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**GRIGORE T. POPA UNIVERSITY OF
MEDICINE AND PHARMACY IASI**

IN ASSOCIATION WITH:

**ASSOCIATION OF JORDANIAN
GRADUATES OF ROMANIAN
MEDICAL UNIVERSITIES**



CORIMF 2024

*Under the patronage of Her Royal Highness
Princess Muna Al Hussein of Hashemite Kingdom of Jordan*

**The 14th edition of the
Romanian-Jordanian Conference of Medicine and Pharmacy
The 12th International Congress of the
Romanian Medical Universities Graduates**

September 27 - October 4, 2024 | Iasi, Romania

"George Emil Palade" Auditorium of
"Grigore T. Popa" University of Medicine and Pharmacy in Iași

PROGRAM & ABSTRACTS VOLUME



Welcome back to Iași!

"Grigore T. Popa" University of Medicine and Pharmacy of Iași, as an organizer and the Association of Jordanian Graduate Doctors of Romania, as a partner, have the great pleasure of welcoming you to the 14th edition of the Romanian-Jordanian Conference of Medicine and Pharmacy!.

The event held from September 27 to October 4, 2024 in our University and aims to strengthen the bilateral relations between Romania and the Hashemite Kingdom of Jordan through the cooperation network created in the medical field and through the contribution of some reference specialists.

This event creates opportunities for participants to present and share experiences, with lecturers being distinguished members of the medical and academic community, both from Romania and from the Hashemite Kingdom of Jordan.

We are confident that you will enjoy both the scientific program of the event and your staying in Iași.



Viorel Scripcariu MD, PhD

Rector of the University of Medicine and Pharmacy "Grigore T. Popa" Iași
President of Romanian-Jordanian Conference of Medicine and Pharmacy



INSTITUTUL DE ANATOMIE



UNIVERSITATEA DE MEDICINĂ ȘI FARMACIE
GRIGORE T. POPA IAȘI

ORGANIZER:



GRIGORE T. POPA UNIVERSITY OF
MEDICINE AND PHARMACY IASI

IN ASSOCIATION WITH:

ASSOCIATION OF
JORDANIAN PHYSICIANS
GRADUATES IN ROMANIA



CORIMF 2024

Romanian-Jordanian Conference of Medicine and Pharmacy

September 27 - October 4, 2024 | Iasi, Romania

14th Edition

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GRIGORE T. POPA IAȘI

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SCIENTIFIC PROGRAM





Monday, September 30 | 10:00 – 11:00

Registration

(Coffee break included)

Monday, September 30 | 11:00 – 13:00

Opening Ceremony

Welcome Speech

from Professor Viorel Scripcariu, Rector of Grigore T. Popa University of Medicine and Pharmacy of Iasi

Speech from His Excellency, Mr. Mutaz Khasawneh,

Ambassador of the Hashemite Kingdom of Jordan in Romania

Speech from Professor Abdelkarim Saleh Suleiman Al-Oweidi,

President of the Association of Jordanian Alumni of Romanian Medical Universities

Speech from Dr. Basam Al-Shlul,

President of the Association of Jordanian Alumni of Romanian Universities

Doctor Honoris Causa Ceremony for Professor Abdelkarim Saleh Suleiman Al-Oweidi

13:00-15:00 – Lunch Break

Monday, September 30 | 15:00 – 18:00

Oral Presentations – Session 1

15:00 15:15	Attitudes of Jordanian Anesthesiologists and Anesthesia Residents towards Artificial Intelligence: A Cross-Sectional Study <i>Isam Bsisu, Rami Alqassieh, Abdelkarim Aloweidi, Abdulrahman Abu-Humdan, Aseel Subuh, Deema Masarweh</i>
15:15 15:30	Utilizarea inteligenței artificiale în nefrologie <i>Ionut Nistor, Adrian Covic</i>
15:30 15:45	Preoperative Anxiety among Patients Undergoing Elective Urologic Procedures: Does the Gender of the Healthcare Provider Matter? <i>Abdelkarim Aloweidi, Sami Abu-Halaweh, Mahmoud Almustafa, Zaineh Marei, Sara Yaghi, Lina Hababeh, Neebal Al-Gallab, Shatha Al-Jaberi, Lina Ghattas, Sham Romeo Alrabadi, Anas Al-Oweidi, Isam Bsisu</i>
15:45 16:00	Nutritia in cancer. Concepte noi <i>Ioana Grigoraș</i>
16:00 16:15	Neonatal COVID-19 infection: Review of cases admitted with COVID-19 to Queen Rania Children Hospital <i>Raeda Al-Ghananim</i>
16:15 16:30	Digital transformation of Histology and Histopathology by Virtual Microscopy (VM) for an innovative medical school curriculum <i>Cornelia Amalinei, A D Timofte, Simona Eliza Giușcă, Raluca Anca Balan, Elena-Roxana Avădănei, Ludmila Lozneau, Adriana Grigoraș, Andreea Rusu, Mariana-Bianca Chifu, Irina-Draga Căruntu</i>
16:30 16:45	Rotavirus gastroenteritis surveillance in Jordan <i>Moh'd Salameh</i>
16:45 17:00	Boala renală cronică asociată bolii cardiace ischemice: rolul biomarkerilor cardiorenali <i>Maria-Ruxandra Cepoi, Irina-Iuliana Costache-Enache</i>

17:00 17:15	Stem cell therapy in pain medicine <i>Aidah Saleem Albaradie</i>
17:15 17:30	In vitro and in vivo evaluation of advanced composite scaffolds for bone regeneration <i>Florina Daniela Cojocaru, Vera Balan, Maria Butnaru, Mihai Mares, Valentin Nastasa, Aurelian Sorin Pasca, Liliana Verestiuc</i>
17:30 17:45	Understanding Non-Unions in Orthopaedics: Types, Causes, Treatments, and Emerging Therapies <i>Khaled Al-Kharouf</i>
17:45 18:00	Effect of Combined Comparative Efficacy of Combined Physiotherapy versus NSAIDs in the Treatment of Haglund's Syndrome: A Clinical Study <i>Ilie Onu, Daniela-Viorelia Matei, Anca-Irina Galaction</i>

Tuesday, October 1 | 10:00 – 13:00

Oral Presentations – Session 2

10:00 10:15	The Prognostic Value of 24-Hour Holter ECG Monitoring in Patients with Chronic Heart Failure <i>Stefania-Teodora Duca, Irina-Iuliana Costache-Enache</i>
10:15 10:30	Eco-Friendly Surgical Theatres: Transforming Perioperative Staff Perspectives at a District General Hospital, United Kingdom <i>S.Amo-Afful, Luisa Alamo-Gomez, R. Kanagasooriyan, Sonja Scheller, K. Al-Kharouf, B. Stubbs</i>
10:30 10:45	Impactul procesului de îmbătrânire asupra funcției cognitive: abordări și considerații actuale <i>Irina Esanu, Cringuta Paraschiv, Oana Gavril, Diana Tatarciuc</i>

10:45 11:00	Colonic Malignancy Detection in Patients over 50 with Acute Appendicitis: Insights from a District General Hospital, United Kingdom. <i>S. Amo-Afful, Thushara Kaluarachchi, R. Kanagasooriyan, B. Stubbs</i>
11:00 11:15	De la Hipocrate la bioetica islamica si inapoi <i>Cristina Gavrilovici, Liviu Oprea</i>
11:15 11:30	Pelvic ring fracture <i>Salam Elhanash</i>
11:30 11:45	Impact of COVID-19 vaccination on oxidative stress and cardiac fibrosis biomarkers in patients with Acute Myocardial Infarction (STEMI) <i>Razan Al Namat, Cristina Dimitriu, A. Bazyani, A. Tarus, A. Bacusca, A. Roșca, Dina Al Namat, Elena Țarcă, G. Tinică</i>
11:45 12:00	Outpatient integrative-medicine options in pediatric palliative care <i>Mercedes Ogal</i>
12:00 12:15	Noi hidrogeluri inteligente - preparare și caracterizare fizico-chimică <i>Lenuța Profire, Simona-Maria Tatarusanu</i>
12:15 12:30	Advancements in orthognathic surgery: enhancing precision and aesthetics with computer-aided design and additive manufacturing <i>Neculai Onică, Cezara Andreea Onică, Dana Gabriela Budală, Gabriela Luminița Gelețu, Mihail Balan, Elena-Raluca Baci, Alice Murariu</i>
12:30 12:45	Exploring MicroRNAs in Heart Failure: Contributions to Disease Mechanisms and Prospects for Biomarker Development <i>Mara-Sînziana Sîngeap, Cătălina Lionte</i>
12:45 13:00	COST ENABLE Network and digital technologies to increase medication adherence <i>Cristina Mihaela Ghiciuc, Lacramioara Ochiuz, Paraschiva Postolache, Celina Silvia Stație, Andreia Oana Coman, Adina Turcu Stiolica, Bruno Stefan Velescu</i>

Tuesday, October 1 | 15:00 – 18:00

Poster Evaluation – Session 1

E-poster Evaluation Committee:

Professor Adrian Covic, Professor Abdelkarim Saleh Suleiman Al-Oweidi, Associate Professor Ionut Nistor

1 A Comprehensive Approach To Improve Outcomes In Oral Rehabilitation

Roxana Vasluianu, Magda Antohe, Alice Murariu, Raluca Baci, Livia Bobu, Dana Budala, Norina Forna

2 Coagulation and anticoagulation in acute heart failure

Antoni Octavian Petriș

3 Possibilities Of Improving The Biomaterials Used As Periodontal Dressings

Gradinaru Irina, Ciubotaru Bianca-Iulia

4 Aplicațiile matematicii în studiul carcinomului cutanat

Maria Diana Focșă

5 Torsiunea de testicul- importanta diagnosticului precoce

Rosca- Al Namat Dina, Al Namat Razan, Hanganu Elena, Tarca Elena, Luca Dana, Rosca Romulus Adrian

6 Circumcizia - e bine cand e bine

Adrian Romulus Rosca, Elena Hanganu, Ana-Maria Scurtu, Dina Rosca-Al Namat

7 Salivary Parameters In Relation With Tobacco Consumption And Emotional Stress

Livia Bobu, Catalina Iulia Saveanu, Marinela Gorghi, Alice Murariu, Carina Balcos, Roxana Vasluianu, Irina Bamboi, Bianca Toader, Alexandra Ecaterina Saveanu

8 Analog Versus Digital In The Clinical And Technological Rehabilitation Of Partial Edentulousness

Magda –Ecaterina Antohe, Roxana Ionela Vasluianu, Cristina Gena Dascalu, Cristina Iordache, Norina Consuela Forna

9 Knowledge of Oral Cancer among residents and students of Dental Medicine Faculty of Iasi, Romania

Alice Murariu, Livia Bobu, Simona Stoleriu, Gabriela Gelețu, Roxana Vasluianu, Raluca Elena Baci, Ștefana Cozma, Nicolae Onică

10 The Magnitude Of A Fals-Negative Newborn Screening Result For Phenylketonuria

Dana-Teodora Anton-Păduraru, Corina Delia, Gena Toma, Delia Andreia Bizim, Cornelia Popescu, Cristina Rusu

11 Biofunctionalized magnetic nanostructures based on biotinylated N-palmitoyl chitosan and magnetite for breast cancer applications: in vitro and in vivo studies

Vera Bălan, Ștefan Sandu, Vlad-Constantin Ursachi, Bianca Elena Beatrice Crețu, Florina Daniela Cojocaru, Gianina Dodi, Ioannis Gardikiotis, Andreea Luca, Liliana Vereștiuc

12 Inflammation and Type 2 Diabetes: Implications of Myeloid-Derived Suppressor Cells

Larisa Ghemiș, Ancuța Goriuc, Bogdan Minea, Gina Botnariu, Georgeta-Liliana Foia

Wednesday, October 2 | 10:00 – 13:00

Poster Evaluation – Session 2

E-poster Evaluation Committee:

Professor Adrian Covic, Professor Abdelkarim Saleh Suleiman Al-Oweidi, Associate Professor Ionut Nistor

13 Utilitatea testării genetice în bolile renale ce asociază fenotip chistic

Babici Ramona-Geanina, Agavriloaei Bogdan, Gianina Dodi, Adrian Covic, Irina Luanda Mititiuc

14 Complex 3D printed/bioprinted architectures for skin tissue repair and regeneration

Isabella Nacu, Florina Daniela Cojocaru, Maria Butnaru, Robert Capota, Aurelian S. Pasca, Florentina Daraban, Ozana Hritcu, Mihai Mares, Valentin Nastata, Liliana Vereștiuc

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| 15 | Sindromul de insensibilitate completa la androgeni – particularitati de diagnostic
<i>M-A Costin, Andreea Siriteanu, Roxana Popescu, L-M Antoci, V V Iacob, Mihaela Gramescu, Irina Nuca, Monica Panzaru, E V Gorduza, Lavinia Caba</i> |
| 16 | Lumini și umbre sub spectrul tetralogiei fallot
<i>R-Ș Miftode, Dumitrița Moraru, Andra Vieriu, R Țimpău, Amalia Țimpău, O Mitu, A-O Petriș, Irina-Iuliana Costache-Enache</i> |
| 17 | NOCAD– un quantum de provocări
<i>Alexandru Oancea, Ana Maria Buburuz, Alexandru Jigoranu, Ovidiu Mitu, Viviana Onofrei</i> |
| 18 | Rolul Lipoproteinei(a) în procesul aterosclerotic avansat – prezentare de caz
<i>O. Mitu, R.C. Petre, A.R. Jigoranu, Georgiana Saftiuc, C. Florea, A.O. Petris, Irina Iuliana Costache-Enache</i> |
| 19 | Amyloidosis - An Underdiagnosed Disease
<i>Sabina-Andreea Leancă, Irina Afrăsânie, Andreea Chirap-Mitulschi, Diana Corozel, Daniela Crișu, Irina Iuliana Costache</i> |
| 20 | Cancer risk and tumor spectrum in RASopathies
<i>Monica-Cristina Panzaru, Cristina Rusu, Lavinia Caba, Lacramioara-Ionela Butnariu, Roxana Popescu, Irina Nuca, Setalia Popa, Eva Gavril, C. Ciobanu, Mihaela Gramescu, E. V. Gorduza</i> |
| 21 | Circulating MicroRNA Molecules: New Perspectives in the Diagnosis and Prognosis of Acute Pulmonary Embolism – a preliminary study
<i>Mihai Stefan Cristian C.G. Haba, Ionut Tudorancea, Laurentiu D. Sorodoc, Irina Iuliana Costache</i> |
| 22 | Enhancing Pulmonary Embolism Diagnosis and Prognosis: The Significance of Copeptin, BDNF, and the Mastora Score
<i>Mihai Stefan Cristian C.G. Haba, Laurentiu D. Sorodoc, Viviana Onofrei</i> |
| 23 | Boala coronariană ischemică la pacientul dializat – o provocare continuă
<i>Raul Alexandru Jigoranu, Simion Paul, Oancea Alexandru, Antoniu Octavian Petriș, Irina-Iuliana Costache-Enache</i> |
| 24 | Provocări în managementul diagnostic la pacientul cu BPOC și IC
<i>Corneanu Luiza-Elena</i> |



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Stem cell therapy in pain medicine. Stem cell treatment in chronic pain – effects and costs

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Stem cells are attracting attention as a key element in future medicine, satisfying the desire to live a healthier life with the possibility that they can regenerate tissue damaged or degenerated by disease aging. Stem cells are defined as undifferentiated cells that have the ability to replicate and differentiate themselves into various tissues cells.

Stem cells, commonly encountered in clinical or preclinical stages are largely classified into embryonic, adult and induced pluripotent stem cells.

Recently, stem cells transplantation has been frequently applied to the treatment of pain as an alternative or promising approach for the treatment of severe osteoarthritis, neuropathic pain, and intractable musculoskeletal pain which do not respond to conventional medicine.

The main idea of applying stem cells to neuropathic pain is based on the ability of stem cells to release neurotrophic factors, along with providing a cellular source for replacing the injured neural cells, making them candidates for modulating and possibly reversing intractable neuropathic pain.

Even though various differentiation capacities of stem cells are reported, there is not enough knowledge and technique to control the differentiation into desired tissues in vivo.

Even though the use of stem cells is still in the very early stages of clinical use and raises complicated ethical problems, the future of stem cells therapies is very bright with the help of accumulating evidence and technology.

Preoperative Anxiety among Patients Undergoing Elective Urologic Procedures: Does the Gender of the Healthcare Provider Matter?

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Background and Objectives: Preoperative anxiety is of relevance for anesthesiologists and surgeons, as it has a significant impact on both the flow of surgery and the postoperative recovery process. In a previous study conducted at a tertiary teaching center in Jordan, 30.1% of patients had high preoperative anxiety. The aim of this study is to investigate the prevalence of preoperative anxiety among adult patients undergoing elective urologic procedures by male urologists and female anesthesiologists at a tertiary teaching hospital in Jordan.

Methods: In this cross-sectional study, we used the Amsterdam Preoperative Anxiety and Information Scale (APAIS) to assess preoperative anxiety. We then investigated APAIS about anesthesia and surgery (APAIS-A-T), and patients with a score > 10 were considered to have high preoperative anxiety.

Results: Of the 146 patients included, 111 were males while 35 were females. The mean age was 48.9 ± 17.0 years. General anesthesia was conducted for 131 (89.7%) patients, while 15 (10.3%) underwent spinal anesthesia. The mean APAIS score was 12.0 ± 6.2 , with a score of 11.0 ± 5.7 among Males, compared to 15.3 ± 6.7 among females ($p = 0.001$). Fifteen (13.5%) of male patients had high APAIS-A-T scores, compared to 11 (31.4%) among females ($p = 0.016$), with a mean APAIS-A-T scores of 6.4 ± 3.6 among males, compared to 9.2 ± 4.4 among females ($p < 0.001$).

Discussion and Conclusion: We demonstrated that female patients undergoing urologic procedures had higher preoperative anxiety scores. During the study timeframe, all the urologists at our institution were males. Therefore, the results raise the question whether more female urologists in Middle Eastern countries having, with their unique culture, will help in reducing preoperative anxiety.

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Digital transformation of Histology and Histopathology by Virtual Microscopy (VM) for an innovative medical school curriculum

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In the context of whole-slide-based imaging techniques and pandemic, digital microscopy has become increasingly important in microscopy education. Implementation of digital/virtual microscopy (VM) using whole slide imaging (WSI) may be achieved by the successful project funded by Erasmus+, ANPCDEFP - KA220-HED - Cooperation partnerships in higher education, 2022-1-RO01-KA220-HED-000089017. The partners of the project consortium are: "Grigore T. Popa" University of Medicine and Pharmacy, Iasi, Romania, EuroEd Foundation, Iasi, Romania, Medical University of Plovdiv, Bulgaria, Medical University of Gdansk, Poland, University of Alicante, Spain, and University of Peloponnese, Greece. Organized into five work packages: Project Management, Mapping research on setting up the EU curricula on histology and histopathology, Micro library Platform – collection of slides of human organs and basic diseases, Training guide for advanced VM teaching in microscopy, and online course on VM, the project is currently during Work Package 5 implementation. The project has created the chance for team working, which has been planned during the transnational meetings held in partners' universities in Iasi, Alicante, Gdansk, and Plovdiv. By increasing the accessibility of students to education, the project creates the resources and abilities of microscopy training in specialized centers within an e-learning platform to support free access to specialized materials and development of competencies in microscopy, within the partners' medical institutes. By charts of standards, steps, procedures, Multimedia guides, the project will enable the development of national networks in partners' countries. Moreover, the Micro library platform is multilingual, in order to be used by all the partners' universities, including their international students' programs. The pilot course is addressed to undergraduate and postgraduate students which have microscopy modules in their training curricula, highlighting the content of the chapters, organized by systems and organs, with WSIs, along with corresponding captions and key words leading to areas of interest. Considering that digital microscopy becomes a reality in many universities across the world, our project creates the base of modernization of the curricula of our university and of the training of future specialists.

Colonic Malignancy Detection in Patients over 50 with Acute Appendicitis: Insights from a District General Hospital, United Kingdom

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Aim: The incidence colonic tumours increase with advancing age. Acute appendicitis has been associated with an increased risk underlying colonic malignancy. A recent Lancet paper suggested a four times higher risk of colon cancer in patients aged 18-59 who had undergone appendectomy within one year. Despite this recognised association no consensus guidelines exist about routine preoperative and/or postoperative investigations. Preoperative CT scans are becoming more frequent. Follow-up colonoscopies are potentially valuable modalities for investigating this patient cohort for possible underlying colonic malignancies. Our surgical department has undertaken a limited age study to address this gap in understanding and assess variation in practice.

Methods: A retrospective audit was conducted on patients aged 50 and above who underwent emergency appendectomy at Dorset County Hospital between April 2022 to January 2024. Data were collected regarding the patient demographics, pre-operative imaging, intra-operative findings, histopathology, and subsequent surveillance colonoscopy outcomes. Patients were excluded if they refused, had severe co-morbidities, or fulminant colitis. Practice variability among clinicians regarding surveillance colonoscopy recommendations and follow-up protocols was also assessed.

Results: Preliminary findings reveal that out of 118 patients only 45 (38%) underwent post-appendectomy colonoscopy. All but one of these patients had undergone pre-operative CT scans prior to surgery, none of which reported colonic malignancy. There was no significant difference in surveillance colonoscopy rates if you were admitted under colorectal specialist rather than a UGI surgeon ($\chi^2=3.25$, $p=0.07$). Colonoscopy findings revealed benign polyps in 13 patients, diverticulosis in 11, and normal findings in the remaining 20. Notably, one patient was diagnosed with a stage 3 T4 caecal adenocarcinoma, prompting further surgical intervention and subsequent adjuvant treatment.

Conclusion: There is lack of a national or international consensus on routine preoperative and/or postoperative investigations in patients >50 with acute appendicitis. Our analysis did not reveal statistically significant differences in practice among surgeons regarding the recommendation of follow-up colonoscopy post-appendectomy. Colonoscopy imaging is recommended to investigate for possible underlying colonic malignancies, particularly within this age group.

Eco-Friendly Surgical Theatres: Transforming Perioperative Staff Perspectives at a District General Hospital, United Kingdom

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Aim: The National Health Service (NHS) contributes to 10% of the UK's carbon footprint. In response, the Royal College of Surgeons (RCS) has committed to climate sustainability, aligning with the ten commitments set forth by the UK Health Alliance on Climate Change (UKHACC). This study aims to assess and enhance the knowledge and attitudes of perioperative staff regarding environmental impact reduction in surgical theatres at a District General Hospital, with the goal of fostering sustainable practices.

Method: A prospective survey was conducted among theatre staff - including surgeons, anaesthetists, and other perioperative personnel - between April and May 2024. Data were collected using an online questionnaire, and the respondents' knowledge and perspectives were evaluated against the standards of the NHS and the Royal College of Surgeons Green Surgery Initiative.

Results: A total of 49 perioperative staff participated in the survey. Of these, 42.9% were familiar with the sustainable surgical practices specific to the surgical theatres at the District General Hospital (DGH). Despite the relatively low awareness of existing policies, there was a strong interest in sustainability initiatives, with 83.3% of participants expressing a desire to support the Green Surgery Initiative. Additionally, 97.9% indicated an interest in receiving training or education on sustainable surgical practices. However, only 53% of respondents were familiar with green surgery or sustainable practices, highlighting a need for greater awareness and education in this area.

Conclusion: There is a clear lack of knowledge about sustainable surgical practices among perioperative staff, despite strong interest in supporting green initiatives. The high demand for training highlights the need to implement educational programs among trainees to align with global sustainability goals and promote environmentally conscious practices in surgical theatres.

Analog versus digital in the clinical and technological rehabilitation of partial edentulousness

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Key words: edentulous patients, removable prostheses, dental materials

The choice of the therapeutic solution in the complex territory of the partially extended edentulousness is the result of a careful analysis of the particularities of the prosthetic field, a particular attention being paid to the evaluation of the periodontal support, of the muco-bone support, of the presence of local, loco-regional, or general complications in conjunction with the aspects of the paraclinical evaluation. The partially extended edentation represents a complex clinical situation, determined equally by the particularity of the clinical case and by the socio-economic and clinical-technical criteria. As modern techniques provide patients with treatment options that involve the use of implants, it can not be ignored that the techniques used to treat various clinical situations of partially extended edentation allow the realization of prostheses with a high level of functionality, while respecting, and the aesthetic principle. The need to emphasize the importance of knowing the pathology of partially extended edentulous for a correct evaluation of clinical cases is the basis for choosing the topic along with the need to select an optimal treatment, according to the particularities of the prosthetic field, to meet both functional and aesthetic requirements.

The study aimed to individualize the classical versus digital therapeutic methods of prosthetics, anchored in partially removable prosthetics with metallic or non-metallic infrastructure. The detection by clinical and paraclinical methods of the whole range of post-edentulous complications constitutes an essential condition of targeted therapy but also a starting point for the rigorous selection of the dental materials involved and the requirements related to the rendering of a high fidelity morphology grafted on the particularities of the clinical case. For greater precision in the clinical-technological algorithm of partially extended edentulousness rehabilitation, digital models were also recorded. The advantage of this technique is the high accuracy, but also the saving of time and materials. Elastic non-metallic biomaterials associated with the injection technique can be considered a very good solution for partially removable dentures, they offer resistance over time, they are flexible, so they do not bother the patient, they are 100% biocompatible, they integrate perfectly with the dental tissues.

Modern techniques and technologies of intraoral scanning and digital design of the therapeutic solution contribute significantly to the development of a high-performance clinical-technological algorithm, oral scanning eliminates many of the classical steps of making the prosthesis and provides greater accuracy of recording impressions, and digital designs will eliminate the classical step of casting models avoiding changes that can occur through contact reactions of the plaster. Technological advances in the fabrication of skeletal removable partial dentures have the potential to replace much of the conventional stages of laboratory work with scanning devices, computerized three-dimensional simulation programs of prosthetic reconstruction, and stereolithographic printing techniques. The economic benefits, simplification of procedures, and time savings of printed prosthesis technology should be considered in a treatment decision that includes increased attention to the clinical stages of occlusal balancing after prosthesis application.

In terms of clinical technology, the various pure prostheses complicated settings skeleton is characterized by the wide range of clinical situations resolve these types of restaurants complicated settings. Skeletal removable prostheses, by the possibility of their construction, are resistant prosthetic substitutes, with efficient possibilities of static and dynamic balancing and, very importantly, with the ability to physiologically transfer to oral biological structures a large amount of stress through the remaining teeth included in the prosthesis support perimeter.

The magnitude of a false-negative newborn screening result for phenylketonuria

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Key words: phenylketonuria, neonatal screening, consequences.

Background: Phenylketonuria (PKU) is an inborn error of metabolism caused by mutations in phenylalanine hydroxylase. Undiagnosed and untreated, PKU can lead to severe consequences (mental retardation). In general, the risk of false-positive results is higher than that of false-negative results. The aim of the paper was to present a case with late diagnosed PKU, the neonatal screening being negative. **Case description:** Girl, 1 year 4 months old, presents herself to the Genetics Center for investigations as she has a delay in neuro-motor development (she was not sitting up and walking supported, global hypotonia, partial head support). Genetic tests revealed the presence of 2 pathogenic variants of phenylalanine hydroxylase (c.1222C>T (p.Aeg4o8Trp homozygous). The result of the neonatal screening was checked and it was negative (1.224 mg/dl). Serum phenylalanine (Phe) was determined, which had an increased value (34.05 mg/dl), confirming the classic form of the disease. The specific diet according to Phe tolerance (250 mg/day) was immediately started. Under dietary regimen, Phe values gradually decreased. After 10 months, the child started sitting without support and walking with support. Currently, at the age of 3 years and 7 months, she walks alone and says bisyllabic words. Nutritional status is normal. **Discussion:** After establishing the diagnosis, we tried to find the cause of the false-negative result of the screening. Screening took place on the 3rd day of life. According to the mother's statements, the newborn was fed naturally from the 1st day of life, without feeding problems, such as vomiting. Also, we excluded a human error, in the same period from the same maternity there was no other child with a false positive screening. In addition, the processing of the same blood sample was also carried out at another laboratory from our country, the result being still negative. **Conclusions:** False negative results are possible but rare. The consequences of false-negative neonatal screening are severe, both for the child and for his family (parental stress, depression).

Utilitatea testării genetice în bolile renale ce asociază fenotip chistic

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Testarea genetică reprezintă un instrument tot mai frecvent utilizat în managementul bolilor renale, oferind multiple beneficii în ceea ce privește încadrarea diagnostică, monitorizarea evoluției și selectarea tratamentului. Suplimentar, aceasta oferă pacienților acces la consilierea pentru planificare familială, permite screeningul rudelor cu risc pentru identificarea precoce a bolii și prevenirea complicațiilor, precum și înrolarea în registre de pacienți și participarea la studii clinice. În contextul variabilității fenotipice a polichistozelor renale, completarea diagnosticului prin testare genetică este esențială pentru asigurarea unui management eficient și personalizat al pacientului. Această lucrare exemplifică modul în care testarea genetică a contribuit la rafinarea diagnosticului și modelarea conduitei terapeutice pentru pacienții din Centrul de boli rare al Spitalului Clinic "Dr. C.I. Parhon" Iași, și anume:

- **diagnosticul de certitudine:** mutația patogenă în gena PKD1 a confirmat diagnosticul de boală polichistică renală autozomal dominantă (ADPKD; OMIM #173900; ORPHA:730) la un pacient cu boală cronică de rinichi (BCR), polichistoză renală bilaterală și istoric familial negativ și a deschis perspectiva tratamentului patogenetic cu antagoniști selectivi ai receptorilor de vasopresină V2 (tolvaptan);

- **screeningul familial și prevenirea precoce a complicațiilor la persoanele care au moștenit defectul genetic:** confirmarea genetică a sindromului de gene contigue TSC2/PKD1 (OMIM # 600273; ORPHA:88924), un sindrom rar, care combină caracteristicile din Complexul sclerozei tuberoase (cauzată de mutații în gena TSC2) și ale ADPKD (cauzată de mutații în gena PKD1), a condus la screeningul familial, în perspectiva unor decizii terapeutice legate de tratamentul cu inhibitori mTOR/antagoniști selectivi ai receptorilor de vasopresină V2.

- **consilierea genetică și diagnosticul prenatal și preimplantațional:** confirmarea diagnosticului de sindrom de gene contigue TSC2/PKD1, cu risc de transmitere de 50% la fiecare sarcină, și de sindrom Von Hippel-Lindau (VHL; OMIM # 193300, ORPHA:892), sindrom de predispoziție familială la cancer, asociat cu o varietate de tumori benigne și maligne, cu același tip de transmitere autozomal dominant, a inclus și consilierea despre opțiunile de diagnostic preimplantațional și prenatal, pentru decizii informate privind planificarea familială și prevenirea transmiterii bolilor ereditare;

- înrolarea în studii clinice pentru pacienții cu boli genetice rare, pentru accesarea tratamentelor inovatoare indisponibile încă pe scară largă: posibilitatea de includere în studiu de fază 2 pentru tratamentul cu Belzutifan, un inhibitor al factorului indus de hipoxie **2α (HIF-2α)**, tratament ce oferă o alternativă la intervențiile chirurgicale repetate și care poate influența viteza de progresie a formațiunilor tumorale pentru pacienta cu sindrom Von Hippel-Lindau, ce asociază polichistoză renală bilaterală, polichistoză pancreatică, hemangioblastom medular, hemangioblastom retinian și risc de carcinom cu celule clare.

În concluzie, cazurile prezentate demonstrează utilitatea testării genetice în practica clinică pentru îmbunătățirea managementului bolilor renale ereditare.

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Biofunctionalized magnetic nanostructures based on biotinylated N-palmitoyl chitosan and magnetite for breast cancer applications: *in vitro* and *in vivo* studies

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Breast cancer is one of the most common malignancies among women. A significant interest in breast cancer research is represented by the use of magnetic nanoparticles based on biofunctionalized polymers for targeted release of drugs to the tumour sites, without affecting normal cells. In this regard, our group developed biofunctionalized magnetic nanoparticles based on biotinylated N-palmitoyl chitosan and magnetite, loaded with different chemotherapeutic drugs (Doxorubicin or Docetaxel) [1,2]. Dynamic light scattering data indicated nanometre size, with a narrow distribution and a positive surface charge. Magnetic nanoparticles exhibited suitable magnetic saturation and superparamagnetic behaviour. Cytotoxicity tests indicated that drug-loaded nanoparticles exhibited a significant cytotoxic effect on breast cancer cells, whereas drug-free nanoparticles were biocompatible. Live/dead assay on *in vitro* tumour model confirmed an increasing ratio of dead cells after the treatment with nanoparticles. Preliminary *in vivo* results on a breast cancer animal model indicated a significant reduction of induced tumour after 7 days from injection and sustain the nanoparticles potential as theranostics for breast cancer.

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Salivary parameters in relation with tobacco consumption and emotional stress

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Background: Saliva is a particularly important fluid, with various functions: lubrication of oral mucosa, cleansing, buffering, antibacterial action, development of the acquired pellicle, and digestion. A decrease in the salivary flow rate is followed by disfunctions and conditions, such as dental caries, dry mouth, dysgeusia, dysphagia, mucosal changes, and speech difficulties. Tobacco consumption is a very widespread vicious habit with significant negative consequences on oral health status, including a reduction in salivary flow rate, pH changes, and changes in the chemical composition of saliva. Emotional stress is an inevitable component of modern life, inducing a reduction in saliva secretion and pH.

Aim of study: The aim of the present study was to assess the changes of salivary pH and flow rate among dental students from Iasi, Romania, in relation with tobacco consumption and emotional stress.

Materials and methods: The study was cross-sectional type and included 105 students aged 20-30 years, attending the 4th, 5th and 6th years of study at the Faculty of Dental Medicine within "Grigore T. Popa" University of Medicine and Pharmacy in Iasi. An original on-line questionnaire containing 17 items was used for the assessment of tobacco consumption, emotional stress, and their perceived impact on saliva secretion. The salivary pH of the subjects was assessed by using the Saliva-Check Buffer kit (GC), and their oral health indices (DMFT, DMFS) were evaluated by clinical examination. Chi-square test was used for data comparison and Spearman correlation was used for the analysis of the relationship between the evaluated parameters ($p < 0.05$).

Results: A percentage of 43% of the studied dental students had a caries experience index (DMFT) between 10 and 20. Most of them had a salivary pH of 7, but 17% had a pH of 5. A percentage of 26% of the students declared they smoked 15-20 cigarettes/day and 17% of them declared 1-10 cigarettes/day. A strong inverse correlation ($r = -0.651$) was found between salivary pH and cigarettes consumption. The percentage of students who reported they felt stressed frequently was 37%, and 86% of them considered that this reduced their salivary pH and flow rate. The frequency of perceived stress was found to have a moderate direct correlation ($r = 0.358$) with the DMFT index. Half of the investigated students declared they felt occasionally their mouth dry, and a moderate direct association ($r = 0.387$) was found between the frequency of perceived sensation of dry mouth and tobacco consumption.

Conclusions: Dental students who smoke daily, especially those smoking between 15 and 20 cigarettes per day, have a significantly more acidic salivary pH, suggesting that salivary pH decreases with increasing number of cigarettes consumed. Emotional stress has a direct correlation with perceived sensation of dry mouth and the caries experience index.

Attitudes of Jordanian Anesthesiologists and Anesthesia Residents towards Artificial Intelligence: A Cross-Sectional Study

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Keywords: anesthesia; perioperative medicine; artificial intelligence

Success in integrating artificial intelligence (AI) in anesthesia depends on collaboration with anesthesiologists, respecting their expertise, and understanding their opinions. Our aim is to illustrate the confidence in AI integration in perioperative anesthetic care. This cross-sectional study was conducted via self-administered online questionnaire and includes 118 responses from 44 anesthesiologists and 74 anesthesia residents at Jordanian tertiary hospital. We used a five-point Likert scale to investigate the confidence in AI's role in different aspects of the perioperative period. A significant difference was found between anesthesiologists and anesthesia residents in confidence in the role of AI in operating room logistics and management, with an average score of 3.6 ± 1.3 among residents compared to 2.9 ± 1.4 among specialists ($p = 0.012$). The role of AI in event prediction under anesthesia scored 3.5 ± 1.4 among residents compared to 2.9 ± 1.4 among specialists ($p = 0.032$) and the role of AI in decision-making in anesthetic complications 3.3 ± 1.4 among residents and 2.8 ± 1.4 among specialists ($p = 0.034$). Also, 65 (55.1%) were concerned that the integration of AI will lead to less human-human interaction, while 81 (68.6%) believed that AI-based technology will lead to more adherence to guidelines. In conclusion: AI has the potential to be a revolutionary tool in anesthesia, and hesitancy towards increased dependency on this technology is decreasing with newer generations of practitioners.

Boala renală cronică asociată bolii cardiace ischemice: rolul biomarkerilor cardiorenali

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Cardiopatia ischemică este o condiție patologică caracterizată printr-un dezechilibru între aportul și cererea de oxigen, fiind consecința reducerii fluxului sanguin cardiac. Cea mai comună cauză este reprezentată de afectarea arterelor coronare secundar leziunilor aterosclerotice obstructive, spasmului coronarian sau disfuncției microvasculare. Este o afecțiune cronică, progresivă, care poate deveni oricând instabilă; de cele mai multe ori, acest lucru este precipitat de un eveniment aterotrombotic acut determinat de ruperea sau eroziunea unei plăci de aterom.

Factorii de risc ai cardiopatiei ischemice pot fi grupați în factori de risc tradiționali și non-tradiționali. Factorii de risc tradiționali sunt reprezentați de vârstă, gen, etnie și istoric familial (nemodificabili) sau hipertensiunea arterială, dislipidemia, diabetul zaharat, obezitatea, fumatul sau sedentarismul (modificabili). Noii factori de risc ai bolii cardiace ischemice sunt reprezentați de steatohepatita non-alcoolică, boala renală cronică, afecțiunile inflamatorii sistemice, BPOC, afecțiunile tiroidiene, deficitul de vitamina D sau afecțiunile neoplazice.

Boala cronică de rinichi (BCR) este o patologie complexă și multifactorială, definită prin prezența anomaliilor renale structurale sau funcționale, asociate cu o reducere persistentă a funcției renale (RFG < 60 ml/min/1,73 m²), cu o durată de peste 3 luni, indiferent de etiologie. Richard Bright, un medic britanic, a fost primul care a raportat existența unei relații între boala renală cronică și afecțiunile cardiovasculare, stabilind conceptul de origine renală a bolilor cardiovasculare în anul 1836.

Mecanismele prin care BCR contribuie la creșterea exponențială a mortalității pacienților cu cardiopatie ischemică sunt multiple și complexe, însă, conform datelor din literatură, scăderea GFR este considerat principalul factor de risc independent pentru apariția evenimentelor cardiovasculare. BCR determină un status proinflamator sistemic cronic, care contribuie la procesele de remodelare vasculară și miocardică, la apariția și progresia leziunilor aterosclerotice, calcificarea și senescenta vasculară, precum și fibroza miocardică și calcificările valvulare extinse, toate aceste modificări patologice determinând îmbătrânirea accelerată și precoce a sistemului cardiovascular.

Ateroscleroza reprezintă un proces patologic caracterizat de îngroșarea și rigidizarea peretelui arterial secundar formării plăcilor de aterom în stratul intim al vaselor, rezultând încetinirea fluxului sanguin spre organe și țesuturi. Particular pacienților cu BCR este faptul că în procesul de ateroscleroză coronariană intervin o serie de factori specifici: disfuncția endotelială, stress-ul oxidativ și inflamația cronică, tulburări ale metabolismului osos (hiperfosfatemie, hiperparatiroidism, calcificări vasculare) și toxinele uremice - acumularea homocisteinei are efect aterogen prin oxidarea directă a lipoproteinelor. Calcificarea arterială este un element caracteristic în cazul pacienților diagnosticați cu BCR. Frecvent, calcificarea apare la nivelul mediei vaselor sanguine, fenomen cunoscut ca „scleroza lui Monckeberg”. Progresia procesului de calcificare în BCR se datorează expunerii crescute la calciu și fosfor din cadrul tulburărilor metabolice osoase și dezechilibrului dintre factorii promotori și inhibitori ai calcificării. Consecințele hemodinamice ale acestui proces sunt reprezentate de afectarea microcirculației coronariene și a elasticității arteriale, creșterea vitezei unde de puls și hipertrofia ventriculară stângă accentuată, toate aceste modificări determinând boală coronariană și insuficiență cardiacă.

Galectina-3 este un biomarker cardiorenal, reprezentând numitorul comun atât în fiziopatologia afectării renale cronice, cât și afectarea cronică cardiovasculară, având un rol central în medierea proceselor patologice de fibroză și inflamație. A fost demonstrat rolul în stabilirea prognosticului la pacienții cu sindrom cardiorenal. Odată cu dezvoltarea metodelor optime pentru detecție și utilizarea sa în practică clinică, ar putea reprezenta o abordare terapeutică în întârzierea procesului fibrotic asociat afecțiunilor menționate anterior, în special pentru că este un biomarker stabil, care nu este asociat cu vârsta, indicele de masă corporală sau sexul.

Copeptina este un biomarker util în stabilirea diagnosticului diabetului insipid și ca marker de prognostic în sepsis, șoc, evenimente cardiovasculare, afecțiuni pulmonare și afecțiuni renale. Calitatea de biomarker cardiovascular a copeptinei a fost evidențiată prin rolul său în diagnosticul și prognosticul infarctului miocardic și afectarea cronică coronariană sau în diagnosticul și prognosticul insuficienței cardiace cronice. În cazul pacienților cu infarct miocardic acut, copeptina este detectabilă în circulație înaintea troponinei, iar în cazul pacienților cu insuficiență cardiacă cronică, copeptina a fost superioară peptidelor natriuretice în a prezice mortalitatea și prognosticul pe termen scurt și lung; acest lucru ar putea fi explicat de faptul că BNP și NT-proBNP sunt strâns corelate cu vârsta și cu funcția renală, în timp ce copeptina nu este. De asemenea, copeptina a prezentat un rol important în evoluția și în prognosticul pacienților cu BCR. Copeptina se corelează cu gradul de calcificare vasculară indiferent de vârstă, gen sau prezența diabetului zaharat; concentrațiile serice crescute de copeptină sunt asociate frecvent cu calcificarea extensivă a tunicii medii a vaselor de sânge, implicit cu progresia afectării coronariene.

Factorul de creștere al fibroblastelor 23 (FGF-23) este o proteină secretată de osteocitele din os, fiind un regulator puternic al metabolismului vitaminei D și a fosfatului, având efect fosfaturic; Klotho este coreceptorul pentru FGF-23, având rolul de a potența acțiunea

acestui. Sindromul global care implică afectarea osoasă și cardiovasculară din BCR a fost numit CKD-mineral bone disorder (CKD-MBD), fiind caracterizat de: deficit de vitamina D, hiperfosfatemie și hipocalcemie inițial, urmată de hipercalcemie. Odată cu progresia disfuncției renale, concentrația FGF-23 va crește, expresia Klotho va scădea, modificări asociate cu progresia afectării cardiovasculare, în special coronariană. Astfel, FGF-23 este considerat un predictor al progresiei insuficienței cardiace și a evenimentelor cardiovasculare aterosclerotice acute.

Boala cronică de rinichi asociată cardiopatiei ischemice cronice reprezintă una dintre cele mai provocatoare interacțiuni dintre inimă și rinichi. Între afectarea renală cronică și ischemia cardiacă există o relație bidirecțională. Majoritatea biomarkerilor studiați în boala cardiacă ischemică și-au dovedit utilitatea și în cadrul pacienților care asociază BCR. Cu toate acestea, este necesară stabilirea unor biomarkeri performanți, cu valoare predictivă puternică asupra diagnosticului, prognosticului și ghidării terapiei acestor pacienți.

In vitro and in vivo evaluation of advanced composite scaffolds for bone regeneration

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Orthopaedic surgeons frequently face with the treatment of large bone defects of various causes. Since the gold standard, autologous bone grafts, has some drawbacks, in the last decade, tissue engineering (TE) gained important consideration [1]. The scaffold's designing, TE key component, which is functionalized with bioactive molecules (e.g., growth factors, drugs) and cells, is a real challenge, since it has to fulfil some essential criteria: biocompatibility, biodegradability, osteoinductivity, osteoconductivity, mechanical stability, advanced architecture providing cells hosting/migration and vascular network infiltration [2]. The aim of this study was to design and characterize advanced composite scaffolds for bone TE and regeneration. The composition of the scaffolds was carefully chosen (collagen, chitosan, hyaluronic acid, hydroxyapatite and superparamagnetic iron oxide nanoparticles - SPIONs) [3], their significant properties combined together resulted in a complex bone graft. The first steps for the complex characterization of the scaffolds were the study of their architecture, structure, composition and mechanical strain. Afterwards, was highlighted the ability of the scaffolds to incorporate and controllably release chemotherapeutics (doxorubicin and docetaxel) in direct contact with human osteosarcoma MG-63 cell line, suggesting the possibility to use them as graft substitutes for bone tumours treatment. The incorporation of bone morphogenetic proteins enhanced the scaffolds biocompatibility both *in vitro* (Mg-63 cell line) and *in vivo* (successful implantation in sheep's lumbar vertebra). Whereas SPIONs were incorporated to promote osteogenic differentiation, a magnet was implanted in the ventral body in one of the batches. In this case, the bone osseointegration was more active and the density much harder, when sectioning, compared to the batch without magnet.

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Provocări în managementul diagnostic la pacientul cu BPOC și IC

Corneanu Luiza-Elena

Insuficiența cardiacă (IC) și bronhopneumopatia obstructivă cronică (BPOC) sunt principalele cauze de morbiditate și mortalitate la nivel mondial. Acestea prezintă provocări majore atât diagnostice, cât și terapeutice pentru specialiști, adesea cele două entități patologice co-existând (până la 30-50%). De asemenea, reprezintă cele mai importante diagnostice diferențiale de dispnee, în special la pacienții vârstnici. IC apare în condițiile unor anomalii cardiace structurale și/sau funcționale rezultând, astfel, presiuni crescute de umplere și/sau debit cardiac inadecvat în repaus sau în timpul efortului ceea ce conduce la apariția dispneei. În BPOC apar tulburări ale căilor respiratorii, respectiv ale alveolelor, ceea ce determină obstrucție persistentă, progresivă a fluxului de aer asociată cu răspuns inflamator anormal al plămânului ce are ca efect clinic dispneea. În ciuda acestor diferențe fundamentale în fiziopatologia ambelor afecțiuni, diferențierea insuficienței cardiace de bronhopneumopatia obstructivă cronică este provocatoare din cauza suprapunerii simptomatologiei, a semnelor clinice și a factorilor de risc, fapt ce duce la întârzierea diagnosticării corecte, implicit la instituirea terapiei adecvate și eficiente. Se consideră că BPOC este subdiagnosticată la pacienții cu IC deoarece spirometria este subutilizată la aceștia. Totodată, se apreciază ca fiind fiziologic declinul raportului VEMS/CVF odată cu vârsta, utilizarea acestuia în diagnosticarea BPOC ducând la supradiagnosticare la vârstnici, respectiv subdiagnosticare în rândul tinerilor adulți. De asemenea, este cunoscut faptul că IC este o patologie a vârstnicului (predominant), astfel că unii pacienți pot avea o obstrucție a fluxului de aer datorată vârstei și nu unei condiții patologice. S-a observat, însă, că mulți pacienți cu spirometrie normală au semne, simptome, modificări radiologice, chiar și exacerbări frecvente ale bolii specifice BPOC.

În ceea ce privește BPOC, aceasta reprezintă factor de risc de sine stătător pentru dezvoltarea IC (exacerbările cresc riscul de sindrom coronarian acut - cauză de IC cu fracție de ejeție scăzută), iar 50% dintre pacienții cu BPOC prezintă un titru crescut al peptidelor natriuretice, determinarea lor fiind recomandată de ghidurile internaționale ca test inițial la pacienții ce se prezintă cu dispnee în vederea stabilirii diagnosticului de IC.

Așadar, diagnosticul diferențial între exacerbare BPOC și decompensare a IC este dificil, reprezentând o provocare continuă. Examenul clinic poate orienta către o patologie sau alta fiind completat de investigațiile paraclinice și imagistice clasice (radiografia toracică, ecocardiografia, spirometria, dozarea peptidelor natriuretice). Mai nou intrată în practica clinică este ecografia pulmonară care s-a dovedit a fi utilă în decompensarea cardiacă prin identificarea liniilor B (determinate de creșterea densității pulmonare); rolul acesteia în BPOC nu este încă bine definit, necesitând studii suplimentare. O speranță în facilitarea diagnosticului diferențial vine din partea noilor biomarkeri, precum neopterină și CC16 (club cell secretory protein) care, însă, nu sunt bine definiți. Neopterină tinde să aibă rol diagnostic în IC, în timp ce CC16 s-a remarcat în stadiile 3-4 GOLD. Astfel, se dezvoltă multiple studii care încearcă să identifice elemente cheie ce să ușureze diagnosticul diferențial al celor două patologii.

Sindromul de insensibilitate completă la androgeni – particularități de diagnostic

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Sindromul de insensibilitate completă la androgeni este determinat de mutații în gena receptorului androgenic (AR - androgen receptor) care au ca și efect o acțiune deficitară a hormonilor androgeni la nivelul organelor țintă. Consecința directă este perturbarea dezvoltării fenotipice masculine. În aceste cazuri fenotipul este unul normal feminin, cu caractere sexuale secundare normale - excepție făcând reducerea/absența pilozității axilare și pubiene și faptul că prezintă amenoree primară. Se transmite într-o manieră recesiv legată de X.

Prezentăm cazul unei paciente în vârstă de 19 ani care se prezintă pentru amenoree primară, iar examenul clinic evidențiază pilozitate axilară și pubiană absentă. Profilul hormonal decelează un nivel crescut al testosteronului, iar analiza cromosomică arată o formula cromosomică masculină 46,XY. Examinarea IRM pelvină concluzionează: criptorhidie bilaterală (iliaca externă), asociată cu chisturi de ducte Mulleriene juxtatesticulare, uter rudimentar și vagin scurt. Coroborând aceste date s-a emis ipoteza de diagnostic de sindrom de insensibilitate completă la androgeni. În acest context secvențierea Sanger a genei AR a identificat o mutație nonsens, în gena AR, în stare hemizigotă c.2108_2109delCT (p. S703*). Mutația constă în deleția a două nucleotide în exonul 4 al genei AR, care determină terminația prematură a proteinei prin introducerea unui codon stop în poziția aminoacidului 703. Această variantă a fost clasificată drept patogenă în bazele de date și asociată cu fenotip de sindrom de insensibilitate completă la androgeni (sindrom Morris) la persoanele cu cariotip XY. Întrucât există riscul de malignizare a gonadelor (testicule) se recomandă extirparea chirurgicală a acestora. Pacienta necesită dispensarizare endocrinologică, consiliere psihologică. Întrucât modul de transmitere a mutației este recesiv legat de X s-a recomandat efectuarea analizei moleculare la mama probandei și ulterior la alte rude cu risc de a prezenta mutația. Mama probandei prezintă aceeași mutație în stare heterozigotă.

În concluzie, prezentăm un caz de sindrom de insensibilitate completă la androgeni în scopul evidențierii particularităților de diagnostic la vârsta adultă și managementului adecvat al cazului.

The Prognostic Value of 24-Hour Holter ECG Monitoring in Patients with Chronic Heart Failure

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Purpose of the Study. Heart failure, a complex condition with multiple etiologies and increasing prevalence, requires a thorough diagnostic evaluation to optimize treatment and improve prognosis. Diagnosis and optimal management of this condition require a multidisciplinary approach, integrating cardiac biomarkers, echocardiographic evaluation, and 24-hour Holter ECG monitoring. By integrating echocardiographic parameters with measurements obtained from 24-hour Holter ECG monitoring, such as heart rate variability, ventricular late potentials, and T-wave alternans, a detailed profile of high-risk patients is developed. The study aims to explore new parameters recorded during 24-hour Holter ECG monitoring for risk stratification and personalized treatment in patients with chronic heart failure.

Materials and Methods. In a prospective study conducted over 10 months, between May 2023 and January 2024, we included 200 participants: 140 patients diagnosed with chronic heart failure and 60 healthy subjects as a control group. All participants underwent a thorough clinical, paraclinical, and imaging evaluation, including determination of NT-proBNP levels, echocardiography, electrocardiography, and 24-hour Holter ECG monitoring. Comorbidities of each patient were confirmed either by previous records or by diagnosis during hospitalization.

Results. The analysis revealed a predominance of males (54.29%) in the group of patients with chronic heart failure. Evaluation of heart rate variability showed statistically significant differences ($p < 0.001$) between the two groups regarding parameters such as SDNN, SDANN, triangular index, heart rate acceleration capacity, and deceleration capacity. Additionally, a significantly higher proportion of patients with chronic heart failure presented T-wave alternans (20% vs. 1%) and ventricular late potentials (27.85% vs. 10%). Subgroup analysis indicated a positive correlation between comorbidities such as diabetes mellitus and increased values of the triangular index and deceleration capacity in patients with chronic heart failure ($p = 0.035$ and $p = 0.02$, respectively). In contrast, body mass index and chronic kidney disease did not significantly influence heart rate variability parameters.

Conclusion. The 24-hour Holter ECG monitoring has proven to be a valuable tool in cardiovascular risk stratification in patients with chronic heart failure. By exploring less conventional parameters of heart rate variability, such as the triangular index, acceleration and deceleration capacity, as well as T-wave alternans and ventricular late potentials, the study highlighted a significant association with disease severity and the presence of subclinical ventricular dysfunction. These results suggest that integrating non-traditional heart rate variability parameters into the clinical evaluation of patients with chronic heart failure could improve accuracy in predicting adverse cardiovascular events and optimize therapeutic strategies.

Pelvic Ring Fracture: Overview and Management

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Introduction. Pelvic ring fractures are significant injuries associated with a high risk of morbidity, often occurring in polytrauma patients. These fractures account for approximately 3% of all fractures, but this figure increases to 25% in polytrauma cases. The severity of these fractures is closely tied to the mechanism of injury. Lower-energy fractures, typically seen in the elderly, result from minor falls, while high-energy fractures, common in younger patients, often result from motor vehicle accidents (MVA), industrial accidents, or falls from height. The male-to-female ratio in such cases is 3:1.

Anatomy and Stability. The pelvis is a ring structure comprising the sacrum and two innominate bones. While the bones themselves lack inherent stability, strong ligamentous structures provide significant support. Displacement occurs only when the ring is disrupted in at least two locations. The neurovascular structures intimately associated with the posterior pelvic ligaments contribute to the complexity of these injuries. Additional stability is provided by ligaments connecting the lumbar spine to the pelvic ring, such as the iliolumbar and lumbosacral ligaments, functioning like a suspension bridge.

Ligaments can be classified based on their role in resisting forces: Transverse ligaments (e.g., posterior sacroiliac, anterior sacroiliac) resist rotational forces. Vertical ligaments (e.g., sacrotuberous, long posterior sacroiliac) resist vertical shear forces.

Classification Systems. Pelvic ring fractures are classified based on the stability and mechanism of injury, with two commonly used systems: the Tile classification and the Young-Burgess classification.

Tile Classification: Type A: Stable fractures, such as avulsion fractures or stable/minimally displaced ring fractures. Type B: Rotationally unstable but vertically stable fractures, including open book and lateral compression injuries. Type C: Both rotationally and vertically unstable fractures, which may involve ilium fractures, sacroiliac dislocations, or bilateral ring disruptions.

Young-Burgess Classification: APC (Anterior-Posterior Compression) injuries are categorized by the extent of pubic symphysis widening and involvement of sacroiliac (SI) joints. LC (Lateral Compression) injuries involve fractures of the rami and ipsilateral or contralateral pelvic components. VC (Vertical Shear) injuries, characterized by posterior and superior forces, are associated with the highest mortality rates and significant risk of hypovolemic shock.

Clinical Presentation and Physical Exam. Patients with pelvic ring fractures typically present with severe pain and an inability to bear weight. Physical examination includes assessing for instability by applying gentle rotational force to the iliac crests, although this has limited sensitivity. Signs such as external rotation of the extremities, limb length discrepancies, or abnormal lower limb positioning may indicate a significant injury. Common external findings include scrotal, labial, or perineal hematomas, flank bruising, or degloving injuries (Morel-Lavallée lesion). Neurologic evaluation is critical to rule out lumbosacral plexus injuries, with L5 and S1 being the most frequently affected.

In men, urogenital injuries are more common, with gross hematuria occurring in about 21% of male patients. Women and men may require both vaginal and rectal examinations to exclude occult open fractures. Rectal exam findings like Earle's sign or Roux's sign can help diagnose these injuries.

Imaging and Diagnosis. Imaging plays a crucial role in the diagnosis and classification of pelvic ring fractures. Standard radiographs include five views: anteroposterior (AP), inlet, outlet, and bilateral oblique views. AP views should show the pubic symphysis aligned with the sacral spinous processes, and asymmetry of the SI joints can suggest dislocation or sacral fracture. Inlet and outlet views help assess vertical displacement and rotation of the hemi-pelvis.

Computed tomography (CT) is essential for detailed fracture assessment, especially for complex injuries or sacral fractures. Thin axial sections (2-3 mm) provide high-resolution images of the fracture and associated soft tissue injuries.

Initial and Definitive Management. The initial management of pelvic fractures focuses on stabilizing the patient and controlling hemorrhage. Hemorrhage in pelvic injuries is often venous (80%), usually from the posterior venous plexus or bleeding cancellous bone. Arterial injuries, such as those involving the superior gluteal artery, are less common but can be life-threatening. Immediate resuscitative measures include the use of pelvic binders, external fixation, and, when necessary, angioembolization.

Nonoperative Treatment. Nonoperative management is appropriate for mechanically stable fractures, such as LC1 fractures or APC1 fractures with minimal displacement. Bed rest, pelvic binders, and weight-bearing as tolerated are typically recommended, with mobilization initiated once stability is confirmed through imaging.

Operative Treatment. Surgical intervention is indicated in unstable fractures with significant displacement. Indications include symphysis diastasis greater than 2.5 cm, SI joint displacement greater than 1 cm, sacral fractures with more than 1 cm of displacement, or open fractures. Surgical techniques, such as open reduction and internal fixation (ORIF), aim to restore pelvic stability and prevent long-term complications. In cases of open fractures, aggressive debridement following standard open fracture protocols is essential.

Rehabilitation. Rehabilitation strategies differ depending on the stability of the fracture. Stable fractures managed nonoperatively allow for immediate mobilization with protected weight-bearing, while unstable fractures require careful progression. Weight-bearing limitations depend on the location of the posterior ring injury, and in bilateral injuries, patients may initially be restricted to bed-to-chair transfers.

Complications. Complications following pelvic ring fractures are common and can include:
Urogenital Injuries: Present in 12-20% of cases, with long-term complications such as urethral strictures, impotence, and incontinence.

Neurologic Injuries: Nerve injuries, particularly involving the L5 root, may occur due to misplaced screws or the nature of the pelvic trauma.

Venous Thromboembolism: Deep vein thrombosis (DVT) occurs in up to 60% of patients, with pulmonary embolism (PE) in about 27%. Prophylaxis with mechanical compression and low-molecular-weight heparin is essential.

Chronic Instability: Rare but significant, chronic instability presents with subjective feelings of pelvic instability, often requiring further surgical intervention.

Infection: Risk factors for infection include prolonged ICU stays, obesity, and associated abdominal or genitourinary trauma.

Conclusion. Pelvic ring fractures require a multidisciplinary approach to treatment, including resuscitation, imaging, nonoperative or surgical stabilization, and rehabilitation. Timely and appropriate management is essential to prevent complications, particularly those related to hemorrhage, urogenital injury, and long-term instability. Comprehensive post-surgical care, including thromboprophylaxis and infection prevention, is key to improving outcomes in these patients.

Impactul procesului de îmbătrânire asupra funcției cognitive: abordări și considerații actuale

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În contextul actual, abordările și considerațiile referitoare la impactul procesului de îmbătrânire asupra disfuncției cognitive sunt în continuă evoluție, concentrându-se pe îmbunătățirea calității vieții și pe întârzierea sau prevenirea declinului cognitiv.

Impactul procesului de îmbătrânire asupra disfuncției cognitive este un subiect complex care implică diverse modificări neurologice asociate cu înaintarea în vârstă. Pe măsură ce persoanele îmbătrânesc, sunt susceptibile la diverse forme de declin cognitiv, care pot varia de la ușoare scăderi ale memoriei până la condiții mai grave, cum ar fi demența.

Primul factor relevant este reducerea volumului cerebral, în special în regiunile implicate în memorie și procesarea informațiilor, cum ar fi hipocampusul și cortexul prefrontal. Această atrofie poate contribui la dificultățile de învățare și retenție a informațiilor noi.

De asemenea, îmbătrânirea este asociată cu o scădere a plasticității neuronale și cu acumularea de proteine anormale, cum ar fi tau și beta-amiloid, care sunt implicate în patogeneza bolii Alzheimer. Aceste depuneri pot perturba funcționarea normală a neuronilor și pot duce la moartea celulară.

Pe lângă aceste schimbări neurologice, factori vasculari, cum ar fi hipertensiunea și ateroscleroza, pot reduce fluxul sanguin către creier, ceea ce agravează disfuncțiile cognitive. În plus, factorii de stil de viață, cum ar fi dieta, exercițiile fizice și activitățile mentale, pot influența severitatea declinului cognitiv.

Studiile recente subliniază importanța unor strategii integrate care combină intervenții medicale, modificări ale stilului de viață și tehnologii emergente.

Tratamentele farmacologice continuă să fie explorează, cu noi medicamente care vizează cai specifice de degenerare neuronală. Inhibitorii și modulatorii de beta-amiloid sunt în curs de testare pentru a reduce acumularea de plăci patologice în boala Alzheimer. Terapiile bazate pe anticorpi și strategiile de intervenție timpurie sunt, de asemenea, în centrul atenției.

Este din ce în ce mai clar că factorii de stil de viață, cum ar fi dieta mediteraneană, exercițiile fizice regulate, socializarea activă și angajamentul în activități cognitive stimulante (cum ar fi jocurile de logică și învățarea continuă), pot avea un impact semnificativ în prevenirea

sau întârzierea declinului cognitiv. Studiile arată că aceste activități contribuie la îmbunătățirea plasticității neuronale și la menținerea funcției cognitive la persoanele în vârstă.

Utilizarea tehnologiilor, cum ar fi realitatea augmentată și virtuală, în terapiile cognitive este un domeniu de interes crescut. Aceste tehnologii pot oferi medii stimulative și controlate pentru antrenamentul cognitiv, simulând diverse scenarii care pot ajuta la îmbunătățirea memoriei, atenției și a altor funcții cognitive.

Cu progresele în genetica și neuroimagică, este posibilă adaptarea intervențiilor pe baza profilului genetic și a caracteristicilor neurobiologice individuale ale fiecărei persoane. Această abordare personalizată poate crește eficacitatea tratamentelor și poate minimiza efectele secundare.

Abordarea integrată favorizează o mai bună înțelegere a mecanismelor de bază și a modurilor efective de intervenție.

Prin aceste noi direcții de cercetare și intervenție, speranța este de a transforma îmbătrânirea într-un proces cât mai puțin restrictiv din punct de vedere cognitiv, permitând oamenilor să mențină o calitate a vieții ridicată chiar și la vârste înaintate.

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Aplicațiile matematicii în studiul carcinomului cutanat

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Carcinoamele cutanate sunt o formă de cancer care se dezvoltă în celulele epidermei sau celulele din stratul bazal al pielii. Acest tip de cancer poate fi tratat cu succes în stadiile incipiente, dar poate deveni mai agresiv și mai dificil de tratat în stadiile avansate.

Carcinoamele bazocelulare sunt formațiuni tumorale care își au originea în celulele bazale situate în stratul inferior al epidermei și se dezvoltă lent pe piele sau pe alte leziuni preexistente. Localizarea acestora este frecventă în 2/3 superioare ale feței, în special în următoarele zone: regiunea suborbitală, nasul, unghiul interior al ochiului, fruntea, regiunea temporală. Evoluția carcinoamelor bazocelulare este cronică și cresc lent în dimensiune.

Carcinoamele spinocelulare sunt carcinoame cutanate, de origine keratinocitară, caracterizate prin evoluție rapidă, comparativ cu carcinoamele bazocelulare. Pot fi localizate în orice regiune a pielii și a mucoaselor, dar localizarea preferențială este la joncțiunea cutaneo-mucoasă (buza inferioară). Acestea apar frecvent pe leziunile precanceroase.

Sarcoamele cutanate sunt un tip de carcinom cutanat care afectează țesutul conjunctiv. Sunt relativ rare în comparație cu alte forme de carcinoame cutanate. Monitorizarea pe termen lung a sarcoamelor cutanate este esențială pentru depistarea precoce a recidivelor.

Matematica are o serie de aplicații în studiul carcinoamelor cutanate, inclusiv diagnostic, prognostic și tratament.

Modele de aplicații ale matematicii în studiul carcinomului cutanat sunt următoarele:

- modelarea creșterii tumorii;
- modelarea factorilor de risc și predicția dezvoltării tumorii;
- modelarea difuziei și răspândirii tumorii;
- modelarea interacțiunilor celulare și moleculare;
- modelarea răspunsului la tratament.

Modelele matematice ajută la înțelegerea și abordarea tratamentului carcinoamelor cutanate prin simularea diferitelor aspecte ale comportamentului tumorii și ale răspunsului la tratament.

În plus, modelarea matematică poate fi utilizată pentru a prezice rezultatele tratamentului și pentru a ghida deciziile terapeutice. Prin combinarea datelor clinice și radiologice cu modele matematice, este posibil să se prezică evoluția carcinomului cutanat în timp și să se ia decizii mai informate cu privire la tratamentul pacientului.

În concluzie, aplicațiile matematicii reprezintă un instrument valoros în tratamentul carcinomului cutanat. Medicii sunt conștienți de potențialul acestui domeniu și colaborează cu experți în matematică pentru a îmbunătăți eficacitatea terapiilor și a optimiza rezultatele pacienților.

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Applications of mathematics in the study of skin carcinomas

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Skin carcinomas are a form of cancer that develops in the cells of the epidermis or cells in the basal layer of the skin. This type of cancer can be treated successfully in the early stages but can become more aggressive and difficult to treat in the advanced stages.

Basal cell carcinomas are tumor formations that originate in the basal cells located in the lower layer of the epidermis and develop slowly on the skin or on other pre-existing lesions. The localization of basal cell carcinomas is frequent in the upper 2/3 of the face, especially in the following areas: the suborbital region, the nose, the inner angle of the eye, the forehead, the temporal region. The evolution of basal cell carcinomas is chronic, and they grow slowly in size.

Squamous cell carcinomas are skin carcinomas, of keratinocytic origin, characterized by rapid evolution. compared to basal cell carcinomas. Squamous cell carcinomas can be located in any region of the skin and mucous membranes, but the preferential location is at the cutaneous-mucosal junction (lower lip). Squamous cell carcinomas frequently appear on precancerous lesions.

Cutaneous sarcomas are a type of skin carcinoma that affects connective tissue. They are relatively rare compared to other forms of skin carcinomas. Long-term monitoring of cutaneous sarcomas is essential for early detection of recurrences.

Mathematics has a number of applications in the study of skin carcinomas, including diagnosis, prognosis and treatment.

Models of applications of mathematics in the study of skin carcinoma:

- tumor growth modeling.
- risk factor modeling and tumor development prediction.
- modeling tumor diffusion and spread.
- modeling cellular and molecular interactions.
- modeling response to treatment.

Mathematical models help to understand and approach the treatment of skin carcinomas by simulating various aspects of tumor behavior and response to treatment.

In addition, mathematical modeling can be used to predict treatment outcomes and guide therapeutic decisions. By combining clinical and radiological data with mathematical models, it is possible to predict the evolution of skin carcinoma over time and make more informed decisions about patient treatment.

In conclusion, the applications of mathematics represent a valuable tool in the treatment of skin carcinoma. Doctors are aware of the potential of this field and collaborate with mathematical experts to improve the effectiveness of therapies and optimize patient outcomes.

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De la Hipocrate la etica islamică și înapoi

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Primul cod de etică medicală, Jurământul lui Hipocrate, datează din secolul al V-lea î.Hr. și reprezintă un ghid pentru conduita morală a medicilor, pe primul plan în recomandări fiind cele educaționale și social umanitare (datoria către profesor și familia sa) apoi cele prohibitive (legate de urologie și obstetrică). Singurele îndatoriri care se mențin actuale sunt: a nu face rău, a păstra confidențialitatea și a păstra "curăția" morală.

În evul mediu (500-1450 AD) – cea mai dezvoltată medicină – a fost cea islamică, ea având o interdicție puternică privind uciderea, inclusiv uciderea prin milă și avortul. Jurământul medicului Musulman, adresat lui Dumnezeu, este de fapt o rugăciune), etica islamică având un fundament religios. Etica islamică insistă mult pe personalitatea virtuoasă a medicului, pe obligațiile lui față de pacienți, dar și față de comunitate.

Jurământul medicului hindus, ca și jurământul lui Hipocrate se adresează unei religii politeiste, și se focalizează pe impunerea unor exigențe morale doctorilor (de ex: să trăiască în castitate, fără a mânca carne, consuma alcool etc).

Noile coduri de etică (de ex: cel al Organizației Mondiale a Medicilor) au adaptat principiile de odinioară, punând însă în prim plan respectul autonomiei pacientului și demnității sale.

Inflammation and Type 2 Diabetes: Implications of Myeloid-Derived Suppressor Cells

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Insulin resistance is a key feature of type 2 diabetes and can be triggered by obesity. Excess adipose tissue becomes a significant source of cytokines, adipokines and chemokines, which subsequently contribute to the setup and persistence of an inflammatory microenvironment. Elevated levels of these pro-inflammatory mediators disrupt insulin signaling pathways, leading to insulin resistance and, eventually, to the onset of type 2 diabetes. Additionally, this inflammatory state upholds the infiltration of immune cells into adipose tissue, resulting in chronic low-grade inflammation.

Emerging studies have indicated the accumulation of a new cell population in the adipose tissue, known as myeloid-derived suppressor cells (MDSCs). MDSCs infiltrating adipose tissue mediate both the composition and activity of immune cells. They promote the M2 phenotype in macrophages, which enhances insulin sensitivity. Additionally, MDSCs can suppress the activity of CD4⁺ and CD8⁺ T cells, thus preventing the development of type 2 diabetes. Their immunosuppressive effects can also be observed in their interaction with Tregs, another cell population that regulates immune responses by suppressing immune cell activity. In the tumor microenvironment, MDSCs are known for their ability to induce Tregs; however, this characteristic has not yet been fully established in the context of chronic low-grade inflammation of adipose tissue associated with type 2 diabetes. Further studies are needed to clarify the impact of MDSCs on immune cells and to determine the underlying mechanisms.

Related to the chronic complications of type 2 diabetes, MDSCs have been shown to reduce fibronectin production, thereby reducing fibrosis and improving renal function in diabetic nephropathy. However, in diabetic retinopathy, studies remain inconclusive regarding whether MDSCs have a beneficial or detrimental effect. The potential of targeting MDSCs as a therapeutic approach is most promising in diabetic wound healing, where the use of two therapeutic agents has effectively harnessed the beneficial properties of MDSCs.

In conclusion, additional research focused on the complex relationship between MDSCs and immune cells is needed to identify the precise mechanisms through which they influence the progression of type 2 diabetes. Moreover, a deeper molecular understanding of these interactions could pave the way for the development of targeted therapies.

Cost Enable Network and digital technologies to increase medication adherence

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Taking medication every day for long time is a major challenge for healthcare systems, due to problems with medication adherence. It is difficult to take medication especially for persons with chronic diseases, thus many digital technologies have been developed to support medication users to take their treatment as prescribed.

Aim: to present the results of ENABLE Network in gathering information, on a single platform, on digital technologies to support medication adherence.

Results: ENABLE Network includes 40 countries from Europe. From Romania are included four universities: Iasi, Bucharest, Craiova and Cluj-Napoca, and one non-governmental association Baylor Foundation. ENABLE European Network members started from the idea of "how can one find a tool that fits with its situation"? Thus, it was developed an online repository with digital technologies from different European countries, able to answer to the multifaceted challenge of medication adherence. The ENABLE repository includes 23 technologies from 10 countries, ranging from apps to dose dispensers and other electronic devices. Repository has a set of filters (country, language, health condition, route of administration) which help repository users to search for digital technologies that fit their situation.

Conclusion: The ENABLE repository is an useful tool to find a digital solution to increase medication adherence. This platform is valuable for both healthcare professionals and patients.

Possibilities of improving the biomaterials used as periodontal dressings

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Keywords: periodontal protection, healing process, biomaterials, mechanical behavior

In dental practice two categories of biomaterials are used as periodontal dressings: zinc oxide-eugenol (ZOE) dressings and non-eugenol dressings.

The periodontal dressings, recommended as hemostatic materials, are efficient in reducing bleeding after surgical procedures. At the surgical site, these biomaterials act by creating a physical barrier that aids in stabilizing the blood clots and limiting excessive bleeding.

The aim of this work was to improve the properties of some biomaterials used as periodontal dressings by adding different therapeutic agents, these improvements being beneficial for the patients going through the healing process after surgical procedures at the periodontal level.

Non-eugenol periodontal dressing biomaterials were used in this study. These were prepared as instructed by the producers. Equal lengths of the base paste and catalyst were combined and shaped as a disk form of 0.5 mm thickness. Two other samples of periodontal dressing biomaterial with allantoin and periodontal dressing biomaterial with pyridoxine were prepared separately, in exactly the same way.

The therapeutic agents: Allantoin, Pyridoxine were used due to their numerous advantageous qualities, being, in the same time, non-toxic, non-allergenic, and non-irritating. The prepared biomaterials were characterized in terms of mechanical behavior, swelling behavior in phosphate buffer solution (PBS) of 6.8 pH and ethanol, and scanning electron microscopy (SEM), in order to evaluate if the obtained improved biomaterials characteristics have been changed.

The results of the study indicate that therapeutical agents (allantoin and pyridoxine) have been successfully added to a periodontal dressing biomaterial, obtaining homogenous materials very similar to the reference sample. The SEM analysis revealed homogenous consistencies, with some pores formed in the enriched materials with therapeutic agents. The enriched materials have similar properties, thus recommending them for further characterizations and analyses.

Circulating MicroRNA Molecules: New Perspectives in the Diagnosis and Prognosis of Acute Pulmonary Embolism – a preliminary study

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Keywords: MicroRNA-28-3p, pulmonary embolism, biomarkers

Introduction: MicroRNAs are short, non-coding RNA molecules that play a role in the regulation of gene expression at the post-transcriptional level. In cardiovascular pathology, microRNAs control angiogenesis, lipid metabolism, platelet activation and function, plaque formation, contractility and growth of cardiomyocytes, as well as the maintenance of heart rhythm.

Additionally, microRNA molecules exhibit altered expression in the plasma in various cardiovascular diseases, which is why they have been investigated as diagnostic biomarkers for chronic and acute coronary syndromes or heart failure. The objective of this study is to evaluate the diagnostic and prognostic role of miRNA-134 and miRNA-28-3p in patients with acute pulmonary embolism.

Material and Methods: This study included 30 patients admitted for acute pulmonary embolism in the Cardiology Clinic of „Sf. Spiridon” Emergency Hospital Iași. The patients were matched with 20 controls with no records of pulmonary embolism or deep vein thrombosis, who were enrolled from the outpatient clinic of the same hospital. Blood samples were collected from subjects and controls within the first 2 hours after admission to perform qRT-PCR for miRNA-134 and miRNA-28-3p.

The receiver operating characteristic (ROC) curve was used to evaluate the diagnostic accuracy of the studied miRNAs, while miRNA expression was also correlated with other prognostic parameters: PESI score, echocardiography, and in-hospital mortality.

Results: The median values of $2-\Delta\Delta C_t$ for miRNA-134 were 0.499 (IQR 0.22-0.974) in the control group, while in the study group it was 0.644 (IQR 0.279-1.92), with no statistically significant difference between the two groups ($p=0.383$). For miRNA-28-3p, the median value in the study group was 1.21 (IQR 0.529-1.708), while in the control group it was 0.561 (IQR 0.297-1.308). In this case, there was a statistical difference between the two groups, with the value of $2-\Delta\Delta C_t$ being increased in the study group ($p=0.042$).

The cut-off of $2-\Delta\Delta C_t$ for miRNA-28-3p resulting from the ROC analysis was 1.015 (AUC=0.649; 95% CI 0.511-0.747, $p=0.05$). The values of $2-\Delta\Delta C_t$ were also higher in patients with high creatinine levels ($r=0.161$, $p=0.03$) and troponin levels ($r=0.253$, $p=0.05$), but not with other cardiac biomarkers. There was a small correlation between high miRNA 28-3p and adverse cardiovascular outcome ($r=0.233$, $p=0.05$).

Conclusions: The study indicates that miRNA-28-3p has diagnostic and prognostic potential in acute pulmonary embolism, with significantly increased expression linked to higher mortality. While miRNA-134 did not show significant differences, these findings support the use of miRNAs as biomarkers, warranting further research for validation and understanding their roles.

Enhancing Pulmonary Embolism Diagnosis and Prognosis: The Significance of Copeptin, BDNF, and the Mastora Score

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Keywords: copeptin, BDNF, Mastora Score, pulmonary embolism

Introduction: Pulmonary embolism (PE) is the third leading cause of cardiovascular mortality, following myocardial infarction and stroke. Effective management of this condition relies on accurate diagnosis and risk stratification, as aggressive treatments like thrombolysis can lead to life-threatening complications. Current diagnostic and stratification methods for pulmonary embolism include risk scores, cardiac troponins, and echocardiography markers; however, these may be insufficient for certain patient groups. This paper presents an evaluation of novel biomarkers—copeptin and brain-derived neurotrophic factor (BDNF)—along with the Mastora score in the diagnosis and prognosis of pulmonary embolism.

Material and Methods: We conducted a single-center prospective study involving 112 patients with pulmonary embolism and 53 healthy volunteers. Upon admission, clinical and paraclinical parameters, as well as plasma levels of D-dimers, highly sensitive troponin, NT-proBNP, copeptin, BDNF, and the Mastora score, were assessed for all patients.

Results: Copeptin levels were significantly increased in PE patients compared to the general population (26.05 vs. 9.5 pmol/L, $p < 0.001$), as were troponin levels (103.5 ± 249.6 vs. 7.62 ± 7.24 ng/L, $p < 0.001$) and NT-proBNP (3142.3 ± 5190.2 vs. 324.5 ± 478.64 pg/mL, $p < 0.001$). Conversely, BDNF levels were significantly lower in patients with acute PE (403 vs. 644 pg/mL, $p < 0.001$). ROC analysis revealed an AUC of 0.806 (95% CI 0.738–0.876, $p < 0.001$) with a cut-off value of 564 pg/mL. Increased thrombotic burden, evaluated by the Mastora score, was correlated with elevated levels of copeptin, troponin, and NT-proBNP, but not with the decrease in BDNF.

Conclusions: This study highlights the significant role of copeptin as a novel biomarker for the diagnosis and prognosis of pulmonary embolism, alongside established markers like troponin and NT-proBNP. Additionally, the lower levels of BDNF suggest its potential diagnostic value. The correlation between copeptin and thrombotic burden, as assessed by the Mastora score, confirms its capacity to enhance diagnostic accuracy and improve patient management in pulmonary embolism.

Boala coronariană ischemică la pacientul dializat – o provocare continuă

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Introducere. Boala coronariană aterosclerotică reprezintă principala cauză de deces la nivel mondial. În Europa, bolile cardiovasculare (CV) sunt responsabile pentru aproximativ 45% dintre decese, 4 milioane de oameni murind anual datorită unei astfel de patologii.

Prezentarea cazului. Un pacient în vârstă de 77 de ani, hipertensiv, diabetic, cunoscut cu boală cronică renală (BCR) în stadiul de dializă de 3 ani și sindrom coronarian cronic (SCC), se prezintă pentru un control de rutină, în regim ambulator, acuzând durere toracică tipică anginoasă, însoțită de dispnee la eforturi moderate. Pacientul declară agravarea progresivă a simptomatologiei în ultimul an. Examenul clinic relevă un pacient obez, stabil hemodinamic și respirator, fără alte modificări patologice.

Biologic, remarcăm sindromul de retenție azotată (creatinină 4.26mg/dl), anemie normocromă, microcitară (Hb 11g/dl, VEM 79/fL, HEM 30pg, CHEM 33g/dl), precum și profil glicemic și lipidic în afara valorilor țintă. Pe ECG se obiectivează subdenivelări de segment ST în teritoriul lateral și supradenivelare de segment ST în aVR, iar ecocardiografic observăm un ventricul stâng cu dimensiune la limita superioară a normalului, funcție sistolică ușor redusă, fracție de ejeție (FEVS) 45%, prin hipokinezie difuză, dar mai accentuată la nivelul peretelui inferior.

Contextul clinic al pacientului, precum și modificările ECG și ecocardiografice ridică suspiciunea înaltă de SCC, iar pacientul efectuează explorare coronarografică. Aceasta relevă leziuni triconariene severe și de trunchi comun, complexe (scor Syntax 79.1), cu indicație de revascularizare chirurgicală. Având în vedere riscul operator crescut, estimat prin scorul STS (risc de mortalitate peri-operatorie >20%), pacientul optează pentru tratament conservator. Se optimizează schema terapeutică de insuficiență cardiacă (ICC) și SCC, iar pacientul este externat.

La 8 luni de la ultima evaluare, pacientul revine în urgență acuzând durere toracică anterioară, debutată în timpul unei ședințe de dializă. Biologic se observă valori crescute ale hsTnI (426ng/L), pe ECG se obiectivează accentuarea modificărilor de fază terminală preexistente, iar ecocardiografic se remarcă deprecierea FEVS la 40-45%. Se pune astfel diagnosticul de infarct miocardic acut fără supradenivelare de segment ST (NSTEMI).

Având în vedere contextul acut, se ia decizia revascularizării intervenționale. Astfel, se efectuează revascularizarea completă, etapizată, dat fiind faptul că pacientul era dependent de hemodializă. Evoluția post-procedurală este favorabilă, iar pacientul este externat, după optimizarea schemei terapeutice.

La 10 luni de la evenimentul acut, pacientul revine electiv pentru un control cardiologic, acuzând reapariția durerii anginoase și a dispneei la praguri mici de efort, precum și în timpul ședințelor de dializă. Se efectuează din nou explorare coronarografică, care obiectivează restenoză intrastent la nivelul arterei coronare drepte și stenoză la capătul distal al stentului de pe artera circumflexă, ambele leziuni fiind tratate prin angioplastie cu balon activ farmacologic.

Concluzie. În concluzie, acest caz evidențiază provocările și considerațiile complexe în gestionarea ICC și SCC la un pacient cu BCR în stadiu terminal, precum și importanța unei echipe multidisciplinare, formată din cardiolog, nefrolog și cardiolog intervenționist.

Understanding Non-Unions in Orthopaedics: Types, Causes, Treatments, and Emerging Therapies

Khaled Al-Kharouf

Background: Non-union of fractures is a significant complication in orthopaedics trauma, marked by the cessation of healing progression within the expected 6-9 months' timeframe post-injury. It is diagnosed by the absence of progressive signs of healing on radiographs, which can result in prolonged pain, dysfunction, and poor quality of life. Non-unions have biological, mechanical, and systemic components, and the consequences of untreated non-unions include chronic pain, loss of limb function, and additional surgical interventions.

Objectives: These abstract aims to explore the multiple dimensions of non-unions in orthopaedics by examining the different types of non-unions, the factors leading to them, conventional treatment methods, and the emerging therapies that offer promising solutions for better patient outcomes.

Types of Non-Unions:

non-unions can be classified into several categories based on radiographic appearance and biological activity:

- **Hypertrophic Non-Union:** Characterized by abundant callus formation but inadequate mechanical stability to bridge the fracture.
- **Atrophic Non-Union:** A biological failure with no callus formation, typically due to poor blood supply.
- **Oligotrophic Non-Union:** Presents limited callus formation with both biological and mechanical factors involved.
- **Septic Non-Union:** Caused by infection at the fracture site, which inhibits normal healing and requires treatment with antibiotics and surgical debridement.
- Understanding the type of non-union is crucial for determining the appropriate treatment strategy.

Causes of Non-Unions:

The causes of non-unions are multifactorial:

- **Patient Factors:** Age, chronic diseases like diabetes, poor nutrition, smoking, alcohol consumption, and genetics can all contribute to non-union.
- **Fracture Characteristics:** Fractures with significant soft tissue damage or poor vascular supply have a higher risk.

- **Treatment-Related Factors:** Inadequate immobilization, improper surgical techniques, or unstable fixation can also lead to non-unions.

Conventional Treatments:

The management of non-unions often involves a combination of non-surgical and surgical approaches:

- **Non-Surgical Treatments:** Immobilization, electrical stimulation (PEMF), and ultrasound are used to enhance osteogenesis.
- **Surgical Treatments:** Internal and external fixation, along with bone grafting (autografts or allografts), are employed for more severe cases.

Emerging Therapies:

New therapies show promise in addressing non-unions more effectively:

- **Biological Stimulants:** Growth factors like bone morphogenetic proteins (BMPs) and platelet-rich plasma (PRP) promote bone regeneration.
- **Gene Therapy:** Introduction of specific genes that promote bone-healing proteins.
- **Hyperbaric Oxygen Therapy (HBOT):** Enhances tissue oxygenation, promoting healing in ischemic tissues.
- **Tissue Engineering:** The use of biodegradable scaffolds seeded with osteoblasts or mesenchymal stem cells is being researched for bone regeneration.
- **Advanced Implants:** 3D-printed, patient-specific implants are being developed to fit complex fracture anatomies more precisely.

Case Study: A recent case study assessed the use of PRP and HBOT in tibial non-unions using the Ilizarov method. Results showed that while functional outcomes were not significantly improved, these therapies accelerated bone healing, allowing earlier frame removal, which could enhance the patient's quality of life.

Conclusion: non-unions pose a significant challenge in orthopaedics, requiring a comprehensive approach to treatment. Emerging therapies offer hope for more effective and faster healing processes, but further research is needed to optimize these treatments for individual patients.

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Amyloidosis - An Underdiagnosed Disease

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Introduction: Cardiac amyloidosis is a restrictive cardiomyopathy caused by deposits of amyloid in the extracellular space in the myocardium, with increased thickness and stiffness of the ventricular walls and consequent progression to heart failure. Among the different types of amyloidosis, the light-chain (AL) and transthyretin (ATTR) forms are the most common forms of amyloidosis with cardiac involvement.

The clinical presentation is dominated by manifestations of heart failure as well as syncope through damage to the excito-conductive system by amyloid deposits. Although it is an often-underdiagnosed pathology, advances in imaging have facilitated diagnosis over the last decade as early treatment substantially alters the natural course of the disease.

Case presentation: A 59-year-old female patient presents to the emergency department with palpitations, anterior chest pain, and dyspnea on moderate exertion. The patient's medical history includes multiple syncopal episodes in the context of a third-degree atrioventricular block, for which permanent VVI pacemaker implantation was performed at the age of 52. Subsequently, the patient was diagnosed with heart failure and recurrent vitritis, with cotton wool type vitreous opacities.

On clinical examination, the patient was presented with spontaneous periorbital ecchymosis of the right eye, paresthesia in the upper limbs, and jugular vein distension.

Cardiac auscultation revealed rhythmic heart sounds without murmurs. The ECG evaluation confirmed the presence of ventricular-paced rhythm at a rate of 75 beats per minute and sinus rhythm, while 24-hour Holter monitoring revealed rare isolated premature ventricular complexes.

The laboratory work-up showed an increased NT-proBNP, supporting the diagnosis of heart failure. Transthoracic echocardiography showed a small left ventricle with thickened walls, normal regional wall motion and systolic function, with longitudinal systolic dysfunction, and increased filling pressures, biatrial dilation and thickening of the interatrial septum, and a right ventricle with hypertrophied free wall and slightly decreased systolic function.

Considering the patient's medical history and echocardiographic findings, the suspicion of a systemic disease with cardiac, ocular, angiopathic (presence of cutaneous ecchymosis)

and possibly neurologic (paresthesias in the upper limbs) involvement was raised, with amyloidosis being the pathology that integrates these manifestations. Following the diagnostic algorithm for cardiac amyloidosis, including bone tracer scintigraphy with technetium 99m, serum kappa/lambda free light chain ratio analysis, serum protein immunofixation and urine protein immunofixation, the diagnosis of hereditary TTR amyloidosis was confirmed, with genetic testing positive for the Glu54Gln mutation.

Case particularity: The presented case illustrates the presence of a conduction disorder at a young age, apparently without cause, with cardiac amyloidosis as an underlying condition.

Lumini și umbre sub spectrul tetralogiei Fallot

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Scopul lucrării. Tetralogia Fallot reprezintă o malformație cardiacă congenitală cianogenă cu o incidență de 3/10 000 nou-născuți vii, reprezentând 7-10 % din totalul bolilor cardiace congenitale. Clinic, acești pacienți prezintă grade diferite de cianoză în funcție de severitatea stenozei tractului de ejeecție al ventriculului drept, precum și de anatomia arterei pulmonare, aspecte care variază de la forme ușoare până la cele severe, cum este Tetralogia Fallot cu atrezie pulmonară. Pacienții pot fi supuși unei corecții chirurgicale etapizate, începând cu procedurile cu scop paliativ, urmate apoi de corecția definitivă a malformațiilor sau, alternativ, de repararea *per primam* a defectelor, strategia de management chirurgical fiind aleasă în funcție de gradul și tipul obstrucției (sub)pulmonare. În lipsa oricărei corecții chirurgicale rata mortalității atinge 75% încă din primul an de viață.

Material și metodă. Prezentăm cazul unui pacient în vârstă de 30 ani, cunoscut cu Tetralogie Fallot și atrezie pulmonară, pentru care la vârsta de 4 ani se efectuează intervenție chirurgicală în scop paliativ prin șunt Blalock-Taussig stâng-stâng, neurnat de corecția chirurgicală definitivă. În evoluție, pacientul dezvoltă insuficiență cardiacă cronică clasa IV NYHA, adresându-se pentru fenomene de decompensare (accentuarea cianozei și dispneei de repaus, cu desaturare până la 75% O₂). Se decide efectuarea angioCT toracic pentru verificarea permeabilității șuntului paliativ, obiectivându-se un șunt Blalock - Taussig calcificat pe toată lungimea, cu absența completă a opacifierii la acest nivel.

Rezultate. Supraviețuirea până la vârsta adultă a fost posibilă în cazul acestui pacient datorita practicării intervenției paliative în perioada copilăriei, deși nu a fost urmată de corecția definitivă. În evoluție, se produce ocluzia șuntului paliativ Blalock-Taussig, cu agravarea simptomatologiei pacientului, însă cu răspuns la terapia farmacologică optimizată.

Concluzii. Malformațiile cardiace congenitale cianogene necesită sancțiune terapeutică precoce după naștere, supraviețuirea pe termen lung fiind redusă în absența acesteia. Prezența chiar și a unei intervenții în scop paliativ, poate îmbunătăți semnificativ supraviețuirea pacienților cu Tetralogie Fallot.

Rolul Lipoproteinei(a) în procesul aterosclerotic avansat – prezentare de caz

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Introducere: Afectarea aterosclerotică plurivasculară se asociază cu un prognostic rezervat. Adesea, acești pacienți prezintă evenimente cardiovasculare acute, dar există și situații în care simptomele nu se corelează cu severitatea leziunilor. Astfel, determinarea altor posibile cauze care conduc la încărcătura aterosclerotică semnificativă devine necesară.

Material și metode: Prezentăm cazul unui pacient de sex masculin, în vârstă de 62 de ani, hipertensiv, diabetic, dislipidemic, fost fumător, cunoscut cu arteriopatie obliterantă a membrelor inferioare stadiul IIB, stenoză bilaterală a arterelor carotide interne, cu tratament cronic la domiciliu, care se prezintă în Clinica de Cardiologie pentru efectuarea de angiografie coronariană și periferică în contextul claudicației intermitente și a suflurilor carotidiene bilaterale. Bilanțul biologic evidențiază un profil lipidic uzual normal (LDLc 54 mg/dl). Electrocardiograma și ecocardiografia sunt în limite normale. Ecografia Doppler a vaselor cervicale a relevat agravarea leziunilor cunoscute de la nivelul arterelor carotide interne bilaterale și infiltrarea ateromatoasă a bulbului carotidian drept. Coronarografia diagnostică a evidențiat stenoză 40% la nivelul trunchiului comun și artera coronariană dreaptă ateromatoasă, infiltrată difuz, fără leziuni semnificative hemodinamice. Angiografia vaselor cervicale arată ocluzia proximală bilaterală a arterelor carotide interne și stenoză 80% la nivelul originii arterei vertebrale stângi. Angiografia membrelor inferioare a decelat stenoză 80% la nivelul arterei femurale comune stângi, ocluzie cronică a arterei femurale superficiale stângi în 1/3 medie și artere calcificate difuz, fără leziuni semnificative la nivelul membrului inferior drept. Din cauza aterosclerozei importante în multiplele teritorii arteriale și a valorilor normale ale profilului lipidic standard, s-a recomandat dozarea nivelului de Lipoproteina(a), cu rezultat de 264 nmol/L (valori normale < 50 nmol/L). Pacientul a fost direcționat către evaluare într-un serviciu de chirurgie vasculară și s-a maximizat tratamentul antiagregant plachetar și hipolipemiant.

Rezultate: Rezultatele explorărilor clinice și paraclinice au evidențiat afectarea aterosclerotică severă în multiple teritorii arteriale în contextul unor valori normale ale profilului lipidic, în ciuda unei simptomatologii relativ reduse comparativ cu severitatea leziunilor. Acest caz ilustrează impactul Lipoproteinei(a) crescute asupra progresiei aterosclerozei și încadrează pacientul la un risc foarte înalt de evenimente cardiovasculare.

Knowledge of Oral Cancer among residents and students of Dental Medicine Faculty of Iasi, Romania

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Introduction: Oral cancer is a major public health issue due to the high cost of treatment, permanent disability and the depreciation of life quality. The prevalence of oral cancer is higher in the Asian countries, and Eastern Europe is one of the areas with the highest age standardized incidence rate of oral cancer worldwide. In Romania, 1929 new cases of oral cancer were registered in 2020, and 901 deaths with a 5-year survival rate of 28.05 for 100,000 individuals. Five-year survival rates of oral and oropharyngeal cancer are approximately 50%. Dentists play an essential role in the primary prevention of oral cancer by informing their patients about the importance of avoiding the major risk factors and making regular dental visits. A simple correct and full examination of the areas prone to develop oral cancer can make the difference between life and death.

The aim of this study was to assess the knowledge of the 4th and 5th year students attending the Faculty of Dental Medicine within the “Grigore T. Popa” University of Medicine and Pharmacy of Iasi, and of the 1st year residents in General dentistry in relation to oral cancer.

Materials and Methods: The cross-sectional study was conducted at the Faculty of Dental Medicine within the “Grigore T. Popa” University of Medicine and Pharmacy in Iasi, on a sample of 197 students in the fourth and the fifth years and first year residents in general dentistry. To assess their knowledge, a questionnaire was created containing 22 questions about the risk factors for oral cancer, with a focus on HPV infection.

Results: Most participants correctly identified smoking, alcohol, and the HPV infection as risk factors and leukoplakia and erythroplasia as potentially malignant lesions. At the opposite site, aspects considered as unsatisfactory focused on the palpation of lymphatic nodules, a procedure largely carried out by 41.6% of the fourth year students, the counseling only of the patients at risk performed by 59.7% of residents, the lack of knowledge about the prevention of oral cancer through anti-HPV immunization found in 39.7% of the fifth year students. Other incorrect answers focused on other types of suspicious lesions, such as actinic cheilitis, as well as certain areas in the oral cavity subject to the frequent onset of oral cancer, such as bucal mucosa.

Conclusions: Although the fifth year students and residents have better knowledge than the fourth year students, the gaps in terms of knowledge and practice encountered in all three categories of participants require a reevaluation of the academic curriculum and the focus on the building of the skills necessary for the correct screening of oral cancer.

Complex 3D printed/bioprinted architectures for skin tissue repair and regeneration

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Wound healing therapy involves biological processes that trigger the immune response to heal and repair the injured tissue. In this regard, 3D printing/bioprinting is a novel fabrication/biofabrication method to prepare scaffolds/bioscaffolds that mimic the natural tissue architecture and properties. The paper presents our studies on the obtaining of 3D (bio) printed scaffolds based on functionalized biopolymers (as gelatin, alginate and xanthan gum), which are able to heal/substitute soft tissues, especially in skin regenerative applications. Inks/bioinks based on different ratios of biopolymers, photoinitiator and cell suspension (for bioinks) were printed/bioprinted using an Inkredible+Cellink bioprinter, reproducing a designed 3D model, and characterized in correlation with skin properties and its regenerative needs. Swellable 3D networks, with flexible properties (porosity, degradation rates and swelling) have been obtained and *in vitro* and *in vivo* evaluated. The 3D printed scaffolds have pores that favour the diffusion of nutrients and support cells attachment, their development and proliferation and present wound healing effect. The scaffolds implantation in animal model indicated no changes in the tissues adjacent to the implant. The use of a cell-populated 3D scaffold significantly influenced the rate of wound healing compared to the natural healing process. Histological and immunohistochemical analyses demonstrated that the 3D printed scaffold not only accelerates wound surface reduction, but also stimulates epidermal regeneration factors essential for the healing process (activation of VEGF, Collagen I, III, IV and Cytokeratin 10), contributing to a faster and more organized formation of granulation tissue, essential for filling the wound defect and supporting the structure in the healing process and tissue remodelling.

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NOCAD – Un quantum de provocări

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Boala coronariană ischemică este asociată cel mai frecvent cu stenoze semnificative ale arterelor coronare. Cu toate acestea, există pacienți care prezintă simptome de ischemie miocardică sau chiar infarct miocardic, dar fără obstrucție semnificativă a arterelor coronare. Acest lucru a condus la definirea NOCAD (boală coronariană cu artere non-obstructive), care este o afecțiune clinică caracterizată prin prezența aterosclerozei coronariene fără stenoză luminală semnificativă, definită de obicei ca stenoză mai mică de 50 % prin angiografie coronariană cu tomografie computerizată sau coronarografie invazivă.

NOCAD include mai multe fenotipuri clinice precum: ANOCA (Angina with NonObstructive Coronary Arteries – angină cu artere coronare non-obstructive), INOCA (Ischemia with NonObstructive Coronary Artery Disease – ischemie fără boală coronariană obstructivă) și MINOCA (Myocardial Infarction with NonObstructive Coronary Arteries). Atât ANOCA, cât și INOCA se referă la pacienții care prezintă angină pectorală, la care se obiectivează artere coronare neobstructive la evaluarea angiografică și nu prezintă injurie miocardică (fapt care le diferențiază de MINOCA). Diferența dintre ANOCA și INOCA constă în faptul că în prima nu se obiectivează semne de ischemie precum modificări ale electrocardiografei (ECG), ale ecocardiografei de stress sau IRM-ului (imagistică prin rezonanță magnetică) cardiac; în timp ce, în cazul celei de-a doua, testele neinvazive vor arăta semne de ischemie.

Mecanismele fiziopatologice ale ANOCA și INOCA includ: disfuncția microvasculară, care implică afectarea reglării fluxului sanguin în vasele coronare mici, ceea ce duce la un aport insuficient de oxigen la nivelul miocardului cauzat de remodelarea structurală a microvascularizației, cauzând un deficit de conductanță sau tulburări vasomotorii care afectează arteriolele coronariene, ceea ce va cauza obstrucția arteriolară în dinamică (mecanismul anginei microvasculare prin deficit de conductanță, respectiv microvasculară) și vasospasmul, ce are la bază constricția tranzitorie a arterelor coronare epicardice, care duce la reducerea fluxului sanguin și generează ischemie (mecanismul anginei vasospastice epicardice).

MINOCA tip 1 are la bază o gamă mai largă de mecanisme fiziopatologice, dintre care se remarcă ruptura sau eroziunea plăcilor aterosclerotice fără obstrucție luminală semnificativă, dar care poate duce la formarea de trombi și microembolizare în aval, disecția spontană a arterelor coronare (în general, este prezentă la femeile tinere, care pot

prezenta drept cauză displazia fibromusculară), spasmul coronarian, disfuncția microvasculară și embolie sau tromboză coronariană (evenimente embolice sau formarea de trombi în arterele coronare neobstructive). Pe de altă parte, MINOCA de tip 2 se referă la infarctul miocardic care rezultă dintr-un dezechilibru între cerere și ofertă, mai degrabă decât un eveniment coronarian primar menționat anterior. O cauză notabilă a acestui dezechilibru este fibrilația atrială cu alură ventriculară rapidă, care poate precipita MINOCA de tip 2 prin creșterea semnificativă a cererii de oxigen miocardic, afectând în același timp perfuzia coronariană.

Pacienții cu NOCAD prezintă adesea simptome similare celor cu boală coronariană obstructivă, inclusiv durere toracică anginoasă, dispnee și fatigabilitate. Cu toate acestea, simptomele pot fi mai variabile și mai puțin previzibile comparativ cu pacientul care prezintă afectare coronariană semnificativă.

Prezentăm cazul unui pacient în vârstă de 76 de ani, hipertensiv, dislipidemic și diabetic, care se adresează pentru dureri anginoase nocturne cu durată de 15 minute, orar fix și răspuns parțial la nitroglicerină. Electrocardiograma la internare obiectivează un ritm sinusual 65/min, AQRS +60°, subdenivelare de segment ST 0,5 mm DII, DIII, aVF, V5-V6, frecvente extrasistole ventriculare cu două morfologii, sistematizate (cuplete, bigeminism), iar ecocardiografia transtoracică, un ventricul stâng nedilatată, fără tulburări de cinetică segmentară, cu fracție de ejeție (FEVS) de 50%, pacientul prezentând enzimele de citoliză miocardică în limite normale. Explorarea coronarografică obiectivează o stenoză de 40% la nivelul arterei coronare drepte, deci nesemnificativă angigografic, încadrând pacientul în spectrul NOCAD. Având în vedere lipsa injuriei miocardice și prezența semnelor de ischemie pe electrocardiograma de suprafață, fenotipul la care se încadrează pacientul este cel de INOCA.

În vederea stabilirii etiologiei INOCA, se efectuează testul cu ergonovină, conform recomandărilor ghidului japonez, ce nu determină spasm coronarian epicardic, dar care reproduce angină, însoțită de modificări ECG de ischemie-leziune subendocardică inferioară și episoade recurente de tahicardie ventriculară nesuținută (TVNS), ceea ce permite afirmarea vasospasmului microvascular.

Strategia terapeutică în acest caz este similară cu cea din angina vasospastică. Astfel s-a optat pentru optimizarea medicației coronarodilatatoare prin introducerea unui blocant calcic non-dihidropiridinic (Verapamil 180 mg/zi) și creșterea dozei de nitrat cu durată lungă de acțiune (Isosorbid mononitrat 60 mg x 2/zi).

Particularitatea cazului este reprezentată de însăși complexitatea și limitările în diagnosticul și tratamentul NOCAD la un pacient cu anamneză îndelungată de angină pectorală insuficient controlată terapeutic.

Outpatient integrative-medicine options in pediatric palliative care

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Keywords: pediatric palliative care, integrative methods, outpatient management

Introduction: Overall, few children and adolescents have a life-shortening disease (about 5000 in Switzerland), but those affected usually have a high need for therapy and care. The goal of pediatric palliative care is to enable them and their families to fill their shortened lives with as much quality of life as possible. The families need a supporting network with coordinated case management and loving, empathic care.

The necessary structures for this are mostly missing in Switzerland. In contrast to nearby countries, palliative care as a structured care offer is not legally established in Switzerland.

Methods: This presentation aims to show the opportunities offered by the integration of various complementary medicine methods in outpatient pediatric palliative care and how these methods enable to improve the quality of life of patients and their families. For this purpose, proven therapeutic methods are considered, examined for possible evidence and illustrated with practical examples (acupuncture, phytotherapy, aromatherapy, Bach flower therapy, homeopathy, massage therapy, rubs, medical hypnosis, relaxation methods, music and sound therapy, orthomolecular medicine, balneotherapy, animal-assisted therapies and, last but not least, spiritual guidance).

Results/Experience: Often these methods can also be used by family members with the patient, reducing the feeling of helplessness in the relatives and strengthening self-efficacy.

Conclusion: The use of complementary medicine therapies in pediatric palliative care is extremely useful and helpful in many ways - while strengthening the family system.

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Mercedes Ogal is working as a specialized integrative pediatrician since 19 years in a pediatric medical practice in Central Switzerland. She developed her deep knowledge in complementary medicine since 1991 in acupuncture, homeopathy, phytotherapy, medical hypnosis and orthomolecular medicine and is certified in acupuncture – traditional Chinese medicine, medical hypnosis and psychosomatic and psychosocial medicine in pediatric palliative care. Furthermore Dr. Mercedes Ogal the author of publications and a speaker at various national and international lectures and conferences.

Advancements in orthognathic surgery: enhancing precision and aesthetics with computer-aided design and additive manufacturing

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Recent advancements in digital technologies have significantly transformed the field of orthognathic surgery, offering new tools and methods for improving surgical precision, outcomes, and patient satisfaction. In this study, we present a fully digitized workflow combining multiple digital software platforms to address facial deformities and post-operative defects in orthognathic surgery. A 28-year-old male patient diagnosed with long-face syndrome underwent orthodontic treatment followed by comprehensive orthognathic surgery, including bilateral sagittal split osteotomy, Le Fort 1 osteotomy, and genioplasty. The surgical plan was meticulously developed using NemoFab (Nemotec, Madrid, Spain) and Autodesk MeshMixer (Autodesk Inc., San Rafael, CA, USA) to create a precise virtual surgical plan. The digital guides were designed using DentalCAD 3.0 Galway (exocad GmbH, Darmstadt, Germany) and further refined in Autodesk MeshMixer. Despite the advanced capabilities of the current orthognathic surgery planning software, our case revealed that the software could not autonomously perform all necessary operations, highlighting the need for further updates and enhancements in digital surgical tools. Additionally, the study explores the aesthetic reconstruction of facial residual asymmetry post-orthognathic surgery using a patient-specific three-dimensional (3D) mold and a custom-made polymethyl methacrylate (PMMA) implant. This innovative approach involved superimposing the healthy contralateral side of the mandible onto the defective side through computer-aided design (CAD), specifically using Exocad Gallway (exocad GmbH, Darmstadt, Germany) for designing the patient-specific implants (PSIs). The implant mold was then created using Meshmixer software and fabricated through additive manufacturing (AM) techniques. During surgery, the PSI was cast inside the resin mold using Simplex P bone cement (Stryker, Mahwah, NJ, USA) and secured with three screws. This hybrid method, which integrates both indirect laboratory-based processes and direct surgical intervention, demonstrated significant improvements in facial aesthetics, functional rehabilitation, and overall patient quality of life. Moreover, it reduced the risks associated with conventional grafting methods. The integration of digital tools in orthognathic surgery represents a major advancement in personalized patient care. The precision offered by these technologies enables the customization of implants and surgical plans tailored to the unique anatomy of each patient, thus enhancing surgical outcomes. As the field evolves, the combination of CAD and AM will likely become the standard approach, leading to improved patient outcomes and satisfaction.

Comparative Efficacy of Combined Physiotherapy versus NSAIDs in the Treatment of Haglund's Syndrome: A Clinical Study

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Introduction: Haglund's syndrome, also known as Haglund's deformity or retrocalcaneal exostosis, affects the insertion of the Achilles tendon, leading to severe pain in the posterosuperior region of the calcaneus. This condition is most commonly observed in young women who wear high heels and is less frequent in men. Contributing factors include untreated bursitis, repeated sprains, biomechanical disorders, and improper footwear.

Materials and Methods: The study was conducted at Micromedica Clinic in Piatra Neamt with 32 patients diagnosed with Haglund's syndrome, aged between 35 and 62 years. The experimental group (n=17) received a combined physiotherapy protocol, including LASER, TENS, ultrasound, and stretching plus passive mobilizations. The control group (n=15) was treated for 5 days with NSAIDs. Both treatments were administered over 10-12 daily sessions, with evaluations conducted before treatment, in the end, and 30 days post-treatment.

Results: After 10-12 physiotherapy sessions, patients in the experimental group experienced a significant reduction in pain (VAS decreasing from 4-5 to 1) and improved gait both at rest and during activity. In contrast, the control group, which received only NSAIDs, saw a reduction in VAS from 4-5 to 2,5. Both groups tolerated the treatment well, the experimental group showing greater efficacy in alleviating symptoms of Haglund's syndrome.

Conclusions: Physiotherapy was more effective than NSAID treatment alone in reducing pain and enhancing function in patients with Haglund's syndrome. The treatment was well-received by patients, non-invasive, and had no major side effects. Immediate initiation of physiotherapy after diagnosis, supported by NSAIDs, is recommended.

Cancer risk and tumor spectrum in RASopathies

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The RASopathies are a group of genetic syndromes caused by germline pathogenic variants in genes that encode components of the RAS/MAPK pathway. This group includes neurofibromatosis type 1 (NF1), Noonan syndrome (NS), Noonan syndrome with multiple lentigines (NSML), Costello syndrome (CS), Legius syndrome, cardiofaciocutaneous syndrome (CFC), and capillary malformation–arteriovenous syndrome (CM–AVM). These disorders have several common features, such as cardiac defects, craniofacial dysmorphism, learning difficulties, and an increased risk of cancer. Also, somatic pathogenic variants in the RAS/MAPK pathway are among the most frequently found oncogenic mutations in a wide range of malignancies. But cancers linked to sporadic and germline RAS–MAPK pathogenic variants differ in mutational types. Germline variants in KRAS and NRAS genes are seldom found at codons 12, 13, or 61 - the most common sites for somatic mutations in sporadic cancers. Knowing the types of malignancies linked to each syndrome and identifying high-risk genotypes are crucial for the effective surveillance of patients with RASopathies. CS is associated with approximately 15% lifetime risk for malignant tumors, largely due to solid tumors. The most common types are rhabdomyosarcoma, neuroblastoma and bladder cancer. The risk of malignancy in CS seems to correlate with mutation type, with a higher incidence in patients with the p.Gly12Ala pathogenic variant. In NS, cancer risk is also elevated over the general population, with a cumulative incidence of ~4% by age 20. The most common cancers in NS include brain tumors, neuroblastoma, acute lymphoblastic leukaemia and rhabdomyosarcoma. The risk of hematologic malignancies in NS is notably increased in cases with specific PTPN11 (e.g., T73I) and KRAS (e.g., T58I) variants. In NF1 the risk of cancer is ~2.5 times higher than for the general population. NF1-associated malignancies include optic pathway glioma, malignant peripheral nerve sheath tumor, breast cancer, hematologic malignancies, rhabdomyosarcomas, and gastrointestinal cancer. Early tumor detection is key to improved outcomes and regular surveillance is essential in RASopathies. Also, a better understanding of genotype-phenotype correlations could help guide targeted therapies for both sporadic and germline cancers associated with the RAS/MAPK pathway.

Coagulation and anticoagulation in acute heart failure

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Virchow's triad can easily be identified in acute or chronic heart failure with expression in both arterial and venous territory, sometimes affecting the cardiac cavities as well. Coronary thrombosis, venous thromboembolism, systemic thromboembolism, intraventricular thrombosis are complications that can accompany acute heart failure, but also etiological and precipitating factors. Going back to what Virchow had shown, the predisposition to thromboembolism is explained by a static blood flow (i.e. immobilization, low cardiac output, dilation of cardiac chamber global or LV aneurysm, decreased myocardial contractility etc.), by generating an endothelial dysfunction (i.e. inflammation, impaired regulation of nitric oxide, increased oxidative stress, neurohormonal activation, atherosclerosis etc.) and by a hypercoagulation status (i.e. inflammation, increased oxidative stress, increased fibrin formation, platelet activation, impaired fibrinolysis, elevated von Willebrand factor, etc.). Although not listed among the "Fantastic Four Therapeutic Agents", anticoagulation maintains its important role in the thromboprophylaxis and therapy of patients with acute heart failure, being mentioned in all the ESC Guidelines on pulmonary embolism (2019), heart failure (2021) and on atrial fibrillation (2024). Regarding thromboembolism prophylaxis, for example, in the framework of the multidisciplinary approach, 2024 ESC Guidelines for the management of atrial fibrillation mention anticoagulation between other optimal, patient-centered, care for patients living with AF (AF-CARE, atrial fibrillation - [C] Comorbidity and risk factor management, [A] Avoid stroke and thromboembolism, [R] Reduce symptoms by rate and rhythm control, [E] Evaluation and dynamic reassessment). This Guidelines points out the mandatory use of anticoagulation with heparin (unfractionated or low-molecular weight heparin) or another anticoagulant (AVK or DOACs), unless contraindicated or unnecessary (because of existing treatment with oral anticoagulants as in mechanic valve). Although the Guidelines are still silent, evidence is accumulating that oral anticoagulants should be considered even in patients with heart failure in sinus rhythm in certain circumstances, of course (i.e. past thromboembolic events, LV aneurysm or LV anterior apical akinesis/ dyskinesis). We must not forget that the composition and function of the thrombosis is key to improving the treatment and clinical outcome of thrombosis: Thrombi are heterogeneous in composition, but in general, thrombi from myocardial infarction are mainly composed of fibrin and platelets, red blood cells, leukocytes and cholesterol crystals and are influenced by ischemic time, thrombi from acute ischemic stroke are characterized by red blood cell- and platelet-rich regions and thrombi from venous thromboembolism contain mainly erythrocytes and fibrin with some platelets and leukocytes. Personalized medicine will further refine the use of anticoagulant medication in heart failure, preventing thrombosis and not letting the risk of bleeding insinuate itself as a source of therapeutic defeatism.

Noi hidrogeluri inteligente - preparare și caracterizare fizico-chimică

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Cuvinte cheie: chitosan, acid hialuronic, hidrogeluri inteligente

Obiective: Hidrogelurile sunt definite ca rețele polimerice tridimensionale (3D), hidrofile, capabile să înglobeze cantități mari de apă sau lichide biologice. La ora actuală hidrogelurilor reprezintă o opțiune terapeutică modernă pentru multe domenii medicale, găsindu-și aplicabilitate în ingineria tisulară (la nivel osos, cartilaginos), terapia celulară, vindecarea rănilor, eliberarea controlată de medicamente, obținerea și implementarea biosenzorilor, fabricarea de dispozitive medicale [1, 5]. O categorie aparte de hidrogeluri o reprezintă hidrogelurile inteligente (HI), care captează din ce în ce mult atenția cercetătorilor. În funcție de natura agentului de reticulare și de metoda de preparare, HI pot răspunde, prin modificarea structurii 3D, la diferiți factori fizici (exogeni) (temperatură, lumină, presiune, ultrasunete, expunere la câmp magnetic/electric) sau chimici/biochimici (endogeni) (variații de pH în sânge și exsudat ca urmare a contaminării microbiene, prezența diferitelor specii reactive cum ar fi SRO în țesutul lezat, glucide, enzime, antigeni, sarcina ionică, natura solventului) [2-4]. Scopul principal al cercătorii a fost prepararea și caracterizarea de noi HI, bioactive, sensibile la stimuli interni și externi.

Material și metodă: Prin aplicarea unei metode de reticulare non-toxice, pe bază de polimeri oxidați (oxCS/oxHA), și variind raportul dintre chitosan (CS) și agentul de reticulare (oxCS/oxHA), s-au preparat șase baze de hidrogel (CS1.0-oxCS2.0, CS1.5-oxCS1.5, CS2.0-oxCS1.0, CS1.0-oxHA2.0, CS1.5-oxHA1.5, CS2.0-oxHA1.0), care au fost caracterizate din punct de vedere fizico-chimic, structural (spectroscopie FT-IR), morfologic (microscopie optică, microscopia electronică de scanare) și reologic. Prin înglobarea în matricea polimerică a hidrogelurilor, a unor principii active (APIs) cu efecte biologice importante (acid fusidic - FA, alantoină - Ala, coenzima Q10 - CoQ10), au fost obținute noi hidrogeluri inteligente bioactive, APIs-CS-oxCS/oxHA (FA-CS-oxCS/oxHA, Ala-CS-oxCS/oxHA, CoQ10-CS-oxCS/oxHA), cu proprietăți de auto-restructurare (*self-healing*) și auto-adaptare (*self-adapting*).

Rezultate și discuții: Analiza FT-IR a bazelor de hidrogel preparate a confirmat formarea legăturii dinamice iminice de tip bază Schiff ($-C=N-$), ceea ce le conferă calitatea de hidrogeluri inteligente, iar analiza morfologică a evidențiat o structură 3D poroasă, optim organizată, cu pori bine definiți, interconectați, cu dimensiuni diferite și uniform distribuți în rețeaua 3D. Cele mai optime caracteristici fizico-chimice, structurale și reologice au fost

atribuite bazelor de hidrogel CS1.5-oxCS1.5, CS1.0-oxHA2.0, motiv pentru care au fost selectate pentru înglobarea APIs. Analiza microscopică a evidențiat structura 3D a hidrogelurilor bioactive APIs-CS-oxCS/oxHA, mai consistentă, de tip *gel* pentru APIs-CS-oxHA și mai fluidă, de tip *lichid*, pentru APIs-CS-oxCS, iar imaginile SEM au confirmat distribuția uniformă a APIs în matricea polimerică. Păstrarea structurii 3D a fost confirmată prin evidențierea în spectrul FT-IR a legăturii iminice, de tip bază Schiff ($-C=N-$), iar prezența APIs în matricea polimerică a fost evidențiată prin identificarea benzilor de absorbție caracteristice grupărilor funcționale prezente în structura fiecărei APIs.

Concluzii: Hidrogelurile cu caracteristici inovatoare, sensibile la diferiți stimuli, reprezintă o preocupare de vârf a cercetării biomedicale, datorită capacității lor de a răspunde inteligent la o mare varietate de stimuli externi sau interni, de natură mecanică, termică sau chimică.

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Neonatal COVID-19 infection: Review of cases admitted with COVID-19 to Queen Rania Children Hospital

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Neonatal Coronavirus disease 2019 (COVID -19) is caused by the SARS-CoV-2 virus. Infants and children present with milder symptoms compared to adults when infected with COVID-19, neonates (babies within the first 4 weeks of life) are considered an exposed population for infection due to their immature immune systems.

Transmission of Neonatal COVID-19 typically occurs if the mother is already infected with COVID-19 in the perinatal period or if the neonate exposed to the virus by contact with an infected family member or healthcare workers.

Neonates with COVID-19 usually present with mild respiratory symptoms like mild breathing difficulty, other symptoms such as fever, hypoactivity, feeding difficulties, and gastrointestinal symptoms. However, some infants infected with the virus may be asymptomatic.

COVID-19 testing in infants includes swabbing the baby's throat or nose for viral genetic material. RT-PCR tests are used commonly.

Neonatal COVID-19 treatment includes supportive management, including monitoring infants for any serious complications and providing adequate hydration and nutrition. In severe cases, hospitalization and other interventions may be needed.

Neonatal COVID-19 prevention is mandatory to minimize the exposure risk to the virus in the perinatal period and after birth. Preventive measures include mask-wearing, physical distancing, hand hygiene, and providing vaccination for eligible individuals.

It is essential for healthcare providers to monitor neonates who were exposed to or infected with COVID-19 closely to ensure appropriate management and care to reduce the possible risks associated with neonatal COVID-19.

Impact of COVID-19 vaccination on oxidative stress and cardiac fibrosis biomarkers in patients with Acute Myocardial Infarction (STEMI)

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Keywords: acute myocardial infarction (STEMI), oxidative stress, cardiac fibrosis, COVID-19 vaccination, SARS CoV-2 infection

The relationship between the classical cardiac biomarker and acute myocardial infarction (STEMI) in patients with COVID-19 is far from being elucidated. Furthermore, superoxide dismutase (SOD), a marker for oxidative stress, was associated with cardiac ischemia. Also, Galectin-3 is significant for defining the relationship between cardiac fibrosis and COVID-19. There are no studies on the effect of SARS CoV-2 virus infection and vaccination on patients with STEMI and biomarkers above-mentioned.

Aim: our single-center prospective study assesses the relationship between COVID-19 infection with/without vaccination and the value of SOD and Galectin-3 in STEMI patients.

Material and methods: 93 patients with STEMI and SARS CoV-2 virus infection were included in the analysis, patients were divided in two groups based on COVID-19 vaccination status. Echocardiographic and laboratory investigations for cardiac ischemia, oxidative stress and cardiac fibrosis biomarkers were investigated. **Results:** 93 patients were included, the majority of which were male (72.0%) , 45.2% (n=42) were vaccinated against SARS-Cov2, the mean age of vaccinated patients is 62 years, 57% (n=53) are smokers; blood pressure is found with a higher frequency in unvaccinated people (62.7%) compared to 28.6% in vaccinated people ($p=0.015$), 90.5% of the vaccinated people presented STEMI, compared with 96.1% of the unvaccinated ones, the revascularization with 1 stent was achieved in 47.6% of the vaccinated people and 72.5% for the unvaccinated people ($p=0.015$). Galectin-3 was slightly more reduced in the vaccinated patients compared to the unvaccinated patients (0.73 vs 0.99; $p=0.202$) and also, the average level of Cu/Zn SOD was slightly more reduced in vaccinated patients compared to the unvaccinated patients (0.84 vs. 0.91; $p=0.740$). **Conclusions:** Regarding patient's SARS CoV-2 infection functional status, the results from our single-center analysis found a significant decrease in oxidative stress and cardiac fibrosis biomarkers along with cardiovascular complication following STEMI treated with percutaneous coronary angioplasty (PCI) in the case of patients with COVID-19 vaccination compared with patients who did not receive COVID-19 vaccine.

Circumcizia - e bine când e bine

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Introducere: Circumcizia este o procedura intervențional-chirurgicală cu implicații culturale și terapeutice cunoscută încă din antichitate. Mai multe culturi recurg la gestul circumciziei din considerente religioase încă de la vârste foarte mici, neonatal sau sugar. Modalitatea tehnică de efectuare diferă funcție de cultură. Modern majoritatea familiilor recurg la efectuarea circumciziei de către un cadru medical într-un mediu medical controlat. Circumcizia chirurgicală diferă față de cea rituală și este considerată circumcizia completă și corectă. Efectuarea ei necesită delicatețe și precizie. Necunoașterea situațiilor particulare anatomic care pot influența tehnica poate duce la dezastre postintervențional.

Prezentare de caz: Vom lua în discuție cazul unui pacient în vârstă de aproximativ doi ani având un istoric recent de fimoză cu indicație de circumcizie pentru care s-a tentat circumcizia în alt centru, procedura soldată cu defect cutanat penian diafizar iatrogen important. S-au luat în discuție mai multe opțiuni de rezolvare. Pacientul a necesitat reconstrucție cutanată diafizară pentru care s-a ales varianta de acoperire cu lambouri locoregionale. Evoluția a fost favorabilă cu menținerea viabilă a lambourilor, acoperire satisfăcătoare estetic și funcțional. Pacientul a fost urmărit ulterior pe o perioadă de aproximativ 5 ani constatându-se o dezvoltare cvasinormală a sa.

Vom lua în discuție avantaje și dezavantaje ale circumciziei, particularități anatomice peniene ce pot predispuce la accidente intervenționale, aspecte tehnice care fac diferența între o circumcizie acceptabilă și una ideală, complicații posibile, modalități de evitare a lor și soluții de rezolvare.

Concluzii: Circumcizia este o procedură larg utilizată la copil și adult. Foarte important este că ea este aplicată preponderent din considerente rituale unor persoane care nu prezintă o patologie propriu-zisă. Zona anatomică vizată este de asemenea cu implicații funcționale, estetice și psiho-sociale. În consecință așteptările față de această procedură sunt ridicate și este indicat să fie efectuată în centre de chirurgie pediatrică sau urologie. Cazul în discuție este, în ciuda accidentului operator suferit, unul fericit deoarece leziunea iatrogenă a implicat doar țesutul cutanat generând prejudicii estetice dar fără să afecteze alte structuri peniene esențiale în funcționalitate.

Torsiunea de testicul, importanța diagnosticului precoce

Rosca- Al Namat Dina, Al Namat Razan, Elena Hanganu, Elena Tarca, Dana Luca, Romulus Adrian Rosca

Introducere: Torsiunea testiculară reprezintă una dintre cele mai serioase urgențe genito-urinare la băieți și tineri, necesitând intervenție medicală rapidă pentru a preveni leziunile ireversibile ale testiculului. Aceasta poate fi dificil de diferențiat de alte afecțiuni care cauzează sindromul de hemiscrot acut, cum ar fi orhiepididimita, hidrocelul infectat sau torsiunea apendicelui testicular. Printre cele mai comune semne și simptome ale torsiunii testiculare se numără durerea scrotală unilaterală, cu debut brusc și intens, însoțită frecvent de greață și vărsături.

Din punct de vedere fiziopatologic, ischemia testiculară cauzată de torsiune determină activarea celulelor endoteliale din țesutul scrotal, care produc cantități mari de specii reactive de oxigen și cantități reduse de oxid nitric. Această disfuncție vasculară contribuie la leziuni tisulare suplimentare, fenomen cunoscut sub numele de leziune de ischemie-reperfuzie. Aceste modificări pot provoca necroza testiculară, afectând temporar sau permanent funcția testiculului, inclusiv capacitatea de a produce hormoni și de a menține fertilitatea. În cazurile severe, intervenția tardivă poate duce la orhiectomie, adică îndepărtarea chirurgicală a testiculului afectat.

Prezentare de caz: Pacientul S.T., în vârstă de 14 ani, este adus de urgență cu greață, vărsături și dureri intense localizate la nivelul hemiscrotului drept, apărute brusc, în urmă cu 4 ore. Ecografia scrotală arată un testicul cu aspect neomogen și cu vascularizație Doppler absentă la acest nivel.

Pacientul A.I., în vârstă de 14 ani, este adus în regim electiv cu hipotrofie gonadală stângă. Din anamneză, pacientul menționează că, în urmă cu 6 luni, a avut o durere intensă, apărută brusc la nivelul hemiscrotului stâng, însoțită de greață și vărsături. Pacientul s-a prezentat atunci la un serviciu de primire urgențe și a fost diagnosticat cu orhiepididimită acută.

Management și rezultate: Pacientul S.T. este internat de urgență și, sub anestezie generală, s-a practicat explorarea hemiscrotului drept. S-a realizat detorsiunea manuală a testiculului drept și s-a efectuat orhidopexie la acest nivel. Pacientul revine la control la 10 zile, o lună și 6 luni, timp în care ecografiile de control arată o evoluție favorabilă. Pacientul A.I. este diagnosticat cu torsiune de testicul veche de 6 luni, confirmată ecografic. S-a intervenit chirurgical și s-a efectuat orhiectomie stângă, cu plasarea unei proteze testiculare la acest nivel, peste 3 luni.

Rotavirus gastroenteritis surveillance in Jordan

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Rotavirus gastroenteritis surveillance in Jordan involves monitoring and tracking the incidence, prevalence, and characteristics of rotavirus infections in the population. This surveillance aims to provide crucial data for public health authorities to understand the disease burden, identify patterns, and implement appropriate control measures. Here are some key aspects of a surveillance program for rotavirus gastroenteritis in Jordan:

1. **Case Reporting:** Establishing a system for healthcare providers to report cases of rotavirus gastroenteritis, including information on demographics, symptoms, and outcomes.
2. **Laboratory Testing:** Conducting laboratory tests to confirm rotavirus infections in suspected cases. This may involve collecting stool samples for analysis.
3. **Data Collection and Analysis:** Collating and analyzing data on rotavirus cases to identify trends, high-risk populations, and geographic hotspots.
4. **Vaccination Coverage:** Monitoring the coverage and effectiveness of rotavirus vaccination programs in the country.
5. **Surveillance Network:** Building a network of healthcare facilities, laboratories, and public health agencies to ensure timely reporting and communication of information related to rotavirus gastroenteritis.
6. **Outbreak Response:** Being prepared to respond to outbreaks of rotavirus gastroenteritis by implementing control measures, such as promoting hygiene practices, conducting targeted vaccination campaigns, and providing healthcare guidance.
7. **Research and Evaluation:** Conducting research studies to evaluate the impact of surveillance efforts, vaccination programs, and other interventions on the burden of rotavirus gastroenteritis in Jordan.
8. **International Collaboration:** Collaborating with regional and global health organizations to share data, best practices, and resources for combating rotavirus infections.

By implementing a comprehensive surveillance program for rotavirus gastroenteritis in Jordan, public health authorities can effectively monitor and control the spread of this viral infection, potentially reducing its burden on the population.

Exploring MicroRNAs in Heart Failure: Contributions to Disease Mechanisms and Prospects for Biomarker Development

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Background: Heart failure (HF) is a complex clinical syndrome in which the heart's capability to supply blood effectively is endangered, leading to a failure to deliver sufficient oxygen and nutrients to the body's tissues. Heart failure can develop as a consequence of various underlying health issues, including coronary artery disease, hypertension, and cardiomyopathy. MicroRNAs (miRNAs) are minuscule, non-coding RNA molecules indispensable for regulating gene expression after transcription. In the context of HF, miRNAs are emerging as crucial regulators of cardiac function and pathology. They are involved in multiple aspects of cardiovascular health, including myocardial development, hypertrophy, fibrosis, and arrhythmogenesis. Aberrant expression of specific miRNAs has been linked to the progression and severity of HF.

Objective: The purpose of this study is to highlight the pivotal role of microRNAs (miRNAs) in the pathophysiology, diagnosis, and prognosis of heart failure (HF). This study aims to explore how specific miRNAs such as miR-1, miR-21 and miR-133 contribute to the pathological process of HF. By the same token, this study aspires to appraise their potential as biomarkers for disease severity and progression and explore their prospects as therapeutic targets to upgrade the management and outcomes of heart failure.

Material and methods: We explored multiple medical databases utilizing the keywords "microRNA", "heart failure", "diagnosis", "prognosis", "cardiac hypertrophy" and established 10 sources pertaining our goal, which we systematically reviewed.

Results: The involvement of miR-1, miR-21 and miR-133 in cardiac hypertrophy is of great importance. Downregulation of miRNA-1 promotes cardiac hypertrophy by allowing cell mass increase. Conversely, overexpression of miRNA-1 can generate arrhythmias by virtue of its impact on intracellular calcium balance and cardiac conductance. Furthermore, suppression of miRNA-133 inhibits hypertrophy but facilitates apoptosis in cardiomyocytes, which may signal late-stage decompensation in hypertensive heart failure. Else ways, upregulated miRNA-21 is intertwined with fibrosis and apoptosis, being involved in a pro-fibrogenic role. Also, miR-21 supports the regulation of fibroblast proliferation and inflammation through matrix metalloproteinase-2 (MMP-2) that is an enzyme which is vital for the degradation of extracellular matrix components.

On the other hand, clinical relevance is also valuable. Not to mention, downregulation is associated with systolic heart failure, while overexpression serves as a marker of cardiomyocyte injury. It is regarded as a promising biomarker for the development, diagnosis, and prognosis of heart failure, including both acute and chronic forms. These biomarkers are significantly associated with disease progression, NYHA classification, volume status, and fluid overload. When combined with BNP and NT-proBNP levels, they show potential for distinguishing between heart failure with reduced ejection fraction (HFrEF) and preserved ejection fraction (HFpEF).

Conclusions: miRNA-1, miRNA-133, and miRNA-21 may provide us with a new potent way to diagnose HF and stratify its prognosis. They hold promise as biomarkers for both diagnosing and tracking the progression of heart failure, each playing distinct roles in cardiac stress responses, hypertrophy, and fibrosis. Their expression profiles can shed light on disease mechanisms and inform therapeutic approaches.

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A comprehensive approach to improve outcomes in oral rehabilitation

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The oral rehabilitation is one of the issues in dental medicine because of the range of therapeutic options accessible and the particulars of clinical settings. When addressing a clinical situation, considerations include correcting the existing pathology, preventing the onset of new diseases, reestablishing the stomatognathic system's functionality, improving the patients quality of life and figuring out what the patients' needs are.

The purpose of restoring the functions of the dental system is to preserve the remaining anatomical structures, restore the functional balance and restore the aesthetic appearance through facial harmonization. Early detection and treatment can significantly enhance recovery and quality of life for people who are affected. Oral rehabilitation is distinct from regular dental care due to the complexity of the clinical case approach. Maintaining dental care health and preventing problems is the goal of routine care, not treating severe damage or disfunction.

The complexity of oral rehabilitation procedures requires the establishment of individualized therapeutic strategies for each case, both in terms of paraclinical recommendations and clinical procedures. Digital procedures are recommended these days to increase both diagnostic and therapeutic step accuracy and efficiency. Examples include intraoral scanners, CAD-CAM technologies, 3D printing for occlusal restaurations which streamlines the rehabilitation process, T-scan occlusal analysis for occlusion monitoring. Utilizing this technology is intended to shorten chairside visits while enhancing patient outcomes.

Replacing missing tissues in a short period of time reduces the risk of complications. Fixed or removable prostheses are indispensable in situations of edentation, their design and conception being strictly related to clinico-biological indices. The design and material selection of the dentures are influenced by the need that synthetic tissues be able to withstand these forces without malfunctioning. A transition between artificial tissues and native anatomical components is necessary to restore function and this includes not only the physical reintegration but also the restoration of motor and sensory functions. Similar to clinical implications, a thorough understanding of the anatomy and physiology of the stomatognathic system, is necessary for the development of effective assessment and rehabilitation regimens.



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