical applicability. Emphasis was placed on evidence and recommendations from highly developed healthcare settings.

Results. Before starting MHT, each patient should be individually assessed against the following criteria: which menopause-related symptoms they have, the severity of their symptoms, their cancer history, in particular if they've had breast cancer that is hormone receptor-positive (HR+) or are being treated for it, as that may carry particular risks. MHT is not recommended for HR+ breast cancers because cancer cells have hormone receptors on their surface. Even after cancer treatment, the risk of some cancer cells remaining is not excluded. If those cells express a hormone receptor, the hormones in MHT could stimulate their growth. However, having a history of HR+ breast cancer does not mean taking MHT is entirely off the table. According to current NCCN guidelines, vaginal estrogen is preferred due to minimal systemic absorption, and systemic hormone therapy can be considered if the benefit-to-risk ratio is substantiated. Following two randomized clinical trials (HABITS and the Stockholm Study), it was demonstrated that women with severe menopausal symptoms may choose to accept an increase in risk and take MHT to improve their quality of life. In the case of breast cancer patients who had moderate-risk disease, MHT increases the risk of relapse from 14% to 20% over seven years. For women with low-risk breast cancer, MHT increases the risk of relapse from 5% to 7.2%.

Conclusions. MHT in breast cancer survivors should be considered only after individualized risk–benefit assessment, with special caution in hormone receptor-positive disease. Recent studies and updated guidelines support a more nuanced, personalized approach, but further high-quality prospective research is still needed to clarify long-term safety.

Keywords. MHT, Breast Cancer.
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5. CORRELATIONAL RELATIONSHIP BETWEEN THE GENETIC POLYMORPHISM OF PRIMARY LACTASE DEFICIENCY AND THE HLA-DQ2/DQ8 GENOTYPE IN PEDIATRIC CELIAC DISEASE IN THE REPUBLIC OF MOLDOVA.

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Introduction. Primary lactase deficiency (PLD) in children is an inherited condition characterized by the inability to digest lactose from milk, determined by the 13910 C>T polymorphism of the MCM6 gene. In recent years, celiac disease in children has undergone epidemiological and phenotypic changes, with a tendency toward onset at older ages and frequent underdiagnosis. The coexistence of these two conditions, which share certain clinical manifestations, may lead to the underdiagnosis of one of them.

Aim of study. To analyze the prevalence of primary lactase deficiency and the distribution of the 13910 C>T polymorphism of the MCM6 gene in children with genetic susceptibility to celiac disease, and to evaluate the correlational relationship between them.

Methods and materials. A retrospective observational study including 51 children aged 1–18 years diagnosed with celiac disease according to current ESPGHAN criteria. In 20 cases, children presenting clinical signs suggestive of both celiac disease and primary lactase deficiency were investigated for the 13910 C>T genetic polymorphism of the MCM6 gene. The polymorphism was analyzed in correlation with the genetic susceptibility markers HLA-DQ2 and HLA-DQ8. Statistical analysis was performed using Fisher's exact test, with values of $p < 0.05$ considered statistically significant.

Results. Among the children included in the study, 39.2% (20 patients) presented overlapping clinical signs suggestive of both lactose intolerance and celiac disease. The HLA-DQ2 haplotype was identified in 34 patients (66.7%) ($p = 0.016$; OR = 8.08; 95% CI: 1.52–42.84). The C/C genotype associated with primary hypolactasia was present in 40% of the genotyped patients (8 out of 20). In the genotyped subgroup, the association between the C/C genotype and positive serology for celiac disease was not statistically significant ($p = 0.362$). Likewise, no significant correlation was identified between the presence of HLA-DQ2 and the MCM6 genotype ($p > 0.05$).

Conclusions. HLA-DQ2 remains the main genetic determinant associated with celiac disease in children in the Republic of Moldova. The C/C genotype of the MCM6 gene, associated with primary (hereditary) hypolactasia, was identified in 40% of patients with celiac disease, although no significant association was demonstrated with immunoserological markers or the genetic genotype of celiac disease. These results suggest that primary lactose intolerance and celiac disease involve distinct genetic mechanisms. Further studies in larger cohorts of children with celiac disease and a more complex correlational evaluation of these inherited conditions are needed.

Keywords. Celiac disease, Lactose intolerance, HLA-DQ2/DQ8 haplotypes, MCM6 gene polymorphism.

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6. DIFFERENTIAL DIAGNOSIS OF CYTOLYSIS IN PREGNANCY: HELLP SYNDROME OR DECOMPENSATED LIVER CIRRHOSIS?

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Introduction. Distinguishing pregnancy-related liver injury from pre-existing chronic liver disease is challenging, especially when HELLP syndrome overlaps with hepatic dysfunction. Both conditions can lead to acute liver injury and require prompt and accurate diagnosis for correct obstetric and intensive care management.

Case presentation. A 32-year-old patient was admitted to the "Gh. Paladi" Municipal Hospital at 26 weeks of gestation with lower abdominal pain, arterial hypertension (150/90 mmHg) and jaundice. Initial laboratory tests showed severe thrombocytopenia (41 x 10^9/L), cytolysis (ALT 49 U/L, AST 204 U/L, GGT 236 U/L), coagulopathy (prothrombin 18.7%, INR 3.70, fibrinogen 1.14 g/L), procalcitonin 47 ng/mL, LDH 1166 U/L, total bilirubin 246 µmol/L. Ultrasound showed hepatosplenomegaly, ascites, and portal hypertension. Emergency cesarean section was performed within 24 hours of admission due to maternal deterioration. A live premature fetus was delivered (Apgar score 1'-2, 5'-5). Due to an active intraoperative uterine hemorrhage, total hysterectomy without adnexectomy was required. Postoperatively, persistent liver failure and coagulopathy was documented: platelets 36 x 10^9/L, ALT 55 U/L, AST 365 U/L, prothrombin 33%, INR 2.18, fibrinogen 1.4 g/L, procalcitonin 14 ng/mL, total bilirubin 310 µmol/L, LDH 1450 U/L.

Discussions. HELLP syndrome is a life-threatening obstetric complication defined by hemolysis, elevated liver enzymes, and thrombocytopenia. Its main laboratory features are platelets <100 × 10^9/L, AST/ALT >70 U/L, and LDH >600 U/L. AST is often the predominant transaminase, while elevated LDH reflects both hemolysis and hepatic injury. In this case, all laboratory criteria for HELLP were met. However, portal hypertension, ascites, hepatosplenomegaly, jaundice, severe coagulopathy, and persistent thrombocytopenia also supported underlying decompensated liver cirrhosis. The main diagnostic challenge was distinguishing acute HELLP-related injury from chronic hepatic dysfunction.

Conclusions. Differential diagnosis between HELLP syndrome and decompensated liver cirrhosis reflects both an acute obstetric microangiopathy and pre-existing hepatic decompensation. Cirrhosis in pregnancy is challenging, especially when both conditions coexist. Thrombocytopenia, AST elevation, and high LDH favor HELLP, whereas portal hypertension, ascites, splenomegaly, hyperbilirubinemia, and severe coagulopathy support chronic liver disease. Multidisciplinary evaluation is essential because liver abnormalities in pregnancy may have a mixed etiology.

Keywords. HELLP syndrome, liver cirrhosis, pregnancy, hepatic dysfunction.

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7. LARYNGEAL HEMANGIOMA ASSOCIATED WITH CUTANEOUS HEMANGIOMAS: CLINICAL AND THERAPEUTIC APPROACH

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Introduction. Infantile hemangiomas are the most common benign vascular tumors of childhood, while airway involvement may have significant clinical implications. Laryngeal hemangiomas, especially when associated with multiple lesions, can lead to airway obstruction and require early diagnosis and appropriate therapeutic management.

Case presentation. A 3-month-old infant underwent clinical and paraclinical evaluation, which revealed multiple hemangiomas located in the oral cavity, tongue, and larynx. The patient presented with acute respiratory symptoms, including hoarseness, progressive dyspnea, wheezing, and cough, representing the third severe episode during the first two months of life. Clinical examination identified a hemangioma on the lower lip, which became more prominent during episodes of respiratory deterioration. The patient also exhibited tachypnea, inspiratory stridor, and intercostal retractions, with an oxygen saturation of 96%, suggesting significant airway compromise. Contrast-enhanced cervical computed tomography revealed multiple hemangiomas involving the lower lip, base of the tongue, and subglottic region, associated with severe laryngeal stenosis (approximately 70%). Emergency treatment with propranolol was initiated, with dose titration up to 3 mg/kg/day under careful clinical and paraclinical monitoring. Imaging reassessment after six months demonstrated a marked reduction in lesion size, with residual laryngeal stenosis of approximately 30% and evident clinical improvement.

Discussions. Laryngeal hemangiomas are rare but may cause progressive airway obstruction in infants. In this case, associated cutaneous and oral hemangiomas raised suspicion of airway involvement, highlighting the need for careful evaluation in infants with multiple vascular lesions and respiratory symptoms.

Conclusions. Laryngeal hemangioma is a benign vascular tumor with a high potential for airway obstruction in infants. Early recognition of clinical manifestations and timely initiation of beta-blocker therapy are crucial to prevent life-threatening complications and to improve clinical outcomes.

Keywords. Laryngeal hemangioma, infant, propranolol.

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8. ANXIETY–DEPRESSIVE DISORDERS DURING PREGNANCY: CLINICAL FEATURES, RISK FACTORS AND SCREENING APPROACHES

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Introduction. Pregnancy represents a complex biological, psychological, and social transition in a woman's life. Rapid hormonal changes, psychosocial stressors, and concerns regarding fetal health may increase vulnerability to mental health disorders. Anxiety and depressive disorders during pregnancy are among the most common psychiatric conditions in the antenatal period, with reported prevalence ranging from 10% to 25%. These conditions are frequently underdiagnosed because their symptoms often overlap with physiological changes occurring during pregnancy. Untreated anxiety and depression may negatively affect maternal well-being, pregnancy outcomes, and fetal development.

Aim of study. To analyze the clinical characteristics, risk factors, and prevalence of anxiety–depressive disorders during pregnancy and to evaluate the importance of screening and early detection in antenatal care.

Methods and materials. A descriptive observational study was conducted among pregnant women receiving prenatal care. The evaluation included socio-demographic and clinical data collection and the assessment of psychological symptoms using validated screening instruments, including the Edinburgh Postnatal Depression Scale (EPDS) and the Hospital Anxiety and Depression Scale (HADS). Statistical analysis was performed to evaluate the prevalence and distribution of anxiety and depressive symptoms across different trimesters of pregnancy.

Results. The study revealed a considerable prevalence of anxiety and depressive symptoms among pregnant women. Emotional disturbances were more frequently identified during the first and third trimesters of pregnancy. Several risk factors were associated with increased vulnerability, including previous psychiatric history, lack of social support, stressful life events, and obstetrical complications. Screening tools proved useful for identifying both clinical and subclinical forms of anxiety and depression, emphasizing the importance of systematic psychological assessment during prenatal care.

Conclusions. Anxiety–depressive disorders represent a significant mental health concern during pregnancy and may influence both maternal and fetal outcomes. Early identification through standardized screening methods and multidisciplinary management is essential to prevent complications and improve maternal–fetal well-being. Integrating mental health assessment into routine prenatal care may contribute to better clinical outcomes and improved quality of life for pregnant women.

Keywords. pregnancy, anxiety, depression, antenatal mental health, screening.

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9. THE CHANGING SPECTRUM OF ETIOLOGIES IN NON-IMMUNE HYDROPS FETALIS: A MODERN PERSPECTIVE

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Introduction. Non-Immune Hydrops Fetalis (NIHF) is a severe fetal condition characterized by abnormal fluid accumulation in at least two fetal compartments, including ascites, pleural effusion, pericardial effusion, or generalized skin edema. Following the widespread use of anti-D prophylaxis, immune causes of hydrops have markedly declined, and non-immune etiologies now account for the majority of cases. The underlying causes of NIHF are highly heterogeneous and include cardiovascular anomalies, chromosomal abnormalities, hematologic disorders, congenital infections, thoracic malformations, and metabolic diseases. Recent advances in prenatal diagnostics and genomic technologies have significantly improved the understanding of this condition and reduced the proportion of cases previously classified as idiopathic.

Aim of study. The objective of this study is to review and analyze the evolving etiological spectrum of NIHF and to emphasize the role of modern prenatal diagnostic approaches in improving etiological identification, guiding clinical management, and refining perinatal prognosis.

Methods and materials. A narrative review of contemporary medical literature was conducted to evaluate recent advances in the diagnosis and etiological classification of NIHF. Particular attention was given to the integration of detailed fetal ultrasonography, fetal echocardiography, infectious screening, and genetic testing. Modern molecular diagnostic methods, especially Whole Exome Sequencing, were analyzed for their contribution to identifying previously unexplained cases.

Results. The etiological spectrum of NIHF has expanded significantly in recent years. Cardiovascular anomalies and chromosomal abnormalities remain among the most frequent causes. Infectious agents such as Parvovirus B19 Infection continue to represent an important etiological factor, primarily through the development of severe fetal anemia. In certain regions, Congenital Syphilis may also contribute to the development of hydrops. Advances in genomic medicine have revealed that a substantial proportion of previously unexplained cases are associated with single-gene disorders, lymphatic abnormalities, or metabolic diseases. The use of Whole Exome Sequencing has significantly increased diagnostic yield in fetuses with unexplained NIHF, allowing more accurate etiological classification and improved prenatal counseling.

Conclusions. The etiological profile of Non-Immune Hydrops Fetalis is continuously evolving as prenatal diagnostic technologies advance. The integration of modern imaging methods, infectious evaluation, and genomic testing plays a crucial role in identifying the underlying cause and guiding clinical management. A multidisciplinary diagnostic approach is essential for improving prognostic assessment and optimizing perinatal outcomes.

Keywords. Non-Immune Hydrops Fetalis; prenatal diagnosis; fetal hydrops; genomic medicine; Whole Exome Sequencing.

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10. GIANT TORSIONED SEROUS OVARIAN CYSTADENOMA IN THE LATE POSTPARTUM PERIOD: EMERGENCY SURGICAL MANAGEMENT

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Introduction. Ovarian cysts are common gynecological conditions, most being benign and functional. Rarely, they may reach very large dimensions, defined as giant ovarian cysts when exceeding 15–20 cm. Large cysts increase the risk of complications such as rupture, hemorrhage, or adnexal torsion. Adnexal torsion is a gynecological emergency; compromised blood supply can rapidly lead to ovarian ischemia and necrosis. Globally, adnexal torsion occurs in approximately 6 per 100,000 women annually, representing 2–3% of gynecological emergencies. The postpartum period is associated with anatomical and hormonal changes that may favor such complications.

Case presentation. The case of a patient who was admitted to the IMSP SR Hîncești with the diagnosis: giant right ovarian cyst with adnexal torsion.

Discussions. A patient presented on January 19, 2026, to IMSP SR Hîncești with severe lower abdominal pain radiating diffusely, predominantly on the right side, lasting two days. She had a known right ovarian follicular cyst. Ultrasound revealed a giant right ovarian cyst measuring 20 × 16 cm. Obstetric history: Gravida V, Para V; delivered on December 15, 2025, via spontaneous vaginal delivery. Diagnosis: giant right ovarian cyst with adnexal torsion. Emergency laparotomy via Pfannenstiel incision was performed. Intraoperatively, a 360° torsion of the right ovary involving the mesosalpinx and ovarian ligaments was identified. The ovary showed complete necrosis. A giant cyst with approximately 3 liters of serous fluid (32 × 20 cm) was observed. Right adnexectomy was performed. Postoperative recovery was uneventful. Histopathology confirmed serous ovarian cystadenoma. Adnexal torsion is rare but serious, often associated with ovarian masses >5–6 cm. Giant cysts increase ovarian mobility and risk of torsion. In this case, torsion caused vascular compromise and necrosis, necessitating surgical removal. The occurrence 34 days postpartum is rare in the literature, highlighting the importance of monitoring large cysts even after delivery.

Conclusions. Giant ovarian cysts may remain asymptomatic but carry a high risk of acute complications such as adnexal torsion. Early recognition and prompt surgical intervention are essential to prevent severe outcomes. This case emphasizes monitoring large ovarian cysts and timely surgery during the postpartum period.

Keywords. Serous ovarian cystadenoma, giant ovarian cyst, adnexal torsion, postpartum period, gynecological emergency, adnexectomy.

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11. INTRAUTERINE ADHESION FORMATION AFTER DILATION AND CURETTAGE AND VACUUM ASPIRATION: ANATOMICAL CHANGES,RISK OF ASHERMAN'S SYNDROME, AND IMPLICATIONS FOR FUTURE FERTILITY.

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Introduction. Dilation and curettage (D&C) and vacuum aspiration are commonly performed uterine evacuation procedures used for the management of early pregnancy termination, incomplete miscarriage, and diagnostic endometrial sampling. Although generally considered safe, these procedures may cause mechanical trauma to the endometrial lining, particularly the basal layer responsible for endometrial regeneration. Damage to this layer can lead to the formation of intrauterine adhesions, the pathological basis of Asherman's syndrome, a condition characterized by fibrous scar tissue within the uterine cavity that may result in menstrual disturbances, infertility, recurrent pregnancy loss, and implantation failure. The risk of adhesion formation is thought to vary depending on the technique used, with traditional D&C potentially causing greater endometrial disruption compared to vacuum aspiration, which is considered less invasive. Despite the clinical importance of preserving endometrial integrity for future fertility, awareness of the anatomical consequences of these procedures remains limited.

Aim of study. To formulate a direct relationship between post abortion procedures and the development of Asherman syndrome. Importance of safety measures while executing the procedures.

Methods and materials. A systematic and analytical review from the latest clinical studies of - PubMed Central, Scopus, Google scholar,clevelandclinic.org,Journal of the Medical Association of Thailand.

Results. Clinical reports show that both manual vacuum aspiration (MVA) and dilation and curettage (D&C) are generally safe procedures, though complications may occur. The overall complication rate for D&C is approximately 1.9%, with uterine perforation occurring in about 0.9% and severe hemorrhage in around 0.1% of cases. Post-procedural infection has been reported in 1–2% of patients. Intrauterine adhesions, which may lead to Asherman's syndrome, occur in approximately 1–5% of cases after D&C, with higher rates of 15–40% reported following miscarriage management or repeated curettage. For MVA, the overall complication rate is about 2%, with retained products of conception occurring in 1.5–3.7% of patients, sometimes requiring repeat intervention. These findings suggest that although both procedures are effective, D&C may carry a higher risk of uterine trauma and adhesion formation, potentially affecting menstrual function and future fertility.

Conclusions. Both manual vacuum aspiration (MVA) and dilation and curettage (D&C) are effective uterine evacuation methods, but they also carry a higher risk of intrauterine adhesions and Asherman's syndrome, potentially affecting future fertility.

Keywords. Dilation and Curettage, Vacuum Aspiration, Intrauterine Adhesion, Infertility, Spontaneous Abortion.

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12. THE ROLE OF PLACENTAL ENDOCRINE FUNCTION IN OBSTETRIC COMPLICATIONS

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Introduction. The placenta is a transient, metabolically active, and complex organ, secreting steroid and peptide hormones as well as growth factors that regulate uteroplacental blood flow, maternal metabolism, and fetal development. Maternal circulating levels of these hormones reflect placental function and may enable early identification of dysfunctions associated with placental insufficiency. Assessment of placental endocrine biomarkers provides valuable information for predicting pregnancy outcomes and preventing obstetric complications.

Aim of study. This review aims to evaluate placental endocrine function and its impact on placental activity and maternal–fetal health, with focus on the development of obstetric complications.

Methods and materials. A narrative review of articles from databases such as PubMed, HINARI, NCBI, and ScienceDirect over the past ten years focusing on the role of placental hormones and their mechanisms in pregnancy pathologies.

Results. The reviewed literature indicates that placental hormones are involved in modulating fetoplacental development and maternal adaptations during pregnancy. Human chorionic gonadotropin (hCG), secreted by the syncytiotrophoblast, promotes trophoblast differentiation and invasion via ERK and AKT signaling pathways and increased expression of matrix metalloproteinases (MMP-2 and MMP-9), supporting vascular remodeling. Human placental lactogen (hPL) and placental growth hormone (hPGH) modulate maternal metabolism, stimulating lipolysis, gluconeogenesis, and insulin-like growth factor 1 (IGF-1) synthesis, thereby ensuring energy substrate availability for fetal growth. Placental steroid hormones, particularly progesterone and estrogens, regulate uteroplacental blood flow, maintain uterine quiescence, and modulate the immune response. However, altered regulation of these factors is associated with trophoblast dysfunction and has been linked to major obstetric complications, including preeclampsia, intrauterine growth restriction, and preterm birth. This underscores the importance of placental endocrine activity in maintaining a healthy pregnancy.

Conclusions. Placental endocrine function mediates trophoblast differentiation, vascular development, and maternal metabolic adaptations essential for fetoplacental growth. Altered hormone secretion contributes to placental dysfunction, causing impaired trophoblast invasion, abnormal uteroplacental vascular remodeling, and compromised maternal–fetal function. These findings highlight the pivotal role of placental hormones in supporting normal pregnancy and preventing adverse fetal outcomes.

Keywords. Pregnancy, placental hormones, syncytiotrophoblast, hCG, obstetric complications.

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13. GUT–BRAIN AXIS: MICROBIOME–NEUROTRANSMITTER INTERACTIONS IN THE CONTEXT OF DEVELOPMENTAL DISORDERS IN YOUNG CHILDREN

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Introduction. The gut-brain axis represents a complex, bidirectional interaction between the central nervous system and the brain, being involved in neuronal development. The intestinal microbiota produces neuroactive metabolites, neurotransmitters and their precursors, thus contributing to the regulation of behavior, emotions and cognitive processes, and their imbalance is associated with neurological developmental disorders, especially in young children.

Aim of study. The aim of the study was to investigate the relationship between the intestinal microbiome and serum neurochemical markers (catecholamines and serotonin).

Methods and materials. The observational study was conducted in primary care. Analysis of the composition of the intestinal microbiome was performed by real-time PCR using the ENTEROFLOR kit, and the assessment of child development was performed according to the Guidelines for Monitoring Child Development (GMCD). Serum concentrations of catecholamines and serotonin were determined from peripheral venous blood. Data analysis was performed using the MO Excel 365 program.

Results. The study included 10 children (5 girls and 5 boys), with a mean age of 16.4 ± 6.62 months (95% CI: 8; 29), born at term, from an urban environment. The assessment of neuropsychic development revealed disorders in the domains of expressive language in 50%, receptive language in 80%, interaction in 50%, and in the domain of play in 70% of them. The proportion of normal microbiota was maintained at similar levels (99.64% study group vs. 99.7% control group). The median values of the levels of bacterial taxa were comparable between the study and control groups: Lactobacillaceae 4.9 LG GE/g (IQR: 4.7; 5.9) vs. 4.85 LG GE/g (IQR: 4.57; 5.82), Escherichia coli 5.6 LG GE/g (IQR: 5.1; 6.4) vs. 5.7 LG GE/g (IQR: 5.1; 6.35), Enterococcus 5.5 LG GE/g (IQR: 5.2; 5.95) vs. 5.4 LG GE/g (IQR: 5.1; 5.8). In contrast, the peripheral catecholaminergic profile revealed major differences, median values of adrenaline were slightly increased in the study group 89 ng/l (IQR:62;197 vs. 80 ng/l (IQR: 58.5;162.5)), of noradrenaline 658 ng/l (IQR: 463; 930) in the study group versus 574 ng/l (IQR: 406; 930) in the control group. Serotonin (<10) and dopamine (<20) were below the detection limit in both groups.

Conclusions. The results of the study highlight a high prevalence of developmental disorders, predominantly in the areas of language, play and interaction, in the context of maintaining a relatively stable overall profile of the intestinal microbiota. At the same time, the increase in peripheral catecholamines suggests a possible functional dysregulation of the gut-brain axis.

Keywords. Gut microbiome; Gut-Brain Axis; Developmental disorders; children under 3 years of age.

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14. CURRENT PERSPECTIVE ON HERPES VIRUS INFECTION IN PEDIATRIC PRACTICE

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Introduction. Herpes simplex virus (HSV) infection is an important viral infection in modern pediatric practice despite advances in modern diagnostic techniques and antiviral treatments. HSV-1 is responsible for orolabial infections such as primary herpetic gingivostomatitis, whereas HSV-2 is responsible for neonatal herpes, which is transmitted during the birth process. Severe complications like neonatal herpes and HSV encephalitis can result in serious neurological damage or even death. Thus, it is important to diagnose and treat HSV infection at an early stage.

Aim of study. This paper aims to review the present perspectives in the epidemiology, manifestations, diagnosis, and treatment of HSV infection in pediatric patients.

Methods and materials. This is a descriptive review of scientific literature. Studies were conducted using publications from PubMed, WHO publications, and scientific journals in pediatric infectious diseases (2015-2025). Studies were conducted on the epidemiology, manifestations, diagnostic techniques, and treatment of HSV infection in pediatric patients.

Results. Global epidemiological studies reveal that HSV-1 infection among people below 50 years of age is approximately 3.7 billion, i.e., 67% of the world's population. Seroprevalence studies reveal that 30-60% of people acquire HSV-1 infection during childhood, usually by close contact with infected caregivers or parents. Primary herpetic gingivostomatitis causes 70-90% of HSV-1 infections in children and is the most common clinical manifestation of HSV-1. Neonatal herpes is a rare but severe disease with an estimated incidence of 1-3 cases of herpes virus infection per 10,000 live births worldwide. The HSV-2 virus causes 70-85% of neonatal herpes. The manifestations of neonatal herpes include skin-eye-mouth disease (45%), central nervous system disease (30%), and disseminated disease (25%). Herpes simplex encephalitis causes 10-20% of viral encephalitis cases with an estimated incidence of 1-2 cases of herpes encephalitis per million population annually. Modern techniques of diagnosis have helped in the better diagnosis of herpes virus infections. The use of the polymerase chain reaction technique for diagnosis has shown 95% sensitivity and specificity for diagnosing HSV. Early initiation of intravenous acyclovir therapy significantly improves outcomes in HSV infection, reducing mortality in neonatal disseminated disease from approximately 80–85% in untreated cases to about 25–30% with treatment and improving neurological outcomes in nearly 60–70% of affected infants.

Conclusions. HSV infection remains an important clinical problem in pediatric practice. Early diagnosis using molecular methods and prompt antiviral therapy are essential for reducing morbidity and mortality in affected children.

Keywords. Herpes simplex virus, pediatric infection, gingivostomatitis, neonatal herpes, antiviral therapy, molecular diagnosis.

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15. SEVERE RH ISOIMMUNIZATION WITH HIGH ANTI-D TITER—CASE REPORT

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Introduction. Rh isoimmunization remains an important cause of hemolytic disease of the fetus and newborn(HDNF), despite the widespread use of anti-D immunoprophylaxis. High maternal antibody titers are associated with an increased risk of severe fetal anemia and require close fetal monitoring and appropriate management.

Case presentation. A 40-year-old pregnant woman(GIV, PIII), blood group A(II)Rh-negative, was monitored due to Rh isoimmunization. Her history included two previous vaginal deliveries of healthy infants(3800g,3750g) without postpartum anti-D prophylaxis and a preterm delivery(1900g) at 30 weeks by emergency cesarean section due to severe hemolytic disease with fetal hydrops. During the current pregnancy, maternal anti-D titers increased from 1:256 at 28 weeks to 1:1024 at 29 weeks, indicating severe isoimmunization. Doppler evaluation of the fetal middle cerebral artery showed increased peak systolic velocity consistent with moderate fetal anemia. Three sessions of plasmapheresis reduced the antibody titer to 1:256. Ultrasound examination revealed polyhydramnios(2L) and increased fetal abdominal circumference corresponding to 34 weeks, suggesting progression of hemolytic disease. After administration of antenatal corticosteroids, a multidisciplinary team decided to terminate pregnancy by emergency cesarean section at 31 weeks. A premature female infant was delivered(1680 g, Apgar 6/7). The newborn developed jaundice and signs of HDFN and was transferred to the neonatal intensive care unit with a diagnosis of Rh isoimmunization(icteric-anemic form) and respiratory distress syndrome.

Discussions. Rh isoimmunization occurs when an RhD-negative woman develops IgG antibodies against RhD-positive fetal erythrocytes after fetomaternal hemorrhage. These antibodies cross the placenta and cause hemolysis, leading to fetal anemia and HDFN. Although antibody titers help identify at-risk pregnancies, high titers require close surveillance. Doppler assessment of MCA-PSV is currently the standard non-invasive method for detecting fetal anemia. Management may include intrauterine transfusion(IUT), when appropriate conditions are available. In settings where IUT is not readily accessible, plasmapheresis may be used to reduce maternal antibody levels and delay disease progression.

Conclusions. Severe Rh isoimmunization with very high anti-D titers poses a major risk of fetal anemia and hemolytic disease of the fetus and newborn. Early identification and close Doppler monitoring are essential for timely management. In settings where intrauterine transfusion is not available, plasmapheresis may help delay disease progression and prolong pregnancy.

Keywords. Rh isoimmunization, fetal anemia, HDFN.

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16. SECONDARY INFERTILITY ASSOCIATED WITH INTRAUTERINE ADHESIONS: HYSTEROSCOPIC DIAGNOSIS AND MANAGEMENT

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Introduction. Intrauterine adhesions are an acquired uterine condition caused by endometrial trauma, most frequently associated with postpartum complications such as retained placental tissue, infection, or uterine curettage. They may lead to secondary amenorrhea, infertility, and poor reproductive outcomes. Transvaginal ultrasound can suggest intrauterine pathology by revealing an irregular endometrial cavity; however, hysteroscopy remains the gold standard for definitive diagnosis and evaluation.

Case presentation. We report a woman of reproductive age with secondary amenorrhea lasting 10 years and infertility following her fourth spontaneous vaginal delivery. The presumed cause was repeated postpartum curettage at 7 and 25 days after delivery, without postoperative estrogen therapy or anti-adhesion prophylaxis. Transvaginal ultrasound showed abnormal endometrial morphology with irregular cavity contours, suggesting severe intracavitary adhesions. Six years earlier, hysteroscopic evaluation had been attempted but was complicated by the creation of a false passage, leading to discontinuation due to the risk of uterine perforation. Hysteroscopic adhesiolysis was eventually performed, with intrauterine hyaluronic acid and medium-dose estrogen therapy administered postoperatively. Ultrasound follow-up at one and three months demonstrated improved cavity architecture and increased endometrial thickness.

Discussions. Intrauterine adhesions are a significant cause of secondary infertility, resulting in impaired endometrial function due to fibrosis, hypovascularization, and loss of regenerative capacity. Hysteroscopic management allows direct visualization and precise restoration of uterine anatomy, which is critical for optimizing reproductive outcomes. The use of anti-adhesion prophylaxis and hormonal support contributes to the prevention of recurrence and enhances endometrial regeneration. This case illustrates the importance of early recognition and intervention, as delayed diagnosis can compromise fertility potential. Literature supports that operative hysteroscopy is the most effective method to treat severe intracavitary adhesions and improve chances of conception.

Conclusions. Secondary infertility associated with intrauterine adhesions can be successfully addressed with hysteroscopic adhesiolysis combined with anti-adhesion prophylaxis and hormonal therapy. Early diagnosis and management are essential for restoring uterine function and optimizing reproductive prognosis. Hysteroscopic intervention remains a safe and effective strategy for women with post-partum intrauterine adhesions.

Keywords. Intrauterine adhesions; hysteroscopy; hyaluronic acid.

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17. POSTPARTUM ADNEXAL MASS: WHEN THE DIAGNOSIS HIDES AN OVARIAN EMBRYONAL CARCINOMA – DIAGNOSTIC AND THERAPEUTIC CHALLENGES

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Introduction. Ovarian embryonal carcinoma represents a rare type of malignant ovarian germ cell tumor. Occurs more frequently in adolescents and young adults, with an average age of approximately 14–15 years. The occurrence of this pathology during pregnancy or in the immediate postpartum period represents a relatively rare clinical entity.

Case presentation. The patient presented with complaints of abundant vaginal bleeding, intense hypogastric pain, and clinical signs of acute anemia. Laboratory investigations revealed severe anemia. Ultrasound examination showed hemoperitoneum and suspicion of a right tubal ectopic pregnancy. An exploratory laparoscopy was performed, revealing a pelvic tumoral mass larger than 10 cm in diameter, violaceous in color, highly vascularized, with active bleeding; hemorrhagic content exceeding 800 ml in right and left flanks, suprahepatic and in the pelvis. The left ovary was visualized with dimensions of 5.0 × 4.0 cm; the right ovary could not be identified. The uterine fundus was smooth and located suprapubically. Intraoperative diagnosis: hemoperitoneum and a large tumoral formation in the pelvic cavity. Conversion to laparotomy was decided. During surgery, a violaceous tumoral mass with an irregular shape and mixed consistency was identified, covering the anterior uterine wall, the posterior wall of the urinary bladder, the right adnexa, and the Douglas pouch. The tumor presented active bleeding and could not be completely dissected due to abundant hemorrhage. Approximately 1000 ml of blood was identified in the abdominal cavity and pelvis. Considering the patient's critical condition, massive hemorrhage, deterioration of vital parameters, and the impossibility of effectively controlling the bleeding, a total hysterectomy with right adnexectomy was performed. Histopathological examination established the diagnosis of ovarian embryonal carcinoma NOS (ICD-O 9070/3), located in the right ovary, with parametrial invasion and pelvic extension – pT2b, FIGO stage IIB.

Discussions. Physiological changes associated with pregnancy and the postpartum period can mask the early manifestations of ovarian tumor pathology. In this context, the differential diagnosis of acute abdomen in the postpartum period should also include ovarian tumor pathology, especially when the clinical evolution is rapidly progressive.

Conclusions. Ovarian embryonal carcinoma is a rare and aggressive form of malignancy that may be difficult to diagnose in the postpartum period. The complexity of diagnosing ovarian tumor pathology highlights the need to maintain a high level of clinical suspicion in the presence of acute abdominal symptoms, as early recognition and prompt therapeutic intervention may decisively influence the patient's prognosis.

Keywords. Embryonal carcinoma, ovary, postpartum, hemoperitoneum, hysterectomy.

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18. GASTROINTESTINAL DISORDERS IN RHEUMATIC DISEASES IN CHILDREN.

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Introduction. Pediatric rheumatic diseases, encompassing juvenile idiopathic arthritis (JIA), juvenile systemic lupus erythematosus (JSLE), juvenile dermatomyositis (JDM), and juvenile systemic sclerosis (JSSc), constitute chronic autoimmune disorders predominantly affecting the musculoskeletal system. Gastrointestinal (GI) involvement represents a critical extraarticular manifestation, characterised by dysphagia, gastroesophageal reflux disease (GERD), abdominal pain, diarrhoea, intestinal inflammation, and hepatic dysfunction. Pathogenesis involves autoimmune-mediated mucosal damage, vasculopathy, dysmotility, or iatrogenic effects from pharmacotherapies including nonsteroidal anti-inflammatory drugs (NSAIDS), glucocorticoids, methotrexate, and biologic agents such as tumour necrosis factor inhibitors. Unmitigated GI complications precipitate malnutrition, impaired statural growth, and diminished quality of life, necessitating systematic surveillance.

Aim of study. This investigation systematically evaluates epidemiology, pathophysiological mechanisms, clinical spectrum, diagnostic modalities, and interdisciplinary management strategies for GI disorders in paediatric rheumatic diseases.

Methods and materials. A comprehensive descriptive literature review was conducted across PubMed, Google Scholar, Scopus, and paediatric rheumatology repositories. Inclusion criteria comprised peer-reviewed articles, systematic reviews, case series, and clinical guidelines published from 2010 to 2025, specifically addressing GI manifestations in JIA, JSLE, JDM, and JSSc. Data synthesis focused on prevalence metrics, immunological pathways, endoscopic correlation, and therapeutic efficacy.

Results. GI symptomatology manifests in up to 50% of JSSc and JDM cohorts, with predominant upper GI tract involvement (dysphagia, reflux); intestinal pseudo-obstruction complicates 20-30% of severe presentations. Hepatic transaminitis is associated with methotrexate-induced hepatotoxicity (15-25%) or autoimmune hepatitis in JSLE. Diagnostic precision is enhanced via endoscopy, gastrointestinal manometry, and serological profiling to declinate disease-from treatment-related aetiology.

Conclusions. GI manifestations exert substantial influence on clinical trajectories in paediatric rheumatology; proactive monitoring and multidisciplinary collaboration – integrating rheumatologists, gastroenterologists and nutritionists- are imperative for optimising outcomes. Prospective longitudinal investigations are indicated to establish evidence – based protocols.

Keywords. pediatric rheumatic diseases; gastrointestinal disorders; juvenile idiopathic arthritis ; drug – induced toxicity; multidisciplinary management.

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19. POSTNATAL DEPRESSION: CLINICAL MANIFESTATIONS AND TREATMENT OPTIONS

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Introduction. Postpartum depression is defined as a mood disorder occurring within four weeks to one year after childbirth and may significantly impair maternal daily functioning as well as infant development. Early identification through the use of validated screening instruments is essential for timely intervention and the prevention of potential complications. Despite its relatively high prevalence, this condition remains frequently underrecognized and undertreated in clinical practice.

Aim of study. The aim of the present study was to assess the prevalence and severity of postpartum depression using standardized assessment tools and to highlight their complementary diagnostic value.

Methods and materials. A descriptive cross-sectional observational study was conducted on 103 postpartum women. Participants independently completed the Edinburgh Postnatal Depression Scale. Women scoring ≥10 points were further assessed using the Beck Depression Inventory for severity stratification and the confirmation of the clinical diagnosis. Descriptive statistical analysis was performed using a computer and Microsoft Excel.

Results. According to the Edinburgh Postnatal Depression Scale, 15.53% of participants scored 0-9 points, 20.39% scored 10-12 points, 47.57% scored 13-19 points, and 16.52% scored ≥20 points. Overall, 85.3% of women scored at or above the screening threshold. Among the 87 women further evaluated using the Beck Depression Inventory, 63.2% presented minimal symptoms, 14.9% mild depression, 17.2% moderate depression, and 4.6% severe depression.

Conclusions. A substantial prevalence of postpartum depressive symptomatology was identified within the studied population. The Edinburgh Postnatal Depression Scale demonstrated strong utility as a screening instrument for the early detection of depressive symptoms in the postpartum period, while the BDI enabled a more precise stratification of symptom severity and supported informed clinical management decisions. Postpartum depression remains a major public health concern, exerting significant effects on maternal psychological well-being during the postnatal period and potentially influencing infant development and overall family functioning.

Keywords. postpartum depression; Edinburgh Postnatal Depression Scale; Beck Depression Inventory; prevalence; maternal mental health.

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20. WHARTON'S JELLY EDEMA – A CASE REPORT

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Introduction. Wharton`s jelly edema refers to the excessive accumulation of fluid in the connective tissue of the umbilical cord, resulting in a thickened (often > 2 cm) cord. Umbilical cord edema is observed in approximately 10% of deliveries. Although often an isolated, harmless finding, it can be a marker for serious fetal, maternal or placental conditions.

Case presentation. A 22-years-old primiparous woman presented to the emergency department at 37+6 weeks of gestation with irregular uterine contractions, general weakness. She had an uncomplicated pregnancy history, but was treated for autoimmune thyroiditis. No pathological conditions were documented on ultrasound scans at 28, 30, and 36 weeks: fetal biometric parameters and the amniotic fluid were within the normal range; no alterations of the Doppler velocimetry. On vaginal examination the cervix was posterior in position, long, closed. The cardiotocographic monitor recorded fetal bradycardia with the fetal heart rate reaching 80 bpm. Considering the acute fetal distress, an emergency Cesarean section was performed, and a baby girl was delivered, weighing 2800 g and measuring 51 cm in length, with an Apgar score of 7/8. After delivery the umbilical cord was observed to be macroscopically edematous along the entire length. The histopathological examination revealed: the chorionic plate with fibrin accumulation and foci of dystrophic calcinosis; congested arteries and ischemic vein of the umbilical cord. There were no significant changes observed in the pre- and postoperative blood tests.

Discussions. Edematous jelly represents an abnormal accumulation of fluid, the main causes of which are: fetal anemia and hypoxia, umbilical vein thrombosis, cord compression, chorioamnionitis, placental insufficiency. The pathogenetic mechanisms are: increased hydrostatic pressure, reduced oncotic pressure, venous obstruction. Wharton's jelly edema can primarily be detected via ultrasound, where it is seen as a thickened, hypoechoic umbilical cord. Edematous jelly can cause umbilical vascular compression, leading to impaired blood flow and fetal oxygenation issues. While sometimes benign, this edema can indicate gestational diabetes, fetal hydrops, chromosomal abnormalities (e.g. Trisomy 13 or 18), etc. The management aims for close monitoring, such as Doppler ultrasound, to assess umbilical blood flow and fetal well-being.

Conclusions. Umbilical cord edema is an uncommon but clinically relevant finding that reflects alterations in feto-placentar circulation. While many cases result in normal, healthy infants, the condition requires careful monitoring as it can sometimes be associated with averse fetal outcomes.

Keywords. wharton's jelly edema, umbilical cord, fetal distress.

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21. PEDIATRIC MULTIPLE SCLEROSIS

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Introduction. Pediatric multiple sclerosis represents a rare autoimmune, demyelinating and inflammatory disease of the central nervous system that occurs before the age of 18. The uncertain etiology makes diagnosis challenging, while autoimmune, genetic and environmental factors are believed to contribute to its multifactorial pathogenesis.

Case presentation. A 13-year-old male patient presented with diplopia, sudden decrease in visual acuity, and sleep disturbances. Clinical exam revealed convergent strabismus, right-eye amblyopia, and horizontal nystagmus. MRI scan showed demyelinating lesions in both supratentorial and infratentorial regions, including periventricular frontal lesions on the left and juxtacortical occipital lesions on the left. The clinical and radiological findings fulfilled definite criteria for multiple sclerosis diagnosis. The patient was started on immunomodulatory therapy with interferon beta 1A, showing stabilization of neurological symptoms during follow-up.

Discussions. The patient underwent a thorough neurological examination, laboratory investigation and a magnetic resonance imaging of the brain and spinal cord. Cerebrospinal fluid analysis was performed to detect oligoclonal bands. The diagnosis of multiple sclerosis was established based on clinical and radiological findings.

Conclusions. Early diagnosis allowed timely initiation of treatment, reducing disease progression and improving long-term prognosis.This particular clinical case illustrates that visual disturbances may represent an early manifestation of the disease.

Keywords. Multiple Sclerosis, Demyelinating disease, Oligoclonal bands, Diplopia, Visual disturbances.

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22. REACTIVATION OF VARICELLA-ZOSTER VIRUS IN CHILDREN: CLINICAL PRESENTATION AND THERAPEUTIC CONSIDERATIONS

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Introduction. Varicella-zoster virus (VZV) infection causes two distinct clinical entities: chickenpox and herpes zoster. Varicella is the primary infection, manifesting as vesicular lesions on an erythematous base, in various stages of development, predominantly on the face, trunk, scalp, and visible mucous membranes. Herpes zoster occurs by reactivation of latent VZV from sensory ganglia and is characterized by a painful, unilateral vesicular rash, usually distributed over one or two adjacent dermatomes.

Case presentation. We present the case of a male patient, aged 6 years and 9 months, hospitalized on 11.02.2026 with fever of 38.0ºC, headache, fatigue, malaise, loss of appetite, intense local pain (8/10 according to the pain scale), sensitivity to touch in the left inguinal and coxo-femoral region, with a burning and tingling character, followed by the appearance of skin rashes. The onset of symptoms occurred two days prior to hospitalization, with severe local pain, burning, tingling, subsequently appearing polymorphic skin lesions: macules, papules and vesicles grouped in bunches of different sizes, with clear serous content on an erythematous background, associated with itching and local hyperesthesia, distributed dermatomal at the inguinal and coxo-femoral level unilaterally on the left (L1-L2), moderate adenopathy. From the personal pathological history, an episode of chickenpox (mild form) at the age of 3 is highlighted. Paraclinical investigations show a relative lymphocytosis (44.7%) associated with relative neutropenia (44.7%), slightly decreased hematocrit (36.5%), slightly increased ESR (13 mm/h), increased D-dimers (1116.8 ng/ml) and changes suggestive of a viral infectious process. Treatment consisted of i.v. acyclovir solution, skin preparation with methylene blue solution and symptomatic treatment.

Discussions. Varicella-zoster virus reactivation in children is a rare clinical entity. The presented case confirms the hypothesis that a history of chickenpox at a young age (3 years, in this case) represents a major risk factor for the early onset of zoster, due to the immaturity of the specific cellular immune response at the time of primary infection.

Conclusions. Herpes zoster is rare in the pediatric population, therefore varicella-zoster virus reactivation should be considered in children with a history of chickenpox at a young age. Rapid establishment of the clinical diagnosis and prompt initiation of antiviral therapy are essential to prevent complications.

Keywords. Varicella-zoster virus, chickenpox, herpes zoster.

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23. BEYOND IMAGING: THE DIAGNOSTIC PUZZLE OF A PEDIATRIC PULMONARY ABSCESS

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Introduction. Pulmonary abscess in children represents a severe form of suppurative pulmonary infection characterized by parenchymal necrosis and cavity formation. Although rare in the pediatric population, it may evolve with significant complications and requires a multidisciplinary approach. Differentiation from other cavitary pulmonary lesions is essential for establishing the appropriate therapeutic management.

Case presentation. We report the case of a 5-year-old patient with no significant past medical history, admitted for persistent fever (above 39°C), semi-productive cough, and left basal thoracic pain. The patient initially received outpatient oral therapy with amoxicillin–clavulanic acid; however, due to the radiological appearance of a cavitary lesion associated with markedly elevated inflammatory markers, treatment was escalated to parenteral administration of a third-generation cephalosporin combined with clindamycin and metronidazole. Clinical and biological evolution was favorable; however, the radiological image remained unchanged. A computed tomography scan performed seven days after initiation of intravenous therapy revealed a cavitary lesion located in the left basal lung segment, almost completely evacuated, presenting a hydro-aeric level and thick walls, with an atypical appearance for a pulmonary abscess. The differential diagnosis included pulmonary hydatid cyst, as negative Echinococcus serology does not exclude the disease. Given the diagnostic uncertainty and the discrepancy between the markedly improved clinical status—afebrile patient, extremely rare cough, minimal decrease of vesicular murmur at the left basal lung field on auscultation, normal complete blood count and absent inflammatory markers—and the persistent radiological findings, the patient was transferred to the pediatric surgery department. A left thoracoscopy with debridement and pleural drainage was performed. The total duration of antibiotic therapy was five weeks. Follow-up imaging performed four weeks later demonstrated almost complete resolution of the lesion on chest radiography.

Discussions. Pediatric respiratory pathology presenting with atypical imaging features cannot always be diagnosed exclusively through non-invasive methods. This case highlights the essential role of a multidisciplinary approach, the importance of advanced imaging investigations, and the value of minimally invasive surgical exploration in optimizing therapeutic management.

Conclusions. This case emphasizes the diagnostic challenges that may arise in pediatric pulmonary abscesses with atypical imaging features. Multidisciplinary collaboration and minimally invasive surgical intervention may be necessary to establish the diagnosis and achieve optimal clinical outcomes.

Keywords. Pulmonary abscess in children, Cavitary lung lesion, Minimally invasive surgical approach.

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24. FERTILITY-PRESERVING MANAGEMENT OF COUVELAIRE UTERUS, A RARE CASE REPORT.

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Introduction. Couvelaire uterus (CU) or uteroplacental apoplexy was first described in 1911 by Dr. Alexander Couvelaire. It is a rare complication following placental abruption. This case report highlights the successful management of a severe abruption complicated by CU and intrauterine fetal demise (IUFD).

Case presentation. A 36 year old primigravida with 36 weeks of gestation presented to the obstetric emergency department with blood pressure (BP) of 150/90 mmHg and persistent moderate headache. Obstetrical history revealed that the pregnancy evolved with hyperemesis gravidarum in the first trimester and chronic hypertension, managed with Methyldopa from the 14th week of gestation. The previous Ultrasound (USG) was performed at 20th week gestation and no fetal malformation was noted. External obstetric examination revealed a hypertonic ovoid uterus and a symphysis-fundus height of 32 cm, lagging behind gestational age. The patient's BMI was 37.2 kg/m² (Class II obesity). Fetal heart rate was absent. Laboratory findings exhibited thrombocytopenia of 75,000/mm³ and proteinuria. A USG performed confirmed a single fetus in cephalic presentation with an estimated fetal weight of 2350 grams and third-degree placental maturity. Antenatal death of the fetus was confirmed. Without further ado, an emergency cesarean section was performed. A Pfannenstiel incision revealed the purple, bruised uterus with induration, diagnostic for CU. The fetus and aborted placenta were extracted. A B-lynch compression suture was successfully applied to achieve hemostasis. This approach addressed the uterine atony and prioritized the preservation of the patient's fertility. Postoperatively, focus was on correction of coagulopathy and aggressive blood pressure control. The patient's recovery involved monitoring for late onset complications for preeclampsia and psychological support after fetal loss.

Discussions. This patient exhibited the critical progression of chronic hypertension into superimposed severe preeclampsia, complicated by placental abruption and IUFD. The ecchymotic appearance of the CU is the result of ruptured decidual spiral arteries, leading to blood infiltration into the myometrium. Furthermore, severe abruption often triggers systemic coagulopathy indicated by thrombocytopenia, which complicates the management of uterine atony. The recognition is time-sensitive and can greatly affect clinical outcomes. While conventionally, hysterectomy is considered in such cases, this case demonstrates that the B-Lynch suture is a safe and effective alternative for patients.

Conclusions. This case brings to light that even in the setting of intrauterine fetal demise, conservative uterus-preserving management can be a safe and efficient alternative to hysterectomy. It is also important to recognize and personalize management to better maternal outcomes and preserve fertility.

Keywords. Couvelaire Uterus, B-lynch sutures, Hysterectomy.

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25. DIAGNOSTIC YIELD OF BREAST CANCER SCREENING IN THE REPUBLIC OF MOLDOVA

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Introduction. Breast cancer screening (BCS) represents a key approach for early-stage detection of breast cancer and, consequently, for reducing mortality.

Aim of study. Assessment of the diagnostic yield and effectiveness of BCS in the Republic of Moldova over the implementation period (2018-2022).

Methods and materials. A retrospective, descriptive study was conducted over the period 2018-2022. The study material consisted of mammography results. Of the 26895 mammograms performed in women in the Republic of Moldova during this period, 1808 mammography reports with detected abnormalities were analyzed, including the annual number of examinations, the number of cases suspicious for breast cancer, the number of confirmed cancers, as well as the number of detected benign lesions and precancerous conditions. Data were statistically processed using Microsoft Excel software.

Results. Of the 26895 mammograms performed, 1808 patients underwent further comprehensive evaluation. Thus, in 2018, among 188 women referred for additional assessment, breast cancer was confirmed in 8 cases; in 2019 – 37 were confirmed out of 872; in 2020 – 4 were confirmed out of 116; in 2021 – 12 were confirmed out of 331; in 2022 – 13 were confirmed out of 301. Among the 74 breast cancer cases detected, most were diagnosed at stage II – 47 cases (63.4%), followed by stage III - 12 patients (16.2%) and stage I - 11 patients (14.7%). Stage 0 accounted for 3 cases (4.4%), while stage IV was identified in only one case (1.3%). In addition, 123 mammographic examinations were classified as suspicious for cancer, while 74 examinations revealed benign tumors and precancerous conditions.

Conclusions. During the implementation period of BCS in the Republic of Moldova, comprehensive evaluation of patients with mammographic abnormalities identified 291 breast pathologies (16.1%), including 74 breast cancers (4.1%).

Keywords. screening, breast cancer, early detection.

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26. NON-EPILEPTIC PAROXYSMAL PHENOMENA IN THE CONTEXT OF BREATH-HOLDING SPELLS

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Introduction. Breath-holding spells represent one of the non-epileptic paroxysmal events of childhood. They are characterised by a brief cessation of breathing triggered by emotional stimuli. Although benign, these episodes can be distressing for parents and may be misinterpreted as more serious pathological conditions, leading to unnecessary diagnostic procedures or interventions.

Aim of study. To highlight the clinical characteristics and management principles in children experiencing breath-holding spells.

Methods and materials. A narrative review of the literature on breath-holding spells in children was conducted using articles from medical databases such as PubMed and Google Scholar, published between 2010 and 2023, as well as other relevant works in the field of pediatric neurology.

Results. Breath-holding spells are considered benign events and can be classified into three forms: cyanotic, pallid, and mixed, each having distinct pathophysiological mechanisms. The onset most commonly occurs between 6 and 24 months of age, and the episodes are usually brief, lasting between 10 and 60 seconds. In rare cases, prolonged apnea may trigger a generalised seizure. Studies suggest that the causes and risk factors contributing to these episodes include autonomic nervous system dysfunction, delayed brainstem maturation, iron deficiency anemia, and psychosocial factors such as maternal stress during pregnancy or a child's low tolerance for frustration. The diagnosis is mainly based on a detailed medical history, emphasising the characteristic sequence of events, and the differential diagnosis should be made especially with epilepsy and other conditions associated with episodes of apnea, such as cardiac pathologies. Management consists primarily of parental education and avoidance of triggering factors. The prognosis is favourable, with most cases showing spontaneous remission before school age, without disorders of neurological development.

Conclusions. Breath-holding spells are frequent episodes in otherwise healthy children during early childhood, but they may generate significant anxiety among parents. Accurate recognition of the clinical manifestations and establishment of an appropriate diagnosis help avoid unnecessary investigations and ensure effective management based on parental education and monitoring of the child's evolution. Affected children have normal neurological development and intelligence, and the prognosis very favourable.

Keywords. Breath-holding spells; pediatric neurology; non-epileptic paroxysmal events; parental education.

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27. ALGORITHMIC STANDARDIZATION OF CARDIOTOCOGRAPHY USING THE AUTOMATED FISHER–KREBS SCORE AND ITS IMPACT ON INTRAPARTUM OBSTETRIC DECISIONS: A COMPARATIVE STUDY IN A LEVEL III PERINATAL CENTER (2025)

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Introduction. Interpretation of cardiotocography (CTG) remains inherently subjective, influencing clinical decision-making in cases of suspected fetal compromise and contributing to variability in urgent cesarean section and operative vaginal delivery rates. The automated Fisher–Krebs scoring system, supported by artificial intelligence (AI), aims to standardize CTG evaluation by integrating clinical parameters with fetal heart rate patterns, thereby facilitating earlier identification of acute intrauterine hypoxia and supporting more consistent and evidence-based obstetric management.

Aim of study. To compare the rate of obstetric interventions for fetal indications between CTG monitoring with automated Fisher–Krebs scoring and conventional clinician-interpreted CTG in a Level III perinatal center during 2025.

Methods and materials. A retrospective cohort study included all 2025 deliveries in a Level III center. Two delivery wards were compared: Ward 1 – CTG with automated Fisher–Krebs scoring (n = 2,058); Ward 2 – conventional CTG (n = 2,164). Outcomes assessed were urgent cesarean sections and operative vaginal deliveries with vacuum extraction for suspected fetal hypoxia. Relative risk was expressed as odds ratios (OR) with 95% confidence intervals (CI); $p < 0.05$ was significant.

Results. A total of 4,222 deliveries were analyzed: 2,058 in Ward 1, where automated Fisher–Krebs CTG analysis was implemented, and 2,164 in Ward 2 with conventional CTG interpretation. Urgent cesarean sections occurred in 21.0% of cases in Ward 1 compared with 24.4% in Ward 2. Cesarean sections for fetal hypoxia were significantly lower with automated CTG (2.7% vs. 4.8%; OR 0.54, 95% CI: 0.39–0.76; $p < 0.001$). Likewise, vacuum-assisted deliveries for fetal indications were less frequent in the automated CTG ward (1.1% vs. 3.0%; OR 0.37, 95% CI: 0.23–0.60; $p < 0.001$). Among urgent cesarean sections, fetal hypoxia accounted for 12.7% in the automated CTG ward compared with 19.7% in the conventional CTG ward.

Conclusions. In this Level III center, automated Fisher–Krebs CTG was associated with nearly a 50% reduction in cesarean sections for fetal hypoxia and a significant decrease in operative vaginal deliveries for fetal indications. These findings underscore the clinical relevance of standardized, AI-assisted CTG interpretation in shaping intrapartum decision-making and improving the consistency of fetal heart rate assessment. Broader implementation of AI-based CTG analysis across delivery rooms may represent an effective strategy to optimize obstetric management and reduce potentially avoidable interventions. Further research is warranted to evaluate its impact on neonatal outcomes and overall perinatal safety.

Keywords. Cardiotocography; Fetal hypoxia; Obstetric interventions.

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28. THERAPEUTIC ADVANCES IN TRIPLE-NEGATIVE BREAST CANCER

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Introduction. Triple-negative breast cancer (TNBC) accounts for approximately 10-20% of all breast cancers worldwide and more commonly affects women of reproductive age.Patients with TNBC have a higher risk of early recurrence and metastasis compared with other breast cancer subtypes.Due to the limited availability of targeted therapeutic options,TNBC is characterized by an aggressive clinical course and is generally associated with a poorer prognosis.

Aim of study. To elucidate the current treatment strategies and therapeutic advances in triple-negative breast cancer of the mammary gland.

Methods and materials. Analysis of epidemiological data (SEER,data published in 2025),recent clinical publications,and studies published during the period 2024-2025, as well as research reports on emerging therapies and treatment response in triple-negative breast cancer.

Results. Novel therapies with antibody-drug conjugates (ADCs),such as Trodely, have demonstrated a 38%reduction in disease progression compared with standard chemotherapy in advanced TNBC,improving progression-free survival.Other ADCs,such as Datroway,have shown significant improvements in overall survival compared with traditional chemotherapy.According to SEER 2025 data,the 5-year survival rate for TNBC varies significantly depending on the stage:92.4% for early stages,67.5%for advanced locoregional stages,and approximately 14.9%for metastatic stages.Metastasis in TNBC is associated with a low median survival (~13.6 months)in metastatic cases.

Conclusions. Advances in treatment,particularly targeted therapies such as antibody-drug conjugates (ADCs),have generated promising results and may change therapeutic paradigms.Early diagnosis,response to chemotherapy,and access to modern therapies remain critical factors for improving clinical outcomes.

Keywords. Triple-negative breast cancer(TNBC),Antibody-drug conjugates(ADCs),Targeted therapy,Metastasis.

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29. DIETARY MANAGEMENT OF GESTATIONAL DIABETES

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Introduction. Gestational diabetes mellitus (GDM) is a metabolic disorder of glucose regulation that develops during pregnancy, affecting about 7–9% of pregnancies worldwide and increasing the risk of adverse maternal and neonatal outcomes. The management of this disorder has become a major public health concern. Nutritional intervention remains a cornerstone of treatment for gestational diabetes, aiming to regulate blood glucose, protect the health of both mother and fetus, and prevent complications.

Aim of study. This review aims to raise awareness about the dietary management of gestational diabetes and its role in maintaining glycemic control during pregnancy.

Methods and materials. This paper represents a narrative review of the scientific literature. The analysis was based on articles published over the past 5 years and identified through the international databases PubMed, SpringerLink, and Google Scholar. The keywords used were: “gestational diabetes,” “dietary management,” “medical nutrition therapy,” and “low glycemic index diet.”.

Results. Women with gestational diabetes frequently exhibit inadequate dietary habits, which can contribute to glycemic imbalances and maternal–fetal complications. Recommended dietary patterns include low-glycemic index diets, caloric restriction, the DASH diet, high-fiber diets, or diets low in saturated fats. In practice, ACOG recommends a distribution of 40% carbohydrates, 20% protein, and 40% fats, emphasizing the adaptation of nutrition to maternal and fetal needs. Routine supplementation with folic acid is supported by guidelines, and assessment of vitamin D may be beneficial. The fundamental principles of nutritional management are consistent internationally, while adapting to cultural and regional variations, with the primary goal of maintaining blood glucose within normal limits.

Conclusions. Dietary management plays a crucial role in the management of gestational diabetes and should be individualized, tailored to maternal and fetal needs, with careful attention to the type, amount, and distribution of carbohydrates. While existing guidelines provide fundamental principles, inconsistencies remain regarding carbohydrate management, supplementation, and practical implementation, which may create confusion for healthcare providers and inequalities in patient care. Clear, evidence-based guidelines that are flexible and culturally adaptable are needed to support optimal maternal and fetal outcomes in women with gestational diabetes.

Keywords. Dietary management, gestational diabetes mellitus, pregnancy, maternal health.

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30. REPRODUCTIVE IMPACT OF EATING DISORDERS IN ADOLESCENCE WITH FOCUS ON MENSTRUAL DYSFUNCTION AND BODY MASS INDEX

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Introduction. Eating disorders (EDs), including anorexia nervosa (AN), bulimia nervosa, and eating disorders not otherwise specified (EDNOS), represent complex conditions with a significant impact on the reproductive health of adolescent girls. Menstruation is increasingly recognized as a "vital sign" of female health, and menstrual dysfunction is a common manifestation of EDs, resulting from complex interactions between weight loss, adipose tissue deficiency, hypoleptinemia, and psychological stress. Early identification of these associations during gynecological assessment is essential for improving clinical outcomes and prognosis.

Aim of study. To determine the prevalence of menstrual dysfunction among adolescents with eating disorders and to analyze the correlations between body mass index (BMI), menstrual patterns, and compensatory behaviors.

Methods and materials. A narrative analysis of recent clinical studies and literature was conducted using PubMed databases and international guidelines (including ESHRE recommendations) regarding menstrual patterns in patients with EDs aged 10-20 years. The assessment parameters included BMI, history of weight change, levels of physical activity, and associated psychological symptoms.

Results. The analyzed data revealed that 58.3% of adolescent girls seeking treatment for EDs presented with menstrual disturbances. Among them, 22.6% experienced secondary amenorrhea and 11.3% oligomenorrhea. In cases of AN, amenorrhea may develop rapidly, sometimes within one month after the onset of significant weight loss, even when BMI remains at the 75th percentile. The minimum weight threshold associated with menstrual dysfunction corresponded to 76.6% of ideal body weight. A low BMI increased the risk of amenorrhea by 1.4 times, while excessive physical exercise (>15 hours per week) increased this risk by 3.4 times. The recovery of menstrual cycles, occurring on average 24 months after diagnosis, was associated with reaching at least 93.4% of ideal body weight. Importantly, 33.3% of patients with EDNOS also presented menstrual dysfunction, indicating that reproductive disturbances are not limited exclusively to severe forms of AN.

Conclusions. Menstrual disorders affect more than half of adolescent girls with EDs, with a strong association between the severity of weight deficit and amenorrhea. Recovery of reproductive function is associated with achieving approximately 93% of ideal body weight.

Keywords. eating disorders, amenorrhea, menstrual dysfunction, anorexia nervosa, body mass index.

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31. INTRAUTERINE GROWTH RESTRICTION: EARLY ULTRASOUND DIAGNOSIS AND THERAPEUTIC MANAGEMENT

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Introduction. Intrauterine growth restriction (IUGR) is an obstetric pathology with an increasing incidence in recent years, developing in 10% of pregnancies and representing the second leading cause of neonatal morbidity and mortality. Early diagnosis and proper management are essential to prevent complications.

Aim of study. To analyze the ultrasound methods used in the early diagnosis of intrauterine growth restriction (IUGR), as well as modern strategies of management and treatment according to severity.

Methods and materials. The study was conducted by synthesizing the specialized literature, including clinical guidelines and articles published between 2020 and 2025. The databases used for this purpose were: PubMed, AJOG, ScienceDirect, SMFM, using the keywords: intrauterine fetal growth restriction, ultrasound diagnosis, management, Doppler.

Results. Early ultrasound evaluation of intrauterine growth restriction includes fetal biometric measurements to estimate weight: abdominal circumference, biparietal diameter, head circumference, femur length. A fetus with an estimated weight below the 10th percentile requires careful monitoring and differentiation between early-onset IUGR (<32 weeks) and late-onset IUGR (≥32 weeks). Doppler velocimetry of the umbilical artery is essential for assessing placental function, with absent or reversed end-diastolic flow indicating severe placental insufficiency. Early diagnosis of IUGR contributes to reducing neonatal respiratory morbidity by timely initiation of corticosteroid therapy. The management of pregnancy with IUGR includes fetal monitoring through dynamic ultrasound assessment of fetal growth, amniotic fluid volume, and intrauterine fetal status through Doppler velocimetry, cardiotocography, and biophysical profile. The timing of delivery is decided based on ultrasound parameters, gestational age and fetal condition.

Conclusions. Ultrasound is an effective method in the early diagnosis of intrauterine fetal growth restriction. Doppler monitoring allows differentiation between early and late forms, including the establishment of an appropriate therapeutic approach to minimize possible perinatal risks.

Keywords. Intrauterine growth restriction, management, ultrasound.

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32. CLINICAL EVOLUTION OF SARS-COV-2 INFECTION IN A PRETERM NEWBORN

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Introduction. SARS-CoV-2 infection during pregnancy raises concerns about effects on the fetus and newborn, especially preterm infants, who have an increased risk of complications. Preterm newborns are vulnerable due to immature respiratory, immune, and metabolic systems, predisposing them to severe outcomes. Management requires careful monitoring and multidisciplinary treatment.

Case presentation. A female infant was born from the first pregnancy at 30 weeks gestation, birth weight 1630 g, length 43 cm, Apgar score 5/6/6. The mother had chorioamnionitis, intrapartum fever, and tested positive for SARS-CoV-2; delivery was by emergency cesarean section. Initial resuscitation (Step A+B) was performed, and the newborn was transferred to the neonatal ICU with respiratory distress syndrome, placed on nasal CPAP. Chest X-ray revealed congenital pneumonia. Antibiotic therapy with Ampicillin 100 mg/kg/12 h and Amikacin 15 mg/kg/36 h was started, along with Hydrocortisone, Caffeine, and Erythropoietin. Initial evolution was stable. On day 9, clinical deterioration occurred, and SARS-CoV-2 PCR was positive. Examination revealed pale-pink marbled skin, perioral cyanosis, diminished reflexes, and respiratory failure signs. Labs showed leukocytosis with neutrophilia; blood gas analysis revealed compensated respiratory acidosis. Chest X-ray confirmed bilateral bronchopneumonia. Treatment was adjusted to Cefepime 30 mg/kg/12 h, later combined with Azithromycin 10 mg/kg/24 h, antiviral therapy with Viferon 150,000 IU/12 h, antifungals, corticosteroids, and adapted parenteral and enteral nutrition. PCR remained positive at 16 days, requiring ongoing therapy and close monitoring.

Discussions. Managing preterm newborns with SARS-CoV-2 infection and respiratory complications is challenging. Prematurity, maternal infection, and pulmonary pathology increase the risk of severe evolution and necessitate complex interventions.

Conclusions. Preterm infants with low birth weight may remain clinically stable after COVID-19 exposure if early supportive care, continuous monitoring, and strict infection control are applied. Vigilance for subtle respiratory or systemic signs is essential in neonatal units.

Keywords. SARS-CoV-2, prematurity.

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33. THE IMPACT OF OBESITY ON THE DEVELOPMENT OF BREAST CANCER

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Introduction. Obesity represents a global public health problem, with increasing prevalence among adults worldwide. It is a significant risk factor for the development of various types of cancer, including breast cancer, particularly in postmenopausal women.

Aim of study. To elucidate the impact of obesity on the development of breast cancer.

Methods and materials. Analysis of epidemiological data and reports from health organizations (CDC,IARC); recent meta-analyses and prospective cohort studies; biological evidence on the mechanisms by which excess body weight influences carcinogenesis.

Results. Globally, postmenopausal breast cancer is the most common type of cancer associated with obesity in women, accounting for approximately 495,000 new cases of cancer in women in a single year. It is estimated that for every 4.5kg/m² increase in BMI, the risk of breast cancer in postmenopausal women increases by approximately 13%,and in women with concomitant cardiovascular diseases,the risk may rise up to 31%.There is a strong association between obesity and ER-negative breast cancer subtypes,particularly during the postmenopausal period.Obesity at the time of diagnosis is associated with a higher risk of recurrence and mortality in patients with breast cancer.

Conclusions. Obesity is an important risk factor for breast cancer, particularly in postmenopausal women,and contributes significantly to the number of cases attributable to excess body weight.Weight management should be incorporated into public health strategies and preventive programs for breast cancer.

Keywords. Obesity, Breast cancer, Postmenopausal women, Body mass index (BMI).

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34. IMPACT OF ARTERIAL HYPERTENSION ON THE COURSE OF GLOMERULONEPHRITIS IN CHILDREN.

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Introduction. Arterial hypertension (AH) represents a major determinant of the progression of pediatric chronic kidney disease according to KDIGO and the European Society of Hypertension guidelines. Hypertension intensifies hemodynamic and neurohormonal mechanisms that aggravate glomerular injury. Consequently, AH becomes an essential prognostic factor influencing the course of renal disease and the long-term risk of cardiovascular complications.

Aim of study. To evaluate the role of AH as a prognostic factor in the evolution of glomerulonephritis (GN) in children based on current literature data.

Methods and materials. The literature was selected from the PubMed database using the following search terms: pediatric glomerulonephritis, child hypertension, blood pressure, renal disease for the period 2020–2025.

Results. Analysis of the selected studies demonstrated an increased prevalence of hypertension among children with secondary renal diseases, including GN, reported in approximately 60–65% of patients. Pediatric hypertension should not be considered merely an isolated clinical sign but rather a condition associated with an increased risk of renal disease progression. A retrospective study by Huang and Peng showed that children with GN and hypertension had a significantly higher risk of progression to end-stage renal disease (ESRD) compared with those without hypertension, highlighting the importance of blood pressure control for prognosis ($p < 0.05$). Research by Mitsnefes and Wühl (2023) demonstrated that hypertension is a major independent factor accelerating the decline in glomerular filtration rate (GFR) and contributing to renal failure progression, while adequate blood pressure control reduces renal deterioration. Another study by Larkins et al. (2024) showed that hypertension is frequently encountered in pediatric renal pathology (25–50%) and aggravates glomerular lesions, influencing long-term renal prognosis. The ESCAPE study showed ($p = 0.02$) that strict blood pressure control slows CKD progression, while data from the CKiD cohort indicated that hypertension is associated with accelerated renal function decline ($p < 0.01$).

Conclusions. Hypertension associated with GN in children represents a relevant and frequently encountered clinical problem with a negative impact on the evolution of renal disease. Current evidence supports the importance of systematic blood pressure monitoring and timely therapeutic intervention in order to preserve renal function. Early recognition of hypertension, appropriate management,and adequate therapeutic interventions can improve both renal prognosis and quality of life in this category of patients.

Keywords. arterial hypertension, glomerulonephritis.

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35. STEROID-RESISTANT NEPHROTIC SYNDROME IN A CHILD: WHEN AN APPARENTLY STRAIGHTFORWARD DIAGNOSIS MASKS A FATAL SYSTEMIC DISEASE

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Introduction. Steroid-resistant nephrotic syndrome is a complex condition with severe prognostic implications, requiring thorough investigation. Most cases are primary, but extrarenal manifestations suggest a secondary or systemic etiology. Cytomegalovirus infection is rare in nephrotic syndrome, but it can cause severe damage to multiple systems, including the brain, kidneys, and heart.

Case presentation. A pediatric patient was initially diagnosed with primary corticosteroid-resistant nephrotic syndrome and focal epilepsy, with progressive neurodevelopmental regression. Corticosteroids failed to induce a response, marking a worsening clinical trajectory. Complications included dilated cardiomyopathy, cerebral atrophy, and end-stage renal disease, signaling a systemic illness. Further investigation included renal and muscle biopsies. The renal one revealed mesangioproliferative glomerulonephritis with IgA deposits, and the muscle one showed intranuclear viral inclusions, confirming active CMV infection. Treatment with Ganciclovir induced complete remission of nephrotic syndrome, but the patient required chronic dialysis and cardiological monitoring due to irreversible organ damage. However, due to the severity of the pre-existing structural renal and cardiac lesions, the irreversible nature of the organic damage required the patient to be maintained on chronic dialysis and permanent cardiological monitoring. Two years post-diagnosis, the patient died of fatal arrhythmia caused by CMV-induced dilated cardiomyopathy.

Discussions. This case highlights the importance of evaluating children with steroid-resistant nephrotic syndrome, especially when extrarenal manifestations are present. What warrants further emphasis is that congenital CMV infection can unfold over several years with fragmented and non-specific symptoms, often overshadowed by other pediatric illnesses. This deceptive clinical pattern can significantly delay the recognition of an underlying systemic process. It took four years and six months for the patient to receive a diagnosis of congenital CMV infection, after a lengthy clinical course where symptoms were frequently obscured by other pediatric infections. Immunosuppression triggered the viral flare-up, exacerbating the patient's multisystemic decline.

Conclusions. To avert irreversible damage, it is essential to prioritize prompt investigation, as pediatric SRNS must be considered secondary until ruled out. Furthermore, it should be emphasized that optimizing prenatal screening protocols to include universal, mandatory Cytomegalovirus (CMV) testing, beyond the conventional TORCH panel, viral hepatitis, and syphilis screenings, is essential to improve clinical outcomes.

Keywords. steroid-resistant nephrotic syndrome, cytomegalovirus, child, secondary glomerulonephritis, dilated cardiomyopathy.

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36. MANAGEMENT OF METABOLIC SYNDROME IN CHILDREN.

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Introduction. Metabolic syndrome – represents a cluster of metabolic disorders, which includes: arterial hypertension, dyslipidemia, hyperglycemia, insulin resistance, and abdominal obesity. The difficulty of establishing an exact diagnosis of metabolic syndrome is the main problem in our country and in neighboring regions. Subsequently, this leads to the absence of adequate treatment for patients with metabolic syndrome and, later, to the appearance of complications. The essential principle in approaching metabolic syndrome consists of lifestyle modification with the aim of reducing body mass.

Aim of study. The influence of adherence to lifestyle recommendations on metabolic syndrome and its components.

Methods and materials. I conducted a retrospective study with a dynamic evaluation, including 31 patients aged 10–18 years with metabolic syndrome, hospitalized between 2018 and 2025 at the Mother and Child Institute, Cardiology Department. All patients included in the study met the IDF criteria for the diagnosis of metabolic syndrome in children.

Results. Group A: Through lifestyle modification, 14 patients achieved: in 4 patients, the percentile value for WC decreased, in 2 boys - WC < 94 cm, in one girl – WC < 80 cm; in 10 children, the BMI decreased by an average of 2.5 points (z-BMI – 0.33); in 4 patients, BP was reduced, of which in 2 - normalized; in 9 patients, the triglyceride level decreased (average decrease of 0.71 mmol/l); in 3 patients, the HDL-cholesterol level increased (an average of 0.3 mmol/l); the basal glycemia level decreased in 6 patients (an average decrease value of 2.2 mmol/l). Group B: Among patients with low adherence to lifestyle recommendations and a long-term persistence of MetS, the following were observed: an increase in BMI in 12 patients, (an average of 2.88 units); an increase in the BP value in 8 patients; in 3 patients, the basal glycemia level increased (an average of 4.5 mmol/l); an increase in the blood triglyceride level in 2 patients (an average of 0.6 mmol/l). The persistence of metabolic syndrome over a long period, in patients with low adherence to lifestyle recommendations, led to the appearance of hepatomegaly in 5 patients.

Conclusions. The results of lifestyle modification depend on the patients' adherence to recommendations. Patients with high adherence achieved significant results, whereas in patients with low adherence – the metabolic syndrome persisted further and had a negative influence on the organism.

Keywords. Metabolic syndrome, lifestyle modification.

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37. CAT-SCRATCH DISEASE IN A CHILD: A CASE REPORT

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Introduction. Cat-scratch disease (felinosis), caused by Bartonella henselae, is an acute zoonotic infection transmitted via cat scratches or bites, characterized by regional lymphadenopathy and mild systemic symptoms. Diagnosis is challenging due to overlap with other causes of lymphadenopathy.

Case presentation. A 13-year-old boy presented to the Municipal Clinical Hospital for Children's Infectious Diseases (SCMBCC) with acute right axillary lymphadenitis and suspected cat-scratch disease (felinosis). According to the medical history, the patient had experienced general weakness, subfebrile temperature up to 38 °C, and progressive enlargement of the right axillary lymph node for approximately one month. On physical examination, the lymph node was firm in consistency and painful on palpation. The patient was initially hospitalized in the pediatric surgical department, where a right axillary lymphadenectomy was performed. The excised lymph node was subsequently sent for biopsy and histopathological examination. The epidemiological history revealed that approximately one month prior to admission the patient had been bitten on the third finger of his right hand by a stray cat. Macroscopic examination of the specimen revealed an irregularly shaped tissue conglomerate with a dense-elastic consistency and grayish-yellow coloration, measuring 3.7 × 3.0 × 3.2 cm. On sectioning, small punctate hemorrhages were observed. Histopathological analysis concluded that the lesion represented acute necrotizing suppurative lymphadenitis consistent with cat-scratch disease (felinosis). At SCMBCC, the diagnosis was further confirmed by serological testing, which showed positive titers for Bartonella henselae IgM (1:100) and IgG (1:320). The patient received treatment with ciprofloxacin for 15 days. In addition, he was evaluated by a rabies specialist, who recommended anti-rabies vaccination according to the standard immunization schedule. The clinical course was favorable, and no complications were observed.

Discussions. The presentation of this case highlights the difficulties in establishing the diagnosis of cat-scratch disease (felinosis), a condition that requires differentiation from other diseases associated with lymphadenopathy. In this context, it is important to carefully consider the patient's medical history and epidemiological data, particularly any history of an animal bite or scratch.

Conclusions. Any case of lymphadenitis requires a thorough clinical history, careful assessment of epidemiological exposure, and appropriate laboratory investigations in order to establish and confirm the diagnosis of cat-scratch disease (felinosis).

Keywords. Cat-scratch disease; Bartonella henselae; lymphadenitis; pediatric infectious diseases; zoonotic infection; case report; lymphadenopathy.

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38. UTERINE FIBROIDS ASSOCIATED WITH PREMALIGNANT ENDOMETRIAL LESIONS – DIAGNOSIS, TREATMENT AND PROGNOSIS

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Introduction. Uterine fibroids (leiomyomas) are the most common benign tumors of the uterus, affecting approximately 20–40% of women of reproductive age. Endometrial intraepithelial neoplasia (EIN), previously termed atypical endometrial hyperplasia, represents a premalignant endometrial lesion. Because both conditions may share hormonal risk factors and similar clinical manifestations, premalignant endometrial pathology may remain undetected in patients with uterine fibroids.

Aim of study. This review aims to highlight the relationship between uterine fibroids and premalignant endometrial lesions, with emphasis on shared pathogenic mechanisms, diagnostic approaches, and clinical implications.

Methods and materials. A narrative review was performed using the Medscape and PubMed database, focusing on recent publications related to uterine leiomyoma and atypical endometrial hyperplasia.

Results. Analysis of the available literature indicates that uterine leiomyomas, although benign in nature and rarely associated with malignant transformation, are frequently linked to endocrine disturbances, especially relative hyperestrogenism. Similar hormonal influences are also implicated in the development of atypical endometrial hyperplasia. The clinical presentation of fibroids—most commonly metrorrhagia and other types of abnormal uterine bleeding—may overlap with or obscure symptoms related to premalignant endometrial pathology. As a result, in the absence of targeted evaluation of the uterine cavity through transvaginal ultrasonography, diagnostic hysteroscopy, or endometrial biopsy, atypical endometrial lesions may remain undiagnosed. Furthermore, several studies report that a proportion of patients with atypical hyperplasia may already present with early malignant transformation, which underscores the importance of early identification and adequate management.

Conclusions. Although uterine fibroids are benign tumors, shared hormonal mechanisms and overlapping symptoms with premalignant endometrial lesions may delay the recognition of endometrial pathology. Therefore, abnormal uterine bleeding in patients with leiomyoma requires careful endometrial evaluation to exclude atypical endometrial hyperplasia or endometrial intraepithelial neoplasia (EIN). Early diagnosis and an individualized multidisciplinary approach, integrating imaging and histopathological assessment, are essential to improve prognosis and reduce the risk of progression to endometrial adenocarcinoma.

Keywords. Uterine leiomyoma, atypical endometrial hyperplasia, endometrial intraepithelial neoplasia (EIN), metrorrhagia, imaging and histopathological diagnosis.

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39. IMAGING FEATURES AND DIAGNOSTIC APPROACH TO PNEUMOTHORAX IN PEDIATRIC PATIENTS.

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Introduction. Pneumothorax is an acute respiratory condition characterized by the presence of air in the pleural cavity, leading to partial or complete lung collapse. In pediatric patients, the clinical presentation may be subtle or nonspecific, which can delay diagnosis. Therefore, imaging techniques play a crucial role in the early detection of pneumothorax, assessment of its extent, and guidance of appropriate therapeutic management.

Aim of study. This study aimed to evaluate imaging modalities used in the diagnosis of pneumothorax in children and to highlight the advantages and limitations of each technique in different clinical contexts.

Methods and materials. A literature review of 45 recent scientific articles indexed in PubMed, MEDLINE, and EMBASE was conducted. In addition, a retrospective analysis was performed on a cohort of 60 pediatric patients diagnosed with pneumothorax. The diagnostic performance, indications, advantage, and limitations of chest radiography, computed tomography (CT), and lung ultrasound were analyzed.

Results. Chest radiography remains the first-line imaging modality due to its availability and rapid execution; however, its sensitivity may be limited in detecting small or apical pneumothoraces. Computed tomography provides superior anatomical detail and allows precise evaluations of the localizations and extent of pleural air collections, making it particularly useful in complex or recurrent cases. Nevertheless, its use in children is limited by exposure to ionizing radiation. Lung ultrasound, a radiation-free imaging technique, has demonstrated high diagnostic accuracy and is increasingly used in emergency settings as well as for monitoring disease progression.

Conclusions. Imaging plays a fundamental role in the diagnosis of pneumothorax in pediatric patients. Chest radiography remains the primary diagnostic tool, while CT is reserved for selected complex cases. Lung ultrasound is gaining importance due to its safety, accessibility, and high diagnostic performance.

Keywords. pediatric pneumothorax, thoracic imaging, chest radiography, computed tomography, lung ultrasound.

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40. CORRELATION BETWEEN HORMONAL AND CLINICAL PARAMETERS WITH IVF OUTCOMES: AN OBSERVATIONAL STUDY

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Introduction. Infertility represents a significant health problem affecting a considerable proportion of couples of reproductive age. In vitro fertilization plays a major role in the management and treatment of this disease, but the success of IVF procedure may be influenced by a variety of clinical, biological and demographic factors. The maternal age and ovarian reserve are the key determinants influencing therapeutic results.

Aim of study. The purpose of this study was to identify and evaluate the factors that influence the outcomes of in vitro fertilization procedures.

Methods and materials. An observational, descriptive cohort study included 40 patients. We examined the relationship between maternal age, body mass index, duration of infertility, anti-Müllerian and follicle-stimulating hormone levels, and the number of embryos obtained. The $p<0,0001$ was considered statistically significant.

Results. The subjects were divided in 2 groups according to their serum AMH level, with high AMH $\geq$ 1,1 ng/mL (n=24) and low AMH < 1,1 ng/mL (n=16). The results show that in the high AMH group, patients were younger compared with those in the low group (33,83 ± 4,19 vs. 38,19 ± 4,92). Also, in the high AMH group, the FSH levels were 7,41 ± 2,45 UI/L, duration of infertility 3,33 ± 1,55, and BMI was 24,92 ± 1,61. All of these parameters were lower compared with the low AMH group, but the number of embryos obtained was considerably higher, the maximum was 9 embryos. Between FSH and AMH, we identify a negative correlation. Spearman's correlation coefficient demonstrated a very strong positive association between serum anti-Müllerian hormone levels and the number of embryos obtained following IVF cycles (ρ= 0,910; 95% CI: 0,832 - 0,953; p< 0,0001). These findings suggest that AMH represents an excellent quantitative predictor of ovarian response during IVF treatment.

Conclusions. The relationship between age and hormonal profile is well established, directly influencing ovarian reserve and the success rates of fertilization procedures. Women with higher AMH levels were younger and demonstrated a greater number of oocytes retrieved and embryos obtained. Advanced maternal age, a longer duration of infertility and elevated body mass index were associated with reduced outcomes of fertilization treatment.

Keywords. anti-Müllerian hormone; embryos; maternal age; in vitro fertilization.

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41. STUDY OF OPINIONS, PERCEPTIONS, AND CHALLENGES REGARDING BREASTFEEDING IN THE REPUBLIC OF MOLDOVA

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Introduction. Breastfeeding is considered the optimal method of infant feeding and a key intervention in maternal and child health. The World Health Organization recommends exclusive breastfeeding during the first six months of life, followed by continued breastfeeding alongside complementary feeding. Despite these recommendations, the rates of exclusive breastfeeding remain below the optimal level in many countries, including the Republic of Moldova. Understanding mothers' perceptions and the challenges they encounter is essential for improving breastfeeding support strategies.

Aim of study. To analyze mothers' opinions, perceptions, and challenges regarding breastfeeding in the Republic of Moldova and to evaluate the influence of medical support and institutional practices on breastfeeding initiation and maintenance.

Methods and materials. A cross-sectional observational study was conducted using an online questionnaire distributed through a national mothers' community platform. The questionnaire evaluated maternal experiences related to breastfeeding initiation, support provided in maternity units, counseling received from healthcare professionals, and infant feeding practices during the first six months of life. The study included 94 mothers who reported their experience with their youngest child. Descriptive statistical analysis was used to evaluate the collected data.

Results. Most mothers (73.8%) received support for initiating breastfeeding within the first 6 hours of life; however, 26.2% received delayed assistance, indicating significant gaps in immediate postnatal support. Early mother–infant contact was achieved within the first 30 minutes in most cases, but 15.5% of mothers experienced delayed contact due to anesthesia, and among preterm infants only 30% benefited from early contact. Post-discharge counseling is insufficient: only 30.9% of mothers received information on where to seek help for breastfeeding difficulties, while 69.1% received no guidance. Regarding breastfeeding recommendations, 58.3% of mothers were appropriately advised to breastfeed on demand, yet 33.3% received no guidance on the duration of breastfeeding sessions. Practices related to pacifier use reflect a partially appropriate approach: 76.2% of mothers were not encouraged to use a pacifier, whereas 23.8% received recommendations contrary to best practices.

Conclusions. Breastfeeding practices are strongly influenced by maternal perceptions and by the quality of support received from healthcare providers. Strengthening prenatal education, improving counseling in maternity units, and ensuring continuous professional support after discharge could contribute to increasing the duration of exclusive breastfeeding in the Republic of Moldova.

Keywords. breastfeeding, maternal perception, breastfeeding support, infant feeding, Republic of Moldova.

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42. PARENTERAL IRON SUPPLEMENTATION IN PREGNANCY: EFFECTS ON MATERNAL HEMATOLOGIC PARAMETERS AND DELIVERY OUTCOMES

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Introduction. Iron deficiency anemia is a common complication of pregnancy, affecting maternal and perinatal outcomes. The aim of this study was to evaluate the efficacy and safety of intravenous iron therapy in correcting moderate iron deficiency anemia in pregnant women and to assess its impact on hematological parameters and obstetrical outcomes.

Aim of study. To evaluate the efficacy and safety of intravenous iron therapy in the correction of moderate iron deficiency anemia in pregnant women and to analyze its impact on hematological parameters and obstetrical outcomes.

Methods and materials. A retrospective observational study was conducted in 2025, including 21 pregnant women diagnosed with iron deficiency anemia and treated with intravenous iron preparations. Hematological parameters were analyzed before and after therapy, including hemoglobin, hematocrit, mean corpuscular volume, mean corpuscular hemoglobin, and percentage of microcytes. Obstetrical characteristics, mode of delivery, and maternal peripartum complications were also recorded.

Results. Patients were aged 25–39 years; 52.4% were primiparous. Anemia was diagnosed in the third trimester (28–38 weeks) and classified as grade II, microcytic and hypochromic. Intravenous iron administration resulted in significant increases in hemoglobin, hematocrit, and erythrocyte indices, with a reduction in microcyte proportion. Delivery occurred vaginally in 47.6% of cases and by cesarean section in 52.4%. No cases of severe postpartum anemia requiring transfusion or additional intravenous iron were observed.

Conclusions. Intravenous iron therapy is effective and safe for rapid correction of moderate iron deficiency anemia in late pregnancy, improving maternal hematologic status and reducing peripartum complications.

Keywords. iron deficiency anemia, pregnancy, intravenous iron therapy, obstetrical outcomes, hematological parameters.

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43. CASE OF PREGNANCY AND DELIVERY IN UTERUS DIDELPHYS

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Introduction. Uterus didelphys is a congenital malformation of the female genital tract resulting from the failure of the Müllerian ducts to fuse during embryonic development. According to the American Society for Reproductive Medicine classification, it is categorized as Class III, while the ESHRE/ESGE system classifies it as U3b.This anomaly is characterized by two distinct uterine cavities, each with its own cervix, and is frequently associated with a longitudinal vaginal septum. Clinical manifestations may include dysmenorrhea, dyspareunia,infertility or recurrent spontaneous abortions.From an obstetrical perspective,uterus didelphys is associated with an increased risk of miscarriage,breech presentation,fetal growth restriction,premature rupture of membranes and preterm birth.The incidence is estimated at approximately 1:3000 women. Simultaneous pregnancies in both uterine cavities or superfetation represent extremely rare occurrences in the literature.

Case presentation. We present the case of a 30-year-old primigravida who achieved pregnancy spontaneously. Uterine didelphys was diagnosed via ultrasonography.The pregnancy progressed without major complications;no anomalies were detected in the renal or urinary systems.For the termination of the pregnancy,an elective cesarean section was performed at term 39 weeks and 3 days.A live female neonate was delivered, weighing 3360 g,with a length of 52 cm,a head circumference of 31 cm and a chest circumference of 33 cm.The Apgar score was 9/9,showing a circular umbilical cord around the neck.Intraoperatively,the contralateral non-gravid uterus was identified,presenting no pathological changes.On the second postpartum day,ultrasound evaluation of the non-gravid uterus showed an endometrial thickness(M-echo) of 16 mm.Following RCOG and ACOG guidelines,no instrumental evacuation was required.

Discussions. While pregnancy in a uterus didelphys can have a favorable outcome,it requires rigorous obstetrical monitoring due to the high risk of maternal-fetal complications.Currently, the diagnosis of Müllerian anomalies relies on 3D ultrasound and MRI, which allow for the differentiation of uterus didelphys from bicornuate or septate uteri. A renal ultrasound is recommended, as approximately 30–40% of patients present with associated renal tract anomalies. The mode of delivery must be individualized; vaginal delivery is feasible in the absence of mechanical obstructions or obstetric complications. However, the literature reports a high rate of Cesarean sections in these patients, occurring in approximately 80% of cases.

Conclusions. Uterus didelphys is a rare Müllerian anomaly associated with significant obstetric risks. Accurate imaging diagnosis, vigilant prenatal care, and individualized delivery planning are essential to ensure a favorable maternal and fetal prognosis.

Keywords. uterus didelphys,müllerian anomalies,longitudinal vaginal septum,cesarean section.

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44. OTITIS MEDIA IN CHILDREN: THE IMPACT OF ASSOCIATED COMORBIDITIES

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Introduction. Recurrent or persistent otitis media (OM) develops in approximately 25–60% of children and may lead to hearing impairment, delayed speech development, and difficulties in psychosocial adaptation. In many cases, the disease is diagnosed at advanced stages and tends to become chronic, being associated with the risk of intracranial complications. The anatomical and functional characteristics of the nasopharynx and the Eustachian tube in children predispose them to the development of otitis media and to its recurrent or persistent course.

Aim of study. To evaluate the impact of nasopharyngeal pathology on the occurrence and evolution of otitis media in children.

Methods and materials. An observational, descriptive, retrospective study was conducted to evaluate nasopharyngeal pathology in 204 children diagnosed with otitis media, who were monitored at the Pediatric ENT University Clinic "Emilian Coțaga".

Results. Recurrent and chronic inflammatory pathology of the nasopharynx (adenoiditis, sinusitis, chronic tonsillitis) was diagnosed in 75% of children with recurrent and persistent otitis media and in 20% of children with acute and exudative otitis media. Hypertrophy of the adenoids and palatine tonsils was observed in 60% of children with acute and exudative otitis media and in 25% of children with recurrent and persistent otitis media.

Conclusions. Chronic inflammatory pathology of the nasopharynx plays an important role in the evolution of otitis media in children. Comprehensive evaluation of the nasopharynx represents an essential element in the management of children with otitis media and contributes to the prevention of disease recurrence and complications.

Keywords. Otitis media, children, nasopharyngeal pathology, adenoid hypertrophy, Eustachian tube.

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45. LATE-ONSET NEONATAL SEIZURES IN THE CONTEXT OF POST-ASPHYXIAL HYPOXIC-ISCHEMIC ENCEPHALOPATHY IN A LATE PRETERM INFANT – CASE REPORT

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Introduction. Neonatal seizures represent the most common acute neurological manifestation in the neonatal period and are frequently associated with different forms of neonatal encephalopathy. Hypoxic-ischemic encephalopathy (HIE) is one of the main etiological causes of seizures in newborns. Although most seizures occur within the first 72 hours of life, in some cases seizures may develop later, as a consequence of evolving brain injury following perinatal hypoxia and ischemia.

Case presentation. We report the case of a female newborn delivered at 36 weeks of gestation by emergency cesarean section due to severe maternal eclampsia, maternal convulsive status, and acute fetal distress. At birth, the infant was extracted without signs of life, presenting severe bradycardia and requiring full neonatal resuscitation. The Apgar score was 2/4/6, and birth weight was 2320 g. In the neonatal intensive care unit, therapeutic hypothermia, inotropic support, and neuroprotective therapy were initiated. Initial neurological examination revealed hypotonia and hyporeflexia, while cranial ultrasonography showed bilateral grade I intraventricular hemorrhage. The neonatal course was complicated by stage II B necrotizing enterocolitis, right subsegmental pneumonia, and stage I–II retinopathy of prematurity. At a postmenstrual age of 40 weeks, the infant developed seizure episodes, suggesting the progression of neonatal encephalopathy with late-onset seizures.

Discussions. Seizures associated with hypoxic-ischemic encephalopathy usually occur within the first days of life; however, in certain cases they may appear later as a consequence of evolving brain injury or neuronal reorganization following hypoxic-ischemic insult. Late prematurity, severe perinatal asphyxia, and associated neonatal complications may increase central nervous system vulnerability and contribute to the occurrence of late-onset seizures. Therefore, continuous neurological monitoring and electroencephalographic evaluation are essential for early diagnosis and appropriate management.

Conclusions. This case highlights the role of severe perinatal asphyxia in the development of hypoxic-ischemic encephalopathy and emphasizes the possibility of late-onset neonatal seizures during the clinical evolution of these patients. Careful neurological monitoring and electrophysiological assessment are essential for early detection and adequate treatment of neonatal seizures.

Keywords. neonatal seizures, hypoxic-ischemic encephalopathy, perinatal asphyxia, late preterm infant, electrophysiological evaluation.

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46. DIAGNOSTIC AND MANAGEMENT CHALLENGES IN SEVERE COMMUNITY-ACQUIRED PNEUMONIA ASSOCIATED WITH URINARY TRACT INFECTIONS IN INFANTS

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Introduction. Community-acquired pneumonia is one of the leading causes in pediatric morbidity, with a potentially severe course in children with comorbidities. In approximately one third of patients with severe community-acquired pneumonia, urinary tract infections (UTIs) are present. Following diagnostic management of UTIs, congenital malformations of the urinary tract are frequently identified. Congenital urinary malformations cause toxic-infectious syndrome (TIS), which increases the severity and contributes to complications and recurrences of the respiratory infections.

Case presentation. We present a clinical case from the Municipal Clinical Children's Hospital No. 1, of an infant diagnosed with severe community-acquired pneumonia associated with toxic-infectious syndrome (TIS). Clinical, paraclinical and imaging data were analyzed during the process of performing diagnosis and treatment.

Discussions. A 10-month-old full-term infant, born through meconium-stained amniotic fluid, with a positive family history of congenital reno-urinary tract malformations, was evaluated. The child was breastfed, with age-appropriate development, but had a history of recurrent severe respiratory infections. This was the second episode of pneumonia within one month, requiring repeated hospitalizations, with persistent toxic-infectious syndrome (TIS) associated gastrointestinal manifestations, dysuria, and pyuria. Chest radiograph showed bilateral pneumonia. Complete blood count revealed neutrophilia with a left shift of the leukocyte formula, erythrocyte sedimentation rate (ESR) of 25 mm/hour, and markedly elevated C-reactive protein (CRP) at 73.2 mg/L. Urinalysis showed leukocyturia, significant proteinuria (≥3 g/L), and hematuria (10–15 red blood cells per high-power field). Abdominal ultrasound identified grade IV left-sided hydronephrosis. The patient was transferred to a specialized department for further management.

Conclusions. UTIs contribute to the development of severe TIS and may serve as a trigger for the diagnosis of congenital renal and urinary tract malformations. The presence of TIS in respiratory infections impose an extended paraclinical evaluation for the detection of UTIs, which are associated in approximately 30–40% of patients with severe community-acquired pneumonia.

Keywords. pneumonia, urinary tract infection, infant.

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47. EXCESS MATERNAL WEIGHT AS A DETERMINANT OF MATERNAL AND FETAL OUTCOMES

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Introduction. The increasing prevalence of maternal overweight and obesity represents a challenge in modern obstetrics. Elevated pregestational body mass index (BMI) is associated with metabolic dysregulation, chronic inflammation, and endothelial dysfunction, contributing to hypertensive disorders, gestational diabetes, and adverse neonatal outcomes.

Aim of study. To evaluate the association between pregestational BMI, gestational weight gain, and perinatal outcomes.

Methods and materials. A prospective study included 170 pregnant women enrolled from 22+0 weeks of gestation and followed until delivery. Data were collected by a questionnaire covering medical history, comorbidities, pre-pregnancy weight, gestational weight gain, and nutritional habits. Statistical analysis was performed using SPSS 21.

Results. The mean maternal age was 29.3±5.1 years, reflecting a predominantly young reproductive population. Before pregnancy, 64.3% of participants had normal BMI (mean BMI 24.5±4.1; Me 24.2, IQR 21.5;26.4). However, 24.2% were overweight and 11.5% obese. Maternal weight ranged between 53 and 112 kg (78.2±12.5 kg), showing variability in baseline characteristics. Gestational weight gain ranged from 4-30 kg, with a mean increase of 11.0±5.3 kg (Me 10 kg; IQR 7;15). Comparative analysis revealed increased maternal morbidity among women with overweight and obesity. Pregnancy-induced hypertension occurred in 39.1% of women with elevated BMI compared to 7.5% with normal BMI. Gestational diabetes mellitus was more frequent in the overweight and obese group (12.7% vs. 8.1%). Cardiovascular conditions (20.6% vs. 7.7%) and endocrine disorders (11.9% vs. 4.8%) were also more prevalent among women with elevated BMI. Regarding delivery mode, cesarean section was performed in 35.1% of women with excess weight compared to 5.7% in women with BMI <25. This difference suggests a correlation between maternal adiposity and operative delivery, possibly mediated by dysfunctional labor patterns, fetal macrosomia, or other complications. Neonatal outcomes reflected the impact of elevated maternal BMI. Among overweight and obese women, birth was complicated by fetal trauma (3 cases), macrosomia (9 cases), and prematurity (6 cases). These findings support the hypothesis of altered intrauterine metabolic exposure, predisposing offspring not only to immediate perinatal complications but also long-term risks.

Conclusions. Elevated pregestational BMI and excessive gestational weight gain were associated with increased maternal morbidity and adverse neonatal outcomes. The results highlight the importance of preconception weight optimization, individualized nutritional counseling, and monitoring gestational weight gain to mitigate obstetric risk and improve short- and long-term health outcomes for mother and child.

Keywords. gestational weight gain, maternal obesity, pregnancy-induced hypertension, gestational diabetes mellitus, neonatal morbidity.
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48. TRENDS AND PREVALENCE OF TOBACCO USE AMONG YOUTH

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Introduction. Tobacco use is a significant preventable cause of morbidity and mortality globally, with the initiation of use often occurring in childhood and adolescence. Early exposure is associated with a higher risk of persistent nicotine dependence and chronic noncommunicable diseases. Recent estimates from global surveillance systems such as the Global Youth Tobacco Survey and WHO reports suggest that around 9-12% of adolescents aged 13- 15 years currently use tobacco or nicotine products, including cigarettes, smokeless tobacco, and e-cigarettes. The increasing diversity of nicotine products poses an ever-growing challenge to public health efforts despite enhanced tobacco control policies.

Aim of study. To assess the prevalence of tobacco use (smoking and smokeless) among children and teenagers in the selected population.

Methods and materials. A narrative literature review and secondary data synthesis were performed using peer-reviewed literature and international surveillance reports published between 2015 and 2025. Electronic databases such as PubMed, Scopus, Google Scholar, and World Health Organization (WHO) reports were systematically searched using keywords such as “adolescent tobacco use,” “youth smoking prevalence,” “smokeless tobacco adolescents,” and “Global Youth Tobacco Survey.”.

Results. Recent data show that the prevalence of global adolescent tobacco use is between 8% and 20%, with large geographic disparities. The prevalence of cigarette smoking has decreased in many developed countries because of effective tobacco control policies, but the use of smokeless tobacco and electronic nicotine delivery systems has increased in some regions. In some low- and middle-income countries, the prevalence of total tobacco use among adolescents remains above 15%. Male adolescents tend to have higher prevalence than females, although the gap is narrowing in some areas. Socioeconomic inequalities, parental smoking, social influences, availability of tobacco products, and exposure to tobacco marketing were found to be significant predictors of higher prevalence rates.

Conclusions. Tobacco use among children and adolescents remains a major global public health issue. While success has been achieved in reducing the prevalence of combustible cigarette smoking in some countries, new nicotine products pose a threat to these advances. Improved surveillance, comprehensive regulation of products, and effective prevention strategies are needed to further reduce the prevalence of tobacco use in young people.

Keywords. Tobacco use, Adolescents, Children, Smoking prevalence, Smokeless tobacco, Youth health.

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49. PECULIARITIES OF EVOLUTION AND MANAGEMENT OF TWIN PREGNANCY COMPLICATED BY TWIN-TO-TWIN TRANSFUSION SYNDROME

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Introduction. Monochorionic twin pregnancy is often associated with an increased risk of perinatal complications, one of which is twin-to-twin transfusion syndrome (TTTS). This syndrome is characterized by disproportionate placental anastomosis, eventually leading to blood flow imbalance between the twin fetuses. Such a complication occurs in approximately 10-15% of monochorionic twin pregnancy.

Aim of study. The main objective of the study is to enable early diagnosis of twin-to-twin transfusion syndrome in twin pregnancies and to prevent major complications.

Methods and materials. International databases used: PubMed, Medscape, and publications within the past 10 years.

Results. Among twin gestations, 33% are monozygotic, and 75% of these are monochorionic diamniotic (MCDA). In these pregnancies, up to 1 to 3 per 10000 are affected by TTTS. This condition is often diagnosed in the second trimester, usually between 16 and 26 weeks of gestation. For instance, once the MCDA twin pregnancy is established, it is recommended that check-ups be performed every two weeks and an observation of the development of TTTS. Ultrasound findings typically reveal discordance in amniotic fluid and oligohydramnios-polyhydramnios sequence. Doppler is mainly used to study the umbilical vessels and helps in staging TTTS once it is established. Several management and treatment options exist, including amniodrainage, fetoscopic laser ablation, intentional septostomy, selective reduction, and voluntary pregnancy termination. Fetoscopic Laser Ablation (FLA) is considered the gold standard treatment for moderate-to-severe TTTS. FLA is an ultrasound-guided technique serving to seal blood vessels connecting the fetuses. Increasing the overall survival rate by 60–70% with this method. Prognosis is most favourable for Stage I, with a survival rate of 80%, compared with Stage III, which is associated with a perinatal mortality rate of up to 70%. This occurs mostly because of fetal complications, such as growth restriction, cardiac overload, neurological injury, and preterm birth. For this reason, the Society for Maternal-Fetal Medicine (SMFM) recommends delivery timing around 34 to 37 weeks for twin gestations affected by this condition.

Conclusions. Twin-to-twin syndrome represents a serious condition of monochorionic twin pregnancies and is associated with various severe perinatal complications. If left undiagnosed and untreated, TTTS increases perinatal morbidity and mortality rates up to 90–100%.

Keywords. TTTS, MCDA, prenatal diagnosis, FLA, SMFM.

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50. ENDOMETRIAL POLYPS. ULTRASOUND AND HYSTEROSCOPIC ASPECTS

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Introduction. Intrauterine pathologies, especially endometrial polyps, represent a significant concern in gynecology due to their frequency and clinical impact on abnormal uterine bleeding and reproductive potential. Endometrial polyps are focal overgrowths of the uterine mucosa that may be associated with infertility and carry a small but significant risk of premalignant or malignant transformation. In clinical practice, transvaginal ultrasound is the initial imaging method used for screening this pathology, while hysteroscopy is considered the gold standard for diagnosis and treatment.

Aim of study. To evaluate the accuracy of transvaginal ultrasound in diagnosing the characteristics of endometrial polyps (such as vascularization, size, number, and the presence of a pedicle) and their clinical management.

Methods and materials. An analysis of the international scientific literature available through electronic information platforms was performed, summarizing epidemiological data, risk factors, symptoms, and treatment of endometrial polyps. Additionally, clinical case analyzes were performed on a patient with endometrial polyp confirmed by ultrasound and removed through hysteroscopic polypectomy.

Results. The specialized literature shows that transvaginal ultrasound (TVS) represents the first-line method for the evaluation of endometrial polyps due to its accessibility, non-invasiveness, and low cost. It allows identification of intracavitary formations, as well as estimation of the size and number of polyps. In a study of 281 patients, transvaginal ultrasound demonstrated a sensitivity of 88.7%, specificity of 25.4%, and accuracy of 75.4% in detecting endometrial polyps. In the same cohort, hysteroscopy showed a sensitivity of 96.4%, specificity of 74.6%, and accuracy of 91.8%.

Conclusions. Hysteroscopy remains the gold standard not only for diagnosis but also for treatment. It allows direct visualization of the uterine cavity, detailed evaluation of polyp characteristics, and, most importantly, polypectomy during the same procedure, according to the “see and treat” principle.

Keywords. ultrasound, endometrial polyps, hysteroscopy.

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51. CLINICAL, ENDOCRINE AND EARLY METABOLIC FEATURES OF POLYCYSTIC OVARY SYNDROME IN ADOLESCENTS: A RETROSPECTIVE TERTIARY-CENTER STUDY

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Introduction. Polycystic ovary syndrome (PCOS) is the most common endocrinopathy in adolescent girls and a leading cause of menstrual dysfunction and hyperandrogenism, with an estimated prevalence of 6–18%. Diagnosis in adolescence is challenging due to overlap between physiological pubertal changes and pathological manifestations. According to the updated guidelines (International Evidence-based Guideline for PCOS 2023 – ESHRE/ASRM), diagnosis requires clinical and/or biochemical hyperandrogenism associated with persistent ovulatory dysfunction, while the ultrasound criterion should not be used alone during the first years after menarche. Early identification allows evaluation of metabolic risk and timely therapeutic interventions. PCOS in adolescence is increasingly recognized as an early endocrine-metabolic disorder with potential long-term reproductive and cardiometabolic implications.

Aim of study. To evaluate the clinical, endocrine and metabolic profile of adolescents diagnosed with PCOS and to assess correlations between endocrine parameters and metabolic status.

Methods and materials. A retrospective observational study including 41 adolescents diagnosed with PCOS at the Institute of Mother and Child. Clinical variables (BMI, Tanner stages, Ferriman–Gallwey score, type of menstrual disorders), hormonal parameters (LH, FSH, total testosterone, DHEA-S, prolactin, TSH) and metabolic indicators were analyzed. Clinical hyperandrogenism was defined as a Ferriman–Gallwey score ≥8 and/or moderate–severe acne, while biochemical hyperandrogenism was defined by elevated total testosterone. Statistical analysis was performed using Microsoft Excel 365 with descriptive statistics and Pearson correlation ($p<0.05$).

Results. The mean age of patients was 14.9 ± 1.2 years. Overweight or obesity was identified in 31.7%. Menstrual disorders were the main clinical manifestation and were present in 51.2%. Clinical and biochemical hyperandrogenism showed a comparable frequency (41.5% vs 43.2%). An LH/FSH ratio >2 was observed in 71.8% and analyzed descriptively as an indicator of gonadotropic imbalance. Metabolic parameters showed a significant association with increased BMI ($p<0.05$). Treatment with combined oral contraceptives (COC) with nutritional counseling improved menstrual cycles and/or reduced hyperandrogenic manifestations in 97.6%.

Conclusions. The results highlight the heterogeneous nature of PCOS from adolescence and the early association between ovulatory dysfunction, hyperandrogenism and metabolic risk factors. Early metabolic screening and multidisciplinary management may help prevent long-term metabolic and cardiovascular complications.

Keywords. polycystic ovary syndrome, adolescents, hyperandrogenism, reproductive endocrinology, metabolic risk.

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52. BENIGN VULVOVAGINAL MESENCHYMAL TUMORS

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Introduction. Benign vulvovaginal mesenchymal tumors (BVVMT) are a rather rare pathology and in the specialized literature they are presented as rare clinical cases or small series. It is appropriate to divide BVVMT into: specific for this area (cellular angiofibroma, angiomyofibroblastoma, etc.) and non-specific (lipoma, leiomyoma, etc.).

Aim of study. The aim of the study is to evaluate the results of the diagnosis and surgical treatment of BVVMT over a period of twenty five years.

Methods and materials. The database of fourteen patients with BVVMT was analyzed, the average age of the patients being 43.7±2.9 years (range:25-68) BVVMTs were characterized by the presence of a solid, slow-growing tumor with fairly clear outlines. The tumors were located: the labia majora (n=10, 71.4%), the anterior and lateral walls of the vagina (n=3, 21.4%) and the labia majora extending to the perineum (n=1, 7.2%). For a more detailed description of BVVMT, ultrasonography (USG, n=5) and magnetic resonance imaging (MRI, n=4) were performed. Single tumors with a mean maximum size of 77.5±11.6 mm (95% CI:52.02–102.9) and a minimum size of 50.4±8.3 mm (95% CI:32.21–68.56) were recorded in all cases. The correct preoperative diagnosis was established in 12(85.7%) cases.

Results. In all cases of BVVMT tumor excision with negative surgical margin (R0) was performed. The histopathological examination revealed the following variants of BVVMT: lipoma (n=9, 64.4%), leiomyoma (n=3, 21.4%), cellular angiofibroma (n=1, 7.1%) and angiomyofibroblastoma (n=1, 7.1%). Long-term follow-up in the postoperative period revealed no recurrence of BVVMT (zero) and a high self-assessment of the cosmetic result of the surgery.

Conclusions. BVVMTs are single, slow-growing tumors with fairly clear outlines. For a more detailed characterization, the use of ultrasonography and/or magnetic resonance imaging is recommended. Excision of a tumor with a negative R0 surgical margin is the most optimal method for treating BVVMT.

Keywords. Benign vulvovaginal tumors, vulvovaginal mesenchymal tumors, surgical management, diagnosis.

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53. IMPACT OF OBESITY AND METABOLIC SYNDROME ON THE DEVELOPMENT OF ENDOMETRIAL HYPERPLASIA

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Introduction. Endometrial hyperplasia is a proliferative condition characterized by an increased gland-to-stroma ratio within the endometrium and is commonly associated with prolonged exposure to unopposed estrogen without adequate progesterone antagonism. In recent decades, the prevalence of obesity and metabolic syndrome has increased significantly worldwide, and these conditions are considered to play a direct role in the development and progression of endometrial pathology.Adipose tissue plays an important role in hormonal metabolism by contributing to the peripheral conversion of androgens into estrogens through the aromatization process. This process results in persistent estrogenic stimulation of the endometrium. Additionally, insulin resistance and chronic low-grade inflammation associated with metabolic syndrome may promote proliferative changes and contribute to endometrial hyperplasia.

Aim of study. To evaluate the relationship between obesity, metabolic syndrome, and the occurrence of endometrial hyperplasia, as well as to identify the role of metabolic factors in the development of proliferative endometrial changes.

Methods and materials. A retrospective observational study was conducted including 460 patients diagnosed with endometrial hyperplasia. The following parameters were analyzed: patients' age, body mass index (BMI), and the main components of metabolic syndrome, namely arterial hypertension, diabetes mellitus, and dyslipidemia. The diagnosis of endometrial hyperplasia was established through transvaginal ultrasound and hysteroscopy and subsequently confirmed by histopathological examination of endometrial tissue obtained by biopsy or uterine curettage.

Results. The study results indicate an increased frequency of endometrial hyperplasia among patients with elevated body mass index and associated metabolic comorbidities. Approximately 62% of patients were overweight or obese, and components of metabolic syndrome were identified in nearly half of the cases. Arterial hypertension was present in 34.1% of patients, while diabetes mellitus was identified in 16.8%. Furthermore, ultrasound examination frequently revealed an endometrial thickness greater than 10 mm, and hyperplastic changes were subsequently confirmed by histopathological analysis.

Conclusions. Obesity and metabolic syndrome represent important factors involved in the pathogenesis of endometrial hyperplasia and contribute to an increased risk of its development. Hormonal and metabolic imbalances associated with excess adipose tissue may lead to persistent estrogenic stimulation of the endometrium and promote abnormal endometrial proliferation. Early identification of these factors and adequate control of the components of metabolic syndrome may significantly contribute to the prevention of the development and progression of endometrial hyperplasia.

Keywords. endometrial hyperplasia, obesity, metabolic syndrome, risk factors, endometrium.

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54. ECTOPIC PREGNANCY IN A NON-COMMUNICATING RUDIMENTARY UTERINE HORN (ESHRE/ESGE U4A) MIMICKING ADNEXAL ECTOPIC GESTATION: DIAGNOSTIC CHALLENGE AND INDIVIDUALIZED SURGICAL MANAGEMENT.

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Introduction. Ectopic pregnancy in a rudimentary uterine horn represents a rare and severe form of extrauterine implantation associated with a Müllerian anomaly classified as hemiuterus (ESHRE/ESGE Class U4a). Its estimated incidence ranges from 1 in 76,000 to 150,000 pregnancies, while hemiuterus occurs in approximately 0.1% of the female population. Hypoplastic myometrial structure and aberrant vascularization significantly increase the risk of early rupture and massive intra-abdominal hemorrhage. Preoperative diagnosis remains challenging, as clinical and imaging findings frequently simulate adnexal ectopic pregnancy.

Case presentation. A 32-year-old nulliparous woman was admitted with acute pelvic pain and vaginal bleeding. Clinical examination revealed localized pelvic tenderness without hemodynamic instability. Transvaginal ultrasound suggested left adnexal ectopic pregnancy (~26 mm) associated with an ovarian cystic formation (~22 mm). Due to the lack of definitive topographic confirmation, diagnostic laparoscopy was performed to precisely identify the implantation site.

Discussions. Laparoscopic exploration revealed a highly vascularized non-communicating rudimentary uterine horn (~50×30 mm) containing gestational tissue. The ipsilateral fallopian tube was intact, and the ovary presented a cystic lesion; contralateral adnexa were unremarkable. The initial suspicion of adnexal implantation proved inaccurate. Marked vascular supply and thinning of the myometrium indicated a high risk of rupture, necessitating conversion to Pfannenstiel laparotomy. Complete excision of the rudimentary horn and fertility-preserving ovarian cystectomy were performed. Histopathological examination confirmed ectopic implantation within a rudimentary uterine horn (ESHRE/ESGE U4a), demonstrating hypoplastic disorganized myometrium, hemorrhagic areas, and ischemic chorionic villi.

Conclusions. Ectopic pregnancy in a rudimentary uterine horn may clinically and sonographically mimic adnexal ectopic pregnancy, leading to significant diagnostic complexity. The occurrence of gestation in a non-communicating rudimentary horn is believed to result from transperitoneal migration of gametes, despite the absence of direct uterine cavity communication. Precise identification of the implantation site and careful intraoperative risk assessment are essential for selecting the appropriate surgical approach, preventing life-threatening hemorrhage, and preserving reproductive potential.

Keywords. Ectopic pregnancy; rudimentary uterine horn; hemiuterus U4a; Müllerian anomaly.

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55. ADVANCES IN UNDERSTANDING AND MANAGEMENT OF JUVENILE IDIOPATHIC ARTHRITIS – ASSOCIATED UVEITIS

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Introduction. JIA-U is the most common extra-articular manifestation of JIA and a major cause of visual impairment in children. Often frequently asymptomatic in the early stages, leading to a delayed diagnosis and high risk of irreversible ocular complications.

Aim of study. To review the current updates on Juvenile Idiopathic Arthritis – Associated Uveitis throughout 2020 to 2025, while also highlighting the existing research gaps and clinical management challenges.

Methods and materials. A narrative literature review of studies published between 2020 to 2025 was conducted using data from PubMed, the Juvenile Arthritis Research Project (JAR Project), and Institutional publications from University of Liverpool. Additional evidence was obtained from proceedings and abstracts presented at the European Paediatric Rheumatology Congress (PReS). Reviews of cohort studies, systemic reviews and epidemiology-focused clinical trials, risk factors, diagnostic tools and therapeutic outcomes in JIA-U were included and qualitatively synthesized.

Results. JIA-U holds a global prevalence of approximately 12.7%, with ranges higher in European and North American Populations. The mainly identified risk factor being the early onset of JIA, Oligoarticular subtype and antinuclear antibody (ANA) positivity. JIA appears to be chronic, bilateral anterior uveitis and often asymptomatic, highlighting the importance of structured ophthalmologic screening programs. Recent advances include laser flare photometry enabling assessment of ocular inflammation, emerging biomarkers like S100A8/A9 proved useful in monitoring. Treatments improve with biologics, TNF-a inhibitors like Adalimumab. Additionally, JAK inhibitors like Rituximab and Abatacept offer more benefits.

Conclusions. Good progress in understanding and management of JIA-U between 2020-2025 has been considerably achieved. Early screening, multidisciplinary care and biologic therapies have significantly lowered risk of a severe visual impairment. However, more randomized controlled trials, validation of biomarkers and development of personalized treatment strategies are required to optimize long term outcomes.

Keywords. Juvenile idiopathic arthritis, Uveitis, Visual Impairment, TNF-a and JAK inhibitor, biologic therapy.

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56. IMPACT OF GADGETS ON PHYSICAL DEVELOPMENT IN CHILDREN.

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Introduction. Rapid increase in handheld device use has changed play, sleep, posture, and activity patterns in childhood. Systematic reviews and longitudinal cohorts link greater daily screen time to reduced physical activity, higher adiposity, delayed motor and language milestones in early childhood, and sleep disruption related to evening device use.

Aim of study. To synthesize recent evidence on how gadget exposure affects physical development (motor skills, posture, physical activity/BMI, and sleep) in children aged 0–12.

Methods and materials. A narrative literature review of peer-reviewed systematic reviews, meta-analyses, cohort and cross-sectional studies (2010–2025). Databases reviewed: PubMed, PMC, and major journals. Inclusion: studies reporting objective or validated measures of motor development, BMI/adiposity, physical activity, posture, or sleep in relation to quantified screen time. Exclusion: studies of exclusively educational-app efficacy without physical outcomes. Key sources included a systematic review-of-reviews and longitudinal cohort analyses.

Results. Physical activity and adiposity: Moderately strong evidence that higher screen time associates with lower physical activity and greater obesity/adiposity. Mechanisms include time displacement and energy-dense snacking during screen use. Effect sizes vary by age and study design. Motor development and skills: Longitudinal analyses show higher screen time at 24–36 months predicts poorer developmental screening scores and lower motor-task performance; younger children (<3 years) are most affected. Experimental evidence suggests displacement of practice (walking, drawing) as a plausible mechanism. Posture and musculoskeletal outcomes: Cross-sectional studies report associations between prolonged device use and forward head posture, neck/shoulder pain, and reduced postural endurance in school-age children; longitudinal causality remains limited. Sleep: Evening screen exposure delays sleep onset and reduces sleep quality via melatonin suppression and cognitive/emotional arousal; effects are stronger with interactive content and in younger children. Evidence on blue-light intensity versus content effects is evolving.

Conclusions. Current evidence indicates excessive gadget use correlates with reduced physical activity, higher adiposity risk, poorer early motor development, postural strain, and sleep disruption particularly in children under 3 years. Recommendations: limit non- educational screen time per age-specific guidelines, prioritize active play, remove screens at bedtime, and encourage caregiver co-viewing and physical alternatives. High-quality longitudinal and interventional studies with standardized motor assessments are needed to define causal thresholds and effect sizes.

Keywords. screen time, motor development, children, physical activity, sleep.

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57. MENOPAUSE AS A MULTIDIMENSIONAL ENDOCRINE TRANSITION SHAPING WOMEN'S HEALTH AND QUALITY OF LIFE

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Introduction. Menopause represents an endocrine transition characterized by the cessation of ovarian follicular activity and menstrual cycles during the last twelve months. The median age at menopause is approximately 50-52 years. More than 1.2 billion women worldwide are currently living in the postmenopausal stage. It should be understood as a multidimensional medical, psychological, and social phenomenon with implications for quality of life.

Aim of the study. To assess symptoms and management of menopause, and its impact on women's quality of life.

Methods and materials. A narrative review of data published between 2020 and 2026 was conducted using the PubMed, ScienceDirect, and SpringerLink databases. Original research articles, systematic reviews and meta-analyses were included.

Results. The estrogen deficiency disrupts hypothalamic thermoregulatory centers, serotonergic and dopaminergic neurotransmission, lipid metabolism, endothelial function, and bone remodeling. Approximately 75-85% of women experience vasomotor symptoms. Genitourinary syndrome develops in 40-60%. Depressive symptoms are reported by 15-25%, and cognitive complaints by up to 60%. Sleep disturbances and sexual dysfunction frequently coexist. Annual bone loss rates are approximately 2-3%. Lifetime fracture risk approaches 40% after the age of 50. The prevalence of metabolic syndrome is estimated at 35-45%, with a 15-20% higher risk of type 2 diabetes, and the rising incidence of cardiovascular disease. Up to 20% of working women report decreased productivity or absenteeism, underscoring the socioeconomic implications. Cultural stigma portraying menopause as a decline or loss of femininity contributes to diminished self-esteem. Recent evidence shows that menopausal hormone therapy initiated within the first 10 years after menopause onset is associated with significant symptom relief and improved quality of life. A study conducted on 245 postmenopausal women evaluated the impact of symptoms on quality of life using the Menopause-Specific Quality of Life instrument. The findings demonstrated that the vasomotor and sexual domains were the most severely affected. Quality-of-life scores were significantly associated with lower socioeconomic status, occupation, extended family structure, longer duration of menopause, and higher body mass index. These results highlight that menopausal burden is shaped not only by endocrine mechanisms but also by social and clinical determinants.

Conclusions. Menopause represents a long-duration endocrine transition with well-defined neuroendocrine mechanisms and extensive multisystem consequences. The high prevalence of symptoms underscores menopause as a significant public health concern.

Keywords. menopause, neuroendocrine mechanisms, vasomotor symptoms, psychoemotional impact, quality of life.

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58. IMPACT OF HELICOBACTER PYLORI INFECTION ON PEDIATRIC PATHOLOGY

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Introduction. Helicobacter pylori is a Gram-negative, spiral-shaped, microaerophilic bacterium with a high affinity for the gastric mucosa. In 1982, Barry Marshall and Robin Warren demonstrated its role in the development of chronic gastritis and peptic ulcer disease. Currently, Helicobacter pylori infection is also recognized for its association with various extra-digestive manifestations. In recent years, scientific research on Helicobacter pylori infection in children has increased considerably, as untreated infection during childhood may persist into adulthood and subsequently contribute to gastric oncogenesis.

Aim of study. To evaluate the impact of Helicobacter pylori infection on digestive and extra-digestive pathology in children by analyzing current literature data regarding prevalence, clinical manifestations, and associated complications.

Methods and materials. A detailed analysis of scientific articles published over the last decade was conducted using the PubMed and Google Scholar databases, as well as ESPGHAN guidelines. Only English-language sources were included, such as literature reviews, retrospective studies, and meta-analyses. Studies not involving pediatric populations were excluded.

Results. Globally, the prevalence of Helicobacter pylori infection varies. In low-and middle-income countries, prevalence is significantly higher compared to highly developed countries (43.2% vs 21.7%), and approximately 32.3% of children worldwide are infected. Most infected children are asymptomatic (85%), while some present with non-specific symptoms or manifestations potentially associated with complications. Digestive symptoms may include nausea, epigastric pain, heartburn, halitosis, and regurgitation. Moreover, Helicobacter pylori infection is increasingly implicated in extra-digestive conditions such as iron-deficiency anemia, vitamin B12 deficiency anemia, chronic immune thrombocytopenic purpura, and growth retardation. Infection during pregnancy has also been associated with an increased risk of spontaneous abortion, fetal growth restriction, and congenital malformations.

Conclusions. Helicobacter pylori infection significantly impacts pediatric health. Early identification, appropriate treatment, and monitoring of antibiotic resistance are essential to prevent complications and maintain optimal child health. Further studies are needed to clarify the relationship between infection and extra-digestive manifestations in children.

Keywords. Helicobacter pylori, children, gastritis, extra-digestive manifestations.

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59. PRETERM PREMATURE RUPTURE OF AMNIOTIC MEMBRANES AT 23–24 WEEKS OF GESTATION: CONSERVATIVE MANAGEMENT AND PERINATAL OUTCOMES AT BIRTH

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Introduction. Preterm Premature Rupture of the Amniotic Membranes (PPROM) is the spontaneous rupture of the amniotic sac before 37 weeks of gestation, occurring prior to the onset of labour, which is observed in approximately 2–3% of pregnancies and accounts for 30–40% of preterm births. PPROM at the threshold of fetal viability is rare and poses significant clinical and ethical challenges.

Case presentation. Patient X presented on March 16, 2024, with leakage of amniotic fluid starting at 07:30. Established diagnosis: Pregnancy at 24 weeks and 4 days of gestation, dichorionic diamniotic twin pregnancy, uterine scar from previous cesarean section, preterm premature rupture of membranes (PPROM). Ultrasound on the same day confirmed a dichorionic diamniotic twin pregnancy corresponding to 23 weeks and 3 days of gestation, with estimated fetal weights of 571 g and 615 g. Conservative management was initiated and continued until May 16, 2024, when labor began. An urgent cesarean section was performed to deliver the twins. At 16:40, the first live male infant was delivered, weighing 2000 g, with an Apgar score of 6/7. One minute later, a second live male infant was delivered, weighing 1950 g, also with an Apgar score of 6/7. Despite the extremely early onset of membrane rupture and the associated high risks, with the support of a multidisciplinary team, both neonates successfully overcame the critical neonatal period. At present, they are healthy, active, and developing normally, with no clinical or neurological abnormalities.

Discussions. PPROM at the edge of fetal viability is uncommon and presents complex clinical and ethical challenges. Decisions must balance maternal and neonatal risks, requiring careful monitoring and timely interventions. In this case, conservative management allowed prolongation of gestation and close surveillance, highlighting the importance of early multidisciplinary involvement in high-risk pregnancies.

Conclusions. Conservative management of extreme preterm PPROM can result in favorable neonatal outcomes. Early multidisciplinary care, vigilant monitoring, and timely cesarean delivery were key to the successful survival and healthy development of both infants. This case highlights that even in high-risk pregnancies, individualized management strategies may result in healthy neonatal survival and normal development.

Keywords. PPROM, duplex, preterm birth, conservative management.

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60. CONTEMPORARY EVIDENCE IN REPRODUCTIVE ISSUES AND INNOVATIVE TOOLS IN POLYCYSTIC OVARY SYNDROME

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Introduction. Polycystic ovary syndrome (PCOS) represents a major reproductive health concern due to its significant impact on fertility and quality of life, affecting approximately 6-10% of women of reproductive age. The diversity of its clinical presentation requires individualized diagnostic and therapeutic approaches.

Aim of study. The aim of this study is to review the clinical, metabolic, and reproductive aspects of PCOS, focusing on its impact on fertility.

Methods and materials. A narrative review was conducted through a structured search of the PubMed, ScienceDirect. and Oxford Academic databases. Original studies, systematic reviews, meta-analyses, and clinical guidelines published between 2020 and 2026 were included. Search terms comprised "polycystic ovary syndrome," "infertility," "ovulation," "anti-Müllerian hormone," and "gut-brain-ovary axis." A total of 25 peer-reviewed articles were selected.

Results. PCOS is characterized by hyperandrogenism, ovulatory dysfunction, and altered ovarian morphology, frequently associated with insulin resistance, obesity, and dyslipidemia. These factors alter the normal function of the hypothalamic-pituitary-ovarian axis, negatively affecting follicular development and the receptivity of the endometrium. Recent studies support the involvement of anti-Müllerian hormone (AMH) in modulating hypothalamic-pituitary-ovarian function, suggesting that elevated AMH levels may alter gonadotropin-releasing hormone (GnRH) pulsatility, leading to excessive luteinizing hormone secretion and persistence of hyperandrogenism and anovulation. Emerging data highlights the influence of gut microbiota through the gut-brain-ovary axis on metabolic homeostasis, inflammation, and neuroendocrine regulation. Intestinal dysbiosis may interfere with GnRH signaling pathways. The Global Burden of PCOS-Related Infertility Study (2025) provided the first comprehensive assessment of reproductive outcomes associated with PCOS, analyzing data from 204 regions (1990-2021) and projecting a rising prevalence up to 2042, with significant variations by age, phenotype, and geographic region. Additionally, the Multi-Agent PCOS Intelligent System (MAPIS), an AI-based model, supports clinical decision-making by integrating endocrine parameters, imaging data, and differential diagnosis in accordance with international guidelines.

Conclusions. PCOS is a complex endocrine disorder affecting reproduction. Current evidence indicates that PCOS-related infertility arises from interconnected neuroendocrine and metabolic mechanisms. AMH dysregulation and the gut-brain-ovary axis offer novel perspectives for personalized management strategies. Integrated care and Al-based tools may enhance patient-centered decision-making and optimize reproductive outcomes.

Keywords. polycystic ovary syndrome, ovulatory dysfunction, anti-Müllerian hormone, ovulation induction, gut-brain-ovary axis.
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61. ARTIFICIAL INTELLIGENCE IN FIRST-TRIMESTER SCREENING FOR CHROMOSOMAL ANOMALIES

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Introduction. First-trimester screening for chromosomal anomalies typically combines maternal age, fetal nuchal translucency thickness, and maternal serum markers such as pregnancy-associated plasma protein A and free beta-human chorionic gonadotropin. The integration of artificial intelligence into obstetric practice offers the potential to analyze these parameters together with ultrasound findings in order to improve the accuracy of early detection.

Aim of study. To evaluate the performance of an artificial intelligence model in first-trimester screening for chromosomal anomalies and to compare it with conventional combined screening methods.

Methods and materials. A prospective pilot study was conducted on 48 pregnant women between 11 weeks and 13 weeks plus 6 days of gestation. Each patient underwent ultrasound evaluation including crown–rump length, nuchal translucency thickness, nasal bone assessment, and Doppler evaluation of blood flow in the ductus venosus. Maternal serum markers were analyzed. An artificial intelligence model was used to integrate maternal demographic data, biochemical markers, and ultrasound findings, and its performance was compared with conventional risk calculation methods.

Results. The artificial intelligence model demonstrated a sensitivity of 92% and a specificity of 90% in detecting chromosomal anomalies, compared with 83% sensitivity and 80% specificity achieved by the conventional combined test. The inclusion of Doppler parameters further improved the diagnostic performance.

Conclusions. Artificial intelligence may enhance the accuracy of first-trimester screening for chromosomal anomalies, allowing earlier and safer patient counseling. However, larger studies are required to validate these preliminary findings.

Keywords. Artificial intelligence First-trimester screening Chromosomal anomalies.

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62. FROM ENDOCRINE DISORDER TO SURGICAL EMERGENCY: OVARIAN CYST RUPTURE IN UNTREATED POLYCYSTIC OVARY SYNDROME

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Introduction. Ovarian cysts represent encapsulated fluid collections that are categorized as functional and non-functional. Functional cysts emerge in the association with the physiological phases of the menstrual cycle, and can regress without intervention over a defined period. The non-functional ones, also called hemorrhagic can lead to complications like rupture, hemorrhage, hemoperitoneum, torsion, and require immediate clinical attention.

Case presentation. A 20 years-old nulliparous woman was admitted to the Institute of Emergency in November, 2025 with complaints: acute pain in the suprapubian region with irradiation to the rectum. The symptoms had an insidious onset at 03.00 a.m. and started after sexual intercourse, accompanied with nausea, dizziness, and general weakness. The patient had a history of irregular menstrual cycles, specific to polycystic ovary syndrome (PCOS), diagnosed 3 years ago, for which she didn't follow any long-term treatment. Physical examination at admission revealed signs of positive peritoneal irritation. The blood work indicated leucocytosis (14.46 x 10 9), and onset of anemia - hemoglobin 113 g/L and the hematocrit - 34.8%. Ultrasound findings showed an enlarged right ovary (55x40mm), with a hemorrhagic cyst of 40 mm, with signs of apoplexia and free fluid in the Morrison and Douglas space (800-1000 ml). Emergency surgery was performed, via Pfannenstiel laparotomy, revealing a 600 ml hemoperitoneum and a 6.0 x 5.0 cm cyst, on the right ovary, partially erupted, with active hemorrhage. The capsule was incised, the cyst was excised intact, ensuring the ovary remains fully functional.

Discussions. Ovarian cyst rupture is a gynecological emergency that can be caused by biomechanical factors, such as sexual intercourse - heightened intraabdominal pressure. In the case of patients with PCOS, the risk is amplified by the hormonal dysregulations and the fragility of the follicles. PCOS is a complex endocrine disorder that affects women of reproductive age. It is mainly caused by the high pulsatility of gonadotropin releasing hormone, which with the help of the kisspeptin, neurokinin B, and dynorphin A neurons, catalyzes a downward spiral of reproductive disruptions. This sustained pathological stress triggers a self perpetuating cycle of hyperandrogenism, weakening the follicular wall, and priming ovarian cyst formation.

Conclusions. In conclusion, hemorrhagic ovarian cyst rupture signals a serious gynecological crisis. The purpose of this case study is to emphasize that PCOS is not to be treated as a reproductive disorder but a complex endocrinopathy with potentially severe surgical risks. Ongoing, sustained management protocols are crucial for balancing hormones and safeguarding ovarian stability, preemptively avoiding complications like ovarian hemorrhage.

Keywords. PCOS, ovarian cyst, rupture, hyperandrogenism.

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63. MACROSOMIC FETUS AND VAGINAL DELIVERY – CHALLENGES AND OPTIONS

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Introduction. The prevalence of fetal macrosomia in the Republic of Moldova has been estimated at around 5% of births, being associated with gestational or pregestational diabetes, maternal obesity or excessive weight gain, post-term pregnancy, multiparity, a history of macrosomia, male fetal sex. Antenatal diagnosis is based on clinical and ultrasonographic criteria; however, fetal weight is often underestimated.

Case presentation. A 35-year-old woman was hospitalized at the Municipal Clinical Hospital "Gh. Paladi" on 14.01.26 with the diagnosis of 41 weeks of gestation, gravida III, para II, first stage of labor, suspected fetal macrosomia. The patient reported regular uterine contractions 3 in 10 minutes, lasting approximately 30 seconds. According to the obstetric history, the previous two children were delivered vaginally, with birth weights between 4000-4200 g, both male, and the deliveries were complicated by perineal laceration. The estimated fetal weight based on the clinical and ultrasound examination was approximately 4500 g. Vaginal examination revealed a centered, soft, effaced cervix, dilated to 5 cm, with the fetal head engaged at the pelvic inlet. Considering the above data, the decision was made to proceed with vaginal delivery under continuous maternal and fetal monitoring. During labor, due to stronger uterine contractions and maternal exhaustion, the anesthesiologist was consulted and epidural analgesia was administered. At 14:24 a male newborn was delivered, weighing 5020 g, with a length of 62 cm, head circumference of 37 cm, chest circumference of 37 cm. The APGAR score was 9/10. The patient sustained a first degree perineal laceration at the site of a previous scar, which was repaired using a continuous absorbable suture (Vicryl).

Discussions. This case represents a special birth that highlights the professionalism of the medical team. The decision of delivering vaginally a macrosomic fetus depends on several factors: estimated fetal weight, fetal position, pelvic size and shape, labor progression, doctor's experience. The advantages of epidural analgesia include effective pain control during prolonged or difficult labor, facilitation of controlled delivery maneuvers in case of shoulder dystocia, and the possibility of rapid conversion to surgical anesthesia if necessary.

Conclusions. Vaginal delivery of a macrosomic fetus is associated with maternal complications (prolonged labor, perineal lacerations, postpartum hemorrhage, fetopelvic disproportion, emergency cesarean section) and fetal complications (shoulder dystocia, brachial plexus injuries, clavicle fracture, fetal asphyxia). In our case, the only complication recorded was a first-degree perineal laceration, suggesting a high level of competence of the maternity care team.

Keywords. Fetal macrosomia, vaginal delivery, risk factors, epidural analgesia, complications.

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64. BUILDING A DIGITAL BRIDGE IN INFERTILITY CARE: TELEMEDICINE AND ARTIFICIAL INTELLIGENCE IN MODERN REPRODUCTIVE MEDICINE

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Introduction. In the Republic of Moldova, the COVID-19 pandemic accelerated the implementation of digital solutions in healthcare, including the fields of gynecology and obstetrics. Telemedicine has become an essential tool in sexual and reproductive health, facilitating faster communication with patients seeking family planning services and providing support to couples diagnosed with infertility. Recent international studies indicate that artificial intelligence has made significant progress in the field of assisted reproductive technologies (ART), particularly in the selection of viable embryos.

Aim of study. This study aims to analyze the synergy among the gynecologist, artificial intelligence (AI), and telemedicine as a digital bridge connecting infertile couples with doctors, with a particular focus on initial assessment, decision-making support, and optimizing infertility management.

Methods and materials. This abstract is based on an analysis of recent scientific literature published between 2020 and 2026 on international scientific platforms. Several observational studies and reports have explored the implementation of teleconsultations, digital questionnaires, and AI-based algorithms in assisted reproductive technologies across various countries.

Results. The results of international studies indicate that teleconsultations can effectively replace traditional face-to-face consultations without compromising the outcomes of subsequent ART procedures, with comparable clinical pregnancy rates (≈ 35% vs. 36%). The integration of AI enables digital pre-anamnesis through structured questionnaires, identification of risk factors, and generation of a clinical summary. Studies suggest that digital tools may facilitate the disclosure of sensitive information compared to conventional physician–patient interactions by offering a suitable environment for discussing intimate and personal issues. In several countries where such technologies have already been implemented in ART, artificial intelligence is used to select viable embryos. According to one study, an AI-based algorithm identified the optimal embryo in 90% of cases, outperforming the predictive assessments of 15 experienced embryologists. Additionally, other findings indicate that AI can reduce the time to achieve pregnancy via ART by 12.2%.

Conclusions. Telemedicine and AI create an effective digital bridge between infertile couples and healthcare providers, contributing to equitable access, early assessment, and personalized infertility management. The integration of artificial intelligence into assisted reproduction laboratories may improve the accuracy and objectivity of embryo selection, thereby increasing implantation and pregnancy rates. Telemedicine and AI have the potential to become a modern standard of infertility care in the Republic of Moldova in the future.

Keywords. Infertility, Telemedicine, Artificial intelligence.

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65. UTERINE TRANSPLANTATION - SURGICAL INNOVATION IN REPRODUCTIVE MEDICINE

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Introduction. Absolute uterine factor infertility (AUFI) affects approximately 1 in 4,500 women and is defined by the inability to carry a pregnancy due to uterine absence or dysfunction. One of the main causes is Mayer-Rokitansky-Küster-Hauser (MRKH) syndrome. In contexts where surrogacy or artificial uterus technologies are inaccessible or legally restricted, uterine transplantation (UTx) has emerged as a groundbreaking reproductive option for women wishing to achieve biological motherhood.

Aim of study. The aim of this review is to analyze the evolution of uterine transplantation as a therapeutic option for women with absolute uterine factor infertility, highlighting both the surgical aspects of the procedure and the ethical challenges related to donor risk, reproductive autonomy, and access to this innovative treatment.

Methods and materials. This review analyzes the development of uterine transplantation from early clinical attempts to its current surgical protocols. It focuses on key surgical steps—including uterus retrieval (from living or deceased donors), vascular anastomosis, graft implantation, and postoperative management—alongside IVF strategies, immunosuppression, pregnancy monitoring, and delivery outcomes.

Results. As of 2024, over 100 uterine transplants have been performed globally, resulting in approximately 40 live births. Success rates are significantly higher in specialized centers, with manageable complications such as rejection and vascular thrombosis. Living donor UTx remains more frequent, though deceased donor transplantation is gaining momentum. Pregnancy is only achievable via IVF, with cesarean section as the standard delivery method. Most recipients undergo hysterectomy after childbirth to discontinue immunosuppression.

Conclusions. Uterine transplantation represents a major advancement in reproductive medicine, bridging solid organ transplantation and assisted reproductive technologies. Although still considered experimental in many countries, UTx offers new hope for women with AUFI. Future developments—including robotic surgery and bioengineered uteri—may eventually shift UTx from a pioneering intervention to a routine therapeutic option.

Keywords. Uterine transplantation, medical ethics, MRKH, live births.

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66. CHILDREN WITH EXTREMELY LOW BIRTH WEIGHT.WHO ARE THEY?

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Introduction. According to the World Health Organization, preterm birth and its complications remain the leading cause of death among children under five worldwide. Extremely low birth weight infants, defined as weighing less than 1,000 grams at birth, are among the most vulnerable neonatal groups and remain at high risk of death and long-term morbidity due to organ immaturity. Understanding maternal, placental, and fetal factors is essential for improving prevention and perinatal outcomes.

Aim of study. To identify clinical, historical, and obstetric factors associated with extremely low birth weight newborns and assess their impact on morbidity and mortality rates among newborns.

Methods and materials. The study is based on a descriptive analysis of the specialized literature and an analysis of current clinical evidence related to extremely low birth weight newborns. Scientific databases were consulted to identify relevant publications addressing epidemiology, maternal risk factors, placental pathology, and neonatal outcomes. Data were compiled to highlight key determinants and clinical implications. Statistical associations reported in the specialized literature were analyzed descriptively.

Results. The study mainly included mothers ≥30 years(66.3%; mean age 31.36±5.18), most from urban areas (86.25%) and monitored prenatally (93.75%). Maternal comorbidities were identified in 36.25%, mainly renal and infectious diseases(27.59% each), followed by cardiovascular (24.14%) and respiratory disorders (20.69%). Pregnancy complications occurred in 51.25%, predominantly hypertensive disorders of pregnancy (28.75%) and infections (20%). Placental pathology was identified in 62.5%, mainly placental insufficiency (44%). Fetal factors were present in 48.75%, mainly chronic fetal distress (58.97%) and intrauterine growth restriction (53.85%). Cesarean section predominated (61.25%). Mean gestational age was 25.96±1.32 weeks, most births occurring at 27 weeks (60%). Birth weight was 750–1000 g in 58.75% and 500–749 g in 41.25%. Survival was 52.5%. Neonatal complications included respiratory distress syndrome (97.6%), neonatal sepsis (40.5%), neurological complications in 47.6%, gastrointestinal complications (35.7%) and retinopathy of prematurity (31%).

Conclusions. Extremely low birth weight newborns represent a high-risk group among premature infants, resulting from the interaction between maternal diseases, placental dysfunction, and inflammatory mechanisms. Major factors include hypertensive disorders of pregnancy, placental insufficiency, infections, and premature rupture of membranes. They are characterized by severe prematurity, high mortality(47.5%), and significant neonatal morbidity associated with maternal comorbidities (36.25%), obstetric complications(51.25%), and placental disorders(62.5%).

Keywords. extremely low birth weight, prematurity, placental insufficiency, preeclampsia, neonatal morbidity.

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67. THE INTERDEPENDENCE BETWEEN THE PATHOGENETIC MECHANISMS OF ENDOMETRIOSIS AND THE DYNAMICS OF FEMALE REPRODUCTIVE DYSFUNCTION: AN INTEGRATIVE SYNTHESIS

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Introduction. Endometriosis is a chronic disease that impacts fertility and quality of life in 60-70% of diagnosed women. This study investigates the correlation between multifactorial interplay of chronic inflammation, oxidative stress, hypoxia, compromised endometrial receptivity, altered pelvic anatomy influencing reproductive capacity in affected women.

Aim of study. To explain the correlation between the pathogenetic mechanisms of endometriosis and the progressive decline of female fertility, through an integrative synthesis and analysis of the specialized literature.

Methods and materials. The study integrates a systematized synthesis of recent specialized literature (2020-2025), exploring the connection between the pathogenesis of endometriosis and female infertility. The identification of the 40 relevant scientific articles was facilitated by accessing academic reference platforms, such as PubMed, MedScape and Medline, aiming for an updated perspective on the phenomenon studied.

Results. The multifactorial pathogenesis of endometriosis (menstrual reflux, metaplasia, stem cells) directly correlates with infertility in 40-50% of cases. The mechanism is mediated by inflammation, oxidative stress and endometrial hypoxia, confirmed by increased serum and follicular levels of IL-1β, IL-6, IL-8, IL-12, IL-18 and malondialdehyde. Drop in superoxide dismutase and LIF associated with progesterone resistance and HOXA10 gene hypermethylation, compromise endometrial receptivity. The consequences include immune suppression (NK cells), oocyte incompetence (MII phase failure), decreased embryo quality and the establishment of peritoneal adhesions that impair embryogenesis, impede spermatozoa to attempt oocyte type II, disrupts implantation phenomenon.

Conclusions. The pathogenetic approach to the endometriosis-female infertility interrelationship may generate new therapeutic targets (such as selective estrogen receptor modulators, anti-TNF-α agents, stem cell therapy) to reduce the impact of the pathogenetic cascade dominated by inflammation, oxidative stress and hypoxia attributed to endometriosis.

Keywords. Endometriosis, female fertility, chronic inflammation.

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68. THE ROLE OF THE NURSE IN PERFORMING CERVICAL SCREENING

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Introduction. Cervical cancer is a major public health problem in the Republic of Moldova, where the standardized incidence is approximately 17.1/100,000 women, significantly exceeding the average of developed countries. Annually, about 300 women are diagnosed (one woman per day), and over 150 die due to detection in advanced stages. The success of screening programs depends on primary health care, where the nurse has a strategic role in mobilizing the population and ensuring the quality of the prevention process.

Aim of study. Evaluation of the role and level of involvement of family nurses in the organization and conduct of cervical screening. The objectives aimed to analyze the participation of nurses in specific activities, assess the degree of knowledge of protocols and identify institutional barriers.

Methods and materials. The study was a descriptive, cross-sectional study, conducted in 2026 by surveying a sample of N=70 nurses active in primary healthcare in the Republic of Moldova. Socio-professional variables were analyzed, such as the level of involvement of nurses, knowledge about the National Cervical Screening Program, part of the National Cancer Control Program 2022–2026, and perceived barriers in cervical screening activity.

Results. The reported level of involvement is high: 82.9% of respondents are involved “very much” in screening. The main activities include informing and educating patients (95.7%), scheduling for testing (81.4%) and preparing for collection (81.4%). From a knowledge perspective, 98.6% correctly identify the testing frequency every 3 years, but a gap was detected regarding the target group: 92.9% incorrectly indicated the age range 21–65 years, instead of the national age range of 25–61 years. The main barrier identified is patient reluctance, assessed as a moderate or major problem by 80% of the sample. Professional overload and lack of materials were considered minor or non-existent problems. Also, 88.6% of nurses consistently follow the asepsis protocol (IPC) during procedures.

Conclusions. The National Cervical Screening Program provides free access to cytology testing for women aged 25 to 61. It depends fundamentally on the proactive involvement of nurses. The family nurse acts as a true case manager, being responsible for educating the female population, rigorously managing monitoring lists and ensuring an environment of trust. The high level of theoretical knowledge identified among medical personnel with secondary education regarding screening frequency and methods confirms solid professional training. The discrepancies observed in the exact definition of eligible age groups, according to the National Program, suggest the need for a standardization of the information flow.

Keywords. Cervical cancer, Cervical screening, Family nurse , National Screening Program.

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69. THE USE OF ETHANOL SCLEROTHERAPY IN OVARIAN ENDOMETRIOMA- LITERATURE REVIEW

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Introduction. Endometrioma is the cystic form of ovarian endometriosis, known as the ”chocolate cyst”. It represents a cystic formation derived from the invagination of the ovarian cortex and the progressive accumulation of old menstrual blood. The lesion is delimited by a fibrous wall without a real capsule, which explains the difficulty of surgical dissection and the risk of accidental excision of healthy ovarian tissue. One of the treatment methods is represented by ethanol sclerotherapy, a minimally invasive procedure usually performed under transvaginal ultrasound guidance.

Aim of study. Analysis and systematization of data from the specialized literature regarding ethanol sclerotherapy in the treatment of ovarian endometrioma, highlighting the indications, advantages and limitations of the method.

Methods and materials. A literature review was performed using scientific articles from Google Scholar, The Lancet and ESHRE databases published in the last 10 years.

Results. The use of ethanol sclerotherapy in the treatment of ovarian endometrioma involved aspiration of the cystic contents followed by instillation of an ethanol solution into the endometrioma cavity, with the aim of destroying the endometriotic epithelium and sclerosing the cyst wall. The described technique consisted of evacuation with washing or with temporary retention (10 to 15 minutes) of ethanol and was assisted by ultrasound or laparoscopic guidance. Under ultrasound guidance, an aspiration needle was inserted through the posterior vaginal fornix into the cystic cavity, with aspiration of the fluid from the cavity. The laparoscopic approach allowed direct visualization of the cystic formation, aspiration of the contents under optical control, and instillation of ethanol into the endometrioma, being used especially in patients who required complete pelvic exploration or concomitant treatment of associated endometriosis foci. Also, ethanol sclerotherapy was highlighted as a conservative therapeutic alternative with minimal impact on the ovarian parenchyma. Unlike laparoscopic cystectomy, the method did not involve dissection of the ovarian cortex, which contributed to the preservation of ovarian reserve, alleviated pain, and achieved pregnancy rates comparable to surgical treatment. Moreover, the procedure was associated with a low risk of intraoperative complications, minimal blood loss and a short recovery time.

Conclusions. Sclerotherapy with ethanol represents a minimally invasive and conservative therapeutic option in the treatment of ovarian endometrioma, being associated with a minimal impact on the ovarian reserve. The method is particularly useful in patients with a desire for fertility and can be a valuable alternative to classical surgical treatment in selected cases.

Keywords. Ovarian endometrioma, ethanol sclerotherapy, ovarian reserve.

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70. ANTIPHOSPHOLIPID SYNDROME IN CHILDREN'S WITH SYSTEMIC LUPUS ERYTHEMATOSUS

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Introduction. Systemic lupus erythematosus (SLE) is a chronic autoimmune disease that affects multiple systems. About 15–20% of SLE cases begin in childhood, and the disease is frequently more severe in children than in adults. Antiphospholipid antibodies and clinical signs such as arterial or venous thrombosis are hallmarks of antiphospholipid syndrome (APS), an autoimmune prothrombotic illness. The most prevalent form of secondary APS in children is linked to SLE. Early detection and treatment are crucial since the coexistence of APS in pediatric SLE raises the risk of thrombotic, neurological, and hematological sequelae.

Aim of study. To evaluate the occurrence, clinical manifestations, and outcomes of antiphospholipid syndrome in children with systemic lupus erythematosus.

Methods and materials. A descriptive review of published literature was conducted using electronic databases including PubMed and Google Scholar. Data regarding clinical features, laboratory findings, thrombotic events, and outcomes were analyzed. Antiphospholipid syndrome was defined by the presence of thrombotic manifestations along with persistent positivity for antiphospholipid antibodies.

Results. Antiphospholipid antibodies were detected in approximately 30-40% of children with systemic lupus erythematosus, though only a proportion developed clinical APS. Venous thrombosis was more common than arterial thrombosis, with cerebral thrombosis and deep vein thrombosis being frequently reported. Hematological manifestations such as thrombocytopenia were common. Persistent antibody positivity was associated with an increased risk of thrombotic events. Early diagnosis and appropriate anticoagulant therapy were associated with improved outcomes.

Conclusions. Antiphospholipid syndrome is an important complication of pediatric systemic lupus erythematosus and contributes significantly to disease morbidity. Early detection and timely management are crucial to prevent thrombotic complications. Regular monitoring of antiphospholipid antibodies is recommended in children with SLE.

Keywords. Antiphospholipid syndrome, systemic lupus erythematosus, children, pediatric APS, thrombosis.

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71. CLINICAL AND EVOLUTIONARY FEATURES OF WHOOPING COUGH

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Introduction. Whooping cough is an acute contagious respiratory disease caused by the bacterium Bordetella pertussis and characterized by paroxysmal coughing episodes and a potentially severe clinical course. The disease predominantly affects infants and young children. Despite the implementation of vaccination programs worldwide, pertussis remains an important public health concern, with periodic outbreaks still being reported. The increased vulnerability of infants is mainly associated with immune system immaturity and incomplete or absent vaccination.

Aim of study. The aim of this study was to evaluate the clinical, epidemiological, and paraclinical characteristics of pertussis in hospitalized patients and to analyze the course of the disease in relation to age, vaccination status, and clinical manifestations.

Methods and materials. This retrospective study included the analysis of 46 inpatient medical records of patients hospitalized with confirmed pertussis. Data were collected from clinical records, laboratory results, imaging studies, and treatment records available in the institutional medical information system. The analyzed parameters included age, sex, place of residence, vaccination status, duration of symptoms before hospitalization, clinical manifestations, paraclinical findings, complications, and length of hospital stay.

Results. Demographic analysis revealed a relatively balanced sex distribution (22 male (47.83%), 24 female (52.17%). Most cases occurred in infants and young children, with two-thirds from rural areas. Clinically, the most frequent symptom was a paroxysmal cough. Among infants, episodes of apnea and cyanosis were common. The duration of symptoms prior to hospitalization averaged 17–20 days. Paraclinical investigations frequently revealed leukocytosis with lymphocytosis. Etiological confirmation was achieved by identifying IgM and IgG antibodies. Chest radiography revealed complications such as acute bronchitis and pneumonia, particularly in unvaccinated patients. Treatment included macrolides or cephalosporins, with a favorable clinical course and an average stay of 9–10 days.

Conclusions. In conclusion, pertussis continues to predominantly affect infants and young children, especially in the context of incomplete immunization. Early diagnosis and maintaining adequate vaccination coverage remain essential for preventing severe disease and limiting transmission.

Keywords. Whooping cough, Bordetella pertussis, infants, vaccination status, paroxysmal cough, clinical course, respiratory complications.

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72. JUVENILE IDIOPATHIC ARTHRITIS, SYSTEMIC FORM: EVOLUTION AND PARACLINICAL CHARACTERISTICS

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Introduction. Systemic juvenile idiopathic arthritis (sIA) is a rare and severe subtype of juvenile idiopathic arthritis, characterized by marked systemic inflammation, unpredictable course, and an increased risk of complications. Early diagnosis and proper monitoring of paraclinical parameters are essential for assessing disease activity and optimizing therapeutic management. Aim of the study: To evaluate the clinical course and paraclinical characteristics in pediatric patients diagnosed with systemic juvenile idiopathic arthritis.

Case presentation. The study included a cohort of 43 pediatric patients diagnosed with systemic juvenile idiopathic arthritis, hospitalized and monitored in a specialized medical institution. Clinical data, disease evolution, and paraclinical changes were analyzed, with emphasis on inflammatory markers (erythrocyte sedimentation rate, C-reactive protein), serum ferritin, and hematological parameters. Diagnosis was established according to ILAR criteria and the recommendations of the National Clinical Protocol of the Republic of Moldova.

Discussions. The analysis revealed a predominance of systemic manifestations at disease onset, associated with elevated inflammatory markers and increased serum ferritin levels. The clinical course was heterogeneous and influenced by the severity of systemic inflammation and response to treatment. Dynamic paraclinical monitoring allowed assessment of disease activity and early identification of complication risk.

Conclusions. Systemic juvenile idiopathic arthritis shows a heterogeneous evolution, and dynamic evaluation of paraclinical parameters plays a key role in the management of pediatric patients. Correlating clinical findings with biological changes contributes to individualized treatment and improved long-term prognosis.

Keywords. systemic juvenile idiopathic arthritis, disease course, paraclinical parameters, serum ferritin, systemic inflammation.

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73. ORGAN-ON-A-CHIP TECHNOLOGY IN THE STUDY OF ENDOMETRIOSIS – FROM PHYSIOLOGICAL RECONSTRUCTION TO PERSONALIZED TREATMENT

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Introduction. Endometriosis is a complex, estrogen-dependent inflammatory disease characterized by the presence of endometrial tissue outside the uterine cavity. To study this pathology, modern research utilizes Organ-on-a-Chip (OOC) systems, which are microfluidic devices that integrate micro-channel units and 3D live cell cultures to simulate the structure, function, and physicochemical microenvironment of human organs. Traditional models, such as 2D cultures or animal models, present major limitations, failing to replicate human 3D morphology and the specific progression of lesions. In contrast, OOC platforms allow for the dynamic simulation of disease-specific cellular interactions.

Aim of study. This review analyzes the advancements of OOC systems in modeling endometriosis, focusing on construction methods, the simulation of pathophysiology, and the testing of personalized therapeutic interventions.

Methods and materials. A structured literature search was performed using PubMed. Search terms included: „Endometriosis", „Organ-on-a-chip", „Microfluidics". We selected 10 studies that were observational and experimental, and relevant reviews published in the last 10 years. Data extraction focused on microfluidic devices that integrate primary endometrial epithelial cells, stromal cells, and vascular networks. Their construction utilizes 3D bioprinting and biocompatible materials, such as polydimethylsiloxane (PDMS) or hydrogels like collagen, to recreate the extracellular matrix. Studies centered exclusively on conventional surgical or hormonal management, animal-only models, articles that did not incorporate microfluidic perfusion or mechanical strain and studies published outside of the temporal frame were excluded.

Results. Endometrial chips successfully reproduce the spatial organization of epithelial and stromal layers, responding cyclically to hormonal stimuli. Advanced models allow for the observation of ectopic cell invasion; for example, demonstrating an increase in β-catenin nuclear translocation under IL-1β stimulation. In treatment testing, OOC systems enable the quantitative analysis of drug efficacy by monitoring real-time cell viability and cytokine secretion.

Conclusions. OOC systems offer superior biological fidelity compared to conventional models, proving essential for understanding mechanisms of invasion and endometrial receptivity. Despite challenges regarding the absorption of steroid hormones in materials like PDMS, this technology promises to revolutionize precision medicine by enabling drug testing directly on patient-derived cells.

Keywords. Endometriosis, Organ-on-a-chip, Microfluidics.

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74. IMPACT OF GESTATIONAL DIABETES MELLITUS ON MATERNAL RISK FACTORS AND PERINATAL OUTCOMES: A RETROSPECTIVE STUDY

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Introduction. Gestational diabetes mellitus (GDM) is one of the most common metabolic complications of pregnancy and represents an important cause of maternal and neonatal morbidity. The increasing prevalence of obesity, advanced maternal age, and lifestyle-related metabolic disorders has contributed to the growing incidence of GDM worldwide. Maternal hyperglycemia during pregnancy alters the intrauterine metabolic environment, which may lead to fetal hyperinsulinism and a higher risk of adverse perinatal outcomes.

Aim of study. The aim of this study was to assess maternal risk factors associated with gestational diabetes mellitus and to evaluate its impact on perinatal outcomes.

Methods and materials. A retrospective study was conducted on 100 pregnant women admitted to the Municipal Clinical Hospital "Gh. Paladi" between 2023 and 2025. The study group included 50 patients diagnosed with gestational diabetes mellitus, while the control group consisted of 50 pregnant women without GDM. Clinical and obstetric data were collected from medical records and analyzed using Microsoft Excel and SPSS 22. Maternal demographic characteristics, body mass index, obstetric history, and neonatal outcomes were evaluated.

Results. Maternal age over 35 years and body mass index greater than 30 kg/m² were identified as the most significant risk factors associated with gestational diabetes. Pregnancies complicated by GDM were more frequently associated with fetal macrosomia and a higher rate of cesarean delivery compared with the control group. In addition, neonates born to mothers with gestational diabetes had a higher incidence of neonatal hypoglycemia and early adaptation disorders.

Conclusions. Gestational diabetes mellitus has a significant impact on pregnancy evolution and perinatal outcomes. Early identification of high-risk pregnancies, appropriate screening strategies, and optimal metabolic management during pregnancy are essential for reducing maternal and neonatal complications and improving perinatal prognosis.

Keywords. gestational diabetes mellitus, perinatal outcomes, maternal risk factors, fetal macrosomia, neonatal hypoglycemia.

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75. CLINICAL AND THERAPEUTIC PERSPECTIVES ON ABNORMAL UTERINE BLEEDING IN ADOLESCENCE

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Introduction. Abnormal uterine bleeding (AUB) in adolescence represents a significant proportion of gynecological consultations. According to the International Federation of Gynecology and Obstetrics (FIGO), AUB is defined as bleeding that is abnormal in terms of regularity, frequency, volume, or duration within the previous six months. In adolescents, this condition is most commonly associated with immaturity of the hypothalamic-pituitary-ovarian axis. The reported prevalence reaches approximately 37%, exceeding that observed in non-menopausal adult women (16-25%).

Aim of study. To assess the main clinical characteristics and management of AUB in adolescents, as well as its association with somatic conditions.

Methods and materials. The study included 120 adolescent patients hospitalized for AUB in the Tertiary Perinatal Center, Institute of Mother and Child. The mean age was 14.4 years, with a mean age at menarche of 11.8 years and an average menstrual duration of 5.8 days. At admission, patients reported bleeding lasting a mean of 11.6 days. Pregnancy, systemic diseases, and genital tract pathology were excluded. All patients underwent clinical examination, laboratory investigations, hormonal profiling, and ultrasound evaluation.

Results. Hormonal assessment was performed in 105 patients (87.5%), with pathological findings identified in 26 cases (26.7%), a proportion consistent with recent literature emphasizing the contribution of endocrine dysfunction to adolescent AUB. The most frequently associated somatic conditions were anemia and neuroendocrine disorders, aligning with current evidence that highlights iron deficiency and hypothalamic-pituitary axis immaturity as key underlying mechanisms. Management included hemostatic therapy in 102 patients (85%), hormonal treatment in 49 (40.8%), antianemic therapy in 71 (59.2%), and analgesics in 19 (15.8%), reflecting guideline-recommended conservative approaches as first-line management in this age group. Hormonal therapy was prolonged in 68% of cases, supporting data from recent studies that indicate the need for sustained cycle regulation in adolescents with persistent anovulation. Rehospitalization due to persistent or recurrent symptoms occurred in 42 patients (35%), suggesting a substantial burden of chronic or relapsing AUB, as also reported in contemporary literature. Three patients required intensive care, with a mean duration of four days, underscoring that although rare, severe cases may lead to significant clinical instability.

Conclusions. AUB is a common condition in adolescence that requires careful evaluation and ongoing management. Neuroendocrine imbalance is frequently associated with this pathology. Although most patients respond well to conservative treatment, prolonged therapy and follow-up are often necessary.

Keywords. abnormal uterine bleeding, neuroendocrine disorders, hormonal therapy.

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