SCIENTIFIC CONFERENCE OF DOCTORAL SCHOOLS

BOOK OF ABSTRACTS

2025

SCDS-UDJG 2025
The 13th Edition,
GALATI, 12th-13th of June 2025

Universitatea "Dunărea de Jos"
din Galaţi

“DUNĂREA DE JOS”
UNIVERSITY OF GALATI
DOCTORAL SCHOOL OF BIOMEDICAL SCIENCES

BOOK of ABSTRACTS Scientific Conference of Doctoral Schools

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SECTION 8
RECENT THEORIES IN MEDICAL RESEARCH

PP.8.1.
Upper gastrointestinal bleeding in the context of severe burns – the role of the cutaneous and intestinal microbiome

Munteanu Lenuța (Ambrose)[a], Răuță Gabriela Isabela (Verga) [a], Cliveți Carmen Loredana (Petrea) [a], Hincu Maria Andrada a, Vodă Cristina (Chelmu Vodă) [a], Gurău Gabriela[a], Dinu Ciprian [a] , Mateescu Garofița [b], Mehedinți Mihaela Cezarina [a]

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Abstract
Severe burns are associated with extensive systemic dysregulation, including significant disruption of both the cutaneous and intestinal microbiome. These alterations contribute to an exaggerated inflammatory response, compromise epithelial barrier integrity, and increase intestinal permeability. Such conditions may predispose patients to stress-related mucosal damage and the development of upper gastrointestinal bleeding (UGIB), a frequent and severe complication in critically ill individuals.
This review synthesizes current findings on the interrelationship between severe burns, dysbiosis, systemic inflammation, altered intestinal permeability, and the risk of UGIB. Special attention is given to the potential role of probiotic therapy as an adjunctive strategy. Evidence from both experimental and clinical studies highlights a consistent correlation between post-burn dysbiosis and UGIB, mediated by inflammatory biomarkers (IL-6, TNF-α, LPS) and bacterial translocation.
Targeted modulation of the gut and skin microbiome emerges as a promising therapeutic direction with potential benefits in the prevention and management of post-burn gastrointestinal complications.
Keywords: microbiome, burns, dysbiosis, inflammation, upper gastrointestinal bleeding, probiotics, inflammation.

OP. 8.2.
Interactions between tissue healing and metabolism: leptin and angiogenesis in pediatric pathology

Vodă (Chelmu Vodă) Cristina [a*], Hîncu Andrada Maria [a], Munteanu (Ambrose) Lenuța[a], Ștefanopol Ioana Anca [a], Chiscop Iulia [a], Nechita Aurel [a], Mehedinți Mihaela – Cezarina[a]

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Abstract
Postoperative tissue healing involves complex biological processes, among which angiogenesis plays a key role in restoring local vascularization. Leptin, a hormone predominantly produced by adipose tissue, is involved not only in the regulation of energy metabolism but also in inflammatory and immunological responses. In children with obesity, these mechanisms may become disrupted, negatively influencing tissue regeneration and increasing the risk of postoperative complications.

Objectives. This paper aims to analyze the relationship between leptin and angiogenesis in the context of postoperative wound healing in obese children, with a focus on leptin's potential as a biomarker for delayed healing risk.
Materials and Methods. This study is presented as a **literature review,** based on the selection and analysis of recent articles from international databases (PubMed, Scopus, Web of Science). The review includes studies investigating the interactions between leptin, inflammation, angiogenesis, and tissue healing, with applicability to pediatric populations.
Results. The reviewed literature highlights a possible association between hyperleptinemia and impaired angiogenesis, particularly in the context of obesity. Elevated leptin levels have also been correlated with delayed wound healing and an increased risk of local postoperative complications.
Conclusions. Leptin may act as a modulator of postoperative tissue regeneration in pediatric patients. Its evaluation, alongside other inflammatory markers, could contribute to the personalization of postoperative care in obese children.
Keywords: leptin, angiogenesis, obesity, pediatric surgery, wound healing, inflammation, biomarkers, tissue regeneration

OP 8.3.

Multidrug-Resistant Gram-Positive Cocci in the Hospital Setting: A Review of Resistance Mechanisms, Nosocomial Pathogenesis, and Their Relevance to Sepsis-Associated Antimicrobial Resistance

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Abstract

Introduction: This study investigates the pathogenesis and resistance mechanisms of multidrug-resistant Gram-positive cocci, with a particular focus on methicillin-resistant Staphylococcus aureus (MRSA) and vancomycin-resistant Enterococcus species (VRE). These pathogens are major contributors to nosocomial infections and therapeutic failures. Gram-positive cocci are involved in nosocomial infections alongside Gram-negative bacilli, which are also significant contributors to antimicrobial resistance and sepsis. Research of this type is essential, as it contributes to the development of a unified conceptual framework that links microbial genetics, antimicrobial resistance evolution, and hospital-associated pathogenesis—an area where in-depth theoretical studies are still limited. **Material and Methods:** Data were collected over a ten-year period from peer-reviewed scientific literature, genomic databases, and clinical microbiology reports. The investigation followed a systematic and conceptually integrative approach. Comparative molecular analyses, resistance gene mapping, and theoretical modeling of bacterial evolution under antibiotic pressure were employed to identify and explain key mechanisms of resistance development and transmission. **Results:** The findings highlight two main aspects. First, the molecular basis of resistance—particularly the roles of mecA in MRSA and vanA/vanB in VRE—is central to the clinical challenges posed by these pathogens. Second, theoretical models developed in the study demonstrate how hospital environments contribute to the selection, persistence, and spread of resistant strains, through continuous selective pressure and ecological adaptation. **Conclusions:** This work offers a comprehensive conceptual model for understanding the emergence and maintenance of antimicrobial resistance in Gram-positive cocci. By integrating molecular data with theoretical frameworks, the study enhances our understanding of the complex interplay between bacterial evolution and hospital epidemiology.
Keywords: antimicrobial resistance, MRSA and VRE, Nosocomial pathogenesis

OP.8.4.

Interdisciplinary Theoretical Approaches in Rheumatoid Arthritis: Insights into Pathogenesis and Management

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Abstract

This paper presents the research on the interdisciplinary theoretical approaches related to the pathogenesis and therapeutic management of rheumatoid arthritis, a chronic autoimmune disorder with significant impact on quality of life and public health. The data were collected over a ten-year period, combining insights from immunology, rheumatology, molecular biology, and psychology, with a strong focus on the conceptual frameworks that inform diagnosis and treatment strategies. The investigation was systematic and complex. Utilizing qualitative and quantitative research methods, including comparative literature analysis, theoretical modeling, and clinical pattern correlation, the study explores the integration of various disciplinary perspectives. This work highlights two major aspects: the first concerns the evolving understanding of autoimmune mechanisms and genetic predispositions in the pathogenesis of rheumatoid arthritis; the second emphasizes the theoretical models that support the development of personalized and multidisciplinary therapeutic strategies. Research of this type is particularly valuable, as it addresses the lack of unified theoretical models that can effectively bridge the gap between biomedical knowledge and clinical practice in managing rheumatoid arthritis.

Keywords: rheumatoid arthritis, interdisciplinary approaches, pathogenesis and management

OP.8.5.

Early Risk Prediction of Cardiogenic Shock in STEMI

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Abstract

Background: Cardiogenic shock remains one of the most serious complications of ST-segment elevation myocardial infarction (STEMI), with high mortality rates despite significant progress in diagnosis and treatment. Methods: We conducted a retrospective observational study including 160 patients diagnosed with STEMI complicated by cardiogenic shock, admitted to the Cardiology Department of the University Emergency Hospital Bucharest between 2019 and 2022. The main goal was to identify early clinical and paraclinical risk factors for progression to cardiogenic shock. Results: The most relevant early predictors for developing cardiogenic shock in STEMI patients were Killip class, age, ECG rhythm, time from symptom onset, and sex. Conclusions: The prognosis of STEMI patients at

risk for cardiogenic shock can be influenced by paying closer attention to the early evaluation phase—an aspect that is often underestimated in clinical practice.

Keywords: risk prediction**,** cardiogenic shock, myocardial infarction.

OP.8.6.

The application of the principles opalitaive care in the case of the patients with thrombolised stroke and inflammatory syndrome markers with degenerative neurologic comorbidities

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Abstract

The evaluation of the patients with thrombolysed stroke which have also other neurologic degenerative comorbidities before the stroke has a great impact on the patient and the family and the health care systems . We analysed the four dimensions of the specific care which are the physical, the psychoemotional, the social and spiritual dimension.

Material and Methods: The aggravation of the disease after the thrombolysis or the maintenance of the gravity of the disease generates the hpeless feeling and a nonlinear clinical picture with a very imprecise prognostic and with the serious limitation of the patients autonomy and also the autonomy of the hole family. Paliative care has the objective to ameliorate the pain of the inpatients and after getting home the monitoring of the vital signs, the monitoring of the correct administration of medication, the understanding by the family members the medical decisionis and the reason of each medical intervention , the raise of the trust and the responsibilities of most of the family members of the thrombolysed patients which have also inflammatory syndrome concurrent to their diseases. This data weranalysed from the patients which were admitted to the County Hospital of Brăila and which benefit from thrombolysis in the period 2024 with inflammatory syndrome and denerative nervous comorbidities like Parkinson disease and dementia.

Results: The management of the palliative care of the patients with thrombolysed stroke and demenitia or Prkinson disease needs a multidisciplinary team and the correct evaluation of the patients needs toward the treatment of the pain, the nutrition and the capacity to have a greater autonomy for the patients.

Conclusions: The inflammatory syndrome determines the aggravation fot eh associated symptomatology to thromobolysis after the stroke accident and the amplification of the impact produced by the chronic degenerative diseases. The amelioration fot the inflammatory syndrome lowers the number of in hospital days stay, reduces the use of antibiotics, reduces the suffering of the patients and of the family and helps to have more quality time spent with the family which will be happy for each step made by the patient and for each sunshine day.

Keywords: stroke, inflammatory, degenerative neurologic diseases, thrombolysis

OP 8.7.

Mental Haelth Disorders Occurring InThe Postpartum Period After Premature Birth

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Abstract

Premature birth is the leading cause of perinatal morbidity and mortality. One in five mothers in developing countries has a mental health problem; im developed countries on in ten mothers have this problem.The birth of a child can trigger a mix of emotions, from joy and excitement to anxiety and fear.

Material and method: Data from the observation sheets from the Braila County Emergency Hospital , building D, were analysed with regard to the occurrence of postnatal depresionin patients who gave birth prematurely and a hierarchy of each type of condition was attempted in this context. We discuss situations encountered in our daily practice regarding the occurrence of behavioral changes in mothers who gave birth prematurely.

Result: The analysis of the collected data highlights the need to implement information programs for future mothers about exogenous factors that may increase the risk of premature birth and implicitly the occurrence of behavioral changes immediately after birth.

Conclusions: Interdisciplinary cooperation is a success factor in the treatment of these pathologies with possible negative implications for the family, the mother and the newborn. The timely identification of these conditions by the obstetrician and the referral of patients to a psychologist or psychiatrist lead to the initiation of correct treatment.

Keywords: premature birth, stillbirth, postnatal depression, interdisciplinary.

OP 8.8.

Integrating serum and urinary biomarkers in the differential diagnosis of hyponatremia in MIS-C

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Abstract

Background: Hyponatremia is a common finding in children with multisystem inflammatory syndrome (MIS-C), yet its underlying mechanisms remain heterogeneous and clinically challenging. Differentiating between SIADH, hypovolemia, and renal sodium losses is essential for proper management and fluid therapy.

Objective: To assess the diagnostic utility of integrating serum and urinary biomarkers, including serum sodium, serum and urinary osmolality, and urinary-to-plasma sodium ratio (U/P ratio), in distinguishing the etiology of hyponatremia in pediatric MIS-C cases.

Methods: We conducted a secondary analysis on a nested subcohort of 53 patients diagnosed with MIS-C, integrating clinical and laboratory parameters. Specific focus was placed on the U/P sodium ratio and its discriminative value when combined with serum osmolality and natremia levels. A diagnostic framework was developed to differentiate between SIADH, hypovolemia, and renal salt wasting.

Results: A U/P sodium ratio >1.5 combined with serum osmolality <270 mOsm/kg and inappropriately high urinary osmolality was highly predictive of SIADH. In contrast, low U/P ratio with elevated urea and signs of dehydration suggested hypovolemia-related hyponatremia. Receiver operating characteristic (ROC) analysis confirmed the added value of integrated biomarker profiling over isolated parameters.
Conclusion: The integration of serum and urinary biomarkers provides a reliable, non-invasive diagnostic tool to differentiate hyponatremia phenotypes in MIS-C. This approach supports individualized fluid management strategies and highlights the utility of the U/P sodium ratio in daily pediatric practice.
Keywords: Hyponatremia, MIS-C, Urinary biomarkers, Differential diagnosis

PP 8.9.

The therapeutic potential of hippophaerhamnoides in the management of inflammatory skin disorders

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Abstract
Wound healing and restoration of skin homeostasis are complex biological processes, dependent on a finely regulated interaction between skin cells, inflammatory mediators and growth factors. In chronic dermatological conditions, such as psoriasis, atopic dermatitis, diabetic ulcers or post-burn lesions, this dynamic is deeply disturbed, which requires the development of multifactorial therapeutic approaches. Controlling inflammation and restoring the skin barrier function are essential pillars in the management of these conditions.
In this context, Hippophaerhamnoides (sea buckthorn) has attracted increased interest in the scientific literature, being investigated for its anti-inflammatory, antioxidant and regenerative properties. The oil extracted from the fruits and seeds of this plant contains a diverse range of essential fatty acids (especially omega-3, omega-6 and omega-7), vitamins (A, E, K) and phytonutrients with significant biological potential.
Preclinical and clinical studies suggest that these compounds may contribute to reducing skin inflammation, improving erythema and strengthening the epidermal barrier, which gives sea buckthorn oil a favorable profile for inclusion in dermato-cosmetic and skin care therapies.
Keywords: Hippophaerhamnoides, skin lesions, erythema inflammation, antioxidant

OP 8.10.

Microscopic study of mucus-secreting cells in the intestine across different age groups

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Abstract
This paper presents research on the morphological and functional characteristics of goblet cells in the human small intestine mucosa, focusing on the histochemical analysis of the mucus secreted and the dynamics of these cells across different age groups.

The study employed classical staining methods, as well as advanced histochemical techniques, to highlight the mucus and both acidic and neutral mucopolysaccharides.
The results demonstrate that the secretory product of goblet cells contains a significant amount of glycoproteins, and the secretory activity of these cells is variable. Additionally, the morphological aspects of goblet cells vary depending on their functional stage. These findings emphasise the importance of goblet cells in the mechanical-chemical protection of the intestinal mucosa and in the local immune response, providing new insights into their dynamics and functioning in both physiological and pathological contexts of the human intestine.
Keywords: goblet cells, mucus, histochemistry, intestine, mucopolysaccharides, cellular dynamics.

OP 8.11.

Blood Transfusion in the Context of the COVID-19 Pandemic: Challenges, Adaptations, and Impact – A Cross-Sectional Study

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Abstract:
Currently, there is limited data on the clinical features of COVID-19 patients requiring blood transfusion. The aim of this study was to investigate the transfusion indications and clinical characteristics of COVID-19 patients during the pandemic. A cross-sectional study was conducted, including all patients hospitalized with COVID-19 in a hospital located in the South-East region of Romania, from the declaration of the emergency state (March 2020) until the lifting of the alert state (March 2022).
A total of 272 patients who received 984 resuspended red cell concentrate (RRCC) units, 616 plasma units, and 108 platelet units were included in the study. Among the 984 transfusion episodes involving erythrocytes, 562 (57%) were related to spontaneous bleeding, while the remainder were associated with pre-existing chronic anemia. Spontaneous bleeding most frequently occurred in the gastrointestinal tract, whereas surgery was the primary cause of non-spontaneous bleeding.
The majority of patients (87%) were treated with anticoagulants, and one of the main causes of blood transfusion in COVID-19 patients during the analyzed period was bleeding induced by anticoagulant administration. To mitigate this risk, preventive measures such as careful dosage adjustments, close monitoring of coagulation parameters, and the use of reversal agents when necessary were implemented.
This study is part of an article published in the AMT Sibiu journal.
Keywords: blood transfusion, COVID-19 pandemic, blood products, anticoagulation

OP 8.12.

Assessing Risk Factors and Disease Severity in Hematological Patients after SARS-CoV-2 Infection

Elisabeta Pîrlitu (Rădulescu)[a,*], Carmen Loredana Clivati (Petrea)[a], Codrina Barbu (Ivașcu)[a], Gabriela Isabela Verga (Răuță)[a], Miruna Luminița Drăgăneascu[a]

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Abstract

Through this study, we aim to evaluate the characteristics of patients with hematological diseases and SARS-CoV-2 infection and analyze the risk factors for their severity.

In this context, we conducted a retrospective study involving hospitalized patients with hematological disorders who were diagnosed with SARS-CoV-2 infection between January and August 2024. Demographic information, diagnosis, medical history, comorbidities, treatment-related information, and outcomes were extracted from the patients' observation sheets.

A total of 62 patients with hematological diseases and a history of SARS-CoV-2 infection were included. Of the total cases, 94% (58) had mild/moderate SARS-CoV-2 infection, and 6% (4) were severe/critical cases of infection. A total of 6 deaths occurred during the analyzed period. The analysis also identified patients with acute myeloid leukemia (AML) - 44% (27), multiple myeloma (MM) - 15% (9), iron deficiency anemia - 34% (21), other active hematological diseases - 8% (5) considered independent risk factors for the severity of SARS-CoV-2 infection. Patients with AML and MM had a higher risk of non-survival compared to other patients.

The study's main result was the correlation between the severity of SARS-CoV-2 infection in patients with hematological diseases and the mortality rate.

Keywords: Hematological disease; SARS-CoV-2; degree of severity.

OP 8.13.

Frailty Syndrome in the Elderly – A Statistical Perspective on Risk Factors

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Abstract:

Introduction: Frailty syndrome in the elderly is a common condition in geriatric practice. It is defined by enhanced susceptibility to stressors, resulting in physical and/or mental disability. Recent research has pointed to the importance of Fried Criteria and the Frailty Index in diagnosing this condition. This study examines the interconnection between frailty, dementia, vitamin D deficiency, and risk of falls in elderly patients.

Materials and Methods:A retrospective, observational, and analytical study of 68 patients with dementia, hospitalized in the Clinical Departments of Neurology and Geriatrics-Gerontology of County Emergency Clinical Hospital Galați, from November 2024 to February 2025. Statistical comparison was focused on gender

differences and correlation between low vitamin D levels (<20 ng/dl) and risk of falls. Informed consent forms were signed by all participants.

Results and Discussion: The study population was divided into two groups based on the criteria examined. Extremely low vitamin D levels (<15 ng/dl) occurred in the more severe dementia symptoms (assessed by MMSE – Mini-Mental State Examination) than in the higher levels. Under 18 MMSE levels, indicating moderate to severe dementia, were detected in 65% of the patients who were severely vitamin D deficient. 82% of those with a level of less than 20 ng/dl had experienced at least one fall during the past 6 months, compared to 45% of the normal level group. Individuals with more than two comorbidities (hypertension, diabetes, osteoporosis) had higher frailty scale scores (Fried Criteria). Comorbid and demented patients were "frail" 70%, compared to 40% of their nonseverely comorbid counterparts. Prevention programs should include not only vitamin D supplementation but also balance exercises, individualized nutrition, and comorbidity control.

Conclusions: Syndrome of frailty requires prevention-based multidisciplinary management, routine evaluations, and institution of individualized, accessible, and coordinated care protocols in response to frail elderly patient heterogeneity. Personalized intervention, monitoring of vitamin D levels, and integrated care are essential. The sample was small and the study was retrospective in this work. Further research in larger cohorts is needed to establish the correlations. Of interest would be to measure the impact of vitamin D treatment on the course and quality of dementia in frail individuals.

Keywords: Frailty syndrome, geriatric care, vitamin D, dementia, fall risk

OP 8.14.
Challenges in the diagnosis of atypical respiratory infections in pediatric patients

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Abstract

The diagnosis of atypical respiratory infections represents a significant challenge in pediatrics due to the varied symptomatology and the difficulty in identifying specific pathogens.This 2-year study highlights the crucial role of polymerase chain reaction (PCR) in the accurate diagnosis of atypical respiratory infections in children, while h Standard diagnostic tests, such as bacterial cultures or rapid tests for respiratory viruses, have often proven insufficient to detect atypical pathogens. The study showed that PCR allowed accurate diagnosis and thus contributed to appropriate therapeutic management. ighlighting the challenges encountered in the diagnosis of atypical infections.

The accurate diagnosis of atypical respiratory infections in pediatric patients, facilitated by PCR, has a significant impact on therapeutic management. The judicious use of antibiotics, especially macrolides or tetracyclines, is crucial for the treatment of Mycoplasma or Chlamydophila infections. Avoiding unnecessary use of antibiotics reduces the risk of bacterial resistance and adverse effects.

In conclusion, the diagnosis of atypical respiratory infections in the pediatric patient is a complex challenge requiring a multidisciplinary approach. Overcoming the challenges related to the implementation of PCR and its judicious use, together with other diagnostic tests, contributes to an accurate diagnosis and appropriate therapeutic management, thus improving the prognosis of pediatric patients with atypical respiratory infections.

Keywords: atypical respiratory infections, pediatric diagnosis, diagnostic tests, therapeutic management.

OP 8.15.

When every ion counts: hydroelectrolyte disturbances as a marker of severity in pediatric MIS-C

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Abstract

Introduction: Multisystem Inflammatory Syndrome in Children (MIS-C), associated with SARS-CoV-2 infection, is a rare post-infectious condition characterized by hyperinflammation with multisystem involvement and variable clinical severity. This retrospective descriptive study aimed to assess the clinical and biological significance of hydroelectrolyte disturbances in pediatric MIS-C cases.

Method: We analyzed 36 pediatric cases admitted between July 2020 and June 2024 at the "St. John" Emergency Clinical Hospital for Children in Galati, Romania, all meeting the World Health Organization (WHO) case definition for MIS-C.

Results: The median age was 4 years (IQR: 1.75–9.25), with a female predominance of 58.3%. Fever (89%) and gastrointestinal symptoms, including anorexia (50%), vomiting (42%), and abdominal pain (39%), were predominant. In 16.7% of cases, the clinical onset resembled acute surgical pathology, and 52.8% required intensive care.

Laboratory findings revealed elevated inflammatory markers in all patients, and 86.1% exhibited significant hydroelectrolyte and acid–base imbalances. These disturbances were associated with a more severe disease course and prolonged hospitalization (median 10 days, IQR: 7–12). These findings suggest that electrolyte imbalances may reflect antidiuretic hormone (ADH) dysfunction, contributing to the severity of MIS-C.

Conclusion: These results highlight the importance of early monitoring of hydroelectrolyte parameters as indicators of disease severity, with potential implications for personalized therapeutic strategies.

Keywords: MIS-C, SARS-CoV-2, Hydroelectrolyte disturbances, Pediatrics, Antidiuretic hormone (ADH)

OP 8.16.

Influence of Vitamin D on Immune Response and Clinical Evolution in Children with Post-COVID-19 Status: A Multidimensional Approach

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Abstract

Introduction: Vitamin D deficiency has been associated with the severity of viral infections, and recent studies suggest that it could influence the course of SARS-CoV-2 infection. This study investigates correlations between vitamin D levels, severity of post-COVID-19 infection, and Epstein-Barr virus (EBV) co-infection in children, while analyzing relevant biological markers.

Method: The study included a group of 406 children, of whom 121 had co-infection with EBV and SARS-CoV-2. Vitamin D levels, length of hospitalization, clinical manifestations and biological markers such as D-dimers,

platelets and serum potassium were evaluated. The correlations between these variables and the severity of the disease were analyzed.
Results: Vitamin D deficiency was detected in 59.18% of cases with co-infection and in 50.74% of patients with only post-COVID-19 status. In the case of children infected only with SARS-CoV-2, a statistically significant association was noted between vitamin D levels and the duration of hospitalization, (Chi-square test $\chi2=19.519$, $p\leq0.001$). Also, vitamin D deficiency was more common in female children ($p = 0.033$), in the subgroup with post-SARS-CoV-2 infection status. The application of a Chi-square test indicated a statistically significant association, of low intensity, between vitamin D levels and the severity of clinical manifestations ($\chi2=11.708$, $\phi= 0.293$, $p=0.020$), an association that was observed only in the subgroup with post-COVID-19 infection status.
Conclusion: Vitamin D deficiency plays an important role in the evolution of post-COVID-19 infection in children and is associated with a higher severity of the disease, especially in the case of EBV coinfections. Monitoring vitamin D levels could be an essential component in the management of these cases.
Keywords: vitamin D, SARS-CoV-2, viral coinfections, Epstein-Barr (EBV)

OP 8.17.

Trends and Future Directions in the Pharmaceutical Treatment of Respiratory Tract Infections

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Abstract
This paper presents the research on the recent developments and future prospects in the pharmaceutical management of respiratory tract infections, one of the leading causes of global morbidity and mortality. The study includes a comprehensive review and critical analysis of clinical data, treatment guidelines, and pharmaceutical innovations published over the last decade. A systematic and comparative approach was used to evaluate both traditional therapies (antibiotics, antivirals) and emerging treatment strategies, such as immunomodulators, inhaled drug delivery systems, and personalized medicine. Using statistical methods including meta-analysis of clinical trials, trend analysis, and drug resistance monitoring, the paper aims to identify key patterns in drug efficacy and the evolution of antimicrobial resistance. This work highlights two major aspects: the first is the increasing need for optimized pharmacological protocols in the face of growing antibiotic resistance; the second is the emergence of novel therapeutic agents and delivery technologies that show promise for future treatment paradigms. Research of this type is extremely useful due to the dynamic nature of respiratory infections and the urgent need for adaptive pharmaceutical responses in both community and hospital settings.

Keywords: respiratory infections, pharmaceutical treatment, antimicrobial resistance

OP 8.18.

Molecular Markers and Targeted Therapies in Pediatric Respiratory Infections: Advances in Pharmaceutical Approaches

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Abstract

This paper presents the research on the temporal variability of water quality parameters for the most important river system in Romania and Europe Danube River. The data on the river water quality had been obtained during ten years. The investigation was systematic and complex. Using the Kolmogorov-Smirnov test, and traditional statistical methods based on correlation matrix Principal Component Analysis (PCA) and Factor Analysis (FA), and ANOVA all the samples data sets were classified in order to determine the seasonal variability of the water quality state parameters and to identify the key quality factors that cause variability. This work highlights two major aspects: the first one is due to the fact that the site of research is the meeting point of the borders of three countries: Moldova, Ukraine and Romania. The second significant issue is caused by the fact that the study was conducted in the predeltaic area of the Danube Delta. This study highlights the auto-filtering capacity of the Danube River. Research of this type is extremely useful because there are no other previous studies of this complexity.

Keywords: molecular diagnostics, targeted therapy, pediatric respiratory infections

OP 8.19.

The emotional dimension of the oncologic journey in localized prostate cancer: from diagnosis to treatment

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Abstract

Motivation of the study: Localized prostate cancer (PCa) is one of the most common neoplasms in men, with a high survival rate, but with profound psychological implications that accompany the entire trajectory from diagnosis to initiation of treatment. The presence of affective and anxiety disorders and suicidal ideation pose major challenges for medical practice, justifying an interdisciplinary approach including early psychological assessment and intervention.

Material and method: A systematic review of scientific literature published between 2018 and 2025 was conducted using PubMed and Google Scholar databases. Studies written in English that assessed psychological distress in patients diagnosed with localized PCa undergoing therapeutic options such as active

surveillance, radical prostatectomy, radiotherapy or androgen deprivation therapy (ADT) were included. Of the 253 articles identified, 21 met the eligibility criteria.
Results: The summarized data indicate a high prevalence of post-diagnostic depressive and anxiety symptoms among prostate cancer patients. Anxiety is present between 8% and 28%, depending on the time of assessment and the instrument used and depression has a prevalence between 6% and 29%, with higher values before treatment or in the presence of comorbidities. Based on a total sample of 42,693 patients, a mean prevalence of approximately 10% was observed for anxiety and depression, with significant variations according to clinical and psychosocial context. Treatment with androgen deprivation therapy (ADT) is associated with an increased risk of affective disorders, while options such as radiotherapy, radical prostatectomy and active surveillance show superior psychological tolerability. The literature emphasizes the essential role of psychological flexibility in patient adjustment, and psychotherapeutic interventions, in particular Acceptance and Commitment Therapy (ACT), contribute significantly to reducing psychological distress and supporting decision-making.
Conclusions: The psychological impact associated with localized prostate cancer is complex and multidimensional. Integrating psychological interventions into the therapeutic pathway is a necessity to optimize quality of life and oncologic outcomes. Early emotional screening and specialized support may be key elements in the holistic care of these patients.
Key words: prostate cancer, depression, anxiety, psychological support, oncologic treatment

OP 8.20.

Disorders of Calcium Metabolism in Children: Retrospective Analysis of Determining Factors and Clinical Implications

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Abstract
This paper presents a retrospective study of disorders of calcium metabolism in pediatric patients, focusing on the determinants and clinical implications of hypocalcemia and vitamin D deficiency. The study reviews patient charts to assess serum ionic calcium levels, 25-hydroxyvitamin D concentrations, and the presence of rickets. The investigation was systematic and comprehensive, categorizing patients into groups based on the presence of rickets and biochemical markers. Using descriptive statistical methods and correlation analysis, this study identifies key factors influencing calcium homeostasis, including seasonal variations, age and environmental factors. The results highlight issues concerning: the association between severe vitamin D deficiency and the presence of rickets and the role of hypocalcemia as a contributing factor. This research provides valuable information on the prevalence and characteristics of calcium metabolism disorders in children and emphasizes the importance of early diagnosis. Given the limited retrospective studies, this work contributes to a better understanding of calcium homeostasis in children.
Keywords: calcium metabolism, hypocalcemia, vitamin D deficiency, rickets.

OP 8.21.

THE ROLE OF ARTIFICIAL INTELLIGENCE IN OPTIMIZING THE DIAGNOSIS AND TREATMENT OF SYSTEMIC INFECTIONS

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Abstract

Introduction: Systemic infections, particularly sepsis, continue to pose a major challenge in emergency medicine and intensive care, with high mortality rates and significant difficulties in early diagnosis and appropriate treatment administration. In this context, artificial intelligence (AI) has emerged as an innovative solution for enhancing efficiency and accuracy in clinical processes by analyzing large volumes of structured and unstructured data in real time. Prompt diagnosis and treatment of these conditions are essential to improving patient outcomes. Recently, AI has been integrated into medical practice to optimize the processes of diagnosis and treatment of systemic infections.

Materials and Methods: This paper analyzes and synthesizes data from several recent scientific articles exploring the application of AI in the context of systemic infections. The reviewed studies encompass various approaches, including deep learning models for sepsis prediction (Boussina et al., 2024), the use of unstructured data for diagnostic purposes (Goh et al., 2021), clinical decision-support systems (Komorowski et al., 2018), and economic impact assessments (Khanna et al., 2022). The analysis focused on algorithm performance, clinical validity, and the ethical and economic implications of integrating AI into current medical practice. Additionally, studies on the application of AI in both the diagnosis and treatment of systemic infections were selected.

Results: The AI models analyzed demonstrated superior performance in early sepsis detection, with some algorithms predicting onset up to six hours before the emergence of clinical signs (Boussina et al., 2024; Haas & McGill, 2022). For example, the "AI Clinician" model (Komorowski et al., 2018) was capable of recommending therapeutic strategies with the potential to reduce ICU mortality. Furthermore, the use of AI to process unstructured data allowed for the identification of hidden diagnostic patterns (Goh et al., 2021). However, the reviewed articles also highlighted challenges such as overdiagnosis and potential algorithmic errors (Schinkel et al., 2023), emphasizing the need for cautious and clinically validated implementation.

Conclusions: Artificial intelligence represents a valuable tool in the diagnosis and treatment of systemic infections, with the potential to increase diagnostic accuracy, personalize therapies, and optimize the use of medical resources. However, the implementation of these technologies must be accompanied by rigorous clinical validation, continuous human oversight, and sustainable economic evaluations to mitigate the risks associated with excessive automation.

Keywords: artificial intelligence, sepsis, systemic infections, early diagnosis, personalized treatment, machine learning, clinical algorithms.

OP 8.22.

Comparative analysis of the impact of HLA-B27 on the severity of symptoms and quality of life parameters in rheumatic diseases

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Abstract

Introducere: The HLA-B27 antigen plays a key role in the pathogenesis of rheumatic diseases, but its impact on clinical manifestations, quality of life and response to treatment remains a subject of debate. This study aims to assess the differences between HLA-B27 positive and negative patients in terms of disease severity, functional impairment and subjective health perception. **Material and method:** A total of 50 patients with rheumatic diseases were included in the study. We performed HLAB 27 antigen testing in all patients included in the study. We also applied a questionnaire to assess the influence of HLA-B27 status on clinical presentation, quality of life and therapeutic response in patients with rheumatic diseases. **Results:** The study included 50 patients, 44% of whom were HLA B27 positive and 56% HLA B27 negative. HLA B27-positive patients are younger than HLA B27-negative patients, with a statistically significant difference of 9.07 years. It was noted that the HLA negative group of patients were more frequently diagnosed with rheumatic disease in the family than the HLA positive group. Among HLA-positive patients, 40.91% had tried multiple types of therapies, and 27.27% had not tried any alternative therapies. Among HLA-negative patients, 21.43% had tried multiple types of therapies and 32.14% had not tried any alternative therapies. The most difficult activities for HLA-negative patients are: shopping, cleaning the house, climbing stairs, preparing the daily meal, bathing, shaving/hair removal. HLA B27-positive patients are more likely to have sleep problems than HLA B27-negative patients, who have more stable sleep. In most cases, irrespective of the HLA antigen result, patients experience at most a mild impairment in concentration. Most patients felt that rheumatic disease did not influence their relationship with their family except occasionally at most. The application of a Mann-Whitney U test indicated that HLA B27 positive individuals experience significantly higher levels of stress than HLA B27 negative individuals. Irrespective of the HLA B27 antigen result, about 1 in 2 patients with rheumatic disease considered the expense of treatment and investigations to be a stress factor. **Conclusions:** The study highlights significant differences between HLA-B27 positive and negative patients in terms of: demographic characteristics, therapeutic preferences, impact on quality of life. These findings suggest the need for personalized approaches in the management of patients with rheumatic diseases, with special attention to psychosocial components in HLA-B27 positive patients.

Keywords: HLA-B27, rheumatic diseases, quality of life, therapeutic management, stress

OP 8.23.

Review: Clinical-biological and imaging particularities of pediatric patients with cardiac arrhythmias

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Abstract

Background: Cardiac arrhythmias in the pediatric population is a problem of particular interest in the medical world because there is a global trend in the increasing number of patients with heart rhythm disorders.
Therefore, early identification of these malignant rhythm disorders helps to better manage the patient's health status and to monitor first-degree relatives in order to detect a possible genetic substrate.
Modern techniques of cardiologic exploration that belong to the field of electrophysiology and recent advances in the synthesis of antiarrhythmic drugs have allowed a better understanding of the mechanisms that trigger heart rhythm disorders in children. Material and Methods: I have extracted and analyzed relevant data from the literature, so I made a narrative review.
Results: Pediatric patients with cardiac arrhythmias do not always present with obvious clinical manifestations, so anamnesis and a complete and correct clinical examination are the key to early diagnosis of cardiac rhythm disorders. Clinical manifestations include syncope, lipotimic state, palpitations, precordialgias; fatigability. From the paraclinical point of view, we mention the following particularities: EKG changes, changes in the cardio-pulmonary X-ray such as pneumopathies or in the appearance and size of the heart and from the point of view of blood tests we list hypocalcemia, hypovitaminosis D3 or positive antibodies SARS COV 2.
Numerous recent studies report post COVID 19 syndrome as the cause of a high number of cardiac manifestations, including palpitations, precordial pain, fatigability.
Discussions: Through the analysis of clinical and paraclinical data I want to develop cardiac screening protocols that to have to identify and follow up pediatric patients who present this pathology, the ultimate motivation being to prevent and decrease the number of deaths occurring in the context of sudden cardiac death.
Conclusion: Despite major advances in understanding the mechanisms, better diagnostic methods and a wide range of new modes of therapy, the management of cardiac arrhythmias continues to be a challenge.
Keywords: rhythm disorders, EKG, pediatric population.

OP 8.24.

Review: The role of insulin resistance in pediatric hypertension

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Abstract

Background: Lately, insulin resistance has a significant contribution to the development of hypertension in children, reflecting a complex interaction between metabolic and cardiovascular dysfunction. As rates of childhood obesity rise globally, so too does the prevalence of insulin resistance which often precedes the onset of essential hypertension.
The pathophysiological mechanisms linking insulin resistance to elevated blood pressure involve hyperinsulinemia-induced sympathetic nervous system activation, sodium retention, and vascular smooth muscle proliferation, all of which contribute to increased systemic vascular resistance. Additionally, Insulin

resistance impairs endothelial function and disrupts the balance of vasodilatory and vasoconstrictive factors. This review examines the current evidence on the role of insulin resistance in pediatric hypertension, highlighting clinical studies, potential biomarkers, and the implications for early identification and intervention. Understanding this relationship is critical for developing targeted prevention and treatment strategies aimed at reducing cardiovascular risk in children and adolescents.
Material and Methods: The data I used for this narative review was extracted from specialized literature.
Results: As in adults, children hypertension could be linked with insulin resistance through sodium retenntion, hyperinsulinemia -induced sympathetic nervous system activation and smooth muscle proliferation. Because of increasing of childhood obesity, there is also observed a continuos rise of hypertension in pediatric patients. The clinical picture is oftenly absent, but some of them could present to the physician with headache, nosebleed, dizziness, palpitations, blurred vision or chest pain. Paraclinicaly, they could present with LVH or arrhytmias on the EKG, hypercolesterolemia, increased HOMA-IR, alterated renal function or hormonal disorders.
Discussion: Understanding the ethiology of hypertension in a pediatric patient is an important aspect in following up and establishing a correct treatment for this cathegory of patients.
Conclusion*:* The continuos increasing of childhood obesity increases the risk of developing hypertensive disease in pediatric patients. It is very important to understand the causes of this disease for an appropriate management.
Keywords: Hypertension, Insulin resistance, childhood obesity

OP 8.25.

Demodex blepharitis: clinical profiles and systemic correlations in a case series

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Abstract

Demodex blepharitis is a common but often overlooked eye condition resulting from the overgrowth of Demodex mites. The scope of this study is to analyze the clinical profiles and systemic correlations of patients with Demodex blepharitis through a detailed case series, aiming to identify diagnostic hallmarks, explore potential risk factors, and enhance understanding of its management in relation to systemic health conditions.
A retrospective review of ten patients diagnosed with Demodex blepharitis was conducted. Diagnoses in six cases were confirmed through slit-lamp examination, presence of cylindrical dandruff, and microscopic identification of Demodex mites, while four cases were identified based on clinical signs. Demographic data, systemic comorbidities, and clinical presentations were documented and analyzed.
All cases revealed hallmark features of Demodex blepharitis, including cylindrical dandruff and excessive tearing (epiphora). The patients, aged 63 to 80, were elderly, with eight of them presenting systemic comorbidities such as hypertension, diabetes, or atrial fibrillation. Urban residence predominated. These findings underscore age, systemic conditions, and environmental factors as significant risk factors.

Cylindrical dandruff, age-related prevalence, and comorbid systemic conditions emerged as hallmark diagnostic features. Recognizing these patterns is critical for early diagnosis and management, particularly in older adults, to mitigate chronic symptoms and ocular complications.

Keywords: demodex mites, blepharitis, excessive tearing, cylindrical dandruff, comorbidities

OP.8.26.

Methods And Therapeutic Approaches In Preventing The Progression Of Diabetic Kidney Disease. Optimization Possibilities

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Abstract

Diabetic kidney disease (DKD) is one of the most severe complications of diabetes mellitus, affecting a significant proportion of patients with type 1 and type 2 diabetes. It is characterized by the progressive deterioration of renal function, having a major impact on patient morbidity and mortality. Epidemiologically, DKD is one of the leading causes of chronic kidney failure, and its prevalence is continuously increasing, correlating with the rising incidence of diabetes. Pathophysiologically, DKD involves complex molecular and cellular changes, including oxidative stress, chronic inflammation, endothelial dysfunction, and renal fibrosis. Risk factors for DKD progression include uncontrolled hyperglycemia, hypertension, genetic predisposition, and an unhealthy lifestyle. The impact of DKD on patients is significant, affecting quality of life and increasing the risk of cardiovascular diseases and premature mortality. Early diagnosis of DKD is essential for preventing disease progression. Conventional biomarkers such as albuminuria, serum creatinine, and glomerular filtration rate (GFR) are widely used, but they can only detect the disease in its advanced stages. In this context, specific biomarkers, including inflammatory markers, oxidative stress markers, and genetic/epigenetic factors, show promise for the early detection of DKD. These biomarkers allow a more detailed evaluation of pathogenic mechanisms and can guide personalized therapeutic strategies. Advanced imaging methods play an important role in the early detection of DKD. Magnetic resonance imaging (MRI) provides insights into renal perfusion and tissue structure, while single-photon emission computed tomography (SPECT) and positron emission tomography (PET) allow molecular-level evaluation of kidney function. Advanced renal ultrasound and elastography are non-invasive methods used to detect structural and functional kidney changes before clinical symptoms appear.

Current therapeutic approaches to preventing DKD progression focus on diabetes management, blood pressure control, and lipid profile optimization. Angiotensin-converting enzyme inhibitors (ACEIs) and angiotensin receptor blockers (ARBs) are used to protect renal function, while statins help reduce the cardiovascular risk associated with DKD. Lifestyle modifications, including a balanced diet, regular physical activity, and smoking cessation, are essential in disease management.

In recent years, pharmacological innovations have introduced new therapeutic options for DKD. Sodium-glucose cotransporter-2 (SGLT2) inhibitors, such as empagliflozin and canagliflozin, have proven effective in slowing kidney disease progression and reducing cardiovascular mortality. Glucagon-like peptide-1 (GLP-1) receptor agonists, including semaglutide, liraglutide, and dulaglutide, provide additional metabolic and renoprotective benefits. Furthermore, antioxidant and anti-inflammatory drug therapies are being intensively studied for their role in preventing kidney damage.

In conclusion, DKD remains a major challenge in medical practice, requiring a comprehensive approach that includes early diagnosis, close monitoring, and innovative therapeutic strategies. Advances in biomarker identification and the use of advanced imaging technologies contribute to better disease management, offering promising perspectives for improving patient outcomes.

Keywords: diabetic kidney disease, biomarkers, risk factors, early diagnosis, prevention.

OP.8.27.

Clinico-Biological Research In Chronic Diseases Of Patients With Periodontal Pathology

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Abstract

Periodontal diseases are a group of inflammatory conditions that affect the supporting structures of the tooth, including the gums, periodontal ligaments, and alveolar bone. They are classified into gingivitis and periodontitis, with the latter being the advanced form that can lead to tooth loss. Epidemiologically, periodontal diseases are widespread globally, affecting a significant percentage of the population, particularly adults. Studies indicate a correlation between disease severity and factors such as poor oral hygiene, smoking, diabetes, and genetic predisposition. Etiologically, periodontal disease results from a complex interaction between local factors, such as bacterial plaque, and systemic factors, including diabetes and immune disorders. The inflammatory process plays a central role in pathogenesis, activating immune responses that contribute to periodontal tissue destruction. The diagnosis of periodontal diseases involves a detailed clinical and paraclinical evaluation. Examination includes measuring periodontal pocket depth, assessing tooth mobility, and detecting gingival bleeding. Additionally, periodontal biomarkers identified in saliva, serum, or gingival tissue provide essential information for diagnosis and monitoring.

The interactions between periodontal pathology and chronic systemic diseases are extensively studied. Diabetes mellitus has a bidirectional relationship with periodontal disease: hyperglycemia promotes periodontal inflammation, while periodontal treatment can improve glycemic control. Furthermore, evidence suggests a link between periodontal diseases and cardiovascular conditions through systemic inflammation, which contributes to atherosclerosis. Studies indicate that periodontal treatment may reduce systemic inflammatory markers and cardiovascular risk. In rheumatoid arthritis, the shared chronic inflammatory response exacerbates disease symptoms, and periodontal treatments can improve patient outcomes.

Clinico-biological biomarkers are increasingly used in the diagnosis and monitoring of periodontal disease. Saliva contains inflammatory proteins, enzymes, and cytokines associated with disease progression, offering the advantage of non-invasive collection. Additionally, serum and gingival markers, including inflammatory proteins and oxidative stress markers, allow for a more precise assessment of disease activity and treatment response.

Innovative therapeutic approaches in periodontal disease treatment include the use of antimicrobial agents, probiotics, and immunomodulatory therapies to control infection and inflammation. Minimally invasive surgical techniques are increasingly utilized to reduce patient discomfort and improve treatment outcomes.

Regenerative therapy plays a crucial role in restoring affected tissues. Growth factors and stem cell-based therapies are under development to stimulate periodontal regeneration. Biological matrices and regenerative materials aid in restoring lost structures, with clinical studies showing promising results in this field.

In conclusion, research on periodontal diseases highlights their complexity and close relationship with systemic health. Advances in biomolecular diagnostics and advanced therapies open new perspectives for the prevention and effective treatment of these conditions.

Keywords: periodontal diseases, diabetes mellitus, atherosclerosis, clinico-biological markers

OP.8.28.

The role of neurofilament light chains in vascular dementia

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Abstract

Vascular dementia is a major cause of dementia worldwide, resulting from severe impairment of cerebral blood flow. Vascular dementia is a heterogeneous condition, due to multiple etiologies such as ischemic or hemorrhagic stroke, cerebral small vessel disease. The clinical picture is quite dependent on the location, extent and nature of the vascular lesions. The onset can be sudden, in relation to an acute vascular event (e.g. ischemic/hemorrhagic stroke), or insidious and progressive as in the case of cerebral small vessel disease. Management is complex and multifactorial, aiming at the control of vascular risk factors, secondary prevention and monitoring of cognitive manifestations. The prognosis is variable and depends on the severity and progression of the underlying vascular disease, as well as on coexisting conditions.

Among the promising biomarkers are neurofilament light chains (NfL). Research has shown a significant increase in NfL levels, both in CSF and serum, in patients with vascular dementia versus other forms of dementia or in healthy individuals. This increase is directly related to the degree of neuronal damage and the intensity of cerebral vascular lesions. Other studies have suggested that higher NfL levels at the time of diagnosis are associated with a faster progression of cognitive impairment. At the same time, more studies are needed to conclude the important role of NfL in the management of patients with vascular dementia.

Keywords: stroke, vascular dementia, neurofilament light chains, biomarker, vascular risk factors.

OP.8.29.

Diabetic retinopathy from the perspective of retinal neurodegeneration

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Abstract

Diabetic retinopathy (DR) is the most common complication of diabetes and is the leading cause of preventable blindness. Historically regarded as a microangiopathic disease, now the paradigm is shifting toward a more comprehensive view of diabetic retinal disease (DRD) as a tissue-specific neurovascular complication, in which persistently high glycemia causes not only microvascular damage and ischemia but also intraretinal inflammation and neuronal degeneration.

Current treatments are addressed to treat advanced stages of the disease when vision has already been significantly affected and, therefore, new therapeutic strategies targeting early stages of the disease are needed.

In this review, we discuss the role of neuroinflammation and neurodegeneration in diabetes, with an emphasis on new therapeutic options.

Keywords: diabetic retinopathy, retinal neurodegeneration, neuroinflammation, cell apoptosis

OP.8.30.

Trends in antibiotic resistance among blood culture isolates (2023-2024): A comparative study on diagnostic approaches and therapeutic challenges

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Abstract

Introduction: Antibiotic resistance is a major challenge in modern medicine, requiring close monitoring to optimize therapeutic strategies. This study compares antibiogram data for blood culture isolates from 2023 and 2024, highlighting resistance trends and the benefits of modern microbiological diagnostic methods.

Material and Methods: Data were obtained from cumulative antibiograms for 2023 and 2024 from patients hospitalized at the Emergency Clinical Hospital for Children "Sf. Ioan" Galați, with the aim of analyzing susceptibility patterns to various antibiotic classes. The identification of isolated bacterial strains was performed using a combination of classical manual methods, MALDI-TOF mass spectrometry, and automated techniques, including the Vitek 2 Compact system analyzer. Antibiotic susceptibility testing was carried out using the disc-diffusion method and by determining the minimum inhibitory concentration (MIC), ensuring a thorough assessment of antimicrobial resistance patterns.

Results: In 2023, most blood culture isolates were Gram-positive, with *Staphylococcus* and *Streptococcus* species being predominant. However, in 2024, a significant shift was observed, with an increasing prevalence of Gram-negative pathogens, particularly *Escherichia coli*, *Klebsiella pneumoniae* ESBL-positive, and *Pseudomonas aeruginosa*. A notable rise in resistance to beta-lactams and fluoroquinolones was detected, especially in *Klebsiella pneumoniae* ESBL-positive and *Staphylococcus aureus MRSA* strains. Despite this trend, carbapenems and glycopeptides retained high efficacy, suggesting they remain valuable therapeutic options for severe infections.

Conclusions: The results indicate a shift in microbial resistance profiles in 2024 compared to 2023, with an increase in resistant Gram-negative pathogens. The introduction of modern diagnostic methods enabled faster and more accurate pathogen identification, guiding more appropriate antibiotic treatments. These findings emphasize the importance of continuous monitoring and rational antibiotic use.

Keywords: blood culture, antibiotic, antimicrobial resistance.

OP.8.31.

Sepsis awareness: new challenges, and scoring systems

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Abstract

Introduction: More then a decade ago, the notion of awareness regarding sepsis has been outlined. Sepsis in an extremely serious condition that affect more than 18 million people worldwide annually, and kills more people than all the cancers combined. To counteract this condition, the intensive care physician needs fast and handy tools to help and guide him in establishing an individualized treatment as quickly as possible. In addition to a scoring system that the intensivist has at hand to predict the prognosis of a patient suffering from sepsis or septic shock, in recent years several systems based on artificial intelligence (AI)/ machine learning (ML) have been developed. Recently one of these systems (Sepsis ImmunoScore) has obtained the approval of an authority in the medical and health field. Although there is a reluctance to use these tools, it is just an extension of the other scoring systems with the purpose of offering to the clinician an augmented decision making posibility, being complementary, not competitive.

Objective: The purpose of this analysis is to show the importance of having a major scoring system for the most effective decisions in a personalized therapeutic p manner for the patients with sepsis or septic shock.

Materials and methods: Comparing well-known score systems regarding the evaluation of prognosis of a patient with septic shock (SOFA, qSOFA, CURB-65, NEWS 2) in contrast with new developed AI/ML based systems (Sepsis ImmunoScore).

Results: Due to the limited use of newly developed systems of scoring based on artificial intelligence or machine learning, the usual scores remain the cornerstones for both the assessment and therapeutic conduct of the patient with infectious pathology in Intensive Care Unit.

Conclusions: Although the implementation of systems based on new technologies capable of self-learning is at its beginning, the widespread acceptance of these tools and their approval by authoritative institutions in the medical field will lead to better medical practice oriented in a personalized aproach for every patient.

Keywords: SOFA, qSOFA, sepsis

OP.8.32.

Knee osteoarthritis and osteoporosis - an inverse association between the two diseases and a protective effect of one against the other

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Abstract

Introduction: The interrelationship between osteoarthritis (OA) and osteoporosis (OP) has been analysed for over four decades. However, this relationship has remained controversial. Numerous observational and

longitudinal studies have shown an inverse association between the two diseases and a protective effect of one against the other. On the other hand, some studies show that patients with OA of knee have impaired bone strength and are more prone to fractures.
Methods: Osteoarthritis is more prevalent in older women, and the involvement of subchondral bone fragility spotlights its association with OP. Notably, subchondral insufficiency fracture (SIF) may represent a more pronounced condition of OA pathophysiology. This review summarizes the relationship between OA and OP, incorporating recent insights into SIF. Progressive SIF leads to joint collapse and secondary OA and is associated with OP. Furthermore, the thinning and fragility of subchondral bone in early-stage OA suggest that SIF may be a subtype of OA (osteoporosis-related OA, OPOA) characterized by significant subchondral bone damage. Osteoporosis affects the pattern of subchondral bone and cartilage properties in people with knee osteoarthritis. The high bone mineral density observed in OA of knee may be overestimated due to osteophytes and sclerosis and can potentially contribute to OPOA.
Conclusions: The incidence of OPOA is expected to increase along with population aging. Therefore, prioritizing OP screening, early interventions for patients with early-stage OA of knee, and fracture prevention measures such as rehabilitation, fracture liaison services, nutritional management, and medication guidance are essential.
Keywords: osteoarthritis, osteoporosis, subchondral insufficiency fracture.

OP.8.33.

Incidental case of a Klatskin Tumor

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Abstract

This paper presents a case report of an incidental Klastkin Tumor stage IIIA operated in Sanador Hospital which was mistakenly diagnosed as a gallbladder tumor on the CT scan. Patient was investigated for jaundice and heavy weight loss, had elevated CA 19.9 marker (~ 100Ui/ml). Laparotomy and intraoperative ultrasonography were proposed.
Intraoperative findings: tumor inside CBD extensive to the right bile duct and cystic duct with right hepatic artery infiltration. En-bloc resection of CBD and right hepatectomy extended to caudate lobe and local lymphadenectomy was performed with en-roux cholangio-jejuno-anastomosis was performed. Postoperative course was simple, with patient being discharged after 10 days.
HP results: moderately differentiated perihilar extrahepatic adenosquamous carcinoma (Klatskin tumor) (moderate degree of anaplasia - G2), extensive intrahepatic and in the gallbladder wall with lymphovascular and perineural invasion present.
Patient undergoes Capecitabine chemotherapy (currently 5th series) with no sign of local relapse nor elevated markers. This case demonstrates once again that Klatskin tumors are aggressive neoplasms that require correct management both preoperatively and postoperatively to maximize survival and in the absence of a certain preoperative imaging diagnosis, intraoperative ultrasound was extremely useful in establishing the surgical procedure.
Keywords: Klastkin Tumor, intraoperative ultrasonography, perihilar cholangiocarcinoma

OP.8.34

THROMBOPHILIA DURING PREGNANCY A LONG STORY FOR A BLITZ DISGOSIS

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Abstract

STUDY MOTIVATION: Thrombophilia during pregnancy is one of the common causes of fetal and maternal morbidity and mortality. It has been reported that inherited thrombophilia is associated with an increased risk of pregnancy complications, including venous thromboembolism (VTE), as well as preeclampsia (PEC), fetal loss (FL), fetal growth restriction (FGR), and placental abruption (PA), the latter likely due to inadequate placental perfusion.
The aim of this paper is to present the latest developments in the therapy and prophylaxis of deep vein thrombosis and other pregnancy complications in women with inherited or acquired thrombophilia, as well as the risk of thrombosis in patients who have undergone treatment with oral contraceptives.

MATERIALS AND METHODS: A bibliographic study was conducted, involving the review of 30 articles, as well as national and international guidelines published between 2014 and 2024. Of these, 20 sources met the selection criteria. The following databases were used for this purpose: PubMed, Google Scholar, and ScienceDirect.

RESULTS: The scientific literature reports various genetic variations associated with a thrombophilic potential in pregnant women. These can be classified according to the encoded protein as follows:1. **Mutations in procoagulant factor genes**: These include the G1691A mutation in the *F5* gene, the G20210A mutation in the *F2* gene, mutations in the *F1* gene, and mutations in the *F13* gene. 2. **Mutations in anticoagulant factor genes**: Among these are the G786A mutation in the *SERPINC1* gene associated with antithrombin deficiency, mutations in the *PROC* gene associated with protein C deficiency, and mutations in the *PROS1* gene associated with protein S deficiency.3. **Mutations in fibrinolysis-related genes**: This includes the 4G/5G mutation in the *SERPINE1* gene, which encodes PAI-1. 4. **Other genetic variations**: These include the C677T and A1298C mutations in the *MTHFR* gene, associated with hyperhomocysteinemia, as well as mutations in platelet fibrinogen receptor genes.

CONCLUSIONS: Hereditary thrombophilia is a condition with a heterogeneous etiology, determined by mutations in most coagulation and fibrinolysis factors. This etiological heterogeneity poses a challenge for clinicians in establishing both the diagnosis and the appropriate management. Obstetric complications associated with thrombophilia—such as recurrent miscarriage, intrauterine growth restriction, placental abruption, and preeclampsia—are often attributed to other pathologies or may remain without a clear explanation. However, advances in molecular medicine and human genetics have enabled a more accurate approach to these complications, including from the perspective of hereditary thrombophilia. There is ongoing debate regarding the necessity of a genetic approach to thrombosis risk assessment in pregnant women, and current clinical recommendations remain insufficient.
A family history of venous thromboembolism has unsatisfactory sensitivity and a low positive predictive value for identifying carriers of common thrombophilic defects prior to the use of oral contraceptives.
Therefore, a selective screening policy may fail to identify a significant number of women at increased risk of thromboembolism when taking oral contraceptives.

KEYWORDS: thrombophilia, pregnancy, complications, mutations

OP.8.35.

Lipidic Status, Metabolomic Profile, and Gut Microbiome in Long-Term Hospitalized Cardiac Patients: Implications for Diagnosis and Treatment

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Abstract

Introduction. This review aims to analyze the relationships between lipidic status, metabolomic profiles, and the gut microbiome in the context of long-term hospitalized cardiac patients. We will explore the complex interactions between these factors and their impact on the progression of cardiovascular diseases, with a focus on identifying potential biomarkers that can enhance diagnosis and prognosis in these patients.

Material and Methods: The review focuses on recent studies addressing lipid and metabolomic changes observed in cardiac patients, as well as the interactions between the gut microbiome and cardiovascular health. Additionally, studies regarding the role of the oral microbiome in cardiovascular diseases will be included.

Results: The studies reviewed suggest a significant correlation between dyslipidemia, metabolomic alterations, and gut microbiome dysbiosis in patients with chronic cardiovascular conditions. Changes in the gut microbiome may contribute to the development of systemic inflammation, thus influencing the severity of cardiovascular disease. Furthermore, evidence suggests that oral health plays a key role in exacerbating cardiovascular risks through systemic inflammation mechanisms.

Conclusions: Lipidic status, metabolomic profiles, and the gut microbiome are interconnected factors that can influence the progression of cardiovascular diseases in long-term hospitalized patients. Identifying relevant biomarkers for these domains could lead to the development of personalized therapeutic strategies aimed at restoring metabolic and microbial balance, with the goal of improving prognosis and patient quality of life. Future research should focus on further understanding these interactions and implementing personalized treatments in clinical practice.

Keywords: lipidic status, metabolomic profile, microbiome, dyslipidemia, cardiovascular disease

OP.8.36.

Breast Cancer-Tamoxifen Resistance Induced by COL11A1

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Abstract

Breast cancer is the most commonly diagnosed form of cancer and benefits from endocrine treatments such as tamoxifen. Approximately 70% of breast cancers are estrogen receptor alpha (ERα+) positive and respond to anti-estrogen therapy such as tamoxifen, a commonly prescribed endocrine agent that exerts anticancer effects by competing with estrogen for binding to the ERα receptor. Although there have been significant improvements in survival rates among breast cancer patients, the development of treatment resistance

represents a major clinical challenge, severely limiting the effectiveness of endocrine therapy and leading to recurrence and mortality.
Chengxiao Fu et al conducted a study to investigate the role of the COL11A1 gene in the development of tamoxifen resistance. For this study, they created 2 cell lines MCF-7/COL11A1 and T47D/COL11A1. They then analyzed the expression level of COL11A1 in ER-positive breast cancer cells (MCF-7 and T47D) and in tamoxifen-resistant cells (TamR). And the results showed that the expression of COL11A1 was significantly higher in TamR cells compared to wild-type MCF-7 and T47D cells. To obtain the tamoxifen-resistant models MCF-7/TamR and T47D/TamR, MCF-7 and T47D cells were exposed to 1 μM of 4-OHT (4-hydroxy-tamoxifen), an active derivative of tamoxifen, for a long time. MCF-7 and MCF-7/TamR were cultured in DMEM medium. T47D and T47D/TamR were cultured in RPMI 1640. All cell lines were maintained at 37°C in a 5% CO_2 incubator. Researchers have shown that COL11A1 influences the activity of the estrogen receptor ERα, which may contribute to tamoxifen resistance in breast cancer. Reduction of COL11A1 leads to decreased expression of ERα and ERα target genes, suggesting that COL11A1 may be an important factor in regulating the response to hormonal treatments.
Keywords: COL11A1, breast cancer, resistance to treatment

OP.8.37

Who are the ideal candidates for resection of liver metastases of breast origin?

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Abstract: The survival benefits reported after resection of colorectal liver metastases, along with advancements in hepatopancreatobiliary surgical techniques, have encouraged the extension of these principles to liver metastases of other origins. In the case of breast cancer, it is important to note that, in the absence of surgical treatment, patients diagnosed with liver metastases have an overall survival of less than one year. The aim of this study is to analyze the outcomes in a series of 54 patients diagnosed with liver metastases of breast origin who underwent hepatic resection. Following liver metastasectomy for breast cancer, the median overall survival was 38 months. The most significant survival benefit was observed in patients with no lymph node involvement at the time of primary tumor surgery, with hormone receptor-positive liver lesions, and in those presenting with solitary liver metastases smaller than 5 cm. In conclusion, ideal candidates for this type of approach should be selected from among patients who meet this profile.
Keywords: liver, metastases, brest cancer.

OP.8.38.
The Aging Immune System and SARS-CoV-2: Challenges in Managing COVID-19 in Older Adults

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Abstract
Older adults represent one of the most vulnerable populations affected by the COVID-19 pandemic, with disproportionate rates of hospitalization, severe disease, and mortality. Age-related immunosenescence, multimorbidity, and functional decline significantly contribute to the increased risk of adverse outcomes. In addition, atypical clinical presentations, such as delirium or falls, often delay diagnosis and complicate early recognition of SARS-CoV-2 infection in this demographic. This paper reviews the pathophysiological mechanisms underlying severe COVID-19 in the elderly, highlights the impact of frailty and comorbidities on prognosis, and discusses specific considerations in diagnosis, therapeutic management, and vaccination strategies for older adults. Understanding these age-specific vulnerabilities is essential for optimizing clinical care and informing public health policies aimed at protecting older populations during ongoing and future pandemics.
Keywords: COVID-19, elderly patient, frailty, comorbidities, immunosenescence, prognosis, geriatric syndromes, vaccination, SARS-CoV-2 infection, personalized care

OP.8.39.
Hepatitis C Virus Infection: Recent Advances in Pathogenesis, Diagnosis, and Treatment

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Abstract
Hepatitis C virus (HCV) infection remains a major global health challenge, with significant implications for public health systems due to its potential progression to cirrhosis and hepatocellular carcinoma. Despite the availability of highly effective direct-acting antiviral agents (DAAs), which have revolutionized treatment by achieving sustained virological response rates exceeding 95%, gaps persist in diagnosis, access to care, and prevention strategies—particularly in low- and middle-income countries. This paper synthesizes recent advances in the understanding of HCV pathogenesis, diagnostic modalities, and current therapeutic options, while also addressing ongoing challenges related to viral persistence, reinfection, and the absence of a prophylactic vaccine. In addition, it discusses epidemiological trends and public health strategies aligned with the World Health Organization's goal of eliminating HCV as a public health threat by 2030. A critical analysis of the current literature highlights the need for integrated approaches that combine clinical innovation with equitable health policies to achieve long-term control and eventual eradication of hepatitis C.
Keywords: *hepatitis C, hepatitis C virus, direct-acting antivirals, sustained virological response, pathogenesis, diagnosis, public health, HCV elimination, hepatocellular carcinoma*

OP.8.40.

Biodegradability and influence on the properties that confer biocompatibility to Mg-Ca-Sr alloys in medicine

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Abstract

Introduction. Magnesium-based alloys are promising materials as next-generation biodegradable implants, however, their low corrosion resistance and inadequate mechanical properties limit their application as biodegradable implant materials. During the healing process, the biodegradable implant material should have a similar degradation rate compared to newly formed bone formation, and the corrosion resistance of magnesium should be increased in order to be used in the body as a biodegradable implant material. Alloying and coating techniques are the main methods to increase the corrosion resistance as well as the mechanical properties of magnesium alloys. Purpose: Since alloying elements can affect the mechanical properties and degradation rate of magnesium as an implant material, there are several studies to optimize the content of alloying elements.

Material and method: In this paper, the production method using an inert atmosphere (Ar) processing furnace is presented, the batch calculation for the two compositions is presented and at the same time, the properties and microstructural structures of the Mg-Ca-XSr-based alloy, with different percentages of Sr, were investigated. **Results and discussions**: From the structural analysis performed by X-ray diffraction, it is observed that the predominant phase is Mg2Ca (hexagonal structure) and the secondary phase is MgSr (cubic structure). Preparation techniques used in the development of Mg – alloys for biodegradable orthopedic implants (e.g. fracture fixation implant). The process can be essentially divided into: materials optimization, processing techniques and surface modifications.

Conclusions: By optimizing the alloying elements with a specific composition, limitations can be reduced, improving the production process, surface properties and microstructure refinement. The structure of supersaturated Ca added to a Mg-based alloy determines the formation of the Mg2Ca phase at the grain boundaries. Ca alloying generates improvements in the magnesium microstructure, increases strength, creep properties at high temperatures and biocompatibility by generating thermally stable intermetallic phases. The morphological appearance of the samples shows the presence of an intermetallic phase. The Sr-containing particles appear in contrast to the lamellar Mg – Ca intermetallic compounds. The microstructure of the Mg-Ca-XSr-based alloys, with different percentages of Sr, leads to excellent microstructure refinement.

Keywords: implants, biocompatibility, Sr, microstructure, biodegradability, biomaterials

OP.8.41.

Correlation between Autism Spectrum Disorder and nutritional factors

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Abstract

Introduction: Autism Spectrum Disorder (ASD) is a neurodevelopmental disorder characterized by difficulties in communication, social interactions and repetitive behaviors. Recent studies suggest that nutritional factors may influence manifestations of ASD, raising questions about the role of diet in symptom management. This presentation aims to explore the correlation between ASD and nutritional factors, based on a literature review.
Subjects and Methods: The analysis was based on a systematic review of relevant studies published in peer-reviewed journals using databases such as PubMed, Google Scholar and Web of Science. Observational, clinical and intervention studies that evaluated the impact of various diets, trace elements, essential fatty acids and dietary supplements on ASD symptoms were included. Selection criteria included studies published within the last ten years that were assessed for methodology and validity.
Conclusions: The results of the review suggest a complex correlation between ASD and nutritional factors, with evidence indicating symptomatic improvements in patients who have adopted specific diets, such as gluten-free or casein-free diets. Most evidence also links vitamin D, vitamin B12 and homocysteine with ASD risk or symptom severity. However, conclusions are limited by the diverse study methodology and individual patient variability. Further research is needed to establish clear nutritional guidelines and to assess the long-term impact of dietary modifications in the management of ASD.
Keywords*:* ASD, nutritional factors, vitamin D, vitamin B12, specific diet

OP.8.42.

Multidimensional correlates between OCD, major depressive disorder and suicidal ideation: a literature review

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Abstract

Obsessive-compulsive disorder (OCD) is a syndrome characterized by obsessions and compulsions (Drubach, 2012) with an estimated lifetime prevalence of 2.5% (Richter, 2012). Obsessions are intrusive repetitive

anxiety-triggering thoughts, impulses, images, or repetitive urges that the individual is unable to suppress. Compulses are repetitive behaviors or mental acts that occur in response to an obsession to reduce the distress caused by obsessions (Richter, 2012). It is often associated with primary psychiatric disorders (Hofer et. al, 2018) and can severely interfere with the patient's quality of life (Drubach, 2012, Hofer at. Al, 2018).
OCD is ranked among the 10 most disabling medical conditions (Gupta, 2014) and suicide is among the leading causes of death worldwide (Whiteford et. al, 2010). OCD has been considered an important determinant of suicide. In patients with OCD, rates of suicidal ideation ranged from 10 to 53% and suicide attempts from 1 to 46% (De la Vega, 2018).
Material and Method. The aim of this study is to provide a review of the international literature to explore in depth the link between obsessive compulsive disorder and suicidal ideation in children and adolescents. The methodology used is presented in the form of a narrative review of literature sources retrieved from PubMed, Google Scholar, MedLine databases from March-April 2025. The publication language of the selected bibliographic sources was English, the review included 20 bibliographic sources.
Results:In summary, we found strong associations between major depressive disorder OCD and suicidal ideation. By better understanding these links, clinical applications can be developed and early intervention can be implemented. Further research, especially longitudinal, is needed to better understand the reciprocity of the disorders studied.
Keywords: OCD, major depressive disorder, suicidal ideation

OP.8.43.

Imaging findings in cognitive impairment in patients with multiple sclerosis

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Abstract
Introduction: This paper explores the impact of neuropsychiatric symptoms on outcomes in patients with multiple sclerosis (MS).
Materials and methods: The analysis is based on a review of recent literature involving patients who underwent magnetic resonance imaging (MRI) assessments.
Results: Recent findings suggest that among MS patients, depression is linked to worse treatment adherence, a decline in functional status and QoL, and an increased risk of suicide. MRI metrics serve as valuable tools for evaluating disease burden, clinical disability, and cognitive dysfunction. Reduced volumes of the hippocampi and deep gray matter nuclei have been linked to cognitive decline, while smaller thalamic volume correlates with slower information processing, impaired attention, and reduced verbal memory.
Conclusions: This review underscores the critical role of MRI in assessing cognitive impairment and predicting its progression in individuals with multiple sclerosis.
Keywords: cognition, MRI, multiple sclerosis, volumetry, depression.

OP.8.44.

Challenges in the early diagnosis of NACF: Case particularities

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Abstract

Avascular necrosis of the femoral head (AVN) is a serious orthopedic condition characterized by the process of bone cell death at the proximal end of the femur due to ischemia. Early diagnosis of AVN is essential to prevent disease progression and severe complications, such as secondary arthritis and the need for surgery. The challenges in establishing an early diagnosis are varied and complex. Initial symptoms, such as hip pain and joint stiffness, are often nonspecific and can be confused with other musculoskeletal conditions, leading to delays in evaluation. In addition, traditional imaging methods, such as radiographs, may not reveal early changes, requiring advanced techniques, such as MRI, to identify early signs of necrosis. Patient comorbidities, such as corticosteroid use or hematological disorders, further complicate the diagnosis, requiring a multidisciplinary approach. The lack of standardized screening protocols also contributes to the difficulties experienced by practitioners. Improving awareness and medical education, along with the use of modern technologies, is crucial for optimizing the diagnosis and treatment of AVN.

Keywords: avascular necrosis, femoral head, orthopedics

OP.8.45.

Epidemiological and clinical profile of acute respiratory tract infections in children under 2 years

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Abstract

Respiratory infections are a major cause of death in children from developing countries, accounting for approximately 4 out of 15 million deaths in children under 5 years. More than half of these deaths occur in infants. The aim of this study was to describe the prevalence and clinical characteristics of respiratory tract infections (RTI) in hospitalized newborns and infants. Multiplex PCR panels were performed from nasopharyngeal swab samples that were collected from 457 children under 2 years, who had been clinically diagnosed with acute RTI from Emergency Clinical Hospital for Children "Sf Ioan" Galati between October 2022 and December 2023. At least one virus was identified in nearly a third of patients (32.9%). Bacterial infections were found in 11.4% of cases, while viral-bacterial co-infection had a higher detection rate of 40.7%. Viral monoinfections were more common among newborns (29.6%), whereas mixed coinfection were found mostly

in infants aged 13-24 months (50.3%). A rapid and accurate etiological diagnosis of RTI is essential for adequate therapy.

Keywords: RT-PCR, respiratory infection, children.

OP.8.46.

ALPPS for Central Liver Metastasis from Colonic Adenocarcinoma with Nodal Involvement: A Case Report

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Abstract

Introduction: Large, centrally located liver metastases from colorectal cancer are often considered unresectable due to insufficient future liver remnant (FLR). The ALPPS procedure (Associating Liver Partition and Portal vein Ligation for Staged Hepatectomy) can offer a curative option in highly selected cases with favorable oncologic response.

Case Presentation: We present the case of a 63-year-old female with a history of left-sided colonic adenocarcinoma (pT4aN2a, RAS wild-type), previously resected in 2022. Follow-up imaging revealed a 12×10 cm liver metastasis involving segments 4, 5, and 8. After systemic therapy with 12 cycles of FOLFIRI + cetuximab followed by 12 cycles of FOLFOX, imaging showed disease stabilization.

Following multidisciplinary tumor board discussion, ALPPS was proposed. Step I (portal vein ligation and cholecystectomy) was performed in October 2024. Follow-up CT demonstrated sufficient hypertrophy of segments 2 and 3 (FLR: 35%). Step II, a right trisectionectomy, was completed in November 2024.

Conclusion: This case supports the role of ALPPS as a viable strategy for resecting large, central liver metastases in selected patients with controlled systemic disease. Even in the presence of regional lymph node involvement, ALPPS may offer curative potential when guided by multidisciplinary evaluation and oncologic response.

Keywords: ALPPS, colorectal cancer, liver metastasis, trisectionectomy, nodal involvement, liver surgery

OP.8.47.

Material solutions for fixed prosthetic works addressed to patients allergic to metal ions

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Abstract

Introduction: The theme of this conference aims to identify the solutions that the dentist can offer to patients suffering from allergies caused by metal ions released from fixed prosthetic structures.

Material and Methods: The materials that induce allergies in the oral cavity are alloys that contain the following metals: nickel, cobalt, chromium.

Results: Allergic patients who had nickel, cobalt, chromium alloys in the structure of fixed prosthetic works were faced with inflammation, burning sensations, blisters and discolorations in the oral mucos.
Conclusions: The conclusions of this research recommend the use of fixed prosthetic works that do not contain alloys with potential allergenic risk.
Keywords: allergies caused by metal ions, nickel alloys, cobalt alloys, chromium alloys, fixed prosthetics, dental prosthetics.

OP.8.48.

Comparative analysis of ceramic materials used in fixed prosthetics

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Abstract

Introduction: This paper aims to highlight the differences between inert ceramic materials used in dental prosthetics, both from a structural point of view and from a functional and aesthetic point of view.
Material and Methods: The materials used for this study were of three types: zircon, lithium disilicate, lithium disilicate on zircon support. The methods used for structural characterization were X-ray diffraction and scanning electron microscopy SEM coupled with EDX spectrometry. The mechanical properties were evaluated by mechanical compressive strength tests.
Results: The results obtained from these studies aim to help obtain comparative results regarding functional properties, with the idea of providing the patient with a prosthetic work that meets his needs from a physiological, functional, aesthetic and long-term point of view.
Keywords: inert ceramic materials, zircon, lithium disilicate, lithium disilicate on zircon support, fixed prosthetics, dental prosthetics.

I. ORAL PRESENTATIONS

SECTION 9
RECENT PRACTICES IN MEDICAL RESEARCH

OP. 9.1.

Mental Haelth Disorders Occurring In The Postpartum Period After Premature Birth

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Abstract

Introduction: Premature birth is the leading cause of perinatal morbidity and mortality. One in five mothers in developing countries has a mental health problem; im developed countries on in ten mothers have this problem.The birth of a child can trigger a mix of emotions, from joy and excitement to anxiety and fear.
Material and method: Data from the observation sheets from the Braila County Emergency Hospital , building D, were analysed with regard to the occurrence of postnatal depresion in patients who gave birth prematurely and a hierarchy of each type of condition was attempted in this context. We discuss situations encountered in our daily practice regarding the occurrence of behavioral changes in mothers who gave birth prematurely.
Result: The analysis of the collected data highlights the need to implement information programs for future mothers about exogenous factors that may increase the risk of premature birth and implicitly the occurrence of behavioral changes immediately after birth.
Conclusions: Interdisciplinary cooperation is a success factor in the treatment of these pathologies with possible negative implications for the family, the mother and the newborn. The timely identification of these conditions by the obstetrician and the referral of patients to a psychologist or psychiatrist lead to the initiation of correct treatment.
Keywords: premature birth , stillbirth, postnatal depression, interdisciplinary.

OP. 9.2.

Optimizing the clinical interview using artificial neural networks

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Abstract

Introduction. In the case of patients with incurable oncological diseases, one of the most important problems is related to the psycho-emotional shock suffered at the moment of learning the diagnosis and prognosis of the evolution of the respective condition. As a result of this shock, their quality of life can deteriorate rapidly, leading in extremis even to radical decisions, such as leaving the family or even suicide. In this context, palliative care

appropriate to the specific case can improve the patient's psycho-emotional state, contribute to confronting the problems associated with non-curable conditions. A first step in establishing and applying a palliative treatment strategy consists in the correct and comprehensive assessment of the patient's condition. Given the multitude of psycho-emotional factors involved, a method of analyzing the patient's condition is necessary that allows the therapist to both identify the main treatment paths and optimize them. In this paper, we propose an approach based on artificial neural network models, capable of identifying both possible suicidal tendencies and the possibilities of canceling them.

Mixed method design: Artificial Neural Networks. To implement the RNA-based model, a dedicated software package - EasyNN was used. Building a neural model starts from establishing the input and output data..

Results. The presented RNA model offers the possibility of identifying the input data with the greatest influence on the output. That the most important factor of influence on suicidal tendencies is the assessment of the prognosis of the evolution. In the following places are the emotional state, respectively communication with medical personnel. So, in order to favorably influence the patient's mood, these three aspects must be taken into account.

In conclusion,

- There are patients who, after learning the diagnosis, may think of shortening their suffering through a thoughtless gesture, which would have a negative effect on the family and society.
- Starting from the fact that, from information fragments communicated by the patient, an answer to a question that he avoids can be identified, a questionnaire was built containing questions whose answers describe his emotional state.
- Using a model based on artificial neural networks, whose inputs are the answers to related questions, the answer to the avoided question can be predicted and, moreover, methods of action can be identified to influence the achievement of a favorable attitude, without suicidal thoughts.

Keywords: Neoplasm, psychological assessment, therapeutic alliance, artificial neural networks

OP. 9.3.

Anesthetic Considerations and Outcomes in Amniotic Fluid Embolism: A Retrospective Study over a 15-Year Period

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Abstract

(1) Introduction. A rare and unexpected consequence of childbirth, labor, or the immediate postpartum period is amniotic fluid embolism (AFE). This study aims to identify AFE cases during or immediately after birth from anesthetic management perspectives. Secondary goals include assessing patient clinical features, obstetric care techniques, birth outcomes, and case survival. **(2) Materials and Methods.** A retrospective observational study assessed AFE patients hospitalized in three Romanian clinical institutions from October 2007 to April 2023. Based on the Society of Maternal-Fetal Medicine (SMFM) criteria, we diagnosed 11 AFE patients. **(3) Results.** AFE occurred in eight cases (73%) during peripartum, two (18%) within 30 min after placental delivery, and 1 (9%) during a scheduled cesarean surgery. Only one of six cardiorespiratory arrest patients responded to external cardiac massage, while the other five (83%) needed defibrillation. The patients received, on average, five units of red blood cells, six of fresh frozen plasma, and two of activated platelets. Six patients (55%) received factor VIIa infusions. Maternal mortality was 36.3%. Six neonates (75%) needed neonatal resuscitation, and two (25%) died

on the second and third days.(**4) Conclusions:** AFE management necessitates a multidisciplinary approach and the incorporation of advanced life support techniques to optimize outcomes for both the mother and newborn.
Keywords: embolism; amniotic fluid; cardio-pulmonary resuscitation pregnancy; critical care

OP 9.4.

Perioperative risk in patients with cardiac pathology – a continuous challenge

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Abstract
Introduction: Myocardial infarction is defined as myocardial cells death due to a cessation of coronary blood flow, leading to ischemia. Diagnosis requires several criteria, such as chest pain, electrocardiographic changes, and/or an increase in myocardial necrosis markers.
Materials and methods: During the perioperative period, there is an increased risk of myocardial infarction due to the stress associated with surgery, especially in patients with atherosclerosis risk factors (advanced age, history of hypertension, diabetes mellitus, dyslipidemia, or chronic coronary syndrome). Cardiovascular risk scores are necessary tools to prevent perioperative cardiovascular morbidity and mortality and the most frequently used Lee/RCRI (Revised Cardiac Risk Index) and The American University of Beirut (AUB)-HAS2.
Results: We present the case of a 72-year-old male patient, admitted for a urological evaluation. He has a history of left anterior descending artery stenting (2019), with residual coronary lesions unsuitable for revascularization, and permanent atrial fibrillation. The patient is on anticoagulant and antiplatelet therapy, which was discontinued prior to hospitalization. A prostate biopsy was performed for a suspected prostate adenocarcinoma. Postoperatively, the patient experiences anterior chest pain, with ECG changes and dynamically elevated myocardial enzymes.
Conclusion: This event highlights the importance of evaluating patients before surgical interventions to identify and manage risk factors effectively.
Keywords: risk score, myocardial infarction, perioperator, antiplatelet.

OP. 9.5.

Carotid artery Doppler ultrasound: option or necessity?

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Abstract
Introduction:
Carotid artery Doppler ultrasound is a relatively easy-to-perform investigation, with low costs and no major risks. It allows for the quantification of blood flow and the identification of possible narrowing due to atheromatosis or aneurysmal regions in the cervical arteries.

Materials and methods:

We present the case of a 68-year-old overweight female patient who was admitted to our department complaining of epigastric and precordial pain on exertion, vertigo, and hypoacusis. Her medical history reveals that in november 2024, she was diagnosed with atrial fibrillation and vertiginous syndrome and is currently on chronic treatment with a DOAC anticoagulant, a beta-blocker, a class IC antiarrhythmic (Flecainide), and Betahistine. Biologically, mild nitrogen retention syndrome was detected, as she is known to have chronic kidney disease (CKD) stage IIIA and significant hypercholesterolemia. Given the patient's symptoms, a cardiology consultation was performed, including transthoracic echocardiography, which revealed a preserved left ventricular ejection fraction (LVEF) but mild hypokinesia in the inferior interventricular septum (basal half) and the septum, with no significant valvular abnormalities. To complete the investigations, a carotid artery Doppler ultrasound was performed, revealing systolic velocities >400 cm/sec in the left internal carotid artery (ICA) due to multiple mixed, unstable plaques, indicating near-occlusion at this level. In the right ICA, a soft atherosclerotic plaque causing 50% stenosis was detected.

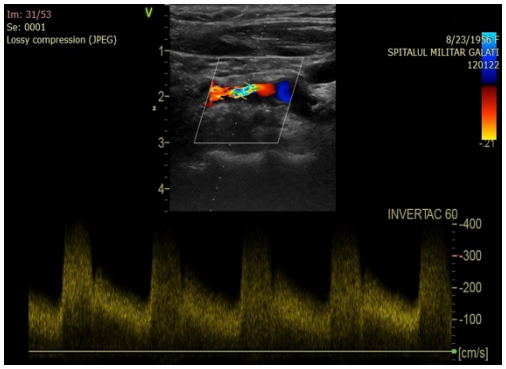
Results:

It was decided to temporarily discontinue the class IC antiarrhythmic, and the patient was referred to the angiography department for arteriography and coronary angiography to evaluate potential revascularization solutions.

Conclusions:

Near-occlusive stenosis of the internal carotid artery represents a major risk for cerebrovascular events and early diagnosis is crucial for preventing complications. This case highlights the importance of carotid Doppler ultrasound as a routine investigation, particularly in patients with cardiovascular risk factors such as chronic kidney disease, dyslipidemia, and obesity. These conditions are strongly associated with atherosclerosis and endothelial dysfunction, increasing the risk of systemic vascular damage. Systematic screening can facilitate early identification of lesions and guide therapeutic management, thus contributing to the reduction of morbidity and mortality associated with carotid atherosclerotic disease.

Keywords: atherosclerotic plaque, Doppler ultrasound, angiography.



OP. 9.6.

Beyond LDL - A Paradigm Shift in Atherosclerosis Screening

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Abstract

Background Lipoprotein(a) [Lp(a)] is increasingly recognized as a key player in atherosclerotic cardiovascular disease (ASCVD). Unlike traditional lipid markers, Lp(a) is largely genetically determined and remains stable throughout life, making it a strong predictor of cardiovascular risk independent of LDL-C levels. Despite

accumulating evidence, Lp(a) is still underutilized in clinical practice and risk stratification guidelines.
Objectives This presentation aims to highlight the role of Lp(a) in ASCVD, emphasizing its predictive value over conventional lipid profiles. We will discuss the pathophysiological mechanisms linking Lp(a) to atherothrombosis, its clinical implications in primary and secondary prevention, and emerging therapeutic strategies.
Methods A comprehensive review of recent epidemiological studies, meta-analyses, and clinical trials evaluating Lp(a) levels in cardiovascular risk prediction was conducted. Data from genetic studies and Mendelian randomization analyses were analyzed to establish causality. Additionally, ongoing clinical trials targeting Lp(a) reduction were reviewed.
Results Elevated Lp(a) levels are consistently associated with an increased risk of myocardial infarction, stroke, and aortic valve stenosis, independent of LDL-C levels. Genetic studies further support a causal relationship between Lp(a) and ASCVD. Novel therapeutic approaches, including antisense oligonucleotides and siRNA-based therapies, show promising results in significantly reducing Lp(a) levels and potentially altering disease outcomes.
Conclusion Integrating Lp(a) measurement into routine cardiovascular risk assessment could refine risk stratification and guide personalized therapeutic strategies. Future research should focus on establishing Lp(a)-lowering interventions' long-term benefits in reducing cardiovascular events.
Keywords: Lipoprotein(a), cardiovascular disease, atherosclerosis, risk assessment, lipid profile, novel therapies

OP 9.7.

The Human Microbiome and Childhood Obesity: A Novel Target for Early Intervention

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Abstract
Background The gut microbiome plays a crucial role in metabolic regulation, influencing energy balance, inflammation, and insulin sensitivity. Emerging evidence suggests that microbial dysbiosis is a key factor in childhood obesity, yet its integration into preventive and therapeutic strategies remains limited. Understanding how microbiota composition affects obesity development could provide new avenues for intervention beyond traditional dietary and lifestyle modifications.
Objectives This presentation aims to explore the relationship between gut microbiota composition and childhood obesity, highlighting microbial-derived metabolic pathways that contribute to adiposity. We will discuss potential microbiome-based interventions and their role in obesity management.
Methods A review of recent clinical and experimental studies analyzing gut microbiome alterations in obese versus non-obese children was conducted. Metagenomic sequencing data, fecal microbiota transplantation (FMT) trials, and dietary intervention studies were examined to identify key bacterial taxa and metabolic pathways implicated in obesity.
Results Obese children exhibit a distinct microbiome profile characterized by lower microbial diversity, reduced abundance of *Bacteroides*, and an increase in *Firmicutes*, leading to enhanced energy harvest. Short-chain fatty acid (SCFA) metabolism, gut permeability, and inflammatory signaling are significantly altered in obesity. Preliminary studies on prebiotics, probiotics, and FMT suggest potential benefits in modulating gut microbiota to prevent excessive weight gain.
Conclusion The gut microbiome represents a promising yet underutilized target for childhood obesity prevention and management. Future research should focus on personalized microbiome-based therapies, integrating metagenomics and precision nutrition strategies.
Keywords: Gut microbiome, childhood obesity, metabolic dysbiosis, short-chain fatty acids, probiotics, precision medicine

OP 9.8.

Evaluation of Participation in Physical Activities and Sports Among Students

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Abstract

Introduction. Physical activity and sport play a crucial role in maintaining health and overall well-being. Recent studies highlight the benefits of an active lifestyle, including reducing the risk of chronic diseases and improving psychological well-being. This study aims to evaluate the level of participation in physical activities and sports among a group of students, identifying factors that influence their level of engagement. **Materials and Methods.** The study was based on a questionnaire distributed to a group of 36 participants, students,15 male and 21 female, aged between 21 and 57 years. The questionnaire included questions regarding anthropometric data, the frequency of physical activities, the types of sports practiced, motivation for exercise, and encountered barriers. The collected data were analyzed statistically to identify general trends and relevant correlations. **Results and Discussion.** Analysis of the responses showed that less than one-third of respondents engage in physical activities daily (11 subjects out of 36), and 3 participants reported not engaging in physical activities at all. Among the participants, 9 were classified as overweight, 3 had grade I obesity, 14 were smokers, and 21 out of 36 declared having a balanced diet. The main reasons for participating in sports were maintaining health and relaxation, while lack of time and limited accessibility were major barriers. Comparing these results with the literature, global trends regarding the importance of promoting physical activity are confirmed. **Conclusions.** The study results underline the need for effective strategies to encourage an active lifestyle, tailored to the needs of different social groups. Education and accessibility are essential factors in increasing participation rates in sports and physical exercises.
Keywords: physical activity, sport, questionnaire, health

OP 9.9.

Perspective on HIV-Associated Lymphomas: 15 Years of Experience at a Romanian

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Abstract

Introduction: HIV-associated lymphoma is a significant cause of mortality among people living with human immunodeficiency virus.

Material and method: We performed a retrospective analysis of patients with HIV associated lymphoma monitored in the HIV/AIDS center in Galati, over a period of 15 years, and calculated the prevalence, mortality and

clinical-demographic characteristics.
Results: 9 cases of lymphoma were identified among the 476 new cases of HIV/AIDS infection registered, representing a prevalence of 1.89%. Overall mortality was 13.6%, and lymphoma contributed to 10.76% of HIV-related deaths. The average age at lymphoma diagnosis was 37 years, with most patients being men and smokers with sexually transmitted HIV. Common co-infections included hepatitis B virus and tuberculosis. Oncological treatment was administered in 5 cases, with a survival rate of 30%.
Conclusions: The elevated mortality rate highlights the importance of early diagnosis and a comprehensive treatment approach to improve the prognosis for patients with HIV-associated lymphomas.
Key words: HIV, AIDS, lymphoma, antiretroviral treatment, opportunistic infections, non-AIDS co-morbidities

OP 9.10.

Clinicopathological Features of HER2-low Breast Cancer – Interim Results

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Abstract
Introduction: The HER2-low subgroup has recently been defined as a distinct entity within breast cancer, with a molecular and therapeutic profile different from HER2-negative and HER2-positive tumors. This classification has gained clinical relevance with the development of novel anti-HER2 targeted therapies. Despite these advances, the clinicopathological characteristics of HER2-low tumors remain insufficiently characterized.
Matherial and method: The aim of this study is to describe the clinical, histopathological profile and therapeutic options employed in patients diagnosed with HER2-low breast cancer. This is a retrospective study conducted over a two-year period at the Clinical Emergency County Hospital "Sf. Ap. Andrei" Galați. A total of 171 patients diagnosed with invasive breast cancer were included, of whom 27% (46 patients) were classified as HER2-low, defined by an IHC score of 1+ or 2+ with a negative ISH test. Demographic data, histopathological features (tumor type, histological grade, lymphovascular invasion, lymph node status, hormone receptor expression, Ki67 proliferation index), type of surgical intervention, as well as systemic and local therapies administered were analyzed.
Results: The mean age of patients with HER2-low breast cancer was 62 years, with 83% of cases diagnosed in women over 50 years of age. Tumors were predominantly located in the left breast (57%). Histologically, invasive ductal carcinoma of no special type (NST) was the most frequent (78%), with a moderate differentiation grade (G2). Lymphovascular invasion was present in 8% of cases, and lymph node positivity was identified in 10% of patients. The majority of tumors (46%) showed a high Ki67 index (>20%), while 28% had intermediate values (14–20%), and 26% showed a low proliferative index (<14%). The most frequent molecular subtype was Luminal B (57%), followed by Luminal A (30%) and triple-negative (13%). Regarding surgical treatment, radical mastectomy was performed in 47% of patients, 20% underwent breast-conserving surgery, while 33% were still under evaluation after biopsy. Neoadjuvant chemotherapy was administered in 37% of cases, adjuvant in 11%, and palliative in 2%. Radiotherapy was performed in 72% of patients, and hormonotherapy in 87%. These preliminary results reflect an intermediate stage of the study.
Conclusions: Most patients with HER2-low breast cancer present with a Luminal B molecular profile and a high Ki67 index, indicating intense proliferative activity and possible biological heterogeneity. These findings highlight the importance of standardized assessment of HER2-low status in current clinical practice, playing a key role in

accurate classification and therapeutic decision-making.
Keywords: breast cancer, HER2-low, Luminal A

OP. 9.11.

Sequential or concomitant therapeutic combinations with CDK4/6 inhibitors and radiotherapy in patients with breast cancer and bone metastases. Stage results

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Abstract

Introduction: Breast cancer is the most common cancer in women and the second leading cause of cancer death after lung cancer in the female population. The incidence has increased since the introduction of mammography screening and the trend continues with the aging of the population. CDK4 and CDK6 are cyclin-dependent kinases that control the transition between the G1 and S phases of the cell cycle. Recent evidence suggests that cyclin-dependent kinase 4/6 (CDK4/6) inhibitors significantly improve progression-free survival and overall survival among patients with metastatic breast cancer.

Material and method: The study is retrospective and includes 16 patients with metastatic breast cancer treated with RTE and CDK 4/6 inhibitors in the Radiotherapy Center of the 'Saint Apostol Andrei' Emergency Hospital in Galati between June 2024 and February 2025. Classical hypofractionation schemes were used. The dose prescription was carried out in compliance with the provisions of ICRU 62, the minimum condition - 95% of the PTV to be covered by 95% of the prescribed dose and the maximum condition - 107% of the prescribed dose to cover a maximum of 2% of the PTV. The dose constraints to the organs at risk according to QUANTEC were respected. This study aimed to evaluate local control and acute and late toxicities in patients treated with CDK 4/6 inhibitors sequentially and concomitantly with RTE in our center.

Results: Of the patient group 76% underwent irradiation to a bone metastatic site. The administration of CDK 4/6 inhibitors was with Palbociclib in most cases (41%), and the administration of Ribocyclin and Abemaciclib was administered in 29% of cases and 23%, respectively. The side effects encountered during radiotherapy were grade I leukopenia (23%), grade I thrombocytopenia (5%) and grade I radiodermatitis (5%).

Conclusions: Radiotherapy associated with sequential or concomitant administration of CDK 4/6 inhibitors is safe and provides excellent disease control with low rates of acute and late toxicity.

Keywords: radiotherapy, CDK 4/6 inhibitors, breast cancer.

OP.9.12

Bacterial Pneumonia with Absolute CD20+ B Lymphopenia Associated with Ocrelizumab Treatment – Case Report and Systematic Review

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Abstract

Introduction: New therapies in multiple sclerosis (MS) are highly efficient in preventing relapses and disability

progression, but they have disadvantages regarding the safety of use with an increased risks of associated infections and cancer.
Materials and methods: case report and systematic review of medical literature represented by a number of 386 articles published between 2020 and 2024, selected from the Web of Science and PubMed databases, using the keywords “Ocreus/Ocrelizumab”, “pneumonia”, “lymphopenia”.
Results: The presented case is of a 25-year-old man, smoker, diagnosed in 2021 with highly active relapsing-remitting MS, who received interferons as the first line of therapy. In 2024, the second line of treatment with Ocrelizumab (OCR) was administered, but one month after the first dose he required hospitalization for community-acquired bacterial pneumonia. The etiology identified in blood culture was unusual, represented by Paenibacilus lactis. This is a sporulating saprophytic germ persistent in nature, colonizer of the skin, capable of causing opportunistic infections.
Immune reevaluation by immunophenotyping from peripheral blood identified absolute CD19+CD20+ B lymphopenia, partially corrected after 3 months. The evolution was favorable.
Discussions: OCR contains CD20 directed humanized monoclonal antibodies used in relapsing-remitting and primary-progressive MS. The main target are B lymphocytes (BL)
, regardless of the differentiation stage, and the result is a temporary depopulation of BL with a decreased humoral immunity. Clinical studies have proven the safety of using OCR, but the degree of secondary immunosuppression has individual variability. The decision to continue this therapy after the occurrence of an opportunistic infection is controversial.
Conclusion: Long-term treatment with OCR is associated with a manageable infectious risk, as long as modifiable risk factors are controlled and the disease progression prevented.
Keywords: Multiple sclerosis, Ocrelizumab, B lymphopenia, opportunistic infection, Paenibacilus lactis

OP.9.13.

Lipid Profile: Evaluation, Clinical Implications and Updated Approaches

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Abstract
Introduction: Optimal management of lipid status and inflammatory syndrome on patients with cardio-neurovascular diseases requires a complex approach that includes careful assessment of lipid profile, cardiovascular risk classification, implementation of lifestyle changes and, when indicated, initiation of appropriate pharmacological treatment.
Materials and methods: LDL cholesterol remains the main therapeutic target, and interventions include lifestyle changes and pharmacological treatment.
Lipoprotein (a) [Lp(a)] is a lipid particle similar to LDL-cholesterol, but which additionally contains a specific protein called apolipoprotein (a). High levels of Lp(a) are associated with an increased risk of cardiovascular diseases, including atherosclerosis and thrombosis, because it contributes to inflammation and the formation of atherosclerotic plaques. Its measurement is recommended at least once in a lifetime, especially in people with a family history of premature cardiovascular diseases.
Results: Inclisiran is a PCSK9 inhibitor, but unlike monoclonal antibodies (such as evolocumab and alirocumab), it acts through small interfering RNA (siRNA) to reduce the production of PCSK9 at the liver level.
Conclusion: Assessment of inflammatory markers provides additional information about the patient's risk.
Keywords: lipid status, inflammatory syndrome, LDL cholesterol, Lipoprotein (a).

OP.9.14.

The application of the principles o palitaive care in the case of the patients with thrombolised stroke and inflammatory syndrome markers with degenerative neurologic comorbidities

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Abstract

Introduction: The evaluation of the patients with thrombolysed stroke which have also other neurologic degenerative comorbidities before the stroke has a great impact on the patient and the family and the health care systems . We analysed the four dimensions of the specific care which are the physical, the psychoemotional, the social and spiritual dimension.

Material and Methods: The aggravation of the disease after the thrombolysis or the maintenance of the gravity of the disease generates the hpeless feeling and a nonlinear clinical picture with a very imprecise prognostic and with the serious limitation of the patients autonomy and also the autonomy of the hole family. Paliative care has the objective to ameliorate the pain of the inpatients and after getting home the monitoring of the vital signs, the monitoring of the correct administration of medication, the understanding by the family members the medical decisionis and the reason of each medical intervention , the raise of the trust and the responsibilities of most of the family members of the thrombolysed patients which have also inflammatory syndrome concurrent to their diseases. This data wer analysed from the patients which were admitted to the County Hospital of Brăila and which benefit from thrombolysis in the period 2024 with inflammatory syndrome and denerative nervous comorbidities like Parkinson disease and dementia.

Results: The management of the palliative care of the patients with thrombolysed stroke and demenitia or Prkinson disease needs a multidisciplinary team and the correct evaluation of the patients needs toward the treatment of the pain, the nutrition and the capacity to have a greater autonomy for the patients.

Conclusions: The inflammatory syndrome determines the aggravation fot eh associated symptomatology to thromobolysis after the stroke accident and the amplification of the impact produced by the chronic degenerative diseases. The amelioration fot the inflammatory syndrome lowers the number of in hospital days stay, reduces the use of antibiotics, reduces the suffering of the patients and of the family and helps to have more quality time spent with the family which will be happy for each step made by the patient and for each sunshine day.

Keywords: stroke, inflammatory, degenerative neurologic diseases, thrombolysis

OP.9.15

Corelations between clinical and dosimetric parameters at the esophagus in breast cancer radiotherapy. Up-date of literature.

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Abstract

Introduction Radiotherapy is a important component in the multimodal treatment of breast cancer patients from

the initial stages to those that have locally advanced or metastatic disease.
Principles of radiation therapy (RT) is important to individualize RT planning and delivery. CT-based treatment planning is used to delineate target volumes and adjacent organs at risk.
Target volumes includes the whole breast or chest wall and +/- regional nodes. As the esophagus is adjacent to the regional nodes, regional nodal irradiation (RNI) may increase the risk of radiation esophagitis (RE) after RT. RE causes a series of clinical symptoms, including odynophagia or substernal pain and dysphagia, affecting diet, which affects the quality of life. RT can increase the risk of subsequent primary oesophageal cancer, with risk increasing according to oesophagus radiation dose.
Materials and methods We describe oesophagus exposure from modern breast cancer regimens and discuss the risks of oesophageal cancer for women irradiated.
Dose-volume predictors for radiation esophagitis in patients with breast cancer undergoing conventional or other modified regims such as hypofractionated are described in the literature.
Maintaining the upper esophageal V25 at <20% and V35 at <0.27 mL may decrease the risk of RE.
For greater homogeneity of target dose and to spare normal tissues using compensators such as tissue wedges, forward planning using segments and IMRT may be used.
Mean oesophagus doses from partial breast and breast/chest wall regimens were usually less than 2 Gy, hence radiation-risks will be very small. However, for radiotherapy including lymph nodes, average mean oesophagus dose of 11.4 Gy may nearly double oesophageal cancer risk. Consideration of oesophageal exposure during nodal radiotherapy planning may reduce the risks of radiation-related oesophageal cancer for women irradiated today.
Conclusions Although a few previous studies have reported RE in breast cancer-related RT, most either had a small sample size or were retrospective in nature. Because of different radiation volumes, prescription doses, and radiation technology used, the incidence of RE varied widely among different studies.
Key words: breast cancer, radiotherapy, esofagus dose constraints

OP.9.16.

"Rotavirus Diagnosis in the Molecular Era: Techniques and Advances"

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Abstract

Introduction: *Rotavirus* is one of the leading causes of severe diarrhea in infants and young children, with a major impact on public health, especially in resource-limited regions. Rapid and accurate diagnosis is essential for the correct management of the infection and for preventing the spread of the virus. The aim of this study is to evaluate the efficiency of the qRT-PCR technique in the diagnosis of *Rotavirus*, compared to traditional methods. The study aims to highlight the advantages of using molecular technologies and their impact on prevention, treatment and epidemiological monitoring strategies.
Matherials and methods: The study was conducted on a batch of 32 fecal samples collected from children aged between 4 months and 16 years who were admitted with acute gastroenteritis to the "Sf. Ioan" Children's Emergency Clinical Hospital in Galati, between October 2024 and March 2025. Each sample was subjected to a viral DNA extraction procedure, followed by amplification of the genetic material using multiplex panels for virus identification (*Norovirus GI, Norovirus GII, Rotavirus, Adenovirus, Astrovirus, Sapovirus)* and in parallel, rapid antigen tests (latex-agglutination) and the ELISA technique were performed.
Results: Of the 32 samples analyzed, 18 had positive results for Rotavirus by the qRT-PCR technique, compared to traditional methods where only 6 of them were positive. Of the 18 positive samples, 2 showed co-infection with *Norovirus GII* and one sample with *Astrovirus*. The distribution by gender was approximately equal, female (10/16) and male (8/16). Most cases with positive *Rotavirus* were recorded in patients aged 0-5 years (16/18).

Conclusions: The qRT-PCR technique offers a rapid and highly sensitive method for diagnosing *Rotavirus*, thus contributing to better management of infections and prevention of their spread. The rotavirus vaccine is the only method of control and prophylaxis against *Rotavirus* infection, which is why it should be introduced into the mandatory scheme.

Keywords: Rotavirus, qRT-PCR

OP.9.17

The role of lung ultrasound score (LUS) in predicting extubation failure in Intensive Care Unit

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Abstract

Introduction: Mechanical ventilation (MV) is a crucial life support intervention for critically ill patients but it is still far from being a risk-free method. For patients undergoing MV, early extubation can improve clinical outcomes, while delayed extubation is associated with numerous severe adverse outcomes. But the failure of extubation increases the risk of infections, prolongs hospital stays, elevates mortality risk and imposes additional psychological and physiological burdens. Identifying the appropriate timing for extubation and minimizing adverse effects is a significant challenge for Intensive Care Unit (ICU) doctors. The evolution of medical techniques is helping us identify tools to increase the chances of respiratory independence after extubation. Ultrasound provides real-time morphological and functional information, facilitating the assessment of two critical influences on extubation outcomes: the state of pulmonary parenchymal ventilation and diaphragmatic function. Using current weaning guidelines to predict extubation outcome, up to 30% of patients still experience extubation failure.

Objective: The purpose of this prospective study is to evaluate the role of Lung Ultrasound Score - LUS using bedside ultrasound to predict successful extubation outcomes in ICU patients.

Matherials and methods: We performed Lung Ultrasound Score using a mobile ultrasound, before the extubation, in 28 mechanically ventilated patients. Extubation was decided by an independent physician and the decision to extubate was made regardless of the LUS.

Results: We compared LUS scores in the 2 categories of patients: those who succeeded and those who failed weaning from the ventilator; Patients who failed were considered to be those who were reintubated in the first 12 hours. LUS scores were significantly higher among the weaning failure group.

Conclusions: In mechanically ventilated critically ill patients , Lung Ultrasound Score can help with predicting weaning failure from the ventilator and can be included in the clinician decision to safely extubate.

OP.9.18.

AI-Driven Innovations in Pathology

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Abstract

Artificial Intelligence (AI) and Digital Pathology (DP) are revolutionizing pathology by enhancing diagnostic accuracy and efficiency. Whole-slide imaging (WSI) enables AI-driven analysis, improving biomarker quantification and histopathological assessments. **Material and Method**: This presentation reviews AI applications in pathology, focusing on digital image analysis, deep learning (DL), and machine learning (ML) techniques for tumor classification and biomarker evaluation. **Results**: AI improves diagnostic precision in pathology, outperforming human experts in tasks like Ki-67 scoring. Digital image analysis enhances biomarker quantification (ER, PR, HER-2/neu), while ML methods like XGBoost offer superior classification performance. **Conclusions:** AI-driven pathology enables faster, more accurate diagnostics, contributing to precision medicine. Continued AI and computational pathology advancements will further refine disease classification and treatment strategies.

Keywords: artificial intelligence, pathology, immunohistochemistry, digital pathology

OP.9.19.

The Role of Noncontrast Computed Tomography in Treatment Outcomes of Extracorporeal Shock Wave Lithotripsy for Kidney Stones: A Literature Review

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Abstract

Urolithiasis is a prevalent condition globally, characterized by the presence of stones within the urinary tract. Extracorporeal shock wave lithotripsy (ESWL) is a widely utilized non-invasive treatment approach in urology clinics, employed for the fragmentation of stones. An accurate evaluation of the stones size, location, and composition is crucial for devising an effective treatment plan. In this regard, noncontrast computed tomography (NCCT) has emerged as the gold-standard imaging modality.

The synthesis is grounded in a comprehensive review of research conducted through PubMed, ScienceDirect, Web of Science, and Scopus, concentrating on all pertinent studies published within the past decade (2014-2024) to ensure the inclusion of the most current data. To evaluate the treatment outcomes of renal lithiasis management using ESWL, the following parameters from NCCT examinations were analyzed: mean stone density (MSD), skin-stone distance (SSD), stone heterogeneity index (SHI), and stone size.

A detailed search across major international databases yielded 73 relevant articles, encompassing data from 3032 patients. Our analysis identified significant differences in mean stone density (MSD), stone heterogeneity index (SHI), skin-stone distance (SSD), and stone size. The majority of studies indicated that the radiologic stone heterogeneity index was independently associated with the success of ESWL in patients with renal calculi. SHI was highlighted as one of the key CT parameters, particularly for patients with large stones or high mean stone density (MSD).

The utilization of NCCT to assess kidney stone characteristics prior to ESWL can aid in predicting treatment

outcomes. Additionally, it may assist clinicians in selecting alternative treatment options for patients, such as Retrograde Intrarenal Surgery (RIS) or minimally invasive percutaneous nephrolithotomy (PCNL).

Keywords: Noncontrast Computed Tomography, Extracorporeal Shock Wave Lithotripsy, Urolithiasis, Kidney Stone Treatment.

OP.9.20

A Review of the Latest Evidence on Prognostic Factors in Locally Advanced and Metastatic Urothelial Carcinoma Treated with Immune Checkpoint Inhibitors

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Abstract

Introduction: This study reviews the prognostic factors influencing outcomes in patients with metastatic urothelial carcinoma (mUC) undergoing immunotherapy, particularly immune checkpoint inhibitors (ICIs). Materials and methods: Key clinical factors, such as ECOG performance status, metastatic site involvement, and biochemical markers (e.g., NLR, serum sodium), were identified as important predictors of survival. Molecular markers, like PD-L1 expression, were also significant in guiding responses to ICIs. Additionally, concomitant medications (e.g., PPIs and antibiotics) and conditions like sarcopenia were found to impact treatment efficacy. Results: This review underscores the importance of integrating clinical, biochemical, and molecular factors to personalize treatment and improve patient outcomes. Conclusion: Future research should validate these biomarkers to optimize therapeutic decision-making.

Keywords: Urothelial cancer, metastatic urothelial carcinoma, immune checkpoint inhibitors, prognostic factor

OP. 9.21.

Challenges in Managing Pediatric Type 1 Diabetes and Celiac Disease Amidst the Pandemic

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Abstract

Introduction: Routine screening for celiac disease (CD) in children with type 1 diabetes (DZT1) isn't practiced. The diagnosis of symptomatic BC with conclusive biopsy shows improvement with a gluten-free diet, but the biopsy is quite difficult to do in a pediatric patient. Recently, a no-biopsy approach made possible the diagnosis of CD by measuring Immunoglobulin A (IgA) antibodies against transglutaminase 2 (TGA-IgA) levels ≥10 times ULN and positive EMA-IgA in a second serum sample. **Materials and methods:** A retrospective study of the incidence of DZT1 with BC in children performed with data from the files of patients with newly diagnosed diabetes in the Children's Hospital St. Ioan from Galati; divided into six groups during January 2018- December 2024, age and gender categories. The values of plasma glucose, HbA1c, arterial Ph, serum bicarbonate, urinary ketones, and IgA/G antitransglutaminase were examined. **Results**: 99 new DZT1 cases in children were identified, annually varying between 4 and 20, with an unusual increase during the pandemic years. Globally, the gender distribution

with a more significant impact on girls. The forms of moderate-severe ketoacidosis and patients with IgA antitransglutaminase 10 times above normal values persist in the pandemic years. Patients suspected of CD and T1D were started on a gluten-free diabetes regimen. **Conclusions:** The pandemic years were the ones in which the most and most serious cases of newly diagnosed DZT1 were recorded, as well as the most patients suspected of CD. After establishing the specific regimen, a net improvement of glycemic levels and HbA1c was recorded upon repeated examination of the patients.

Keywords: type 1 diabetes, celiac disease, antibodies.

OP. 9.22.

Gamma Knife and Malignant Brain Tumors

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Abstract

The Gamma Knife is an advanced, non-invasive treatment option used in the management of malignant brain tumors. Despite its name, it is not a traditional knife but a form of stereotactic radiosurgery, which uses highly focused beams of gamma radiation to treat lesions within the brain. It is especially valuable for targeting small to medium-sized tumors located deep within the brain or in areas that are otherwise considered inoperable due to their proximity to critical structures. Recent developments in frameless radiosurgery have opened the possibility for management of larger lesions and in proximity to radiosensitive organs.

In the treatment of malignant brain tumors—such as metastatic brain cancer or certain aggressive primary brain tumors—the Gamma Knife offers a powerful combination of precision and efficacy. By concentrating radiation on the tumor with millimeter-level accuracy, it delivers a high dose to the tumor cells while minimizing exposure to surrounding healthy brain tissue. This helps reduce the risk of neurological side effects and complications commonly associated with open brain surgery or whole-brain radiation therapy.

Gamma Knife treatment is typically performed in a single outpatient session and does not require any incisions, which means patients usually experience less pain, lower risk of infection, and faster recovery times. In some cases, it can be used in conjunction with other treatments like chemotherapy, immunotherapy, or traditional surgery, forming a part of a broader, multidisciplinary approach to cancer care. Frameless immobilisation in Gamma Knife has broadened the spectrum of management options, thus opening the way to fractionat treatments. While it may not be suitable for all types of brain tumors, the Gamma Knife has become an important option in modern neuro-oncology, offering hope and improved outcomes for many patients dealing with malignant brain tumors.

Keywords: Gamma Knife stereotactic radiosurgery, malignant brain tumors, tumor control, metastasis, brain.

OP.9.23

Cardiovascular Syncope in the Elderly Patient – Between Diagnostic Challenges and Therapeutic Approaches

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Abstract

Introduction: Cardiovascular syncope in the elderly represents a significant clinical concern due to its association with increased morbidity, mortality, and recurrent falls. Differentiating cardiac from non cardiac causes is often difficult because of atypical presentations and the presence of multiple comorbidities. This review aims to synthesize current knowledge on the pathophysiology, diagnostic tools, and therapeutic strategies for cardiovascular syncope in geriatric patients.

Materials and Methods: A comprehensive literature review was conducted using databases such as PubMed, Scopus and Web of Science. Articles published between 2013 and 2024 were included, focusing on observational studies, clinical trials, guidelines, and expert consensus papers related to cardiovascular syncope in elderly populations.

Results:

The most common causes of cardiovascular syncope in the elderly include arrhythmias especially bradyarrhythmias), aortic stenosis, and orthostatic hypotension with a cardiac component. Diagnostic challenges arise from overlapping symptoms with neurological or metabolic conditions. Tools such as prolonged ECG monitoring, tilt-table testing, and echocardiography are frequently used but must be interpreted within the broader clinical context. Therapeutic approaches range from pacemaker implantation in bradyarrhythmic cases to medication adjustments and patient education. However, evidence-based treatment guidelines specific to the elderly are limited.

Conclusions: Cardiovascular syncope in the elderly requires a tailored diagnostic and therapeutic approach, considering the high risk of adverse outcomes and the complexity of comorbid conditions. Multidisciplinary evaluation and individualized care plans remain essential. Further research is needed to develop age-specific diagnostic algorithms and therapeutic recommendations.

Keywords: Cardiovascular syncope, elderly, geriatric patients

OP.9.24

Stereotactic Gamma KnifeRadiosurgical Management of Benign Brain Lesions

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Abstract

Gamma Knife radiosurgery is an advanced, non-invasive treatment used to manage a variety of benign brain lesions, offering an effective alternative to traditional surgery. This technique uses highly focused beams of gamma

radiation to target and treat abnormal tissue, delivering a precise dose directly to the lesion while minimizing exposure to surrounding healthy brain tissue. It is especially useful for treating lesions that are difficult to reach or located in critical areas of the brain where conventional surgery may pose significant risks.
Common types of benign brain lesions treated with Gamma Knife include:
Meningiomas: tumors that develop from the meninges, the protective membranes surrounding the brain and spinal cord.
Acoustic Neuromas: non-cancerous tumors that grow on the vestibulocochlear nerve, affecting hearing and balance.
Pituitary Adenomas: tumors in the pituitary gland, which can impact hormone production and cause a variety of symptoms.
For patients with these conditions, Gamma Knife provides a non-invasive solution that does not require any incisions or hospitalization. Treatment is typically completed in a single session, and the patient can go home the same day. Unlike traditional surgery, Gamma Knife involves minimal risk of infection and offers a quick recovery time, often with fewer side effects.
This approach is especially beneficial for lesions located in deep or hard-to-reach areas, such as those near the brainstem or optic nerves, where traditional surgery may be too risky. While Gamma Knife radiosurgery may not completely eliminate the lesion in all cases, it can shrink, stabilize, or control the growth of benign tumors, thus reducing symptoms and preventing further complications.
Additionally, Gamma Knife can be used in combination with other treatments like surgery or radiation therapy for a more comprehensive approach to managing benign brain lesions. It offers a safe and effective way to treat patients while preserving brain function and improving overall quality of life.
Keywords: Gamma Knife stereotactic radiosurgery, benign brain tumors**,** non-invasive treatment, precise dose.

OP.9.25.

Updates On The Rehabilitation Strategies For Cervical Disc Herniation

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Abstract

Introduction: Cervical disc herniation (CDH) is a condition with a significant impact on quality of life, particularly among professionally active individuals. It is one of the leading causes of cervical radiculopathy and functional disability. Advances in both conservative management and surgical techniques, as well as in rehabilitation protocols, have redefined the therapeutic approach to CDH in recent years.
Methodology: This paper presents a narrative review based on a structured search conducted in databases such as PubMed, Cochrane Library, ScienceDirect, and Google Scholar. Keywords included: *"cervical disc herniation," "rehabilitation," "non-surgical management," "cervical arthroplasty,"* and *"physical therapy."* Only original studies, meta-analyses, and systematic reviews published between **January 2020 and March 2025**, in English or Romanian, and rated high in methodological quality (GRADE or PRISMA), were selected.
Results: Recent literature supports a multimodal approach to CDH rehabilitation. Conservative strategies such as active therapeutic exercise, manual therapy, and neurostimulation techniques (e.g., TENS, laser therapy) have shown significant improvement in pain reduction and functional outcomes. Surgical options like ACDF and cervical disc arthroplasty demonstrate similar efficacy in symptom relief, with arthroplasty preserving segmental mobility. Additionally, virtual reality systems, wearable devices, and biofeedback are increasingly used in postoperative recovery, contributing to adherence and functional reintegration.
Discussion: The integration of modern technologies and interdisciplinary collaboration has strengthened the role of physiotherapy in the global management of CDH. Patient-centered care, functional assessment tools, and long-

term rehabilitation planning are key elements in improving clinical outcomes and preventing recurrence.
Conclusion: Recent advances in CDH management highlight the importance of early diagnosis, individualized therapy, and innovative rehabilitation strategies. Continued research and the adoption of evidence-based protocols are essential to support optimal recovery and patient quality of life.
Keywords: *cervical disc herniation, rehabilitation, non-surgical management, cervical arthroplasty*.

OP.9.26.

Current Trends in the Rehabilitation of Temporomandibular Joint Dysfunction

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Abstract
Introduction: Temporomandibular joint dysfunctions (TMDs) are common musculoskeletal conditions that significantly affect mastication, speech, and quality of life. In recent years, rehabilitation approaches have evolved significantly, with an emphasis on multimodal, personalized, and evidence-based methods.
Methodology: This study presents a structured literature review conducted through a systematic search of PubMed, Cochrane Library, ScienceDirect, and Scopus, covering publications from January 2019 to March 2025. Keywords used included: *"TMD rehabilitation," "manual therapy," "low-level laser therapy," "neuromuscular control."* Out of 134 initially identified articles, 38 high-quality studies (clinical trials, meta-analyses, and systematic reviews) were selected. Inclusion criteria focused on adult patients diagnosed with TMD according to RDC/TMD or DC/TMD and treated through physiotherapy-based interventions.
Results: Current literature supports the effectiveness of multimodal interventions in the conservative treatment of TMD. The most frequently analyzed methods include manual therapy, therapeutic exercises, postural correction, and electrotherapy techniques. Emerging tools such as biofeedback, tele-rehabilitation platforms, and myofunctional training have shown promising results, especially when integrated into personalized care plans.
Discussion: Integrating these techniques into individualized approaches tailored to the patient's functional profile leads to superior outcomes compared to isolated interventions. Recent studies emphasize the key role of physiotherapy in restoring muscular balance, reducing pain symptoms, and preventing recurrence, particularly in chronic forms of TMD.
Conclusion: Physiotherapy stands out as a core element in the conservative management of temporomandibular joint disorders. The implementation of evidence-based, patient-centered protocols contributes to effective and long-lasting functional recovery.
Keywords: *TMD rehabilitation, manual therapy, low-level laser therapy, neuromuscular control.*

OP.9.27.

Clinical and Epidemiological Aspects and Therapeutic Implications in Anxiety Disorders – A Literature Review

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Abstract

Introduction: Anxiety disorders are among the most common psychiatric conditions, affecting approximately 7–10% of the general population. They have a significant impact on social and professional functioning, as well as on overall quality of life. In the context of the COVID-19 pandemic, both the prevalence and severity of these disorders have increased considerably, highlighting the need for a deeper
understanding of their risk fact"ors, clinical manifestations, and current therapeutic approaches.

Methodology: This paper presents a narrative review of scientific literature based on articles indexed in databases such as PubMed, PsycINFO, ScienceDirect, and Google Scholar, published between January 2018 and March 2025. Keywords usedincluded: A total of 48 high-quality studies (according to PRISMA and GRADE criteria), including meta-analyses, longitudinal studies, and clinical guidelines, were included**.**

Results: The synthesized data indicate a higher prevalence of anxiety disorders in women and young adults, with multiple contributing risk factors: genetic (heritability 30–40%), neurobiological (dysregulation of serotonin, GABA, and the HPA axis), psychological (neuroticism, insecure attachment), as well as socio-demographic and environmental factors (stressful life events, pandemic-related stress). Clinical manifestations are varied, involving cognitive, somatic, and behavioral symptoms. Diagnostic tools commonly used include the GAD-7, HAM-A, and DSM-5 criteria. Common comorbidities such as depression and somatic disorders negatively affect prognosis. Effective treatment is typically integrated, combining psychotherapy with pharmacological interventions.

Discussion: Anxiety disorders remain underdiagnosed, particularly due to nonspecific somatic presentations and the stigma surrounding mental health. Early and personalized diagnosis is essential to prevent chronicity. The pandemic emphasized the need for fast, accessible, and digitally adapted interventions. Additionally, therapeuticapproaches must consider comorbidities and the patient's sociocultural background. While CBT remains the gold standard, emerging directions include mindfulness-based therapies, virtual reality interventions, and digital health solutions.

Conclusion Anxiety disorders are frequent, multifaceted conditions with significant global mental health implications. Early identification of risk factors, the use of validated diagnostic tools, and the implementation of integrated treatment plans can substantially improve patient outcomes. There is a need to expand clinical-epidemiological research and adapt treatment protocols to current social and technological contexts.

Keywords: anxiety disorders, epidemiology, clinical features, risk factors, comorbidities, GAD-7, DSM-5, COVID-19, treatment strategies, mental health.

OP.9.28

The profile of musculoskeletal risk in healthcare professions and the impact of the COVID-19 pandemic: implications for prevention and occupational health policies

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Abstract

Introduction: The COVID-19 pandemic has brought major changes in the structure of work in the healthcare sector, with a direct impact on the health of healthcare workers. This study investigates absenteeism trends caused by musculoskeletal disorders among employees of a regional pediatric hospital.

Methods: Medical and auxiliary staff sick leaves were analyzed by logistic and linear regression models according to diagnosis, age, sex, profession, season and period (pre-pandemic, pandemic, post-pandemic).

Results: We observed a significant increase in musculoskeletal pathology-related absenteeism in the post-pandemic period, particularly among women, nurses and staff aged ≥46 years. A change in seasonality was observed, with a peak of absenteeism in spring, different from the pre-pandemic distribution. Dorsopathies (e.g. low back pain) and arthropathies were the most common causes of absence, but had different mean durations: arthropathies required the most days of leave (p=0.001). During the pandemic, there was a reduction in acute trauma leave, most likely due to mobility restrictions and protective measures.

Discussion: The findings suggest that the interventions implemented during the pandemic (work reorganization, ergonomic equipment, reduction of elective activities) had a protective effect in certain occupational groups, especially among employees involved in intense physical work. However, chronic musculoskeletal conditions, such as arthropathies, continued to generate significant sick leave, indicating a need for long-term prevention and recovery strategies. Statistical models demonstrated a high predictive power (>94%), emphasizing the decisive role of the pandemic context, seasonal characteristics and demographic profile.

Conclusion: Personalized prevention and rehabilitation strategies should be developed, including: regular screening, ergonomic counseling, job task adaptation, psychological support and the use of predictive models for human resources management. These measures can help to reduce the economic burden of absenteeism and maintain the sustainability of the healthcare workforce.

Keywords: musculoskeletal disorders, COVID-19 pandemic, healthcare workers, prevention, occupational medicine, rehabilitation

OP.9.29.

The need for pediatric palliative care in Romania: Retrospective study 2022-2023 based on quantitative research and analysis of secondary statistical data

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Abstract

Introduction: The need for palliative care for children in Romania is still unknown. In order to correctly assess the extent of the need and to support the necessity to meet it, more accurate estimates are indispensable.
Objectives: The objective of this study was to develop an accurate estimate of the need for palliative care for children in Romania in the period 2022-2023 using secondary data analysis from the General Directorates of Social Assistance and Child Protection (DGASPC), covering 41 counties and the 6 sectors of Bucharest municipality.
Results: The study highlights the unequal distribution of cases of children with life-limiting conditions, with a total of 14,499 patients registered, and emphasizes the major lack of resources and infrastructure, with only 50 dedicated beds nationwide.
Conclusion: Estimating the need for palliative care for children is a crucial step in addressing the needs of children facing life-threatening conditions, while providing a powerful argument to combat the unacceptably wide disparities in access to care.
Keywords: palliative care, pediatrics, life-limiting diseases, medical resources, rural, Romania.

OP.9.30.

Benefits of Early Postoperative Rehabilitation in Minimally Invasive Lumbar Disc Herniation Surgery

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Abstract

Introduction Lumbar disc herniation (LDH) is a frequently encountered pathology of the spine, with a significant impact on patients quality of life. It is characterized by the migration or rupture of the nucleus pulposus of an intervertebral disc in the lumbar region, leading to the compression of nerve roots. Clinical manifestations include: radiating lumbar pain, paresthesia, motor deficits and sensory disturbances in the lower limbs.
In recent years, minimally invasive surgery, as a revolutionary and innovative technology based on artificial intelligence, has gained ground due to its advantages: reduced tissue trauma, shorter hospital stay, rapid recovery and minimal complications. 3D digital robotic microscopes, such as the AEOS Exoscope, offer high-resolution visualization, improved ergonomics for the surgeon and a safer approach to nerve structures. The "Prof. Dr. N. Oblu" Emergency Clinical Hospital in Iași uses this device in neurosurgical interventions for selected cases of lumbar disc herniation.

Material and Method The present study aims to evaluate the impact of early postoperative rehabilitation after the use of the AEOS Exoscope. We conducted a prospective study on a sample of 70 patients (20,47%), selected from a total of 342 LDH cases operated on in the Neurosurgery II Department of the "Prof. Dr. N. Oblu" Emergency Clinical Hospital of Iași, between August 2024 and April 2025. The 70 patients underwent minimally invasive surgery using the AEOS Exoscope. The patients were integrated into a personalized early recovery program with follow-ups at 24–48 hours, 1 month, and 6 months postoperatively. A series of demographic and clinical variables were analyzed: gender, place of origin, location of the disc herniation, associated comorbidities, the timing of rehabilitation initiation and clinical evolution at 1 and 6 months postoperatively.

Results The distribution of patients showed a preponderance of those from urban areas and a slightly higher proportion of females (52,86%). The maximum age of those operated with the exoscope was up to 55 years, compared to the classical microscope, where the maximum age was 89 years.The most frequent locations of disc herniation were at the L4-L5 (43.38%) and L5-S1 (11.7%) levels. Neurological comorbidities (SPE/SPI paresis, paresthesia, cauda equina syndrome) were present in 65.73% of patients and osteoarticular conditions in 24.26%. The recovery program was initiated in the first 24–48 postoperative hours, with a high rate of compliance. Subsequent evaluations at 1 and 6 months showed significant clinical improvements.

Conclusions The use of endoscopic and microscope-assisted navigation systems (the AEOS Exoscope) in lumbar disc herniation surgery has proven effective, contributing to the reduction of operative time, the risk of complications and the initiation of early recovery. Early, personalized and monitored rehabilitation positively influences postoperative evolution and increases the chances of complete functional reintegration. The implementation of standardized postoperative recovery protocols, in addition to patient education, represents essential directions for optimizing therapeutic outcomes in minimally invasive lumbar disc herniation surgery.

Key words: lumbar disc herniation, exoscope, recovery/ rehabilitation, neurosurgery

OP.9.31

Modele capilaroscopice în patologia medicală (review)

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Abstract

Introduction: Microcirculation evaluation provides clues for a variety of conjunctivovascular and dermatological conditions, being a particularly important technique in establishnig diagnosis and prognosis.

Matherials and methods: I analyzed the articles that were published in the PubMed journal in the last 10 years, with the topic ``capillaroscopy``.

Results: The use of the capillaroscopic technique is a non-invasive method for evaluating changes that may occur in the capillaries. It is most often used in the diagnosis of rheumatological conditions: rheumatoid arthritis, systemic scleroderma, systemic lupus erythematosus, polymyosistis, Sjogren`s syndrome.

Conclusions: Capillaroscopy is a non-invasive investigation, easy to perform and accessible to patiens. In order to make a final diagnosis, the result of capillaroscopy will be correlated with the results of clinical and paraclinical investigations.

Keywords: : rheumatoid arthritis, systemic scleroderma, systemic lupus erythematosus, polymyosistis,

Sjogren`s syndrome, capillaroscopy.

OP.9.32.

The Involvement of *Acinetobacter spp.* in Healthcare-Associated Infections in a Hospital from Northeastern Romania

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Abstract

Introduction: Healthcare-associated infections (HAIs) are continuously progressing worldwide due to their complex mechanism of occurrence, involving a wide range of increasingly antimicrobial-resistant pathogens. This phenomenon represents a major threat to public health in the third millennium. **Materials and Methods:** We conducted a retrospective, longitudinal, observational, clinico-epidemiological study in a neurosurgical hospital in northeastern Romania – the "Prof. Dr. N. Oblu" Emergency Clinical Hospital in Iași – during the 2020–2024 period. The research focused on the involvement of *Acinetobacter spp.*, identified as the leading cause of HAIs in this facility. **Results:** Our study revealed the highest HAI incidence rate in the Intensive Care Unit (ICU) – 92.78%, compared to the neurosurgical wards – 15.38%. Male patients (69.23%) and those from rural areas (55.67%) were the most frequently affected. The most common *Acinetobacter spp.*-related HAIs were ventilator-associated pneumonia (VAP) – 42.67% and lower respiratory tract infections (LRTIs) – 23.07%. Highly virulent and pathogenic strains were identified (RC-MDR, RC, ESBL-MDR), with RC-MDR strains being the most prevalent – 88.27%. **Conclusions:** We believe that our study provides valuable data that can contribute to controlling in-hospital antimicrobial resistance and guiding more effective antibiotic therapy in HAIs. Careful monitoring of bacterial strains, especially *Acinetobacter spp.*, is essential for the development of prevention and treatment strategies in healthcare settings.

Keywords: healthcare-associated infections, Acinetobacter, epidemiology, neurosurgery.

OP. 9.33.

Beyond the Trial: Building a Transdisciplinary Matrix for Validating Clinical Innovation in the Age of Real-World Evidence

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Abstract:

Clinical innovation often relies on traditional Clinical Trials, which are increasingly seen as limited in real-world applicability. This study proposes a transdisciplinary matrix to validate clinical hypotheses beyond the constraints of conventional trials, integrating neuropharmacological, economic, and ethical dimensions. Emphasis is placed on Indirect Treatment Comparisons (ITCs), Real-World Evidence (RWE), and Bayesian approaches to better reflect clinical complexity. The model incorporates Patient-Reported Outcomes, cost-effectiveness analyses, and ethical frameworks to foster equitable and informed clinical decision-making. By doing so, we propose a multidimensional methodology to realign research with the realities of modern medicine.

Keywords: transdisciplinary, clinical innovation, real-world evidence, cost-effectiveness, ethics, neuropharmacology.

OP.9.34

Clinical and Infrastructure Risk Management in an Emergency Hospital Unit in Iași, Romania

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Abstract

In recent years, amid increasing demands for patient safety and the quality of medical services, strict risk management policies and protocols have been developed and implemented. These include both preventive actions, such as ongoing staff training, internal audits, and standardized procedures, as well as corrective measures, such as analyzing the causes of adverse incidents and updating clinical practices. Beyond a simple legal or institutional obligation, risk management represents an ethical duty, reflecting the organization's commitment to professional excellence and respect for human life. In this context, integrating risk management into the hospital's organizational culture becomes fundamental to ensuring safe, effective, and sustainable medical practice.

Keywords: clinical risks, patient safety, management, vulnerability, prevention, organizational culture

OP. 9.35

Clinical profile of dental pathology patient associating dental anxiety

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Abstract

Introduction: In recent years, dentistry has undergone significant advances in terms of technical capabilities, organizational structure, with new subspecialties and an increasing focus on psychological aspects of patient behavior, especially dental anxiety.

Material and Method: For the study, we used a 26-item structured questionnaire and it was conducted on 52 patients. The data was processed with Microsoft Excel.

The age of the participants was between 18-50 years, 19 had caffeine addiction and 15 tobacco addiction. Most patients (n=43) had their first dental consultation before the age of 18, and most patients (n=38) brushed their teeth twice a day. 53.8% of the population was not satisfied with their dental appearance and 36.5% were afraid of the dentist.

Conclusions: The study findings revealed a significant correlation between compromised oral health and an increased susceptibility to anxiety and depression, establishing a clear link between oral well-being and mental health. Specifically, dental pain, feelings of embarrassment arising from dental problems, and subsequent self-consciousness can significantly contribute to the development of anxiety and depression symptoms. Consequently, individuals experiencing poor oral health may experience difficulties in social interactions, communication, and maintaining a positive self-image, highlighting the broad impact of oral health on overall well-being.

Keywords: dental anxiety, dental problems, oral health, dental treatments.

OP.9.36.

Synthesis and Characterization of Nanocomposites for Bone Regeneration

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Abstract

Introduction Bone regeneration using nanocomposites is a topic of major interest in regenerative medicine and tissue engineering. Nanocomposites are materials composed of two or more phases (typically a matrix and a nanoscale material) and, in the context of bone regeneration, they are designed to mimic the structure and function of natural bone. The regeneration mechanism relies on the continuous activity of cells such as osteoclasts (which resorb bone) and osteoblasts (which rebuild bone), as well as on the ability of biomaterials to completely resorb over time while being replaced by the patient's natural bone.

Nanocomposites are hybrid materials combining a polymer matrix (natural or synthetic) with inorganic nanoparticles, typically bioactive ones, such as nano-sized hydroxyapatite (HA), bio-glass, carbon nanotubes (CNTs), silicon, zinc, or titanium nanoparticles. These materials are designed to imitate the mineral composition of bone, provide mechanical support, stimulate osteoblast growth, and promote the formation of new bone matrix.

Advantages of using nanocomposites in bone regeneration include enhanced bioactivity (good interaction with bone cells and stimulation of new tissue formation), controllable degradation rate (they can be engineered to degrade at the same pace as bone regeneration), superior mechanical properties (better strength and elasticity compared to conventional materials), and optimal porous structure (promoting vascularization and cell infiltration). Synthesized and characterized nanocomposites used for bone regeneration include HA/Polylactic Acid (PLA) (Hydroxyapatite + biodegradable polymer) used as a scaffold for stem cells, and Bio-glass/Polycaprolactone (PCL) composites.

Current research trends focus on the use of 3D printing technologies for creating customized nanocomposites, functionalization with peptides or growth factors (e.g., BMP-2) to stimulate osteogenesis, and combination with mesenchymal stem cells for advanced cell therapies.

Material and Method The synthesis of the HA/Polylactic Acid (PLA) nanocomposite involved using hydroxyapatite (HA) (in nanopowder form obtained via sol-gel method), a biodegradable polymer, and an organic solvent (dichloromethane or chloroform for dissolving PLA). A PLA solution was prepared by dissolving PLA in the solvent (concentrations between 5–15% g/mL) under continuous magnetic stirring until a homogeneous solution was obtained. HA powder was gradually added to the PLA solution in various proportions (e.g., 10–30% by weight) and mixed vigorously (or sonicated) for uniform dispersion. The mixture was cast into molds or onto flat surfaces and allowed to dry either at room temperature or in a ventilated oven (40–60°C) until a solid film or structure formed. The composite underwent additional thermal or mechanical treatments (hot pressing, extrusion, 3D printing) to achieve the desired shape and to improve mechanical properties.

The Bio-glass/PCL nanocomposite was synthesized by dissolving PCL granules in an organic solvent under thermal stirring to obtain a uniform solution, followed by the gradual addition of bio-glass powder in proportions of 10%, 20%, and 30%, with the mixture being ultrasonicated. The resulting mixture was cast into templates and left to dry at room temperature or in a ventilated oven (30–50°C) until a solid film/composite was formed. For specific applications, the composite was subjected to extrusion (fibers or porous structures), 3D printing (fused deposition modeling) to create customized structures, and hot pressing to form tablets, discs, or granules.

Results The synthesized and characterized nanocomposites – HA/Polylactic Acid (PLA) and Bio-glass/Polycaprolactone (PCL) – were tested for bone regeneration applications due to their bioactive and biodegradable properties.

The HA/PLA composite exhibited a homogeneous porous structure suitable for cell colonization. HA contributed

to the material's bioactivity, while the PLA matrix provided temporary mechanical support and was compatible with mesenchymal stem cells. The material was used as a scaffold for the cultivation and differentiation of stem cells towards the osteogenic lineage.
The Bio-glass/PCL composite showed a uniform distribution of bio-glass particles within the PCL matrix, confirmed by electron microscopy. This composite demonstrated superior osteoconductive properties, stimulating in vitro mineralization and apatite formation in simulated media. Additionally, its controlled porosity and mechanical stability recommend it for use in critical bone defects.
Conclusions Both nanocomposites (HA/Polylactic Acid (PLA) and Bio-glass/Polycaprolactone (PCL)) demonstrated good mechanical properties, biocompatibility, and bioactivity, making them promising candidates for clinical applications in bone tissue engineering.

OP. 9.37.

Histological changes in fibromucosis adjacent to dental amalgam fillings

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Abstract
This paper presents the research histopathologic appearance of oral mucosal fragments taken from dental sites with amalgam fillings. The therapeutic decision to extract teeth with dental amalgam facilitated the removal of mucosal fragments in the immediate vicinity of the dental amalgam. Extraction of the teeth was not related to mucous changes but was performed for prosthetic reasons (the teeth could not be restored prosthetically). Inflammatory changes with vascular and cellular alterations were observed.
Keywords: amalgam dental filling, dentistry,

II. POSTERS

SECTION 9
RECENT PRACTICES IN MEDICAL RESEARCH

PP.1.9

Incidence of right ventricular pacing-induced cardiomyopathy

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Abstract
Introduction: Right ventricular (RV) pacing is the basic treatment for patients with advanced atrioventricular block. Chronic RV pacing can cause systolic dysfunction and heart failure. **Material and Methods**: We evaluated 36 patients who received pacemaker VVI implantation in the Clinical Emergency Country Hospital Saint Apostol

Andrei during period of 2021-2022. Of these patients, 3 deaths due to comorbidities were reported (2 patients died due to SARS-COV2 infection and 1 patient died due to stroke). Accordingly, 33 patients were included in the study. **Results**: The average age of the study group was 75.6 years. Among cardiovascular risk factors, a major prevalence of arterial hypertension (29 patients) was observed. Also, 25% of patients had non-insulin-dependent type 2 diabetes, 19% had dyslipidemia and 16% were obese. Only 2 patients were smokers. All patients underwent echocardiography upon admission, which allowed classification of patients by left ventricular ejection fraction (LVEF). 83% of patients demonstrated preserved LVEF (>50%), 11% had moderately reduced LVEF (40-50%) and 6% reduced LVEF (<40%). Of the patients undergoing >40% RV pacing, 26% eventually developed LV systolic dysfunction and/or heart failure that may be secondary to the high percentage of RV pacing. **Conclusions**: The extent of the long-term clinical effects of RV pacing in patients with normal ventricular function and how this can be prevented are less clear and are the subject of future investigation.
Keywords: right ventricular pacing, cardiac systolic dysfunction

PP. 2.9.

The Importance of Nutritional Management in Geriatric Patients with Thrombolyzed vs. Non-Thrombolyzed Stroke

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Abstract

Stroke is one of the leading causes of morbidity and mortality in geriatric patients. Nutritional management plays a key role in recovery, significantly impacting functional prognosis and quality of life. Clinical implications of nutritional status, intervention strategies, and their impact on neurological recovery are highlighted.

Introduction Elderly stroke patients are particularly vulnerable to malnutrition, which can worsen the course of the disease and prolong recovery. Thrombolytic therapy (e.g., alteplase) may significantly improve neurological outcomes but requires careful nutritional management to prevent complications. In contrast, non-thrombolyzed patients are at increased risk of severe disability, thus requiring more aggressive nutritional strategies to optimize recovery.

Materials and Methods

This study compares two groups of elderly patients diagnosed with acute ischemic stroke:

- Thrombolyzed Group
- Non-Thrombolyzed Group

Results Thrombolyzed patients showed faster recovery of swallowing function, allowing earlier initiation of oral feeding.

Severe malnutrition was more frequently observed in non-thrombolyzed patients, requiring early nutritional supplementation.

Discussion Geriatric patients with ischemic stroke face a high risk of malnutrition, which negatively affects prognosis. Thrombolysis can support nutritional recovery by improving neurological status, though these patients still require close monitoring to prevent complications.

Conclusions Nutritional management is essential in the recovery of elderly patients with ischemic stroke. Thrombolyzed patients experience better neurological recovery, which supports improved nutritional status, while non-thrombolyzed patients require more intensive nutritional interventions to prevent malnutrition and related complications. A personalized nutritional protocol can enhance patient outcomes and quality of life.

Keywords: stroke, thrombolysis, nutrition

I. INVITED LECTURES

SECTION 10
ADVANCED RESEARCH IN PHARMACEUTICAL SCIENCES

IL.10.1.

Redefining Solvent Systems in Pharmaceutical Research: The Role of Deep Eutectic Solvents

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Abstract

Deep eutectic solvents (DESs) represent a rapidly emerging class of green solvents with considerable potential in pharmaceutical science. Composed of hydrogen bond donors and acceptors, DESs are characterized by low volatility, non-flammability, biodegradability, and ease of preparation from readily available, often natural, components. In this presentation, I will explore the application of DESs as sustainable media throughout various stages of pharmaceutical development. Emphasis will be placed on their use as environmentally benign alternatives to conventional organic solvents in key organic transformations relevant to the synthesis of active pharmaceutical ingredients (APIs), as well as in formulation processes within the pharmaceutical industry. Particular attention will be given to natural deep eutectic solvents (NADES) and their growing role in enhancing the solubility and bioavailability of poorly water-soluble drugs. By aligning with the principles of green chemistry and the circular economy, DESs demonstrate exceptional versatility and hold the potential to redefine solvent paradigms in pharmaceutical research and manufacturing.

Keywords: eutectic solvent, environmentally, synthesis, pharmaceutical compound

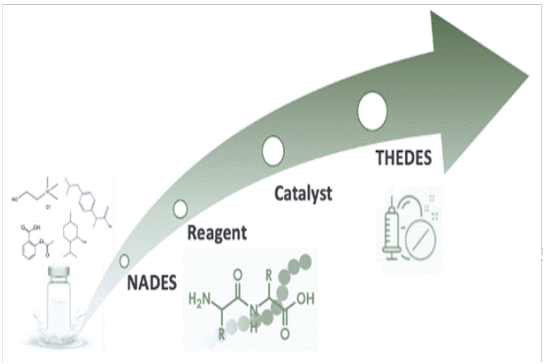

Figure 1. Deep Eutectic Solvents for Pharmaceutical Purposes

II. ORAL PRESENTATIONS

SECTION 10
ADVANCED RESEARCH IN PHARMACEUTICAL SCIENCES

OP. 10.1.

Phytopharmacological Actions of Lycopene

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Abstract
Dietary intake of tomatoes and tomato products has many beneficial effects due to its phytochemicals and nutrients. Lycopene is a natural red-colored carotenoid predominantly found in tomatoes, grapefruits, and watermelons, and it has a unique chemical structure that makes it a potent antioxidant compound. Dietary consumption of carotenoids like lycopene has an essential role in human health, the antioxidant and free radical scavenger properties exhibit biological actions in various diseases. It has been studied that diet represents a significant risk factor for heart disease which is known as the most important cause of death in the world. Lycopene has been found to mitigate oxidative stress-induced dysfunctions and diseases, efficiently ameliorating inflammatory events, cardiac complications, cancer insurgences, and hepatic and neural disorders. This review outlines lycopene's antioxidant activity and applications as a functional food ingredient. According to the research, lycopene use has health benefits that could be applied to health system delivery. Furthermore, future directions with the possible use of this natural antioxidant, which can also enhance the nutritional value of foods may lead to new ways of use.
Keywords: lycopene, antioxidant, tomatoes, human health.

OP. 10.2.

Grape Pomace, a Source of Proanthocyanidins in the Prevention and Treatment of Metabolic Diseases

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Abstract
Grape seed proanthocyanidin extract is a complex flavonoid polyphenolic compound constituting an important source of active substances that can be addressed in the prevention and treatment of metabolic and cardiovascular diseases. This paper systematically reviews the research progress and potential mechanism of proanthocyanidin extract, focusing on the prevention and treatment of obesity. Obesity is a chronic metabolic disease that cannot be ignored, resulting from excessive fat accumulation and/or abnormal distribution caused by various factors. As a major component of metabolic syndrome, obesity is closely related to many diseases such as type 2 diabetes mellitus, hyperlipidemia, hypertension, coronary

heart disease, stroke and cancer. Recent studies have shown that grape seed proanthocyanidin extract (GSPE) has anti-obesity effect. It is considered one of the most effective plant antioxidants and one of the most effective free radical scavengers. The incorporation of grape pomace polyphenols into pharmaceutical forms may be an alternative in the management of metabolic diseases

Keywords: grape pomace, proanthocyanidins, obesity, cardiovascular.

OP. 10.3.

Pharmacological and Toxicological Risks of Supplements with Anxiolytic, Antidepressant, and Sedative Effects

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Abstract

Dietary supplements aimed at alleviating stress, anxiety, depression, and insomnia have gained increasing popularity in recent years, largely due to their perception as natural alternatives to conventional pharmacological treatments. However, the use of these supplements may entail significant risks, particularly when administered in combination with other therapies or in uncontrolled dosages. The paper synthesizes data from the scientific literature and clinical studies, highlighting the relative efficacy of certain plants such as *Hypericum perforatum, Passiflora incarnata, Valeriana officinalis, Piper methysticum, Withania somnifera, Curcuma longa*, and *Crocus sativus*, in comparison with conventional therapies. These plants exert their effects on the central nervous system through diverse pharmacodynamic mechanisms—including monoamine reuptake inhibition, modulation of the hypothalamic-pituitary-adrenal (HPA) axis, GABAergic activity, and anti-inflammatory effects. Clinical trials referenced in the study suggest that certain plant extracts—such as *Hypericum perforatum* and *Passiflora incarnata* - have demonstrated comparable efficacy to standard antidepressants and anxiolytics, with fewer adverse effects and improved tolerability profiles. These findings undeline the therapeutic potential of phytopharmaceuticals in the management of neuropsychiatric disorders, while also highlighting the critical importance of standardization, quality control, and pharmacovigilance in their clinical application. At the same time, the study draws attention to the toxicological risks associated with the adulteration of supplements, pharmacological interactions with psychotropic drugs, and the impact on cytochrome P450 enzymes, as well as potential short- and long-term adverse effects. In conclusion, the study emphasizes the need for a clearer legislative framework and further research to ensure consumer safety and to prevent possible negative health outcomes.

Keywords: herbal medicine, anxiolytic effect, antidepressant, toxicological risk, adulteration.

OP 10.4.

Exploring the Biological Activities of Ketoconazole Derivatives, for Wound Therapy

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Abstract

Wound care is becoming increasingly challenging due to the alarming rise of antibiotic resistance, which compromises the efficacy of traditional treatments. The search for new antimicrobial agents with diverse mechanisms of action is therefore paramount. Ketoconazole, an established antifungal drug,

presents a promising scaffold for design new derivatives with potential antimicrobial activity. In this context, this research focused on the synthesis of a ketoconazole derivatives and evaluate their biological activities, particularly focusing on their antimicrobial and antioxidant properties relevant to wound infections. The synthesized ketoconazole derivatives, produced obtain threw condensation with benzaldehyde followed by reaction with chloroacetyl chloride, were systematically evaluated for their *in vitro* biological activities. This assessment encompassed the determination of antioxidant activity through three distinct assays: the Ferric Reducing Antioxidant Power (FRAP) assay, the DPPH assay, and the Total Antioxidant Capacity (TAC) assay, in order to assess their radical scavenging potential and ability to counteract oxidative stress. In addition, antimicrobial activity was evaluated by determining the minimum inhibitory concentrations (MICs) against a variety of microorganisms, employing the broth microdilution method to assess the compounds' efficacy in inhibiting microbial growth. After the synthesis reactions, six compounds were obtained and characterized from a physicochemical perspective and FTIR analysis verified the successful completion of the condensation reactions. In terms of *in vitro* analysis, compound K1 demonstrated significant antioxidant activity, as confirmed by all three methods. Additionally, compounds K4 and K5 exhibited notable antimicrobial activity, suggesting their potential as leads for further development in combating wound infections. The findings of this study highlight the promising potential of ketoconazole derivatives as novel antimicrobial agents, particularly relevant to addressing the growing challenge of antibiotic resistance in wound care management.

Keywords: azoles, antimicrobial, antioxidant, antifungal, hybrid compounds.

OP. 10.5.

Paeonia peregrina and *Paeonia tenuifolia*- A Natural Treasure with Pharmaceutical Potential: Physicochemical, Biological and Microbiological Properties

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Abstract

My interest in the peony species native to the Dobrogea flora stems from their phytotherapeutic potential and the necessity of a deeper investigation into their chemical composition and biological properties. Although traditionally valued for their anti-inflammatory and antioxidant effects, the underlying mechanisms of these actions remain insufficiently understood. Research into these species could not only advance pharmaceutical applications but also contribute to biodiversity conservation, given their protected status. This scientific study involves a comprehensive analysis of specialized literature focused on the bioactive compounds found in Paeonia peregrina and Paeonia tenuifolia, with the aim of identifying their therapeutic applications and evaluating their relevance from both scientific and practical perspectives. Existing studies on Paeonia peregrina and Paeonia tenuifolia have highlighted significant pharmacological activities. Both species demonstrate strong antioxidant properties, with research confirming that their petals are rich in phenolic compounds responsible for high antioxidant capacity. Moreover, both have exhibited considerable anti-inflammatory effects, suggesting potential benefits in the treatment of inflammatory conditions. Additionally, Paeonia peregrina has been shown to possess antitumor activity in specific studies. The active compounds identified in Paeonia peregrina and Paeonia tenuifolia display variable physical properties, selective solubility, and environmental sensitivity in terms of stability. From a chemical standpoint, they exhibit antioxidant and anti-inflammatory activity; microbiologically, they demonstrate antibacterial and

antifungal properties. These characteristics support their therapeutic potential and underline the necessity for continued research.

Keywords: *Paeonia peregrina*, *Paeonia tenuifolia*, antioxidant activity, anti-inflammatory, therapeutic potential.

OP. 10.6.

New Biguanide Derivatives: Synthesis, Characterization, and Evaluation of Antidiabetic and Antioxidant Properties

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Abstract

Diabetes mellitus is considered one of the most serious global public health issues, with an estimated prevalence reaching 783 million people worldwide by 2045. Biguanide derivatives have long been known for their antihyperglycemic activity, and currently, metformin, a biguanide-structured antidiabetic drug, is the first-line treatment for type 2 diabetes mellitus. New biguanide derivatives were synthesized through the condensation reaction of cyanoguanidine with various aromatic and aliphatic amines in a 1:1 molar ratio, using n-butanol as the reaction medium. The reaction mixtures were refluxed for 12–24 hours, and the resulting precipitates were filtered, purified by crystallization with organic solvents, and dried in an oven. The in vitro antidiabetic activity was determined using the α-amylase inhibition test, while the antioxidant activity was assessed by the indirect spectrophotometric DPPH method and by determining the ferric ion reducing power. The ten resulting compounds, designated as C1-C10, were characterized physiochemically, with molecular formulas, relative masses, melting points, solubility in various solvents and reaction yields being determined. The newly synthesized compounds were identified using HPLC, and their structures were confirmed via IR spectroscopy. Following the in vitro antidiabetic activity evaluation, compound C4 obtained by condensing cyanoguanidine with 4-chloroaniline and compound C10 obtained through condensation with triethylamine chloride, stood out due to their potential α-amylase inhibition properties. Additionally, these compounds also exhibited promising antioxidant activity. This study led to the development of new biguanide structures with promising antidiabetic activity, opening new perspectives for diabetes mellitus treatment.

Keywords: diabetes mellitus, biguanides, amines, cyanoguanidine.

OP. 10.7.

Biocompatibility Tests of Plat Extracts with Applicability in Dental Medicine

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Abstract

Biocompatibility refers to the qualities of a foreign material inserted into the intimacy of the living tissues of an organism, being tolerated within the largest possible limits, without causing rejection reactions or harmful actions on neighbouring structures. Rateitschack and Wolf defined biocompatibility as follows:

"a material is biocompatible if at the level of a living organism it produces only desired or tolerated reactions". The biocompatibility of some tested plant extracts was evaluated on ATCC L929 fibroblasts. The evaluation of the degree of biocompatibility was carried out by the MTT test. The MTT test is a viability test, which allows the quantitative evaluation of living cells in culture. The MTT compound [3-(4,5-dimethylthiazol-2-yl)-2,5-diphenyltetrazolium bromide] is permeable to the membranes of living cells. After the MTT compound is metabolized, isopropanol-soluble formazan crystals are formed, resulting in a solution (purple color), with an optical density that can be read at 550 nm. In order to consider a given sample as biocompatible, the optical density values for the MTT assays must be higher than those of the LDH quantification assay; more precisely, a sample is biocompatible if the amount of viable, metabolically active cells is higher than that of dead cells.

Keywords: biocompatibility, plant extracts, viability tests.

OP 10.8.

Preliminary Research on the Synthesis of new Purine and Pyrimidine Analogues with Antitumor Activity

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Abstract

It is well known that cancer is a major cause of mortality worldwide, responsible for millions of deaths annually. Although a wide array of anticancer drugs is available, the development of new treatments remains crucial. Many existing therapies exhibit high toxicity, cause numerous adverse effects, or fail to achieve the desired therapeutic outcomes consistently.1 Purine and pyrimidine derivatives hold significant potential as foundations for novel antitumor drugs, with established representatives in cancer treatment, including 5-fluorouracil, cladribine, capecitabine, and several others. Therefore, this research aims to develop novel antitumor agents, both chemically and pharmacologically, by structurally integrating purine and pyrimidine nucleotides, as well as exploring their hybridization.2 Both purine and pyrimidine can function as pharmacophores themselves or act as linkers to connect other pharmacophores, enhancing therapeutic potential. The first approach this research aims to explore involves modifying the purine and pyrimidine nucleus by attaching various functional radicals to identify the most biologically and chemically active groups. The second approach focuses on enhancing existing drugs, such as fluorouracil, with the goal of increasing efficacy while minimizing toxicity and adverse effects. In conclusion, there is a pressing need to develop novel anticancer compounds with low toxicity that remain effective against drug-resistant cancers. The concept of anticancer hybrids presents a promising and viable strategy for enhancing existing treatments and advancing cancer therapy.

Keywords: antitumor activity, purine, pyrimidine, 5-FU

OP 10.9.

Ficus carica L. – Therapeutic and Synergistic Potential in Innovative Dermocosmetic Formulations

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Abstract
The use of natural compounds in dermatology and cosmetics is gaining increasing attention in the search for effective and safe alternatives. *Ficus carica* L. has stood out due to its complex biological profile, including antioxidant, anti-inflammatory, and regenerative properties. This paper synthesizes recent data from the scientific literature regarding the mechanisms of action of *Ficus carica* extracts, also highlighting their synergistic potential in combination with other bioactive substances. Literature analysis suggests that such associations may enhance skin benefits by reducing oxidative stress, stimulating collagen synthesis, providing antimicrobial effects, and offering protection against photodegradation. Therefore, *Ficus carica* emerges as a promising ingredient in the development of innovative dermocosmetic products, with increased efficacy and an optimized safety profile. Further studies are necessary to elucidate the interaction mechanisms and validate clinical applicability.
Keywords: *Ficus carica*, dermatology, cosmetics, synergism, active biocompounds, polyphenols, skin regeneration

OP 10.10.

In Vitro Antioxidant Activity of New Sulfonylurea Derivatives

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Abstract
Current research shows that oxidative stress plays a crucial role in the evolution of diabetes, particularly regarding the various complications associated with the disease[1]. Mechanisms such as the *in vitro* catalysis of lipid peroxidation by glucose and free radical scavenging lead to the conclusion that diabetes increases oxidative stress[2]. The present study highlights and evaluates through *in vitro* tests whether the new sulfonylurea derivatives with notable antidiabetic activity also exhibits antioxidant capacity. Of all the synthetic agents, Among all the synthetic agents, the compound resulting from condensation with urea was noted, namely *N-(diaminomethylene)-4-methylbenzenesulfonamide* ($C_8H_{11}O_2N_3S$), was noted to have the highest active antioxidant potential. FRAP and DPPH are the spectrophotometric methods used to evaluate the antioxidant activity of the new agent, with the IC_{50} concentration being reported. Moderate antioxidant activity was observed using the DPPH method, while the FRAP method indicated no activity. In conclusion, these agents can effectively contribute against oxidative stress.
Keywords: antioxidant, sulfonylurea, *in vitro*.

OP 10.11.

Bee Venom and Cobra Venom- Beneficial Actions on the Skin

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Abstract
The increased interest in recent years in safe and effective natural alternatives in treating skin diseases and the cosmetics industry motivated the realization of this work. Bee venom and cobra venom have shown promising pharmacological properties, being studied for their antimicrobial, anti-inflammatory, and regenerative effects on the skin. This paper is a review of the literature on recent advances in the research of the two venoms in terms of pharmaceutical properties, safety profile, and modern approaches to delivery and transport systems through the skin of active substances from the two natural sources and an assessment of their prospects for therapeutic and cosmetic use. The reported studies confirm the anti-inflammatory, antimicrobial, and regenerative properties of the bioactive compounds in these venoms, contributing to healing skin lesions and relieving dermatological conditions. In the cosmetic field, the two venoms are used to stimulate collagen production, increase skin elasticity, and reduce wrinkles, offering alternatives in skin care. These effects support their use both in dermatological therapies and in the cosmetic industry, as active ingredients in products intended for skin regeneration and protection. Bee venom and cobra venom are valuable natural resources with multiple pharmacological and cosmetic benefits, offering promising alternatives to conventional treatments. Considerable efforts are being made to develop safe methods of administration, and integration with modern technologies, which minimize adverse effects and expand clinical and therapeutic applicability. Their use in dermatology and the cosmetics industry is significant, and further research will open up new opportunities for the development of innovative therapies and safer skincare products.
Keywords: bee venom, cobra venom, dermatological conditions, cosmetics

OP 10.12.

Synthesis of Hippuric Acid Derivatives with Potential Antitumor Activity

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Abstract
Cancer remains one of the leading causes of mortality worldwide. It is characterized by uncontrolled cell proliferation and can originate from any cell type, affecting various parts of the body, leading to the formation of malignant tumors capable of invading surrounding tissues. Although a wide range of anticancer drugs with diverse mechanisms of action have been approved, their therapeutic benefits are often limited by suboptimal safety and efficacy profiles. Conventional chemotherapy is associated with several drawbacks, including non-specific targeting, low bioavailability, the development of drug resistance, and severe side effects. Therefore, the discovery and development of novel anticancer agents with high therapeutic potency and reduced toxicity continues to be a critical challenge in

oncology research. A series of new micromolecular derivatives of hippuric acid were synthesized, beginning with the reaction between glycine and p-nitrobenzoyl chloride to yield nitrohippuric acid. This intermediate was subsequently subjected to reduction of the nitro group, followed by reaction with ammonium thiocyanate. The resulting product was further reacted with bromo-pyridine acetate, leading to the formation of pyridine-thiazole-N-phenyl-oxazole-methyl benzamide. In parallel, additional derivatives with potential antitumor activity were obtained starting from hippuric acid and various benzonitrile derivatives. Preliminary antitumor activity was also assessed in vitro on both a normal cell line (NCTC) and two cancer cell lines: hepatocellular carcinoma (Hep G2) and colorectal carcinoma (HT-29). The results obtained confirmed the proposed structures of the synthesized compounds, in agreement with data reported in the specialized literature. All tested compounds exhibited enhanced antioxidant activity, with compounds AB4, AB6, and AB7 showing particularly notable antitumor effects. These compounds also demonstrated low cytotoxicity toward the normal cell line, indicating a favorable selectivity profile. The development and research of new compounds of hippuric acid is in a continuous expansion, so in vitro evaluation of antitumoral activity of the new compounds obtained are an important perspective field in antineoplastic medical research.

Keywords: anti-cancer derivatives, synthesis compound, hippuric acid derivatives.

OP 10.13.

Investigating the Effects of Antibiotics on Thyroid Hormone Biosynthesis

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Abstract

Tetracycline (TC) is a widely used antibiotic with broad-spectrum efficacy against bacterial infections, making it clinically significant. The thyroid gland plays a crucial role in regulating metabolism through thyroid hormones. The biosynthesis of these hormones involves oxidation of iodide into active di-iodine, which subsequently reacts with tyrosine residues in thyroglobulin to form mono- and di-iodotyrosine. These iodinated residues then undergo condensation to produce the pro-hormone thyroxine, which is converted to the active hormone triiodothyronine (thyronine). As part of our research on the side effects of medication —including antibiotics— on thyroid hormone biosynthesis, we examined the interaction between tetracycline on thyroid peroxidase (TPO), a key enzyme in hormone synthesis. The study utilized theoretical calculations performed via AutoDock Tools for molecular docking simulations. Horseradish Peroxidase (HRP) was used as enzyme model for TPO. The optimal docking results were identified based on the lowest Gibbs free energy, indicating the highest binding affinity between the enzyme and inhibitor. The lowest binding energy for the HRP@TC complex was -3.94 kcal/mol. TC inhibited HRP through hydrophobic interactions and hydrogen bonding with amino acid residues. In conclusion, our findings confirm the formation of the HRP@TC complex, which could potentially influence thyroid hormone biosynthesis. Further in silico and ex vivo studies are required to validate this interaction and evaluate the broader effects of antibiotics on thyroid hormone production.

Keywords: biological inorganic chemistry, thyroid gland, thyroid hormone biosynthesis, antibiotic's side effects

OP 10.14.

3,3'-Bisindolylmethane Derivatives as Antibiotic Resistance Disruptors

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Abstract

Resistance to antibacterial drugs and the emergence of multi-resistant strains of micro-organisms is a problem of global importance that require a rapid response from a wide range of researchers [www.who.int/health-topics/antimicrobial-resistance]. The proposed report examines the current trends in the search for antibacterial agents. Particular attention is paid to the opportunities opened up by the combined use of substances of both natural and synthetic origin that do not have antibiotic properties, but in combination with known drugs can significantly increase their effectiveness in the fight against multi-resistant strains of pathogens.Our own results on the synthesis of such substances, in particular new derivatives of 3,3'-bisindolylmethane (BIM), as potential components of drugs capable of increasing the effectiveness of representatives of various classes of antibiotics in the fight against bacteria of the ESKAPE group (Enterococcus faecium, Staphylococcus aureus, Klebsiella pneumoniae, Acinetobacter baumannii, Pseudomonas aeruginosa, Enterobacter spp.) - the main cause of nosocomial infections and increased mortality - are presented. The results of microbiological screening of the obtained compounds on standard and clinical strains of the indicated microorganisms are presented. Pharmaceutical compositions are proposed, which include an active pharmaceutical ingredient with antibacterial properties, a certain BIM and excipients. The effect of these compositions on the biofilm formation of pathogens is determined.

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Keywords: antibiotic resistance, 3,3'-bisindolylmethanes, pharmaceutical compositions, antibiofilm properties.