RIMSA CONGRESS

Rzeszow International Medical Students' Association

21-23 March 2024

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PROGRAM | ABSTRACTS

21-23 March 2024
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RIMSA CONGRESS

Uniwersytet Rzeszowski

Wydawnictwo UR 2025
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Welcome message

Ladies and Gentlemen,

Welcome to the Rzeszów International Medical Students' Association Congress 2024 (RIMSA Congress 2024) organized by association of medical student affiliated to the Institute of Medical Sciences, Medical Collage of Rzeszów, University of Rzeszów.

RIMSA Congress 2024 is the first international medical conference organized by Rzeszów University students on such a large scale. The event is aimed at students, doctors, and young scientists who are involved in the field of medicine in its broadest sense. During the conference we heard sessions of student speeches divided into 12 thematic panels. Each panels were preceded by opening lecture held by distinguished Doctors and Professors - personalities known in the world of medicine as authors of numerous publications and authorities in their fields. The offer of our conference, was enriched by a diverse range of workshops, where participants have had the possibility to gain practical skills, necessary for their future work.

On behalf of the whole Scientific and Organizing Committee of the RIMSA Congress 2024 we wish you a pleasant and well spent time! This book contained all abstracts of the scientific papers which was presented on RIMSA Congress 2024!

Professor Agata Wawrzyniak
Chairman of Scientific Committee

Krzysztof Balawender M.D. PhD
Vicechairman of Scientific Committee

Sabina Galiniak PhD
Vicechairman of Scientific Committee

Maksymilian Kłosowicz M.D.
Chairman of Organizing Committee

Detailed program

Thursday (21/03/2024) – main auditorium, A5 building
09:15 – 09:30 – Conference Inauguration
09:30 – 10:00 – Inauguration Lecture: Professor Artur Mazur
10:00 – 10:15 – Artistic performance: Wiktoria Tabin-Barczak
10:30 – 12:30 – Basic science session: students' presentations
12:45 – 13:30 – Opening Lecture of Poster session: Omer Turan M.D.
13:30 – 15:15 – Poster session: students' presentations
15:30 – 16:15 – Opening Lecture of Hematology session: Professor Mirosław Markiewicz
16:15 – 19:00 – Hematology session: students' presentations

Thursday (21/03/2024) – small auditorium, A5 building
10:30 – 13:00 – Gyneacology session: students' presentations

Thursday (21/03/2024) - workshops
10:30 – 12:30 – Forensic medicine workshops: Omer Turan M.D. (A5 building)
15:00 – 17:00 – Surgical suturing workshops: Krzysztof Balawender M.D., PhD, Piotr Młodożeniec M.D., Mateusz Zasadny M.D., Rafał Przybyła M.D. (CSM UR)

Friday (22/03/2024) – main auditorium, A5 building
09:15 – 09:45 – Inauguration Lecture: PhD M.D. Maciej Kolowca
09:45 – 10:30 – Opening Lecture of Internal Diseases session I: Maurizio Porcu M.D., FESC 10:30 – 12:45 – Internal Diseases Session: students' presentations
12:45 – 13:30 – Opening Lecture of Otorhinolaryngology session: Professor Mahmut Tayyar
13:30 – 15:30 – Otorhinolaryngology session: students' presentations
15:30 – 16:15 – Opening Lecture of Pediatrics session: Professor UR Marta Rachel
16:15 – 17:00 – Opening Lecture of Pediatrics session: Michał Zdzisław Zawilski M.D.
17:00 – 19:15 – Pediatrics session: students' presentations

Friday (22/03/2024) – small auditorium, A5 building
12:00 – 12:45 – Opening Lecture of Neuroscience and psychiatry session: Maciej Śliwa M.D.
12:45 – 16:15 – Neuroscience and psychiatry session: students' presentations
16:30 – 18:45 – Oncology session: students' presentations

Friday (22/03/2024) – workshops
10:00 – 12:00 – Ultrasonography workshops: Iwona Kucharska-Miąsik M.D., Jadwiga Krukowska M.D., Monika Wisz M.D. (CSM UR)
12:15 – 14:15 – Laparoscopic workshop: Krzysztof Balawender M.D., PhD,
15:30 – 17:30 – ECHO workshops: Maurizio Porcu M.D., FESC (CSM UR)

Saturday (23/03/2024) – main auditorium, A5 building
09:15 – 09:45 – Opening Ceremony
10:15 – 11:00 – Opening Lecture of Surgery session: Professor UR Jacek Szczygielski
11:00 – 13:30 – Surgery session: students' presentations
13:30 – 14:15 – Opening Lecture of Internal Disease session II: Professor UR Wojciech Wąsek
14:15 – 17:45 – Internal Disease session II: students' presentation

Saturday (23/03/2024) – small auditorium, A5 building
11:00 – 11:45 – Opening Lecture of Neurology session: Iwona Rościszewska – Żukowska PhD M.D.
11:45 – 14:15 – Neurology session: students' presentations

Saturday (23/03/2024) – workshops
09:45 – 11:45 – ECG workshops: Professor UR Wojciech Wąsek, Maurizio Porcu M.D., FESC (A5 building)
12:00 – 14:00 – Otorhinolaryngology workshops: Professor Mahmut Tayyar

15:00 – 16:00 – Closing ceremony

LIST OF THE SESSION:

1. Surgery
2. Hematology
3. Internal disease session I
4. Internal disease session II
5. Otorhinolaryngology
6. Neurosciences/Psychiatry
7. Neurology
8. Basic science
9. Pediatrics
10. Poster session
11. Oncology
12. Gynecology

1. **Surgery - Associate Professor Jacek Szczygielski, PhD Krzysztof Balawender**
- Bloated patient or a tumor? - Ilinca Pădurariu
- Broaden Horizons: How Artificial Intelligence Supports Plastic Surgery And Aesthetic Medicine? - Adrian Goss
- Nutritional Intervention Triumph: Effectiveness of oral nutritional support in the perioperative period in a patient with Crohn's Disease - Magdalena Olczyk
- Navigating Orthopedic and Vascular Complexity: Insights from a Multidisciplinary Clinical Case - Cosmina- Ionela Smerea, Tudor Ștefan Rebenciuc **
- Surgical approach to a rare case of brain Solitary Fibrous Tumor with Frontal Lobe Syndrome - Ioana Teodora Todorescu **
- Complex management of brachial artery injuries: challenges and comprehensive care strategies - Rebenciuc Tudor-Ștefan, Smerea Cosmina-Ionela, Nistor Sabina **
- What are the challenges in treating complications and pain in a patient after kidney and pancreas transplantation? - a case report - Joanna Najbar **

2. **Hematology session – Professor Mirosław Markiewicz, Associate Professor Agata Wawrzyniak, PhD Sabina Galiniak, MD Omer Turan**
- A typical patient profile with atypical symptoms – complicated SLE diagnostic process - Justyna Bogdan, Benedykt Baljon, Jarosław Grzyb
- Hemophagocytic syndrome secondary to infection with the parasite Leishmania spp. - A case report of a 28-year-old man - Julia Jastrzębska, Szymon Lulek, Jan Źrebiec, Jarosław Grzyb
- Severe hemolytic anemia with complications - case report of a 19-year-old patient - Benedykt Baljon, Beata Blajer-Olszewska, Agnieszka Kopacz
- Exploring Thrombotic Thrombocytopenic Purpura: Clinical Complexity, Diagnostic Hurdles, and Treatment Successes - Labo Matei, Oros Alexandra-Elena, Iova Olga-Maria, Marin Gheorghe-Eduard
- Development of Pneumocystis jiroveci pneumonia during autologous stem cell transplantation – case report - Filip Krzanowski, Anna Halot
- The influence of gut microbiota and immune system in the development of acute lymphoblastic leukemia in children - Karol Krawiec, Julia Skiba
- Atypical Hemolytic Uraemic Syndrome: a case presentation - George Nicholas Zsidisin **
- Glofitamab: Precision Therapy in B-Cell Lymphoma - Alexandru Calin, Maria-Bianca Andrei, Andrei-Rares Onut **
- Exploring Chimeric Antigen Receptor T-cell Therapy: Effectiveness and Safety in Leukemia Treatment - Maria-Bianca Andrei, Alexandru Calin, Andrei-Rares Onut **

3. **Internal disease session I – MD Maurizio Porcu, Associate Professor Agata Wawrzyniak, PhD Sabina Galiniak, PhD Krzysztof Balawender, MD Omer Turan**
- Catheter ablation of refractory left atrial flutter in a young patient with severe heart failure – Matylda Mikołajczyk
- Sildenafil as a drug with many faces: potential antidepressant effect – Zuzanna Irzyk
- Acute Pancreatitis as a first manifestation of Multiple Myeloma - Andrei-Rares Onut, Alexandru Calin, Maria-Bianca Andrei **
- Venous stroke as a rare complication of sepsis in a multimorbid patient - a case report - Alicja Szklarska, Gabriela Gilarska
- Tirzepatide as a novel drug for chronic weight management – Maciej Kozłowski
- Creutzfeldt–Jakob disease – a rarity that can become a tragedy. How to ensure the safety of medical staff and other patients in cases of prion disease? - Gheorghe Eduard Marin, Olga Maria Iova, Matei Labo
- Relationship between vitamin D deficiency and treatment-resistant depression - Anna Antonik
- Nonspecific clinical presentation of Systemic Lupus Erythematous with jaundice - Case Report - Jakub Gałkowski, Angelika Dyszy, Gabriela Małecka
- Peculiarities of clinical course of systemic lupus erythematosus - Lada Hrytchenko **
- Posterior Reversible Encephalopathy Syndrome (PRES) - a rare disease in imaging diagnostics - Aleksandra Skórka **

4. **Internal disease session II - Associate Professor Wojciech Wąsek, MD Maurizio Porcu, Associate Professor Agata Wawrzyniak, PhD Sabina Galiniak**
- Importance of gender medicine in internal medicine. Explained by the example of acute myocardial infarction – Anne Wegner

- Ectoine – useful not only for bacteria - Monika Błądek
- Kill two birds with one stone – common therapy of actinic keratosis and rosacea - Karolina Kłodnicka, Wioleta Kowalska, Ewelina Firlej, Joanna Bartosińska, Dorota Krasowska
- Clinical and prognostic implications of syncope among patients with intermediate – high risk pulmonary embolism - Weronika Chaba, Michał Karnaś, Patrycja Kurczyna
- Impact of ERAS protocol anesthesia on cardiac surgical patients - Martyna Paśko
- Beyond Prevalence: Understanding the Intersection of Selective IgA Deficiency and Autoimmune Disorders in a Clinical Context - Olga Maria Iova, Gheorghe Eduard Marin, Matei Labo
- Delayed detection: uncovering botulism intoxication days after initial presentation - a case report - Amelia Bień, Maksymilian Skwirut, Alicja Smoleńska
- Upadacitinib as a novel drug for the treatment of Crohn's disease – clinical safety and efficacy profile - Maciej Kozłowski
- Familial multiple endocrine neoplasia type 1 (MEN1) - case report - Daria Rost, Małgorzata Jekiełek
- ERAP1 and ERAP2 Haplotypes and Expression Status In Spondyloarthritis - Aysu Özcan, Dilber Gökçe Kaplan, Esma Nur Ateşçi, Zeynep Sude Yaralı, Şeyma Çolakoğlu **
- Itraconazole's role in patient with burnout: balancing cortisol and blood pressure - Trifon T. Popov, Svetlana H. Hristova **
- Neurological and psychiatric symptoms in celiac disease – Bernadetta Jakubowska
- Immunopathogenesis of depressive disorders in chronic inflammatory diseases as exemplified by multiple sclerosis and rheumatoid arthritis – Aleksandra Kozińska
- Circadian Rhythm Disorders and Selected Viral Infections - Karolina Czerkiewicz
- Activity of new gel with antioxidant against reference strains of microorganisms - Rohini Biswas, Ravi Kant Joshi
- Meningitis caused by Listeria monocytogenes – a systematic review - Franciszek Ługowski, Julia Babińska **

5. Otorhinolaryngology – Professor Mahmut Tayyar, MD Batin Berkay, Oznacar, PhD Krzysztof Balawender

- The medical practitioner and the speech language pathologist in one team – interdisciplinary approach to neurological and otorhinolaryngological challenges in adult patients - Zuzanna Maria Wilk
- The use of gene therapy in the treatment of hearing loss and deafness - Magdalena Sukar
- Middle ear adenoma - a rare cancer diagnosed in an 50-year-old man - Katarzyna Markuszka

6. Neurosciences/Psychiatry - PhD Michał Śliwa, Associate Professor Agata Wawrzyniak, PhD Sabina Galiniak, PhD Marek Biesiadecki

- Effects of physical exercise on pharmacological treatment of depressive disorders - Martyna Sarzyńska, Kinga Polityńska
- Metabotropic Glutamate Receptors 2 and 3 as Targets for Treating Schizophrenia - Hubert Niemiec, Zuzanna Zawodnik
- On the road to improved mood: Assessment of the antidepressant side effects - Sara Czech, Wiktoria Florek, Jakub Szpara
- Neurobiological Effects of Ketamine treatment in patient with Bipolar Disorder - Julia Tomaszewska
- TOB as a new important factor in the development of depression - Kinga Polityńska, Martyna Sarzyńska
- Activation of Nrf2 as novel molecular mechanism of antidepressants - Emilia Tomaka
- How to get higher grades in academic exams? Are diet and physical activity associated with academic performance as well as depressive and anxiety symptoms under stress? - Natalia Karina Bartosik, Julita Tokarek, Maria Dobielska
- Long screen time effect on children development - Karolina Mikalauskaitė
- Society's knowledge about internees with mental disorders - Natalia Bębenek
- Assessment of the quality of life of the patients addicted to psychoactive substances during treatment - Karolina Drygała
- Genetic variables of the glutamatergic neurotransmission associated with suicidal behavior - Paweł Cybula
- Second-generation mood stabilizers in the treatment of bipolar disorder - Elisabetta Pierzga
- Exploring the relationship between insulin resistance and major depressive disorder - Maja Międlar

7. Neurology - PhD Iwona Rościszewska – Żukowska, Associate Professor Agata Wawrzyniak, PhD Sabina Galiniak, PhD Marek Biesiadecki

- Porphyromonas gingivalis as a risk factor for the development of Alzheimer's disease - Natalia Góras

- The gut–brain axis: the relationship between gut microbiota and pathogenesis in Parkinson's Disease - Kinga Dyndał
- Multiple sclerosis: the role of NRF2 in the context of new therapies - Wiktoria Florek, Sara Czech, Jakub Szpara
- Potential roles of oxidative stress biomarkers in therapeutic strategies for depression - Jakub Szpara, Sara Czech, Wiktoria Florek
- The role of glutamatergic receptors in treatment-resistant depression - Izabela Żuraw
- The impact of the personality traits on the required dosage of levodopa in parkinson's disease patients - Aleksandra Ćwiklińska
- The use of automated diagnostic imaging assistance in qualifying for ischemic stroke treatment by mechanical thrombectomy in centers without endovascular treatment - Katarzyna Koszarska, Sylwia Lepak
- Anti-NMDA receptor encephalitis- case study - Adrianna Antoszewska, Weronika Bargiel
- The role of Gut Microbiota in mechanisms of pathogenesis and therapeutic strategies of Parkinson's disease - Izabela Kiebała
- Cerebral stroke as a rare complication of sphenoiditis - a case report - Krzysztof Domański, Alicja Szklarska, Karolina Różycka, Małgorzata Bojarska, Natalia Domańska
- Myasthenia gravis and its challenges: fighting for every breath - Smaranda-Iuliana Tabarcea **

8. Basic science - PhD Sabina Galiniak, PhD Krzysztof Balawender, PhD Marek Biesiadecki

- Leveraging social networks for cutting-edge toxicological surveillance: a deep dive into modern toxicovigilance – Marta Sowińska
- Aging and Awareness: Tackling Medication Poisoning in the Elderly – Aleksandra Adamczyk
- Mercury Menace Revisited: Old Challenge, New Disposal Solutions - Judyta Jasińska
- Assessment of oxidative modifications of proteins in stimulated saliva from various nicotine delivery methods - Krokosz Stanislaw, Porydzaj Aleksandra, Gabriela Borkowska, Zięba Sara
- Small-molecule LDN-0060609 PERK inhibitor in primary open-angle glaucoma treatment - Wiktoria Lisińska, Wioletta Rozpędek-Kamińska, Grzegorz Galita, Natalia Siwecka, Ireneusz Majsterek
- Prevalence of back pain among health care workers - Monika Błądek
- Outsmarting lead (Pb): from exposure to prevention - Barbara Smoliniec
- Cross-Stress Resistance in Saccharomyces cerevisiae Cells - Elif Leyal Uğraş
- Understanding the Impact of E-Cigarettes on Human Physiology: A Comprehensive Review – Kamil Płoch

9. Pediatrics - Associate Professor Marta Rachel, MD Zdzisław Michał Zawilski, PhD Sabina Galiniak

- Case report of a 14-Year-Old Patient with SAPHO Syndrome - Martyna Orzechowska, Aleksandra Roztoczyńska
- An unintended weight loss as the first indicator of a severe lung disease - Natalia Aleksander, Wiktoria Borowska, Katarzyna Czapla
- Clinical pharmacokinetics of ganciclovir in neonatal cytomegalovirus treatment in clinical practice - Mateusz Moczulski, Bartłomiej Kot
- Mortality and intracranial bleeding complication in neonates receiving therapeutic hypothermia caused by hypoxic-ischaemic encephalopathy - Oliwia Bolek
- Posterior reversible encephalopathy syndrome in a 7-year-old female with acute post-streptococcal glomerulonephritis - Lidia Ziobro
- Assessment of volumetric-absorptive microsampling technic to therapeutic drug monitoring of cyclosporine in pediatric renal transplant recipients - Bartłomiej Kot, Mateusz Moczulski
- The Impact of Parental Depression on Children: Understanding the Influence on Child Development and Well--being - Karolina Mikalauskaitė
- Enhancing Pediatric Cardiac Care: Integrating IoT with Event Holter Telemetry Automation - Filip Bossowski, Magdalena Skorupska, Szymon Baginski, Katarzyna Anikiej, Anna Kożuchowska
- Advancing Cardiac Care: The Impact of Continuous ECG Telemetry on Managing Complex Arrhythmias - Magdalena Skorupska, Filip Bossowski
- A patient with dysmorphic features and spastic paraparesis of the lower extremities with mutations of GRID2 and SETX genes - Yana Nyankovska
- Abnormal CHD4 and ZMYM3 gene variants – case report – Katarzyna Gunia
- Challenges in the Diagnosis of Autism Spectrum Disorder in Young Women and Girls: A Systematic Literature Review - Karolina Mikalauskaitė

10. Poster session - MD Omer Turan, Associate Professor Agata Wawrzyniak, PhD Sabina Galiniak, PhD Marek Biesiadecki

- Exploring the Impact of Vaping on Reproductive Health: A Systematic Review – Aleksandra Roztoczyńśka
- Deep Sea Toxins: Essential First Aid for Marine Toxin Injuries – Michał Orczyk
- Unearthing the Perils: A Deep Dive into Poland's Poisonous Plants - Łukasz Niżnik
- Botulinum toxin - modern therapy of neurogenic bladder in neurological patients – Halszka Wajdowicz
- Hypnosis and hypnotherapy – Olga Ficek
- Difficulties among women in the prevention of cervical cancer - Maria Sowa, Paulina Smolak, Milena Stój, Katarzyna Piotrowska
- Protein oxidation products in cystic fibrosis - Aleksandra Rożek
- Serum and urine total antioxidant capacity in patients with prostate cancer – Zofia Kobylińska
- Nodular Prurigo as a Manifestation of Mental Disorders – Case Description of a 60-Year-Old Woman - Aleksandra Roztoczyńska, Martyna Orzechowska
- Prevention and mechanism of poisoning of Amanita mushrooms - a case reports - Paweł Słoma
- High-dose methotrexate treatment in pediatric population – application of novel LC-MS/MS Method to therapeutic drug monitoring - Aleksandra Mikulska, Bartłomiej Kot, Mateusz Moczulski, Agnieszka Czajkowska**
- Knowledge, attitude and practices of dental students of Ukrainian University on their oral health - Humayra Assaa Ahmad **
- What do medical students think of own participation as subjects in clinical trials? - Aleksandar Sič, Tatjana Gazibara **
- Adherence evaluation during immunosuppressive therapy after transplantation – novel tools, new perspectives - Bartłomiej Kot, Mateusz Moczulski, Agnieszka Czajkowska**

11. Oncology – Associate Professor Ewa Kaznowska, Associate Professor Agata Wawrzyniak, MD Omer Turan

- Clinical Challenges and Multidisciplinary Management of Giant Cell Tumors: A Case Study of a Tumor of the Anterior Cranial Fossa - Piotr Starnawski
- Successful chemotherapy of a recurrent anaplastic oligodendroglioma with irinotecam - Maksymilian Seweryn, Alicja Szklarska, Alicja Smoleńska, Jakub Patyk, Kamila Szlendak
- The role of genetics and family history in prostate cancer risk - Berenike Paulmann
- Invisible disease with visible repercussions- a case of carcinoma occultum - Jacek Januszewski
- Lacrimal pleomorphic adenoma leading to orbital exenteration - Petra Knežević,Sandra Ćulap, Josip Knežević **
- Retroperitoneal Liposarcoma: Unveiling Diagnostic Delays and Multimodal Treatment Dilemmas - Geanina-Iuliana Androni **

12. Gynecology – Professor Joanna Skręt-Magierło, Associate Professor Agata Wawrzyniak

- A 3-stage hysteroscopic procedure for cutting the septum of the uterine cavity - the case of a 31-year-old patient - Klaudia Juraszek, Natalia Pęciak
- Traffic accident involving a pregnant woman- diagnosis and treatment. A case report - Gabriela Sołga
- The role of Toll-like receptor 4 signaling pathway in ovarian, cervical, and endometrial cancers - Julia Skiba, Karol Krawiec
- One cancer, many organs- recurrence of vulvar squamous cell carcinoma in the uterus - Claudia Sieńko, Alicja Smoleńska, Małgorzata Satora, Natalia Sikora
- Small vascular anastomoses produce significant complications: a case presentation of TAPS treated with intrauterine procedures - Maja Kłopecka
- COVID-19 infection impact on female reproductive health: a systematic literature review - Eva Borovska **

** - **online participation**

Surgery session

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http://www.ejcem.ur.edu.pl/en/
European Journal of Clinical and Experimental Medicine
Eur J Clin Exp Med 2025

Title of presented paper: Bloated patient or a tumor?

Authors: Ilinca Pădurariu
Supervisor: Delia-Florina Andrieși-Rusu

Affiliation: Grigore T. Popa" University of Medicine and Pharmacy of Iași, Romania

Type of the paper: Clinical case
Introduction and aim. Mucinous ovarian tumors represent 10%-15% of ovarian neoplasms and a common subtype of epithelial cell tumors. They may be benign, borderline, or malignant.
Description of the case. This is a case of a 66-year-old female who came for hospitalization accusing abdominal distension, dyspnoea, transit disorders and bloating. It is emphasized that the patient's mother died at 68 of breast cancer and the patient has a history of subtotal hysterectomy for uterine fibroma at the age of 25. The patient accuses an insidious debut 2 years prior, at the beginning of the Covid-19 pandemic. Clinical examination reveals globulous abdomen, slightly asymmetrical, collateral circulation. At palpation, the abdomen was slightly painful, occupied by a tumor formation of approximately 30/40cm that extends from the level of the xiphoid process to the pubis and laterally to the level of the iliac crests. The pelvic examination shows a small cervix and a cystic formation which occupies the entire pelvis. Laboratory exams are in normal limits, except the tumor marker CA19-9. CT examination shows a multiloculated formation on the left ovary with overall dimensions of approx. 230/300/350 mm. The suspicion was a giant ovarian cyst, possibly malignant. A median xipho-umbilical laparotomy was performed and a giant cystic tumor of the left ovary weighing 13 kg was removed. Histopathological examination determined the diagnosis of borderline mucinous cystadenoma.
Conclusion. Gigantic ovarian neoplasms are rare. In current medical practice, the progress in imaging allows a precise diagnosis when ovarian tumors are small.
Keywords. Borderline mucinous cystadenoma, CA19-9, Giant ovarian cyst, Ovarian tumors

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http://www.ejcem.ur.edu.pl/en/
European Journal of Clinical and Experimental Medicine
Eur J Clin Exp Med 2025

Title of presented paper: Broaden Horizons: How Artificial Intelligence Supports Plastic Surgery And Aesthetic Medicine?

Authors: Adrian Goss, Maria Bendykowska
Supervisor: Grażyna Gromadzka

Affiliation: Scientific Student Association 'Immunis' Faculty of Medicine, Collegium Medicum, Cardinal Stefan Wyszynski University, Warsaw, Poland

Type of the paper: Review paper

Introduction and aim. Artificial Intelligence (AI) and ChatGPT technology are becoming increasingly important in various areas of life, including medicine. The solutions it brings are revolutionary and optimize compounded processes. The aim of the work is to analyze the possibilities and prospects of using Al in Aesthetic Medicine (AeM).

Material and methods. The basis for assessing the current state of knowledge was a review of the literature available in the PubMed database and other sources and materials related to the subject of the work. The sources were selected based on the use of keywords such as 'aesthetic medicine and artificial intelligence", "aesthetic medicine and ChatGPT", "aesthetic medicine and new technologies".

Analysis of literature. Machine learning has the potential to be widely used in plastic surgery, facilitating the personalization, and planning of surgery, preoperative assessment, visualization of results, and prediction of potential complications. Al is promising in facial plastic surgery, helping in a comprehensive assessment - from assessing symmetry to analyzing characteristic points and simulating the work of a plastic surgeon. The use of Al can also help predict and monitor effects and plan further care, thus facilitating the optimization of treatments and comprehensive patient care. Al-based solutions pose several challenges, such as biases, access to high-quality medical data for AI training, proper interpretation of algorithms, ethical standards, and legal regulations.

Conclusion. The work shows how Al can improve therapeutic processes in Plastic Surgery, providing patients with safer, more precise treatment and greater satisfaction. Al indisputably represents a transformative influence within AeM.

Keywords. AI, ChatGPT, innovations, plastic surgery, surgery

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http://www.ejcem.ur.edu.pl/en/
European Journal of Clinical and Experimental Medicine
Eur J Clin Exp Med 2025

Title of presented paper: Nutritional Intervention Triumph: Effectiveness of oral nutritional support in the perioperative period in a patient with Crohn's Disease

Authors: Magdalena Olczyk
Supervisor: Małgorzata Zwolińska-Wcisło

Affiliation: Department of Gastroenterology and Hepatology, Jagiellonian University Medical College, Kraków, Poland

Type of the paper: Clinical case

Introduction and aim. Malnutrition in Crohn's disease is a significant multifactorial problem, serving as an adverse prognostic factor. The aim of this study is to demonstrate that appropriate strategies, including nutritional ones, are crucial for improving treatment outcomes and quality of life among patients with inflammatory bowel diseases.

Description of the case. The study presents the case of a 39-year-old patient with severe, complicated, penetrating Crohn's disease (CDAI=400) diagnosed in 2021, after right hemicolectomy, who underwent surgery to remove the left part of the large intestine with fistulas one year after the disease diagnosis. Patient underwent the prehabilitation before surgery. A week after the surgery, he was transferred to the Gastroenterology Unit, where anthropometric measurements and assessment of the patient's nutritional status were performed on admission. The patient's BMI was 16.8 kg/m^2, and the albumin concentration was 38.3 g/L (range: 35–52 g/L). Despite extensive surgery, resection of the large intestine, periodic nutrition exclusion, and absence of parenteral supplementation, the patient increased his body weight by 2 kg within 6 days of admission to the Gastroenterology Unit through the applied intervention, and by 6 kg over a period of 3 weeks (including lean body mass by 5.1 kg). The nutritional intervention involved increasing calories and protein intake only by using an oral diet and oral dietary supplements (Supportan Drink, Modulen IBD) without TPN. The patient's BMI after the nutritional intervention was 18,7 kg/m^2 and the albumin level increased to 40.2 g/L.

Conclusion. This study is the proof of the high effectiveness of appropriate oral nutrition in promoting recovery and improving treatment outcomes.

Keywords. Crohn's disease, Hemicolectomy, Malnutrition

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Title of presented paper: Navigating Orthopedic and Vascular Complexity: Insights from a Multidisciplinary Clinical Case

Authors: Cosmina- Ionela Smerea, Tudor Ștefan Rebenciuc
Supervisor: Baroi Livia Genoveva

Affiliation: Grigore T. Popa University of Medicine and Pharmacy of Iași, Romania

Type of the paper: Clinical case

Introduction and aim. Popliteal artery lesions can be encountered in cases of tibial trauma, with a prevalence rate typically falling within the range of 1% to 4%. In our case, nosocomial infections, including those from Clostridioides difficile, significantly impact postoperative outcomes. The infection rate is influenced by factors like the surgical procedure, hospital hygiene, and antibiotic use. Such cases underscore the complexity of managing interdisciplinary conditions, stressing the need for careful coordination among specialists in different medical fields.

Description of the case. We present the case of a 52-year-old man who urgently sought medical attention due to pain in the right lower limb following a trauma resulting from a non-height-related incident. Following a comprehensive clinical examination and radiological investigations, the subsequent diagnosis was established: a right tibial plateau fracture and acute ischemia due to injury to the popliteal artery. The patient was promptly referred to the vascular surgery department for revascularization. The surgical intervention involved proximal popliteal to distal popliteal interposition using an inverted venous graft (harvested from the right leg and thigh), in-situ hemostasis, and the application of an external fixator to the right leg and thigh. However, postoperatively, the patient's course was complicated by the onset of a Clostridioides difficile infection, evident through diarrheal stools and the presence of toxins A and B from this bacterium. The prescribed treatment involved initiating Vancomycin therapy administered orally. At the site of the postoperative wound, purulent secretions and positive cultures for Acinetobacter were also identified. The final recommendations included the administration of Colistin to address the intricate infection and optimize the patient's chances of recovery.

Conclusion. This case underscores the significance of vigilant postoperative care, early complication recognition, and collaborative decision-making for optimal patient outcomes in multifaceted medical situations.

Keywords. Multidisciplinary Care, Nosocomial Infections, Popliteal Artery Lesions, Tibial Plateau Fracture

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Title of presented paper: Surgical approach to a rare case of brain Solitary Fibrous Tumor with Frontal Lobe Syndrome

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Type of the paper: Clinical case

Introduction and aim. Solitary Fibrous Tumors (SFTs) are rare benign tumors with aggressive local behavior, usually found in the visceral pleura. However, there are extremely rare cases in which SFTs occurs in the brain, with high tendency of relapse. Brain SFTs are poorly recognized because of the resemblance to fibrous meningiomas and causes symptoms only when they have grown large enough.

Description of the case. We present the case of a 56-year-old patient who has had personality disorders for 2 months and associated myelopathic gait with the progressive onset of apathy and lack of motivation.

Given the damage of the higher functioning processes, Frontal Lobe Syndrome was considered. In the absence of trauma, the possibility of a frontal lobe tumor was investigated and MRI with contrast confirmed the presence of a quasi-circular structure, of increased density and with mesenchymal edema in the frontal lobe. Imaging characteristics suggested a meningioma, a much more common brain tumor. SFTs resemblance to meningiomas and the only method by which a final diagnosis can be made is the biopsy.

The patient was admitted to surgery and the tumor has been completely removed. After the resection, the skull base was reconstructed with plates through a subdural approach. There were no postoperative complications and the anatomopathological result diagnosed the grade 3 SFT with intense mitotic activity.

Conclusion. Brain SFTs are aggressive tumors, with malignant behavior covered by the benign identity. Misdiagnosed or not taken into account as a differential diagnose, can cause severe perioperative complications given the highly vascularized nature. The diagnosis is a challenge for their rarity and resemblance to common brain tumors and the correct diagnosis could be made only by histopathological examination.

Keywords. Fibrous Tumor, Frontal Lobe Syndrome, Frontal Lobe Tumor, Personality Disorders, Skull Base Reconstruction

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Title of presented paper: Complex management of brachial artery injuries: challenges and comprehensive care strategies

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Supervisor: Baroi Livia Genoveva

Affiliation: University of Medicine and Pharmacy "Gr. T. Popa" Iasi, Romania

Type of the paper: Clinical case

Introduction and aim. Brachial artery injuries pose complex challenges involving vascular and nerve damage, often leading to extended recovery periods and requiring meticulous management. The increased risk of healthcare-associated infections adds further complexity, highlighting the need for comprehensive care strategies to achieve optimal outcomes.

Description of the case. A 38-year-old man with no prior medical history was admitted to the emergency room following a glass-induced laceration on his right forearm, presenting with hemorrhagic shock and acute post-traumatic upper limb ischemia. The injury resulted in the transection of the brachial artery alongside the median, radial, and ulnar nerves. The surgical procedure commenced with the reconstruction of the brachial artery. A reversed venous graft from the great saphenous vein was utilized, in conjunction with controlled embolectomy performed on the brachial, radial, and ulnar arteries using a Fogarty catheter. After limb revascularization, tissue edema led to compartment syndrome, necessitating fasciotomy. Neurorrhaphy of the affected nerves and excision of necrotic muscles were performed, followed by skin grafting from the patient's thigh to address the skin defect (split-thickness skin graft). A Pseudomonas infection further complicated the case, requiring additional grafting procedures and negative pressure wound therapy to expedite healing. Medical indications after the discharge included daily cleaning and local application of Hyalo4 skin cream, alongside Xarelto (6 months), Actovegin and AL-Anerv (2 months).

Conclusion. Despite the rarity of brachial artery injuries, their association with nerve damage and healthcare-associated infections presents significant challenges in treatment and recovery. Addressing these complexities demands a systematic approach to optimize patient outcomes and mitigate complications throughout the recovery process.

Keywords. Brachial Artery Injury, Healthcare-associated Infections, Skin Graft, Venous Graft

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Title of presented paper: What are the challenges in treating complications and pain in a patient after kidney and pancreas transplantation? – a case report

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Affiliation: Clinical Pharmacology Science Club, University of Warmia and Mazury in Olsztyn, Poland

Type of the paper: Clinical case

Introduction and aim. Simultaneous pancreas-kidney transplantation (SPK) is currently the most effective method of treatment, ensuring stable and long-term normoglycaemia, in patients with type 1 diabetes and renal failure. Currently, the 5-year survival time of patients reaches up to 97%. However, patients after SPK are burdened with complications characteristic for either the group of kidney and pancreatic recipients.

Description of the case. A 65-year-old patient was admitted to the diabetic ward due to worsening pain resulting from the left diabetic foot syndrome. Physical examination revealed swelling, redness, and purulent discharge. The wound was cleaned, the limb was relieved and VAC/NPWT (vacuum assisted closure/negative pressure wound therapy) were implemented, but the patient's pain still has persisted. The patient reported increasing tension, pain and discomfort around the wound. The laboratory tests showed a decreased GFR and an increased level of uric acid, keratin and leukocytes. The patient had undergone a simultaneous pancreas and kidney transplantation (SPK) 1.5 year earlier, during which no complications has occurred. In addition, he reported that he has a history of opioid abuse, which, combined with limited kidney function, has significantly limited the choice of painkiller.

Conclusion. The management of diabetic foot syndrome in a patients after SPK requires a comprehensive and interdisciplinary approach. Patients with diabetic foot syndrome existing before the surgery are particularly exposed to secondary complications of diabetes, including cardiovascular complications, which are a result of taking immunosuppressive drugs that favor the development of infection within foot. In addition, for patients with limited renal function, the options for analgesic treatment are significantly limited.

Keywords. Diabetic Foot, Pancreas-Kidney Transplantation, Type 1 Diabetes

Hematology session

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Title of presented paper: A typical patient profile with atypical symptoms – complicated SLE diagnostic process

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Supervisor: Mirosław Markiewicz[2]

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Type of the paper: Clinical case

Introduction and aim. Systemic lupus erythematosus (SLE) is an autoimmune disease affecting mainly women, in which an inflammatory process develops, affecting various tissues and organs. The onset is often insidious and clinical manifestations diverse, contributing to diagnostic difficulties. The study aims to present the multi-stage SLE diagnostic process of a 36-year-old patient.

Description of the case. She was admitted to the Department of Gynecology of the USK Hospital in Rzeszów with suspicion of ovarian cancer, fluid in both pleural cavities, severe anemia, and cachexia. The surgical removal of tumors was postponed. Following preliminary histopathology of inguinal lymph node, the patient was transferred to the Department of Hematology to complete diagnosis and to start treatment. General condition at admission was very serious. Bone marrow cytology and immunophenotyping revealed no infiltration. Extensive antibiotic therapy, antifungal treatment, and rescue steroid therapy were applied. Final histopathology of the lymph node excluded initially suspected lymphoproliferation. History of numerous exotic trips and unclear clinical picture, led to consultation by varius specialists. Exploratory laparotomy was performed in the Gynecology Department, due to a lack of established diagnosis and gradual detronisation of her general condition. It results in postoperative respiratory failure and required a stay in Intensive Care Unit. Histopathologically tumors turned out to be extrauterine uterine leiomyomas and patient was transferred to Department of Thoracic Surgery. Laboratory tests (i.e. ANA9) indicated presence of connective tissue disease, thus finally patient was transferred to the Rheumatology Department in Rzeszów, where SLE was confirmed and intensively treated, leading to remission and normalization of the general condition.

Conclusion. Epidemiologically, the patient was a typical SLE case, but the unclear clinical picture posed a serious challenge for the team of various specialists. Determining the diagnosis in an atypical course may involve a significant amount of time spent in the hospital across various departments. Cancer may clinically present similarly to SLE.

Keywords. Cancer, Hematology, Rheumatology, SLE

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Title of presented paper: Hemophagocytic syndrome secondary to Leishmania spp. infection in 28-year-old man

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Type of the paper: Clinical case

Introduction and aim. Hemophagocytic lymphohistiocytosis (HLH), or hemophagocytic syndrome, is caused by immune system dysregulation: failure of T-lymphocytes and NK cells leads to excessive stimulation of macrophages and overproduction of pro-inflammatory cytokines. There are two types of HLH, congenital (genetically determined) and acquired (secondary). Secondary HLH can occur when the immune system is disturbed, e.g. by infections, including the protozoan Leishmania spp. transmitted by mosquitoes.

Description of the case. A 28-year-old man was admitted to the Department of Hematology due to pancytopenia and recurrent fever with suspected HLH secondary to EBV infection. On admission, the patient's condition was severe, with recurrent fever, chills and diarrhea. Diagnostic tests revealed pancytopenia, hyperferritinemia (>100000 ng/ml), increased D-Dimers and transaminases, hepatosplenomegaly and noticeable hemophagocytosis in the bone marrow. Treatment administered according to the HLH-2004 protocol enabled a significant improvement in the general condition, but there was neither hematologic remission, normalization of inflammatory parameters or resolution of fevers. Another bone marrow trephine biopsy performed in preparation for salvage allo-HSCT led to discovery of numerous protozoa, most likely Lesihmania spp., in the cytoplasm of macrophages. Taking into account adequate epidemiological history, compatible clinical picture and serological confirmation, the visceral leishmaniasis was diagnosed and targeted antiprotozoal treatment was implemented, which led to gradual improvement in the patient's condition and finally to a full recovery.

Conclusion. HLH is a life-threatening condition with insidious onset and adverse natural course. It occurs rarely, especially in adults. To date, only isolated cases of secondary HLH induced by infection with Leishmania spp. have been described worldwide.

Keywords. HLH, Hyperferritinemia, Leishmaniasis

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Title of presented paper: Use of mesenchymal stromal cells (MSCs) secretome components as an alternative to cells in regulating neutrophilic inflammation in an experimental asthma model

Authors: Aleksandra Roszko[1], Kamil Kamiński[1], Sylwia Księżak[1], Adrian Janucik[1], Agnieszka Tarasik[2], Marlena Tynecka[1], Marcin Moniuszko[1], Andrzej Eljaszewicz[1]
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Type of the paper: Original paper
Introduction: The immunosuppressive properties of mesenchymal stromal cells (MSCs) have been successfully demonstrated in numerous preclinical studies involving chronic inflammatory diseases, including asthma. Unfortunately, scientific efforts showing MSC efficacy did not result in therapy optimization. Therefore, we developed an alternative approach utilizing MSC-derived extracellular vesicles (EVs) reflecting the properties of the whole cell, while minimizing safety concerns.
Aim of the work: Here, we aimed to assess the effectiveness of MSC-derived extracellular vesicles in regulating neutrophilic inflammation in the house dust mite (HDM) induced experimental asthma model.
Materials and methods: C57BL/6 mice were challenged with HDM extract (100mg) for 5 consecutive days in each of 2 weeks to induce neutrophilic lung inflammation. Moreover, on the 13th day of the experiment, mice were administrated EVs isolated from unstimulated MSC culture media mixture or pre-educated with inflammatory cytokines (pr-EVs).
Results: Firstly, we confirmed that both EVs limit neutrophilic airway inflammation. Moreover, analysis of canonical and noncanonical pathways revealed the downregulation in arachidonic acid metabolism and lipid metabolism using both MSCs and EVs. Interestingly, in contrast to MSCs only EVs administration caused the decrease in the levels of Th2-driven cytokines and certain CXCL and CCL chemokines in BAL.
Conclusions: In summary, we confirmed that MSC-derived EV may reflect the beneficial effects of MSCs in neutrophilic airway inflammation.
The research was conducted under the project "Student Scientific Clubs Create Innovations" (No. SKN/SP/602497/2024) funded by the Ministry of Science and Higher Education.

Title of presented paper: Severe hemolytic anemia with complications - case report of a 19-year-old patient

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Type of the paper: Clinical case
Introduction and aim. Hemolytic anemia (HA) is a heterogeneous group of diseases characterized by hemolysis. The main division distinguishes congenital and acquired HA. The complications include hemolytic crisis, fever, and kidney damage. Diagnosis is based on laboratory test results and the clinical symptoms.
Description of the case. In this report, a case of a 19-year-old BTA-positive, treatment-resistant HA patient is presented. He was transferred to the Hematology Department of the USK Hospital in Rzeszów from a regional hospital with severe hemolysis. On admission, the patient's condition was serious including shortness of breath, fever, and top-left abdominal quadrant pain. Tests revealed anemia, leukocytosis, active hemolysis, and increased inflammatory indicators; infections were excluded. Methylprednisolone treatment was continued, immunoglobulins, broad-spectrum antibiotics and low-molecular-weight heparin were introduced. The patient required numerous RBC transfusions. 3 days after admission patient's condition deteriorated. Immunosuppressive drugs were introduced and the patient was qualified for rescue splenectomy followed by mechanical ventilation in Intensive Care Unit for 2 weeks due to respiratory failure. Plasma exchange, weekly Rituximab and additionally hemodialysis treatment due to acute renal failure and overhydration were applied. Afterwards, at Hematology Department, central and intravesical catheters were removed, iv albumin and Furosemide were used for drainage treatment. Candida albicans was cultured from removed catheters, caspofungin was introduced. The patient was discharged home in good general condition, with stable hemolysis and renal parameters.
Conclusion. The key to successful HA treatment, which may include pharmacological and surgical interventions, is to determine the cause. This report highlights the importance of prompt recognizing and treating of HA and its complications.
Keywords. Anemia, Hemolytic Anemia, Hemolytic Crasis

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Title of presented paper: Exploring Thrombotic Thrombocytopenic Purpura: Clinical Complexity, Diagnostic Hurdles, and Treatment Successes

Authors: Labo Matei, Oros Alexandra-Elena, Iova Olga-Maria, Marin Gheorghe-Eduard
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Type of the paper: Clinical case

Introduction and aim. Thrombotic Thrombocytopenic Purpura (TTP) is a hematological disease characterized by hemolytic anemia, schistocytes, thrombocytopenia, relatively preserved renal function, and no other cause for these findings, such as malignant hypertension, sepsis, or cancer. Because of its rarity as a disease compared to other diagnoses and its resounding clinical presentation, TTP is usually easily misdiagnosed, resulting in an unfortunate ending for the patient. On the other hand, accurately diagnosing and treating this pathology culminates in an outstanding outcome for the patient, which highly depends on the expertise of the medical team.

Description of the case. A 31-year-old male presents in a County Hospital, Department of Hematology, transferred from a smaller hospital in the neighboring county with the diagnosis of TTP possibly caused by a COVID vaccine. Upon admission, the patient exhibited signs of psycho-motor agitation and temporal-spatial disorientation, with no motor deficits observed. Pupils were equal and reactive. Physical examination revealed pallid, cold skin with multiple ecchymosis. The patient presented with fever, spontaneous breathing, and oxygen saturation of 98% on nasal cannula supplementation. Lab exams revealed neutrophilia, lymphopenia, anemic syndrome, thrombocytopenia, hepatocytolysis, elevated inflammatory markers, and ADAMTS-13 antibodies, the patognomonic markers for TPP. Although the Glasgow Coma scale was 8, the MRI scan showed demyelination lesions within the supratentorial substance, potentially indicative of cerebral microangiopathy but without ischemic or hemorrhagic signs at this level. Undergoing plasmapheresis, the patient's general condition improved dramatically in less than a month.

Conclusion. Although easily misdiagnosed, TPP can be recognized and treated accordingly if this rare diagnosis is considered. The importance of increasing awareness regarding TPP is obvious, especially when through the efforts and expertise of the medical team from the small county hospital the diagnosis of this rare condition was suspected, and the patient was immediately sent to the right facility, preventing a tragic outcome.

Keywords. ADAMTS-13, Misdiagnose, Thrombotic Thrombocytopenic Purpura

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Title of presented paper: Development of *Pneumocystis jiroveci* pneumonia during autologous stem cell transplantation – case report

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Type of the paper: Clinical case

Introduction and aim. *Pneumocystis jiroveci* (PCJ) is an opportunistic pathogen which affect respiratory system. Infections occur in immunocompromised patients mostly in the course of AIDS, less frequently in patients treated with immunosuppressive drugs/chemotherapy, or those with immune disorders. Examples include hemato-oncological patients undergoing transplantation procedures, where PCJ can induce severe interstitial pneumonia leading to respiratory failure. So is there any way to prevent infection or stop the progression of the disease without serious consequences for the patient?

Description of the case. A 41-year-old patient, without any comorbidities was diagnosed with IgG kappa multiple myeloma. He was treated with 5 cycles of VTD induction therapy (bortezomib, thalidomide, dexamethasone), achieving a partial response. Admitted to the transplant unit for high-dose chemotherapy supported by autologous hematopoietic stem cell transplantation (HSCT). During marrow aplasia post-chemotherapy, neutropenic fever occurred without respiratory infection symptoms. The patient received broad spectrum empirical antibiotic-therapy escalated due to persistent fever and increased inflammatory parameters. Blood cultures were negative, but PCJ cysts were detected in sputum samples. Sulfamethoxazole+trimethoprim prophylaxis was added to the treatment regimen. Throughout the course of treatment, patient did not develop respiratory infection symptoms. Three consecutive chest X-rays during hospitalization showed no visible abnormalities. The patient was discharged in good condition.

Conclusion. Hemato-oncological patients are in profound immunosuppression, so not only bacterial but as well fungal infection can affect them. The early implementation of recommended sulfamethoxazole+trimethoprim prophylaxis prevented the development of symptomatic PCJ infection in the patient undergoing immunosuppression due to the underlying disease, prolonged induction therapy, and autologous HSCT procedure.

Keywords. Fungi, Infection, Profound immunosuppression

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Title of presented paper: The influence of gut microbiota and immune system in the development of acute lymphoblastic leukemia in children

Authors: Karol Krawiec
Supervisor: Sebastian Mertowski

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Type of the paper: Review paper

Introduction and aim. Acute lymphoblastic leukemia (ALL) appears to be the most common cancer diagnosed in pediatric patients, and despite conduction of clinical research, a particular cause of ALL development remains unknown. There is a concept assuming that infant's diet and social environment have an impact on microbiota and hence on tumorgenesis. Present review paper aims to demonstrate current knowledge on the subject of the impact of gut microbiota and immunological imbalance on the development of acute lymphoblastic leukemia in children.

Material and methods. A systematic review of literature was conducted using the PubMed and Google Scholar databases using filters related to the type of articles.

Analysis of literature. Microbial exposure in infancy aids human microbiome in shaping and influencing the immunological system positively by inducing innate and adaptive immune responses. Cesarean section birth, lessened breastfeeding and inhibition of social contacts result in evolution of delayed maturation of gut microbiota due to decreased microbial exposure. Following factors may contribute to the development of ALL. Shortage of breastfeeding is associated with reduced abundance of Bifidobacterium spp and lack of siblings is associated with reduced abundance of Faecalibacterium spp. Altered microbiota and hence dysregulated immune responses extend the possibility of transformation of pre leukemic clones in response to infectious triggers. Following the diagnosis of ALL patients receive antibiotic treatment and chemotherapy. Regular chemotherapy comprehensively disturb a microbiome and is frequently associated with mucosal inflammation.

Conclusion. Analysis of literature demonstrated that early decisions about delivery, nutrition and even lifestyle may indirectly induce ALL.

Keywords. Acute Lymphoblastic Leukemia, Gut Microbiota Immune System

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Title of presented paper: Atypical Hemolytic Uraemic Syndrome: a case presentation

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Supervisor: Stefan-Nicolaie Lujinshi

Affiliation: Fundeni Clinical Institute, Carol Davila, Bucharest, Romania

Type of the paper: Clinical case

Introduction and aim. Atypical hemolytic uraemic syndrome (aHUS) consists of a classic triad of microangiopathy hemolytic anemia (TMA), thrombocytopenia, and acute kidney injury. It is an exclusionary diagnosis after ruling out HUS secondary to E. coli Shiga toxin, other microbial agents, or thrombocytopenic purpura (TTP). However, some genes regarding its pathophysiology have been identified. Genetic testing is crucial in correctly diagnosing the patient and reaffirming the need for more specific treatment.

Description of the case. 27-year-old female presented to the hospital on three occasions (2002,2004,2013) with severe hemolytic anemia associated with thrombocytopenia; the last episode included acute kidney injury KDIGO III requiring ten months of renal replacement therapy, presented to our clinic for poorly controled blood pressure. Given the context of a prior TMA and signs of endothelial dysfunction, genetic testing was warranted for aHUS. Examination of the patient reveals an excellent general appearance with the absence of disease. Paraclinical investigations revealed low c3, normal c4, and increased C5b-9, indicating activation of the alternative complement pathway. The patient did not undergo Shiga testing due to the appearance of multiple episodes. Genetic testing in 2021 revealed normal c1q and anti-factor H, but a novel C3 defect (p.pA1094T) was observed in addition to CHF gene polymorphism and MCPggaac haplotype of CD46. Final diagnosis: Atypical hemolytic uremic syndrome with stage III KDIGO acute renal injury and stage II hypertension.

Conclusion. aHUS is mediated by the alternative complement pathway. In this patient, two genetic defects preventing the deactivation of C3b have been identified and a novel C3 defect with presumed pathogenesis. These genetic defects lead to a clear target for preventing relapse. Inhibition of the C5B9 pathway with biologics frequently leads to complete remission. Additionally, it has been reported that those with the MCPggaac haplotype are more prone to graft rejection, further guiding treatment recommendations.

Keywords. aHUS, Complement Blockade, Hypertension, MCPggaac

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Title of presented paper: Glofitamab: Precision Therapy in B-Cell Lymphoma

Authors: Alexandru Calin, Maria-Bianca Andrei, Andrei-Rares Onut
Supervisor: Albu Elena

Affiliation: University of Medicine and Pharmacy "Grigore T. Popa" Iasi, Romania

Type of the paper: Review paper

Introduction and aim. In the realm of B-cell lymphoma treatment, glofitamab emerges as a groundbreaking bispecific antibody, offering a unique avenue for personalized therapy. Targeting both CD19 and CD3 antigens concurrently, glofitamab presents a precise and effective treatment modality. This study aims to comprehensively explore glofitamab, focusing on its distinctive mechanisms of action and its impact on combating B-cell lymphoma. This investigation aims to evaluate glofitamab comprehensively, emphasizing its unique molecular mechanisms. Through an in-depth analysis of clinical studies and experimental data, the review seeks to underscore the distinct contribution of this bispecific antibody to B-cell lymphoma management.

Material and methods. A meticulous approach was employed, analyzing ten articles published within the last five years sourced from PubMed. These articles were scrutinized for relevance to provide insight into glofitamab's interaction within the biological environment. This systematic review ensures an up-to-date understanding of glofitamab's molecular mechanisms and its application in B-cell lymphoma treatment.

Analysis of literature. Relevant data highlight glofitamab's remarkable efficacy in B-cell lymphoma treatment, affirming its potential as an innovative therapeutic agent. Significant responses observed in clinical studies validate its unique ability to engage the immune system against malignant cells.

Conclusion. Glofitamab, as a bispecific antibody, represents a new frontier in B-cell lymphoma therapy through its precise targeting of specific antigens. The findings underscore its significant potential in clinical practice, emphasizing the necessity for ongoing research to consolidate and expand its innovative role in personalized B-cell lymphoma treatment.

Keywords. B-cell Lymphoma, Glofitamab, Malignant Cells

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Title of presented paper: Exploring Chimeric Antigen Receptor T-cell Therapy: Effectiveness and Safety in Leukemia Treatment

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Type of the paper: Review paper

Introduction and aim. When it comes to treating leukemia, a hematologic disorder marked by the uncontrollably high number of leukocytes, Chimeric Antigen Receptor T-cell (CAR-T) therapy has revolutionized the field by offering a cutting-edge substitute for traditional treatments. To better understand the efficacy and safety of CAR-T therapy in the treatment of leukemia, this review is focused on two specific subtypes: acute lymphoblastic leukemia (ALL) and chronic myeloid leukemia (CML). The aim is to highlight the therapeutic responses, length of remission, and possible adverse effects of this treatment.

Material and methods. We performed a comprehensive analysis of data from a multicenter clinical trial in which patients receiving CAR-T treatment for ALL and CML were involved. The effectiveness and safety of the therapy were assessed through the collection and analysis of clinical data and laboratory investigations. PubMed and Medline provided the background knowledge and scientific context for CAR-T treatment in leukemia.

Analysis of literature. Particularly in cases of ALL, the study on CAR-T treatment for leukemia shown remarkable results, with patients achieving substantial remissions and prolonged disease-free periods. The side effects reveal neurological toxicities and cytokine release syndrome. Continual optimization of CAR-T treatment, influenced by factors as antigen selection and manufacturing consistency, underscores the promising therapy, emphasizing the need for a balanced strategy to optimize benefits and minimize risks in leukemia treatment.

Conclusion. As a noteworthy therapeutic option, CAR-T therapy is an inventive and effective way to treat leukemia. Nevertheless, to maximize the advantages and enhance the quality of life for leukemia patients, close observation and risk assessment are essential.

Keywords. Acute Lymphoblastic Leukemia, CAR-T Therapy, Chronic Myeloid Leukemia, Leukemia

Internal disease session I

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Title of presented paper: Catheter ablation of refractory left atrial flutter in a young patient with severe heart failure

Authors: Matylda Mikołajczyk
Supervisor: Piotr Futyma

Affiliation: Student Scientific Club of Cardiology, Medical Collage of Rzeszów University, Rzeszów University, Rzeszów, Poland

Type of the paper: Clinical case

Introduction and aim. A 36-year-old patient with persistent atypical atrial flutter, impaired left ventricular systolic function LVEFF of about 20%, after several ablations of atrial fibrillation and flutter, currently treated with B-blocker, was referred for consideration of bipolar ablation.

Description of the case. The patient was placed under general anesthesia and a laryngeal mask was placed.

Low tidal volume ventilation (3ml/kg body weight). Under general anesthesia, the right femoral vein was punctured 3x under ultrasound guidance, a long T-shirt was inserted into the right atrium, a rotational scan was performed and the left atrium was reconstructed.A 10-pole electrode was inserted into the CS showing the best pacing binding to CS 3-4 (TCL=320 ms, PPI=380 ms).A transseptal needle puncture was performed and a long T-shirt was inserted into the left atrium with great difficulty. Insertion of the shunt requiring septal predilatation with a dilator.

Conclusion. An ablation-mapping electrode was inserted into the left atrium. Binding stimulation in the anterior line at the appendage showed ideal binding parameters of PPI=TCL=320 ms.A series of applications were performed, achieving a slowing of the cycle to 620 ms, and then with manipulations of the electrode at the ridge with the appendage, the arrhythmia was interrupted. The anterior application line was sealed, and the antral pulmonary veins were reisolated from the ridge side. Due to the numerous fragmented potentials in the posterior wall area, it was also isolated. The right pulmonary veins. Consolidation applications were performed in the anterior line and in the roof, achieving noninducibility ofAFL at 15-minute follow-up.The vascular sheath was removed, and a tap suture was placed. The procedure was complication-free. Rutinoscorbin was ordered. The procedure and postoperative period proceeded without complications. The patient was discharged home in good general condition for further systematic follow-up in an outpatient setting.

Keywords. Atypical Atrial Flutter, Bipolar Ablation, Catherer Ablation

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Title of presented paper: Sildenafil as a drug with many faces: potential antidepressant effect

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Type of the paper: Review paper
Introduction and aim. Sildenafil is a medication playing a crucial role in cellular signaling by regulating cGMP levels critical for smooth muscle relaxation and vasodilation. It is specifically recommended as a phosphodiesterase type 5 (PDE5) inhibitor for addressing conditions such as erectile dysfunction and pulmonary arterial hypertension. Beyond these well-established applications, the diverse functions of PDE5 suggest that sildenafil could extend its benefits to the treatment of depression. The aim of the study is to present clinical and preclinical studies confirming that sildenafil may have antidepressant effects.
Material and methods. The study constitutes a review of literature published in the scientific databases PubMed, Google Scholar, and Science Direct.
Analysis of literature. Sildenafil demonstrates a remarkable ability to traverse the blood–brain barrier, influencing central PDE5 activity. This, in turn, yields various effects within the central nervous system, including the promotion of neurogenesis, memory enhancement, learning impairment mitigation, and neuroprotection. The innovative use of sildenafil to target PDE5 has emerged as a promising therapeutic approach for neurological and neuropsychiatric disorders, notably depression. Notably, low doses of sildenafil increases the level of brain neurotransmitters, such as serotonin and noradrenaline, potentially alleviating depression.
Conclusion. Recognizing the broader therapeutic potential of sildenafil opens avenues for novel treatments, enriching existing strategies and expanding its clinical applications. Sildenafil may have antidepressant effects by acting on central activity, which indicates a potential treatment option for depression and related disorders.
Keywords. Antidepressant, Depression, Sildenafil

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Title of presented paper: Acute Pancreatitis as a first manifestation of Multiple Myeloma

Authors: Andrei-Rares Onut, Alexandru Calin, Maria-Bianca Andrei
Supervisor: Diana-Elena Iov

Affiliation: University of Medicine and Pharmacy "Grigore T. Popa", Romania

Type of the paper: Clinical case

Introduction and aim. One of the most frequent gastrointestinal diseases in medical practice is acute pancreatitis and identifying the etiology is a big factor in the management of the pacients. This clinical case is describing a particular clinical situation, where an episode of acute pancreatitis generated by hypercalcemia led to the diagnosis of multiple myeloma.

Description of the case. We're presenting the case of a 69 years old female pacient, admitted to the gastroenterology department with clinical, biogical and radiological signs of acute pancreatitis. The evaluation of the etiology is excluding alcohol use (the biliary cause being refuted biochemically and radiologically). The abdominopelvic CT exam describes osteolytic lesions, suggesting secundary dissemination, and further biological investigation detects severe hypercalcemia. In this case, additional evaluations are required to spot the primary tumor. Pacient's history of thyroid neoplasm leads to endocrinological reexamination, which excludes tumoral remission. In addition, the pacient does a mammography and a superior digestive tract endoscopy, both with no pathological signs. After that, a peripheral blood smear is prepared, followed by electrophoresys and imunoelectrophoresys of the proteins, tests that suggest a malignant hemopathy. In this context, a bone biopsy is performed and the result sustains the diagnosis of multiple myeloma. She was transfered to the hematology department for further treatment.

Conclusion. The expression of a disease is not always specific, as atypical manifestations are possible, with the involvment of other systems and organs.

Keywords. Acute Pancreatitis, Hypercalcemia, Multiple Myeloma

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Title of presented paper: Venous stroke as a rare complication of sepsis in a multimorbid patient – a case report

Authors: Alicja Szklarska[1], Gabriela Gilarska[1]
Supervisor: Konrad Rejdak[2], Joanna Bielewicz[2], Lucyna Jóźwiak[3]

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Type of the paper: Clinical case

Introduction and aim. Venous strokes contribute to about 1% of stroke cases. Their main cause is cerebral venous thrombosis, associated with infectious factors in only 10% of cases. We describe a case of a venous stroke with infectious etiology in a multimorbid patient.

Description of the case. A 32-year-old male was transferred to the Neurology Department from the Intensive Care Unit (ICU), where he has been hospitalised for meningoencephalitis during Streptococcus pneumoniae sepsis. In the past he experienced an accident after which he underwent splenectomy and orthopedic operations. Moreover, he is treated for Goodpasture's syndrome. Treatment in the ICU improved the septic symptoms - the patient was in a stable cardiopulmonary state with a decrease in blood coagulation disturbances. He admitted binocular diplopia, muscle weakness, inability to close the left eyelid and hearing disturbances in the left ear. The neurologist confirmed the proximal tetraparesis and peripheral facial nerve paralysis. Veno-MR revealed a lack of signal from the internal jugular vein in time of flight projection, leading to a hypothesis of venous thrombosis. Doppler ultrasonography excluded the flow disturbances in cerebripetal arteries. After confirming the venous stroke, the patient was treated with steroids, anticoagulants and antibiotics and referred to the Rehabilitation Department.

Conclusion. Despite being an extremely rare condition, venous strokes need to be taken under consideration while examining multimorbid patients. Their symptoms differ from the arterial occlusion's effects, resulting in non-specific clinical representations. While having a favourable general prognosis, the respective risk factors, such as concomitant diseases, may exacerbate their severity.

Keywords. Neurology, Sepsis, Venous Stroke

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Title of presented paper: Tirzepatide as a novel drug for chronic weight management

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Supervisor: Dorota Bartusik-Aebisher[1], David Aebisher[1]

Affiliation: [1] Students English Division Science Club, Medical Collage of Rzeszów University, University of Rzeszów, Rzeszów, Poland

Type of the paper: Review paper
Introduction and aim. Obesity (OB) is the most prevalent chronic disease that affects more than 600 million people worldwide. Overgrowth of adipose tissue and following pathomechanisms predispose to cardiovascular complications, fatty liver disease, obstructive sleep apnoea and type 2 diabetes which makes OB number one global health economic burden. Its complications and their concomitant diseases contribute to global morbidity and mortality rates. The goal of OB management is to improve patient's health and their quality of life that requires a long-term, multimodal approach that may include lifestyle changes, anti-obesity drugs or endoscopic and bariatric surgical procedures which can in long term lead to maintenance of weight loss and associated health gains. Available anti-obesity medications act primary on central appetite pathways to reduce hunger and food reward. One of the newest medications in this class is tirzepatide, a glucose-dependent insulinotropic polypeptide (GIP) receptor and glucagon-like peptide-1 (GLP-1) receptor agonist which is a novel drug recommended for the treatment of OB in patients with body mass index (BMI) of 30 or greater with at least one weight-related condition (such as high blood pressure, type 2 diabetes or high cholesterol) for use, in addition to a reduced calorie diet and increased physical activity. This study aimed to introduce the pathomechanisms involved in the development and course of OB and discuss the clinical safety and efficacy of tirzepatide.
Material and methods. A review of scientific articles available in the Medline/PubMed and Google Scholar databases as well as published studies at ClinicalTrials.gov was performed using the following keywords: Tirzepatide; Obesity.
Analysis of literature. Traditional treatment of obesity almost exclusively includes lifestyle-based approaches such as diet and exercise. However, evidence suggests that these actions induce physiological counterregulatory mechanisms that limit weight reduction, and that OB is a multicomponent metabolic disease, which may require additional management that would lead to greater efficacy in total weight reduction. Due to limited response, new treatment options, with novel mechanisms of action and sustained treatment outcomes are required.
Conclusion. Tirzepatide is an effective and safe drug for substantial reduction in body weight in patiens with BMI of 30 and more.
Keywords. Obesity, GIP, GLP-1,Tirzepatide

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Title of presented paper: Creutzfeldt–Jakob disease – a rarity that can become a tragedy. How to ensure the safety of medical staff and other patients in cases of prion disease?

Authors: Gheorghe Eduard Marin, Olga Maria Iova, Matei Labo
Supervisor: Cristina Nistor

Affiliation: University of Medicine and Pharmacy "Iuliu Hatieganu" Cluj-Napoca, Faculty of Medicine, Romania

Type of the paper: Clinical case

Introduction and aim. Creutzfeldt–Jakob disease (CJD), or subacute spongiform encephalopathy, is a fatal neuro-degenerative disorder caused by a prion protein. While most cases are either sporadic of genetic, it is still a form of transmissible prion disease. Even though iatrogenic and patient-to-staff transmission rates are low, under 2% by some estimates, the risk should not be ignored, and proper protocols must be known and practiced. We aim to describe the symptomatology of the disease for early recognition of possible cases, and the proper protocols to be followed to minimize the risk of transmission.

Description of the case. We present a series of three patients with high likelihood of CDJ. At admission all three complained of balance and coordination dysfunctions (ataxia), gait impairment with positive Romberg sign, and myoclonus. EEG examination revealed a generalized periodic sharp wave pattern in two of them, and high intensity signals in the caudate nucleus and cortex in the MRI scan of one patient. Cerebrospinal-fluid analysis returned positive for protein 14-3-3 in all three cases, indicative for CJD. Safety protocols were instated in all three cases.

Conclusion. With different tissues posing a different risk, certain medical acts need to be thoroughly considered beforehand. Most invasive diagnostic procedures have a low risk of transmission, however, trying to schedule CJD patients at the end of the day to allow stricter space and instruments decontamination can improve safety. Surgery, especially neurosurgery (and lumbar punctures to an extent), poses a higher risk for the staff and future patients (due to the prion's resilience to common sterilization procedures of surgical instruments), and thus require improved protocols and special after-care for materials used (incineration, or stronger sterilization when necessary). Histopathology and post-mortem examinations pose the highest risks and require very strict protocols and prior planning in order to avoid spread, or occupational injury.

Keywords. Neurology, Prion Disease, Safety Protocols

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Title of presented paper: Relationship between vitamin D deficiency and treatment-resistant depression

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Type of the paper: Review paper

Introduction and aim. Vitamin D is considered vital for maintaining calcium homeostasis and metabolism and takes part in multiple immune responses to infectious agents. The major source is endogenous synthesis in the skin by sun exposure to UVB radiation. To a lesser extent, this vitamin is obtained from diet and supplement intake. The receptor for vitamin D is present all over the majority of tissues and cells in the body, and it is found in areas of the brain such as the hippocampus, cingulate gyrus, thalamus, hypothalamus, and substantia nigra. This has revealed regions thought to be important in the pathophysiology of depression. Notably, a prospective association between vitamin D levels and depression has been reported. Treatment-resistant depression (TRD) is a subtype of major depressive disorder (MDD) that does not respond to psychotherapy or multiple classes antidepressants.

Material and methods. TRD affects approximately 30% of people diagnosed with MDD. Vitamin D deficiency still occurs in developed countries, probably due to reduced exposure to the sun due to both geographical location and longer time spent indoors.

Analysis of literature. There are many studies about vitamin D and MDD however few have considered the relationship with TRD due to its complex biological course and inconsistent findings. This may be significant given of increase in the incidence of various mental disorders.

Conclusion. The purpose of the presentation is to present the most important information about the correlation between vitamin D and treatment-resistant depression, including their future role as a risk factor for depression and its use in pharmacology and therapy of mental disorders, especially TDR.

Keywords. Major Depressive Disorder, Treatment-Resistant Depression, Vitamin D

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Title of presented paper: Nonspecific clinical presentation of Systemic Lupus Erythematous with jaundice - Case Report

Authors: Jakub Gałkowski, Angelika Dyszy, Gabriela Małecka
Supervisor: Anna Rostropowicz-Honka

Affiliation: Student Scientific Association of Diabetology, Faculty of Medicine, University of Opole, Opole, Poland

Type of the paper: Clinical case

Introduction and aim. Systemic lupus erythematosus (SLE) is a chronic, autoimmune connective tissue disease. Clinical presentation varies from single-organ involvement, to more often, multi-system condition.

Description of the case. A 36-year-old woman with increased ALP and GGT levels, displaying jaundice, was admitted to the hospital for liver damage diagnosis. Patient reported tiredness, shortened menstrual cycles, periodical pain in the right hypochondriac, itching around the navel and left thigh. Periodical pale stools and dark urine were reported. Symptoms began seven months prior to the admission. Slight leukopenia and thrombocytopenia appeared. Initial clinical examination was insignificant, except for jaundice. An ultrasound showed fluid in the rectouterine pouch and right pleural cavity. Perihepatic fluid, dilation of IVC and hepatic veins were reported. The liver was slightly enlarged. Levels of natriuretic peptides were increased. Echocardiography showed dilation of both atria and slight regurgitation of all heart valves. Abnormalities revealed on MRCP were: dilatation of the hepatic veins and IVC, prominent features of periportal edema and mild splenomegaly. Presence of fluid in the right pleural cavity was confirmed. During the diagnostic process other hepatic pathologies and hepatotropic viral infections were excluded. SLE suspicion was based on positive anti-ds-DNA and anti-nuclear antibodies. Increased level of total serum bilirubin and conjugated bilirubin level brings suspicion of coexisting Gilbert's syndrome and congestive hepatopathy secondary to the chronic heart disease.

Conclusion. Nonspecific symptoms caused diagnostic difficulties and postponed treatment. Diagnosing patients with a wide range of unspecific symptoms can be challenging and time-consuming. It is crucial to deepen the diagnostic process including specific testing.

Keywords. Hyperbilirubinemia, Jaundice, Systemic Lupus Erythematosus

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Title of presented paper: Peculiarities of clinical course of systemic lupus erythematosus

Authors: Lada Hrytchenko
Supervisor: Victoriia Talash

Affiliation: Department of Internal Medicine №2, Poltava State Medical University, Poltava, Ukraine

Type of the paper: Clinical case

Introduction and aim. Systemic lupus erythematosus (SLE) develops due to combined immune system disorders that is confirmed by the peculiarities of its course in primary immunocompromised patient.

Description of the case. A 31-year-old woman started her medical history with immune disorders since the age of one. At the age of 15 was diagnosed with primary immunodeficiency, elevated level of antinuclear antibody (ANA) against the backdrop of CKD stage 2. High risk of SLE development. In 2013 glomerulonephritis with urinary syndrome and arterial hypertension were diagnosed, and since 2019 - articular involvement, alopecia, butterfly rash, discoid lesions, furunculosis. increase in ANA levels despite normal ADNA II values. SLE was diagnosed, but patient refused treatment and renal biopsy. By 2023 developed generalized oedema, breathlessness, decreasing of eGFR, increasing of ANA (1:3200) and ADNA II (379 IU/ml). Subsequently developed glomerulonephritis with nephrotic syndrome, anasarca, anaemia, lymphadenopathy, interstitial lung disease. Investigations revealed pancytopenia and signs of polyorganic pathology. Despite the initiation of pathogenetic therapy, a lupus flare with polyorganic insufficiency developed resulting in the patient's death.

Conclusion. Initial kidney dysfunction with increased ANA may be the first sign of systemic lupus erythematosus. Specific for SLE dermatologic manifestations evolved 11 years after the first presentation, while ADNA II increased after 15 years. Nonspecific signs of lupus at the beginning and the refusal of renal biopsy complicated making the diagnosis. A delayed diagnosis and patient's autonomy caused a severe clinical course with a fatal outcome.

Keywords. Glomerulonephritis, Lupus Flare, SLE

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Title of presented paper: Posterior Reversible Encephalopathy Syndrome (PRES) - a rare disease in imaging diagnostics

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Supervisor: Łukasz Urbaniec

Affiliation: Collegium Medicum, School of Medicine, University of Warmia and Mazury in Olsztyn. Department of Radiology, The Voivodal Specialistic Hospital in Olsztyn, Poland

Type of the paper: Clinical case

Introduction and aim. Posterior reversible encephalopathy syndrome (PRES) is a rare neurological condition that typically presents with symptoms such as headaches, visual disturbances, altered consciousness, and epileptic seizures. PRES is usually triggered by a sudden increase in arterial pressure, but other potential causes include immunosuppressive drug use, septic shock, organ transplantation, or nephrotic syndrome.

Description of the case. A 51-year-old woman was admitted to the emergency department due to malaise, fever, and impaired consciousness. Following a kidney transplant from a deceased donor in 2006, during graft failure and end-stage renal disease, she resumed hemodialysis in July 2023. The patient had left dialysis the day before admission. According to her husband, she had been feverish, vomiting, and refraining from medication for four days. On admission, the patient was without logical contact, conscious, spoke unclearly, monologued, and moved her limbs. No focal neurological signs, stroke symptoms, meningeal signs, tremors, or myoclonus were observed. HR 90/min, BP 200/90 mmHg. Occasionally foamy discharge from the mouth. Physical examination was difficult. Subsequently, the critically ill patient was admitted to the nephrology department. A seizure occurred during the stay - midazolam was administered. Non-contrast head CT revealed extensive hypodense areas up to 50mm in the white matter of both occipito-parietal regions - an ambiguous picture, suggesting inflammation. Symmetric ventricular system, centrally positioned, not dilated. Based on clinical presentation and typical CT findings, the neurologist diagnosed posterior reversible encephalopathy syndrome and recommended aggressive blood pressure reduction along with intravenous antiepileptic drugs (Levetiracetam) in case of seizures.

Conclusion. The PRES syndrome is challenging to diagnose. It is crucial to differentiate it from reversible cerebral vasoconstriction syndrome, ischemic stroke, Creutzfeldt-Jakob disease, or neoplasms. This case illustrates how important accurate imaging diagnostics and staying updated with the latest findings in the field of medicine are for making a correct diagnosis.

Keywords. Kidney Transplantation, Posterior Reversible Encephalopathy Syndrome, PRES

Internal disease session II

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Title of presented paper: Importance of gender medicine in internal medicine. Explained by the example of acute myocardial infarction

Authors: Anne Wegner

Affiliation: College of Medical Sciences, University of Rzeszów, Rzeszów, Poland

Type of the paper: Review paper

Introduction and aim. Gender medicine is a quite new scientific study. Due to new sex- specific associations in internal diseases we will be able to prevent diseases in our patients more effective. The aim of my paper is, to rule out the possibility of using gender medicine in the prevention of internal pathologies.

Material and methods. "Sex-Specific Risk Factors Associated With First Acute Myocardial Infarction in Young Adults" written by Yuan Lu and co- authors was published on PubMed in May 2022. They used a case- control design study with 2264 patients. The patients were selected from the VIRGO study and 2264 population-based controls matched for age, sex, and race and ethnicity from the National Health and Nutrition Examination Survey from 2008 to 2012. The data was analyzed from April 2020 to November 2021.

Analysis of literature. The aim of the study was to assess the sex-specific associations of demographic, clinical, and psychosocial risk factors with the first onset of an acute myocardial infarction (AMI) among adults younger than 55 years. The results show that from all patients, 68.9% are females in the median age of 48. Additionally, it was able to highlight risk factors by the sex of the patient. Hypertension, depression, diabetes, current smoking and family history of diabetes had a strong association with AMI in young women whereas hypercholesterolemia had a stronger association in young men. The profile of risk factors varied between the subtypes of an AMI.

Conclusion. This article showed the possibility to differentiate risk factors for an AMI by biological sex of the patient. Due to the different ratios of risk factors, we can specify the profile of the patients and use them in the prevention of AMI since most of the risk factors where modifiable. Overall, we can say, that the impact of gender medicine can be supportive in the prevention of internal diseases like AMIs.

Keywords. Acute Myocardial Infarction, Gender Medicine, Internal Diseases, Prevention of Diseases In Medicine

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Title of presented paper: Ectoine – useful not only for bacteria

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Affiliation: Student Scientific Association of Biochemists UR Cell, College of Medical Sciences, University of Rzeszów, Rzeszów, Poland

Type of the paper: Review paper

Introduction and aim. Ectoine is a natural compound produced i.a. by *Ectothiorhodospira* bacteria as a protective substance. It is known and used as an ingredient in eye and nose preparation, but it also has other potential applications in medicine.

Material and methods. Review of scientific articles available in PubMed published in the last5 years.

Analysis of literature. Ectoine strongly binds to water molecules, creating a protective layer around proteins and other molecules through the mechanism of preferential exclusion. Available data show that when used as a standard ingredient in eye or nasal drops or lozenges, it alleviates symptoms related to inflammation of the eye or the mucositis of the upper respiratory tract. The effectiveness of the substance was demonstrated both in monotherapy and in combination therapy, in which ectoine reduced the need for drugs used, e.g. in atopic dermatitis. There are also reports in the literature about the possibility of regulating the expression of genes and DNA methylation markers, which lead to mild suppression of skin cancer cell proliferation. Ectoine may also have a whitening effect by suppressing melanogenesis in keratinocytes irritated by UVA radiation, which indicates the possibility of using this substance as a depigmentation and anti-melanogenic agent.

Conclusion. The excellent tolerance profile and safety of the use of ectoine make it an interesting substance that can be used both in monotherapy and in addition in the treatment of various diseases. Potential effects other than alleviating inflammation should lead to further research on this substance for new possible applications.

Keywords. Ectoine, Mucositis, Mucositis Treatment

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Title of presented paper: Kill two birds with one stone – common therapy of actinic keratosis and rosacea

Authors: Karolina Kłodnicka, Wioleta Kowalska, Ewelina Firlej, Joanna Bartosińska, Dorota Krasowska
Supervisor: Wioleta Kowalska

Affiliation: Department of Clinical Immunology, Medical University of Lublin, Poland

Type of the paper: Clinical case
Introduction and aim. Actinic keratosis is one of the common premalignant skin lesions whilst rosacea is a persistent inflammatory skin condition that arises from the intricate interaction of immunological dysregulation, neurovascular dysregulation, and hereditary factors. In this case, we report about shared therapeutic approaches for these two distinct illnesses. After UV exposure, CD36 triggers macrophage activation, which leads to the release of inflammatory cytokines and reactive oxygen species that inflame the area.
Description of the case. A 77- year old man was presented to the Department of Dermatology, Medical University of Lublin due to rosacea and histopathologically confirmed basal cell carcinoma (BCC) diagnosed in 2014. The patient had received prior care at another medical institution. The CO2 laser therapy administrated there on the lesions on right temple and left auricle turned out to be ineffective. The dermatoscopy commissioned in March 2023 to verify the presence of BCC and actinic keratosis, confirmed previous diagnosis. Due to the patient's clinical history and histopathological results, the photodynamic therapy (PDT)- a cutting-edge, non-invasive kind of treatment has been implemented. Eight photodynamic therapeutic sessions have been administered to the patient so far, during which lesions at the nose were aimed five times, and on the left and right temples twice each and on the left and right cheeks ones each with good results.
Conclusion. An individual approach to the patient and precise examination are crucial for effective diagnosis and appropriate choice of treatment. Such a strategy allows for the selection more accurate and acceptable therapeutic path for the patient..

Keywords. Actinic Keratosis, Inflammation, Photodynamic Therapy, Rosacea

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Title of presented paper: Clinical and prognostic implications of syncope among patients with intermediate – high risk pulmonary embolism

Authors: Weronika Chaba, Michał Karnaś, Patrycja Kurczyna
Supervisor: Jakub Stępniewski,

Affiliation: Students' Scientific Group of Pulmonary Circulation and Thromboembolic Diseases, Jagiellonian University Medical College, Krakow, Poland

Type of the paper: Research paper

Introduction and aim. Syncope has been associated with an unfavorable outcome in patients with acute Pulmonary Embolism (PE), however, its prognostic and therapeutic implications in the subgroup of intermediate-high (IHR) risk PE is uncertain. Therefore, we aimed in our study to evaluate the association of syncope with the risk of early death or hemodynamic destabilization and employed treatment strategies in the IHR PE patients..

Material and methods. We reviewed medical records of PE patients from a prospectively conducted consultations database of the Saint John Paul II Hospital in Cracow Pulmonary Embolism Response Team (PERT). In line with the contemporary European Society of Cardiology Guidelines, the IHR PE patients were identified as presenting with the PE Severity Index (PESI) class III–V or simplified-PESI ≥1, and right-to-left ventricular diameter ratio (RV/LV) ≥1 and elevated troponin levels without systemic hypotension. The combined outcome was defined as in-hospital death, implementation of reperfusion treatment due to lack of improvement and hemodynamic destabilization, determined by the occurrence of hypotension, signs of shock or cardiac arrest.

Results. Between January-2018 and December-2023 there were 427 patients consulted by the PERT, of whom 204 (47.8%) were diagnosed with IHR and complete data were included for current analysis. Syncope occurred in 69 (33.8%) patients. The occurrence of syncope was associated with an increased risk of combined outcome (OR 1.839, 95%CI=1.023–3.304, p=0.042). Patients, who presented with syncope were more frequently treated with reperfusion methods as compared to those without syncope (52.2% vs 37.0%, p=0.038).

Conclusion. Syncope was associated with an increased risk of early death or hemodynamic destabilization in IHR PE patients as well as more frequent use of reperfusion treatment.

Keywords. PERT, Catheter Intervention, Invasive Cardiology

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Title of presented paper: Impact of ERAS protocol anesthesia on cardiac surgical patients

Authors: Martyna Paśko
Supervisor: Kazimierz Widenka, Sabina Krupa

Affiliation: Surgery Department, Institute of Medical Sciences, College of Medical Sciences, University of Rzeszów, Rzeszów, Poland

Type of the paper: Research paper
Introduction and aim. The benefit of enhanced recovery after surgery (ERAS) protocol over standard anesthesia procedure. ERAS protocol consists of the following guidelines: restricted fluid supply, preventing excess starvation, lack of preparation of the intestines, preventing PONV, preventing hypothermia, keeping catheters awhile, and fast rehabilitation afterward.
Material and methods. All patients included in the study were patients of the Intensive Care Cardiac Surgery Clinic of the Provincial Hospital No. 2. Saint Jadwiga the Queen in Rzeszów, who underwent minimal access heart valve surgery. The study group consisted of 100 patients after cardiac surgery in the ICU, half of whom were anesthetized according to the ERAS protocol, and half anesthetized according to the standard procedure. They were divided into groups of fifty patients randomly. The description was performed separately for each group. The age of patients was between 18 and 81. There was 48% of women and 52% of men. Risk factors taken into account among all patients were hypertension(19%), diabetes (18%), hypercholesterolemia (13%) and smoking cigarettes (12%).
Results. Patients anesthetized with ERAS protocol spent less time in ICU after an operation (medium time 24.1±10.89 hours with median 21) compared with a standard protocol (55±31.50 hours with median 45). Analogically ventilation time: ERAS medium time 216.3±218.82 minutes with median 153 vs. 626.2±261.29 minutes with median 560.
Conclusion. Applying the ERAS protocol was more beneficial for both female and male patients at every stage of the perioperational period. It considerably shortened the time spent in the intensive care ward after an operation and ventilation time likewise.
Keywords. Anesthesia, Cardiosurgery, ERAS

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Title of presented paper: Beyond Prevalence: Understanding the Intersection of Selective IgA Deficiency and Autoimmune Disorders in a Clinical Context

Authors: Olga Maria Iova, Gheorghe Eduard Marin, Matei Labo
Supervisor: Rares Craciun

Affiliation: University of Medicine and Pharmacy "Iuliu Hatieganu" Cluj-Napoca, Faculty of Medicine, Romania

Type of the paper: Clinical case

Introduction and aim. Selective IgA deficiency stands as the most prevalent primary immunodeficiency, with an estimated prevalence of 1:500. This condition not only elevates the susceptibility to gastrointestinal and pulmonary infections but also accentuates the risk for autoimmune diseases. Recognizing the specific signs of these autoimmune manifestations and their potential complications is imperative for clinicians managing patients with this deficiency.

Description of the case. This report details the case of a 31-year-old male diagnosed with a constellation of autoimmune diseases, including celiac disease, ulcerative colitis, autoimmune hepatitis, primary sclerosing cholangitis, and selective IgA deficiency. The uniqueness of this combination, particularly given the patient's gender and absence of a family history, renders it noteworthy. The patient's diagnosis came at the age of 19 when presenting symptoms comprised diarrhea, cholestasis, and elevated liver enzymes. Flattened intestinal mucosa and colitis signs were revealed through digestive endoscopies, with confirmation of celiac disease and ulcerative colitis following biopsies and serology. Autoimmune hepatitis and primary sclerosing cholangitis were diagnosed serologically and with echography. Given these diagnoses a immunodeficiency was considered and confirmed as selective IgA deficiency. Despite a quasi-stable clinical status, complications such as iron-deficiency anemia, hepatic fibrosis, pseudomonas aeruginosa colitis, and colonic polyps, some exhibiting dysplasia, surfaced. Additional diagnostic considerations, including intestinal lymphoma, diabetes mellitus type I, or spondylarthritis, were explored but subsequently ruled out. The patient's current status is stable following a comprehensive treatment regimen involving mesalazine, ursodeoxycholic acid, a gluten-free diet, hepatoprotective medications, and Vedolizumab.

Conclusion. Selective IgA deficiency manifests heterogeneously, ranging from asymptomatic cases to severe debilitation. Managing these patients necessitates a comprehensive understanding of the diverse primary and secondary complications associated with the condition. A multidisciplinary approach is indispensable for delivering optimal care and ensuring the overall quality of life for individuals affected by selective IgA deficiency.

Keywords. Autoimmune Disease, Selective IgA Deficiency, Ulcerative Colitis, Celiac Disease

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Title of presented paper: Delayed detection: uncovering botulism intoxication days after initial presentation – a case report

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Supervisor: Michał Borys

Affiliation: Student Research Group of the II Department of Anaesthesiology and Intensive Care, Medical University of Lublin, Poland

Type of the paper: Clinical case

Introduction and aim. Botulism is a rare paralytic disease caused by neurotoxin produced mainly by Clostridium botulinum. There are a few subvariants of botulism: foodborne, wound, infant and iatrogenic. It begins with paralysis of cranial nerves and overall weakness. In extreme cases it might progress to respiratory failure and death..

Description of the case. A 65-year old male was admitted to the emergency department in general stable condition with pain in the lumbosacral region, dizziness and emesis. Urinalysis indicated the inflammation of the urinary tract. Patient had been provided with antibiotics and got discharged from the hospital the next day. Shortly thereafter, the patient presented urinary retention and urgent need of catheterisation. His general condition was rapidly deteriorating. Accordingly he was admitted to the ICU. The patient manifested bilateral paralysis of eye movements in all directions, bilateral dilated pupils with little response to light. The smoothing of the skin with weakened facial expression, progressive respiratory failure and recent canned food consumption led to suspicion of foodborne botulism. Diagnosis was confirmed by biological tests which showed the presence of botulinum neurotoxin type B in the samples. Treatment involved supportive care, tracheostomy, PEG, central venous catheter and administration of botulinum antitoxin. As a result of successful therapy, the patient's condition has begun to improve.

Conclusion. Clinicians must be aware of the possibility of botulism although it is a rare condition. Rapid initiation of treatment is crucial to prevent critical implications. The key to avoid intoxication is to treat food properly before it is consumed..

Keywords. Botulism, Intoxication, Canned Food, Botulinum Neurotoxin

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Title of presented paper: Upadacitinib as a novel drug for the treatment of Crohn's disease – clinical safety and efficacy profile

Authors: Maciej Kozłowski
Supervisor: Magdalena Sowa-Kućma, Patrycja Pańczyszyn-Trzewik

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Type of the paper: Review paper

Introduction and aim. Crohn's disease (CD) is a chronic and relapsing inflammatory bowel disease characterized by transmural (mostly granulomatous) inflammation with segmental inflammatory lesions separated by healthy sections that may affect any part of the gastrointestinal tract. The etiology is unknown, but the gut microbiota, modified by environmental factors such as diet plays an important role in the pathomechanism of this disorder. The inflammatory process begins in the mucous membrane, then gradually affects all layers of the gastrointestinal wall, leading to its destruction and fibrosis with formation of fistulas and strictures. 30% of patients with CD have evidence of bowel damage at diagnosis, and half of these patients require surgery in the 20 years following the diagnosis. Upadacitinib, a selective and reversable Janus kinase (JAK) inhibitor, is a novel drug recommended for the treatment of CD in patients with inadequate response to either conventional therapy or a biologic agent. This study aimed to introduce the pathomechanisms involved in the development and course of CD and discuss the clinical safety and efficacy of upadacitinib.

Material and methods. A review of scientific articles available in the Medline/PubMed and Google Scholar databases as well as published studies at ClinicalTrials.gov was performed using the following keywords: Upadacitinib, Crohn's disease.

Analysis of literature. Pharmacological treatment includes induction and maintenance therapy using glucocorticoids, immunosuppressive or biological drugs. Due to adverse effects and limited response, new treatment options, with novel mechanisms of action are needed..

Conclusion. Upadacitinib is an effective drug for induction and maintenance treatment of moderate-to-severe CD in patients that previously experienced inadequate response to either conventional therapy or a biologic agent.

Keywords. Crohn's disease, Upadacitinib, Janus Kinase Inhibitor, JAK

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Title of presented paper: Familial multiple endocrine neoplasia type 1 (MEN1) – case report

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Supervisor: Janusz Strzelczyk

Affiliation: Student Scientific Club at the Department of Endocrinology and Neuroendocrine Tumors, Department of Pathophysiology and Endocrinology, Faculty of Medical Sciences in Zabrze, Medical University of Silesia in Katowice, Poland

Type of the paper: Clinical case

Introduction and aim. MEN1 is a genetic disease caused by a mutation in the MEN1 gene. The syndrome involves primary hyperparathyroidism, accompanied by neuroendocrine tumors and tumors in the pituitary or adrenal glands. In most cases the disease is familial because of the germline mutation. The aim of this study is to present cases of two related patients suffering from the disease..

Description of the case. In 2015, a 49-year-old patient was diagnosed with a mutation of the MEN1 gene. A year later, her 23-year-old daughter had also been diagnosed with it. In order to visualize the pituitary gland, the patients underwent head MRI with contrast. Using SPECT/CT with 99mTc-MIBI, typical focal lesions with contrast accumulation that may suggest a parathyroid adenoma were observed. Further diagnostics included the 68Ga DOTA-TATE PET/CT examination, which revealed pathological expression of somatostatin receptors in both patients. The treatment consisted of subtotal parathyroidectomy for both of the patients and laparoscopic resection of the tail and body of the pancreas with the spleen for the 49-year-old woman. Both patients are treated palliatively with somatostatin analogues (Somatuline Autogel 120 mg every 28 days).

Conclusion. MEN1 syndrome, which leads to endocrine and oncological diseases, despite serious health consequences, can be effectively controlled without reducing the quality and length of life. In the case of the familial MEN1 form, genetic testing is an important element of diagnostics, allowing for faster detection of mutations and treatment before the first symptoms of the disease present..

Keywords. Hyperparathyroidism, Pituitary Adenoma, Pancreatic Tumor, Neuroendocrine Neoplasms, Neuroendocrine Tumor

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Title of presented paper: ERAP1 and ERAP2 Haplotypes and expression status in spondyloarthritis

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Type of the paper: Research paper

Introduction and aim. Spondyloarthritis (SpA) defines chronic rheumatic diseases with typical clinical, genetic, and pathophysiological features. Ankylosing spondylitis (AS) is the prototype disease. Psoriatic arthritis (PsA) is classified under SpA and seen in ~15% of psoriasis cases, a chronic inflammatory, immune-related disease. The arthritogenic peptide theory of AS pathogenesis demonstrates that pathogenic peptides presented by human leukocyte antigen-B (HLA-B) induce autoimmune cross-reaction. Endoplasmic reticulum aminopeptidase-1 (ERAP1) and ERAP2 shorten the peptides that bind to HLA-class 1 molecules and affect stability. Therefore, the self/non-self-peptide distinction is lost by changing the amount/activity of the enzyme due to polymorphisms. ERAP1-2 polymorphisms also affect susceptibility to disease in psoriasis. We aim to compare the expression levels of ERAP1-2 haplotypes in selected SpA subgroups and examine their relationship with disease phenotypes.

Material and methods. Twenty psoriasis, 13 PsA, 20 AS patients, and 20 healthy controls were included in the study group. ERAP1-2 haplotypes and ERAP1-2 expression levels were determined using real-time quantitative polymerase chain reaction (RT-qPCR).

Results. ERAP1 expression was increased in AS compared to psoriasis and PsA groups ($p<0.001$; $p=0.023$). The G-allele in rs26618 (A>G) in the ERAP1 gene was found to be more frequent in AS patients than in healthy controls (chi-square $p=0.022$; OR: 3.4, 1.156–9.996).

Conclusion. The ERAP1 expression being higher in AS than controls and lower in PsA than controls might indicate an enzyme activity change in the patient groups.

Keywords. ERAP, Polymorphism, Spondyloarthritis

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Title of presented paper: Itraconazole's role in patient with burnout: balancing cortisol and blood pressure

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Type of the paper: Clinical case

Introduction and aim. Burnout, an increasingly prevalent syndrome in contemporary society, is characterized by elevated morning plasma cortisol levels, with evening values remaining relatively stable. This hormonal shift is associated with symptoms such as heightened blood pressure, weight gain, muscle weakness, and reduced immunity. The case report explores the unusual impact of the antifungal drug itraconazole on the circadian rhythm of plasma cortisol levels and blood pressure in a patient with burnout syndrome..

Description of the case. 40-year-old female patient, experiencing a dramatic 15 kg weight gain in just 10 months, particularly in the abdominal and facial regions, without any significant changes in diet or exercise and with reduced working capacity because of the chronic stress at workplace, has elevated morning cortisol levels as well as the high arterial blood pressure. The patient develops a skin fungal infection by Trichophyton rubrum and she initiated a one-month course of oral itraconazole therapy Remarkably, one week post-treatment, the skin lesions had completely resolved and a decrease in the plasma cortisol levels and blood pressure was observed. The reduction in blood cortisol concentration is not uniform; it is more pronounced in the morning cortisol (from 833.1 nmol/L to 524.1 nmol/L – approximately 37%) than in the evening cortisol (from 110 nmol/L to 90.7 nmol/L – around 17%). Notably, the circadian rhythm of this hormone remains unchanged. Similarly, the decrease in blood pressure is also not at the same degree, with a more significant reduction observed in the diastolic (approximately 27%) blood pressure compared to the systolic (17%).The patient's diagnosis of burnout syndrome was established using the Burnout Assessment Tool (BAS), with a high burnout level score of 86% (142 out of 165 points). The antifungal drug itraconazole inhibits key enzymes involved in the adrenal cortex's glucocorticoid synthesis (such as 11-β-hydroxylase and 21-α-hydroxylase), which leads to decrease in the plasma cortisol levels and thus the blood pressure.).

Conclusion. The one month use of the antimycotic drug itraconazole in patient with burnout syndrome results in a significant reduction in the plasma cortisol level (to a greater extent in the morning than in the evening values) and blood pressure (with a stronger reduction of diastolic than systolic blood pressure).

Keywords. Burnout, Plasma Cortisol Levels, Blood Pressure, Itraconazole

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Title of presented paper: Neurological and psychiatric symptoms in celiac disease

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Type of the paper: Review paper

Introduction and aim. Celiac disease (CD) is a systemic immune disease caused by gluten and related prolamins in genetically predisposed individuals. It is characterized by a variety of clinical manifestations, the presence of specific antibodies, including antibodies to tissue transglutaminase 2, DQ2 or DQ8 haplotypes, and enteropathy. In the clinical picture, in addition to gastrointestinal symptoms, extraintestinal manifestations are noteworthy, including neurological symptoms such as cerebellar ataxia, migraine, cognitive disorders, personality disorders, epilepsy, depression included in the so-called visceral encephalopathy.

Material and methods. Select and summarize the latest scientific reports: publications, articles, lectures on the neurological and psychiatric manifestations of celiac disease.

Analysis of literature. The etiopathogenesis of neurological and psychiatric complaints in CD remains controversial, but the gut-brain axis is known to play a major role in their development. A gluten-free diet can alleviate most of the symptoms of CD, including neurological symptoms, which may be related to the similarity between the body's proteins and gluten prolamin antigens. According to recent reports, it is gluten's molecular mimicry and cross-reactivity, deposition of immune complexes and direct neurotoxicity, involving gluten, that are responsible for the neurological and psychiatric clinical presentation of CD.

Conclusion. Chronic enteropathy of the small intestine is caused by persistent gluten intolerance, so early diagnosis and initiation of treatment is important. Recognition of multimodal biomarkers can improve diagnosis of asymptomatic CD, monitoring and quality of life.

Keywords. Coeliac Disease, Gluten Intolerance, Autoimmune Disease

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Title of presented paper: Immunopathogenesis of depressive disorders in chronic inflammatory diseases as exemplified by multiple sclerosis and rheumatoid arthritis

Authors: Aleksandra Kozińska
Supervisor: Sebastian Mertowski

Affiliation: Student Scientific Association of Experimental Immunology, Medical University of Lublin, Lublin, Poland

Type of the paper: Review paper

Introduction and aim. According to WHO approximately 280 milion of people have got depressive disorders (DD). Despite many hypotheses the pathogenesis of this disease has not yet been explained. In recent years, increasing importance has been attached to comorbidities the inflammation in the course of depressive disorders. This hypothesis is confirmed by increased concentration of inflammatory markers in peripheral blood. Moreover, a frequent occurrence of depression was observed in patients with chronic diseases, including multiple sclerosis and rheumatoid arthritis. Multiple sclerosis (MS) is a chronic autoimmune disease in which the myelin sheaths of the nerves of the brain and spinal cord are damaged as a result of inflammation. The main role in demyelination is attributed to circulating proinflammatory cytokines, including IL-1, wchich level is elevated in DD and MS. Rheumatoid arthritis (RA) is systemic autoimmune disease leading to disability. Researches proves that the key role in the pathogenesis of the disease is attributed to inflammatory pathways in which IL-6 is involved. It has been observed that the level of this cytokine is significantly increased in depressive disease. In this review, I aimed to summarize the available data on the co-occurrence of depression and chronic inflammation in multiple sclerosis and rheumatoid arthritis and to demonstrate that the immunological mechanisms of these conditions may play an important role in their co-occurrence.

Material and methods. A systematic review of the literature in English was performed using the PubMed, Scopus, Goggle schoolar databases, using the keywords: depression, immunopathogenesis, chronic inflammation markers, multiple sclerosis, rheumatoid arthritis.

Analysis of literature. The time range of the searched articles was set to 2015-2023, using filters related to the type of articles (clinical trials, review, systematic review, case report and meta-analysis).

Conclusion. There is a positive correlation between the increased inflammation and the occurrence of depressive disorders. This hypothesis is confirmed by increased concentration of inflammatory markers such as C-reactive factors (CRP), interleukin 6 (IL-6) and tumor necrosis factors (TNF) and cytokines: IL-1, IL-8, IL -4, type I interferon (IFN), Toll-like receptor 3 (TLR3) and TLR4, in peripheral blood. Moreover, a frequent occurrence of depressive disorders was observed in patients with chronic diseases, including multiple sclerosis and rheumatoid arthritis. IL-1 is of major importance in the pathomechanism of multiple sclerosis and is also found in increased amounts in depression. The key role in the pathogenesis of rheumatoid arthritis is attributed to inflammatory pathways in which IL-6 is involved. It has been observed that the level of this cytokine is also significantly increased in patients with depressive disorders. It may attribute to IL-1 and IL-6 a role in the co-occurrence of depressive disorders and multiple sclerosis, and rheumatoid arthritis..

Keywords. Depression, Chronic inflammation, Multiple Sclerosis, Rheumatoid Arthritis

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Title of presented paper: Circadian rhythm disorders and selected viral infections

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Supervisor: Magdalena Sowa-Kućma, Patrycja Pańczyszyn-Trzewik

Affiliation: Students Science Club "NEURON", Medical College of Rzeszów University, University of Rzeszów, Poland

Type of the paper: Research paper

Introduction and aim. Circadian rhythms include behavioral and molecular changes driven by an organism's intrinsic ability to adapt to the 24-hour light/dark cycle. Molecular clocks have been identified in almost all cells, playing a crucial role in metabolic control. It has been demonstrated that various viruses exhibit affinity for genes regulating circadian cycles, affecting their expression. On the other hand, circadian rhythms impact the pharmacokinetics and efficacy of antiviral vaccines.

Material and methods. A literature review, including clinical studies and reviews, published on PubMed/MEDLINE and Embase databases from 2021 to 2023, was conducted. The following keywords: Chronoimmunology, Viral Infections, Psychoneuroimmunology and Circadian Rhythm were used. Inclusion criteria were based on the publication year and relevance to the study's theme. As a result, 4 research articles were selected.

Results. Viral infections disrupt circadian rhythm by affecting molecular clocks and modulating the host's response to infection. Pathogens may also influence the CLOCK: BMAL1 pathway, carrying clinical implications. Moreover, individuals with circadian rhythm disorders may exhibit heightened susceptibility to viral infections, exacerbating existing sleep and wakefulness rhythm issues.

Conclusion. Clear evidence supports the association between circadian rhythm and viral infection. Investigating the interplay between circadian pathways and viral replication holds promise for a deeper understanding of viral infections and their immunologic responses. This research can enhance current antiviral therapies, improve the treatment of chronic infections, identify new antiviral targets, ultimately elevating the quality of patient care.

Keywords. Chronoimmunology, Viral Infections, Psychoneuroimmunology, Circadian Rhythm

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Title of presented paper: Activity of new gel with antioxidant against reference strains of microorganisms

Authors: Rohini Biswas, Ravi Kant Joshi
Supervisor: N. Bobrova

Affiliation: Poltava State Medical University, Ukraine

Type of the paper: Research paper

Introduction and aim. Given the connection between oxidative stress and pathogenetic factors of skin diseases, antioxidants can be included in their treatment. Beside the actual antiradical activity, the recently discovered antimicrobial action can come in handy. The aim is to study the antimicrobial effect of the gel of ethylmethylhydroxylpyridine succinate, a synthetic heterocyclic antioxidant.

Material and methods. Gel of ethylmethylhydroxypyridine succinate (2.5–7.5%) was produced by laboratory technology. Determination of the susceptibility of microorganisms was carried out by diffusion to agar well method. Reference strains *Staphylococcus aureus* ATCC 25293, *Staphylococcus epidermidis* ATCC 14990, *Micrococcus luteus* ATCC 4698, *Enterococcus faecalis* ATCC 29212, *Escherihia coli* ATCC 25922, and *Candida allbicans* ATCC 10231 were used. Samples of the gel base served as a negative control, neomycin plus or nystatin ointments – as a positive control. The susceptibility of microorganisms was evaluated by the growth inhibition zone (GIZ).

Results. GIZ were formed around wells with gel and reference drugs and were absent in the negative control. They were the most pronounced for the test-culture *M. luteus*. The diameters of GIZ of all test cultures probably increased with increasing gel concentration. This parameter for gel samples of the maximum concentration exceeded the same in positive control. In *C. albicans* fungi, the increase in GIZ with increasing antioxidant concentration was less pronounced than in bacterial test-cultures.

Conclusion. Therefore, the gel of ethylmethylhydroxypyridine succinate (2.5–7.5%) delays the development of test-cultures of reference strains of microorganisms in proportion to the concentration that opens up prospects for its use in the inflammatory-infectious skin diseases

Keywords. Gel Antimicrobial Effect, Agar Well Method, Test-culture

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Title of presented paper: Meningitis caused by Listeria monocytogenes – a systematic review

Authors: Franciszek Ługowski, Julia Babińska

Affiliation: Medical University of Warsaw, Warsaw, Poland

Type of the paper: Review paper

Introduction and aim. *Listeria monocytogenes* is a Gram-positive pathogenic bacterium which can be found in water or soil, most infections occur after ingestion of contaminated foods. Outbreaks of listeriosis have been described. *L. monocytogenes* is the third most common cause of bacterial meningitis in the elderly and occurs in newborns as well. Presentation of meningitis in the elderly may be non-specific, clinical findings are not always suggestive of meningitis and significant symptoms such as neck stiffness or fever may not occur. According to literature data, the prevalence of the classic triad is below 50%. Hence, the diagnosis is often troublesome. *L. monocytogenes* treatment is commonly with ampicillin, but number of other drugs show activity and can be employed in treatment. The aim of our study was to review and summarize available literature on *L. monocytogetes*-caused meningitis in terms of epidemiology, diagnosis, risk groups, clinical presentation, and treatment.

Material and methods. A search was conducted for systematic reviews with or without meta-analyses published between 2010 and 2023 in PubMed, Medline, Scopus, and Cochrane Library. The quality of included publication was assessed according to the AMSTAR 2 checklist. Eligibility criteria for selecting studies: (1) published as full text (2) addressed meningitis caused by *L. monocytogenes* (3) Provided information on clinical presentation and at least two methods of treatment and two methods of diagnosis (4) Included information on risk groups.

Analysis of literature. We analyzed 15 articles.

Conclusion. There has been an increase in outbreaks of listeriosis. Blood and cerebrospinal fluid are primary sources of isolation, however joint aspirates remain useful. Risk groups include the elderly, immunocompromised and newborns. Most cases have a non-specific course. Empiric therapy for bacterial meningitis with ampicillin is recommended for the elderly, vancomycin is effective in most cases. More strains are becoming penicillin resistant.

Keywords. *Listeria monocytogenes*, Meningitis, Listeriosis, Bacterial meningitis

Otorhinolaryngology session

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Title of presented paper: The medical practitioner and the speech language pathologist in one team – interdisciplinary approach to neurological and otorhinolaryngological challenges in adult patients

Authors: Zuzanna Maria Wilk

Affiliation: Medical University of Warsaw, Warsaw, Poland

Type of the paper: Review paper

Introduction and aim. The paper explores the cooperation between healthcare professionals, focusing on doctors and speech-language pathologists (SLPs), and highlights circumstances warranting referral for optimal care in adults with neurological and otorhinolaryngological issues. The first aim is to evaluate the advantages of timely referrals for complex issues, such as dysphagia, aphasia, dysarthria, and voice disorders. Secondly, the paper addresses specific logopedic characteristics, including diagnosis and therapy, for adult patients with neurological and otorhinolaryngological challenges. The third aim emphasizes the merits of interdisciplinary cooperation to improve the quality of life for these patients.

Material and methods. The paper is based on a systematic literature review that focuses on collaboration between doctors and SLPs, particularly exploring referral patterns and criteria for adult patients with neurological and otorhinolaryngological issues. Searches in electronic databases and relevant journals, both in Polish and English, employed keywords like "doctor-SLP collaboration," "SLP work with neurological and otorhinolaryngological patients" and "referral criteria for neurological and otorhinolaryngological issues."

Analysis of literature. Advantages of Timely Referral: Literature consistently supports early SLP intervention, revealing a positive correlation between prompt referrals and effective speech-language pathology interventions. Characteristics of Logopedic Work: Drawing insights from the literature, the paper examines diagnostic processes, therapeutic approaches, and tailored assessment tools, providing a comprehensive understanding of speech-language pathology nuances in neurological and otorhinolaryngological conditions. Merits of Interdisciplinary Cooperation: The paper emphasizes the benefits of interdisciplinary cooperation between doctors and SLPs, highlighting positive impacts on patient care outcomes. The analysis underscores ongoing dialogue, interdisciplinary training, and collaborative approaches to address multifaceted needs.

Conclusion. In summary, the paper underscores the pivotal role of cooperation between doctors and SLPs in addressing complex needs. It achieves its aims by highlighting the advantages of timely referrals, providing valuable insights into SLP's work, and emphasizing the merits of interdisciplinary cooperation to enhance the quality of life for neurological and otorhinolaryngological patients.

Keywords. Interdisciplinary, Otorhinolaryngology, Neurology, Speech Language Pathology

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Title of presented paper: The use of gene therapy in the treatment of hearing loss and deafness

Authors: Magdalena Sukar
Supervisor: Wojciech Domka, David Aebisher

Affiliation: Student Scientific Club of Otorhinolaryngology, Medical Collage of Rzeszów University, University of Rzeszów, Rzeszów, Poland

Type of the paper: Review paper

Introduction and aim. According to the WHO report published in February this year, it is estimated that by 2050 approximately 2.5 billion people in the world will struggle with various degrees of hearing loss. The growing number of patients with hearing impairment makes it necessary to look for new methods of effective treatment. Thanks to significant progress in genetic engineering, new, promising techniques for causal treatment have emerged. The aim of the review is to present the types of gene therapies that are most effective in the treatment of hearing loss and deafness.

Material and methods. From 226 scientific articles available in the PubMed database containing the terms "gene therapy", "deafness", "hearing loss" published in the last ten years, 19 articles from the period 2016–2023 were selected for final analysis.

Analysis of literature. Gene therapies are based on replacing, editing or suppressing genes responsible for hearing loss or deafness. The subject of numerous studies is gene exclusion based on CRISPR technology. The basic problem that prevents the widespread use of this method is the need to find the specific gene causing hearing loss and difficulty in delivering factors that affect specific genes to the appropriate cells.

Conclusion. Research indicates a positive effect of gene therapy on hearing improvement, however, some of the presented methods are still at the stage of preclinical research and require further improvement. It seems that the preliminary results provide hope for hearing improvement in a significant proportion of patients.

Keywords. Deafness, Gene Therapy, Hearing Loss

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Title of presented paper: Middle ear adenoma - a rare cancer diagnosed in an 50-year-old man

Authors: Katarzyna Markuszka
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Type of the paper: Clinical case

Introduction and aim. Middle ear adenomas are rare, benign tumors that account for 2% of all ear neoplasms. They are characterized by slow growth, with the predominant symptom usually being unilateral conductive hearing loss. They are diagnosed between the ages of 14 and 80, with the peak incidence occurring in the fourth decade of life.

Description of the case. An 50-year-old man was admitted to the Otolaryngology Clinic of the University Clinical Hospital in Rzeszów due to peripheral facial nerve palsy on the left side (BH4), dizziness and bloody discharge from the left ear. The patient reported a previous surgery on the left ear in 2019 in Luxembourg, where a adenoma was removed. Due to the COVID-19 pandemic, the patient did not seek the recommended reoperation. Otolaryngological examination revealed polypoid masses, easily bleeding upon touch, completely filling the external auditory canal. Biopsies were taken from the tumor in the left external auditory canal. After histopathological examination confirmed the diagnosis of adenoma recurrence, the patient underwent an atticoantromastoidectomy without complications. On the sixth day postoperatively, the patient noticed significant improvement in the left facial nerve palsy (BH1).

Conclusion. Middle ear adenomas are rare tumors requiring audiometric testing, high-resolution temporal bone computed tomography and histopathological examination for diagnosis. Middle ear adenomas have a good prognosis, do not metastasize distantly, but are characterized by frequent recurrences. In the described case, the resolution of facial nerve palsy after surgical treatment is unusual, as intraoperatively no direct invasion of the nerve by the tumor masses was observed.

Keywords. Facial Nerve Palsy, Middle Ear Adenoma

Neuroscience and psychiatry session

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Title of presented paper: Effects of physical exercise on pharmacological treatment of depressive disorders

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Supervisor: Patrycja Pańczyszyn-Trzewik, Magdalena Sowa-Kućma

Affiliation: Student Science Club of Physiology „NEURON", College of Medical Sciences, University of Rzeszów, Rzeszów, Poland

Type of the paper: Review paper
Introduction and aim. Major depressive disorder (MDD) is the most prevalent mental disorder. According to the World Health Organization (WHO), depression is a global disease that affects more than 350 million people. Treatments for depression are varied and have varying degrees of effectiveness. Many randomized controlled trials (RCTs) have shown a reduction in depressive symptoms with both aerobic and non-aerobic exercise. Physical activity has been shown to be associated with a reduction in symptoms of depression and anxiety ans also to be associated with improvements in physical health, life satisfaction, cognitive functioning and psychological well-being. The development of psychiatric disorders appears to be associated with physical inactivity.
Material and methods. The paper includes a literature review of articles published in the last 15 years in the scientific databases PubMed, Google Scholar and ScienceDirect. The review was performed using the keywords: : „depression", „exercise".
Analysis of literature. The antidepressant effect of exercise was higher in studies that included participants with diagnosed MDD. Exercise may serve as an alternative for patients who do not respond to the given treatment, patients who are awaiting treatment, or those who for different reasons do not receive or want traditional treatment. Exercise has been shown to reduce symptoms associated with depression and can potentially reduce reliance on psychopharmacology.
Conclusion. Exercise is an effective intervention for depression. It can also be an effective adjunctive treatment in combination with antidepressant medications.
Keywords. Depression, Exercise, Major Depressive Disorder

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Title of presented paper: Metabotropic glutamate receptors 2 and 3 as targets for treating schizophrenia

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Type of the paper: Review paper

Introduction and aim. Schizophrenia is a serious chronic mental illness affecting about 24 million people worldwide. This condition usually begins in late adolescence, occurs more often in males than females, and critically influences the way of thinking, behaving and feeling. The pathogenesis of schizophrenia is still not fully understood, which translates into therapeutic outcomes. It is estimated that only 5–10% of patients fully recover from treatment. Recent post-mortem brain studies (including genetic studies) have provided evidence of abnormalities in mGluR 2 and 3 (group II metabotropic glutamate receptors) in schizophrenia. These findings have given hope for the development of new antipsychotic drugs with mGluRs as molecular targets

Material and methods. Review and discussion of the most important results of preclinical studies indicating the therapeutic potential of group II mGluRs in the treatment of schizophrenia.

Analysis of literature. A significant effect of selective orthosteric mGluR 2/3 (e.g., LY354740, LY379268) agonists and positive allosteric modulators of group II mGluRs (e.g. biphenyl indanone A; BINA) were shown to reverse symptoms in animal-like models of schizophrenia (including steroid changes, working memory deficits, hyperlocomotion) has been demonstrated.

Conclusion. The accumulated results of preclinical studies showing inhibition of some schizophrenia symptoms motivate further research into the effects of group II mGluR-specific ligands, which may lead to the development of a better alternative treatment pathway for schizophrenia.

Keywords. Allosteric Receptor Modulators, Metabotropic Glutamate Receptors, Schizophrenia, Treatment

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Title of presented paper: On the road to improved mood: Assessment of the antidepressant side effects

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Type of the paper: Review paper

Introduction and aim. Depression affects more than 300 million people worldwide and is a devastating disease with a significantly increased risk of suicide. Pharmacotherapy for depression has evolved since the 1950s with the introduction of MAOIs and TCAs. In the 1980s, SSRIs were a breakthrough, followed by SNRIs and NaSSAs in the 1990s. Despite significant progress in the development of antidepressants, one third of adults do not improve after repeated courses of antidepressants. Nowadays, unusual drugs are used increasingly. The aim of this study was to analyze the side effects of antidepressants.

Material and methods. A review of publications from the period 2015-2023 was conducted in the following databases: PubMed, Google Scholar, using the keywords: Antidepressants; Atypical Antipsychotics; Depressive Disorders; Treatment-Resistant Depression (TRD).

Analysis of literature. Analysis revealed diverse adverse effects of antidepressants, affecting both mental and physical well-being. MAOIs have been associated with high blood pressure and drowsiness, TCAs with sleep disturbances, weight gain, dry mouth and vision problems, while SSRIs/SNRIs with nausea, loss of appetite, sleep disturbances, sexual dysfunction and excessive sweating. Atypical drugs have demonstrated effectiveness in relieving symptoms of depression, but concerns remain regarding limited improvement and side effects such as weight gain, metabolic disturbances, and extrapyramidal symptoms, especially with long-term use.

Conclusion. Antidepressants improve mental well-being, but it is extremely important to recognize and understand potential side effects. The study highlights the diverse nature of these interventions, calling for a balanced consideration of risks and benefits for clinicians and patients, which is key to making informed decisions in mental health treatment.

Keywords. Antidepressants, Atypical Antipsychotics, Depressive Disorders, Treatment-Resistant Depression

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Title of presented paper: Neurobiological effects of ketamine treatment in patient with bipolar disorder

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Type of the paper: Review paper

Introduction and aim. Bipolar disorder (BD) is a mental condition characterized by extreme mood swings, including mania (or hypomania) and depression. BD affect about 1–5% of the total population and are associated with an elevated premature mortality (increased suicide rate). There are several ways to treat BD, one of them is the use of ketamine. This study focuses on the neurobiological effects of ketamine of ketamine treatment in patient with BD.

Material and methods. A review of the PubMed/MEDLINE database from the period 2019-2024 using the following keywords: Ketamine, Bipolar disorder, NMDA receptors, glutamate neurotransmission was performed.

Analysis of literature. Ketamine reduces the presynaptic release of glutamate and is a non-competitive NMDA receptor antagonist, blocking this receptor affects neuroplasticity, which may have a positive impact in the treatment. BD is associated with altered neuroplasticity, ketamine stimulate the production of brain-derived neurotrophic factor (BDNF) a protein involved in promoting the growth and survival of neurons. Ketamine is also an μ-opioid receptor agonist. Opioidergic properties may also be important for its antidepressant and anxiolytic efficacy. Immune system and neuroinflammation playing a key role in BD course Ketamine inhibits cytokine production and nitric oxide production in preparations of isolated and immunostimulated macrophages.

Conclusion. Ketamine can be used in the treatment of BD and its neurobiological effects result not only from its action on the NMDA receptor, but also from its impact on neuroplasticity, immunoinflammatory and oxidative stress processes.

Keywords. Bipolar Disorder, Glutamate Neurotransmission, Ketamine, NMDA Receptors

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Title of presented paper: TOB as a new important factor in the development of depression

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Type of the paper: Review paper

Introduction and aim. Stress vulnerability and resilience differ among individuals, and are partly influenced by genetic and biological factors. For this reason, the molecular mechanisms that predispose to stress-induced mental disorders (e.g. depression) are the subject of intensive research.
Material and methods. A review of available scientific articles published in the last 15 years, searched using keywords in PubMed, Google Scholar and ScienceDirect databases, was conducted.
Analysis of literature. ErbB2 transducer (TOB) plays an important role in learning and memory processes, which suggests its strong influence on the functioning of neuronal circuits in the structures of the limbic system (including the hippocampus). However, the detailed molecular mechanisms are poorly understood. Tob is one of the early response genes after neuronal depolarization in excitatory neurons or after stress. Studies on genetically modified animals (Tob knockout) have shown a number of changes suggesting a significant impact of TOB on functional connectivity in the hippocampus as well as between the hippocampus and the medial prefrontal cortex. Moreover, an imbalance between excitatory (glutamate) and inhibitory (GABA) neurotransmission was found in Tob deficiency mice. This strongly suggests the involvement of TOB in the pathomechanism of major depressive disorders (MDD).
Conclusion. The aim of this study is to discuss the role of the Tob factor in the context of the pathophysiology of depression and the possibility of its use in the development of new methods of treating mental stress disorders, including MDD.
Keywords. Major Depressive Disorders, Stress Response, Tob Gene

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Title of presented paper: Activation of Nrf2 as novel molecular mechanism of antidepressants

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Type of the paper: Review paper

Introduction and aim. The nuclear factor (erythroid 2-derived) (Nrf2) is a pleiotropic transcription factor that plays a central role in the inhibition of oxidative stress. Increasing evidence suggests that Nrf2 is an important endogenous regulator of the pathophysiology of depressive disorders (DDs). Nrf2 activation has antidepressant effects, mainly through the modulation of oxidative stress, neuroinflammation, and brain-derived neurotrophic factor (BDNF) expression. The main aim of this study is to review the current knowledge on the role of Nrf2 and its activators in potential therapeutic approaches to DDs.

Material and methods. Eligible studies were identified by searching web-based database (PubMed/MEDLINE) using the following search terms: Nrf2, Nrf2 activation, depression.

Analysis of literature. Oxidative stress that occurs in DDs causes activation of the antioxidant defense system, the main regulator of which is Nrf2. In this case, it binds to the activation of the antioxidant response element (ARE) and induces the expression of several antioxidant enzymes. During neuroinflammation, Nrf2 inhibits the inflammatory response that is induced by nuclear factor kappa-light-chain-enhancer of activated B cells (NF-κB). The roles of Nrf2 and its exogenous activators in mediating anti-inflammatory effects have been demonstrated. Moreover, Nrf2 regulated the BDNF activation (via binding to exon I promoter).

Conclusion. Activation of Nrf2-related pathway is a novel promising target in the treatment of depression. Nrf2 activators have antidepressant effects, but the specific mechanism remains to be investigated.

Keywords. Antidepressant Treatment, Depressive Disorders, Nrf2, Oxidative Stress

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Title of presented paper: How to get higher grades in academic exams? Are diet and physical activity associated with academic performance as well as depressive and anxiety symptoms under stress?

Authors: Natalia Karina Bartosik, Julita Tokarek, Maria Dobielska
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Type of the paper: Research paper

Introduction and aim. Medical students are anxious and depressive group. Physical exercise and healthy diet are believed to impact mental health, however it is not fully known whether this link exists under psychological stress. The aim of the study was to examine whether physical activity and food consumption patterns are associated with depressive and anxiety symptoms and academic performance under psychological stress.

Material and methods. The study group were medical students learning to the subject-exam during the COVID-19 lockdown session period. Physical activity was assessed with the use of a single-item 5-point semantic differential scale. A dietary record was used to self-assess food consumption. Academic performance on the subject-exam was compared to subject knowledge pre-test in order to assess coping abilities. Pre-exam depressive and anxiety symptoms were assessed with the PHQ-9 and GAD-7 questionnaires, respectively.

Results. 444 volunteers completed the study. No significant relationship was observed between academic performance, depressive and anxiety symptoms under stress with dietary patterns of food consumption. However, such link was observed for physical activity and academic performance (adjusted β 0.09, p=0.028), and depressive (adjusted β -0.15, p=0.001) and anxiety symptoms (adjusted β -0.14, p=0.001), respectively. Interestingly, the positive relationship between physical activity and academic performance was significantly more pronounced in men (p=0.042).

Conclusion. Better academic performance under stress and lower depression and anxiety symptoms appear predicted by physical activity.

Keywords. Academic performance, Anxiety, Depression, Physical Activity, Psychological Stress

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Title of presented paper: Long screen time effect on children development

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Type of the paper: Review paper

Introduction and aim. In today's digital age, screens play an integral role in the lives of children, offering a multitude of opportunities for learning and engagement. However, alongside the benefits, concerns have arisen regarding the potential detrimental effects of excessive screen usage on various aspects of children's development. While screens hold promise as educational tools, spending prolonged periods in front of them, often coupled with multitasking across multiple media platforms, has been associated with poorer executive functioning and academic performance among children. Furthermore, excessive screen time has emerged as a significant factor contributing to adverse social and emotional outcomes, including increased risks of obesity, sleep disturbances, and mental health conditions such as depression and anxiety. Additionally, the impact extends beyond physiological concerns, affecting the ability to interpret emotions, exacerbating aggressive behavior, and compromising overall psychological well-being. Moreover, the decrease in both the quantity and quality of interactions between children and their caregivers due to screen time poses a threat to language development [1]. In light of these multifaceted concerns, this study aims to delve into the impacts of prolonged screen time on the holistic development of children.

Material and methods. A comprehensive review of the literature available on PubMed was conducted to explore the challenges in diagnosing autism among girls and women. A total of 75 articles were initially screened. Exclusions were made for non-English language articles, those lacking full text, and those focusing on unrelated topics. Ultimately, 10 publications were selected for analysis in this narrative review.

Analysis of literature. Research consistently demonstrates the detrimental impacts of excessive screen time and media multitasking on various aspects of child development. Studies indicate that prolonged exposure to screens can have adverse effects on executive functioning, sensorimotor development, and academic performance. Early initiation of screen use has been associated with decreased cognitive abilities and lower academic achievement in later years. Furthermore, extended screen durations have been linked to a range of health issues in children, including overweight or obesity and mental health problems. Additionally, screen time interferes with language development by diminishing interactions between children and caregivers, with considerations such as co-viewing practices and content appropriateness influencing the outcomes. Moreover, prolonged screen use presents challenges to social-emotional development, contributing to increased risks of obesity, sleep disturbances, depression, and anxiety.It also undermines emotional comprehension, fosters aggression, and impedes the acquisition of social and emotional skills. These findings underscore the multifaceted negative effects of excessive screen time on child development and well-being as documented in the literature.

Conclusion. Excessive screen time in children is associated with a lack of active parent-child interaction and impediments to the learning and developmental process, resulting in delayed achievement of social-emotional milestones.

Keywords. Children development, Development issues, Screen time

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Title of presented paper: Society's knowledge about internees with mental disorders

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Type of the paper: Research paper

Introduction and aim. Mental disorders are a disease not only of the psyche but also of the entire body. Patients who commit serious crimes are often sent to centers to ensure the safety of themselves and others, where they are subjected to therapeutic, social rehabilitation and re-educational treatment. However, they can be very often misunderstood despite undergoing treatment. The aim of my thesis research was to assess the level of society's knowledge about the problems of internees with mental disorders.

Material and methods. The research was conducted with the help of 169 respondents from Poland. Among the respondents, 74% were women, 24.9% men and 1.2% people who did not fit into the binary gender division. The age of the respondents ranged from 18–26 years: 17.8%, 27–35: 17.2%, 36–44: 23.7%, 45–51: 26%, 52 and more: 15.4%.

Results. According to the survey results, the level of society's knowledge about the problems of internees with mental disorders is insufficient. The majority 77.7%, had never met a person committing a prohibited act. 43% believed that such people should be isolated even after undergoing protective measures. 72.2% of respondents claim that these are not worse people in society, although 44.4% of them do not want to have such people in their environment.

Conclusion. The level of knowledge declared by the respondents is not low, but it is not satisfactory either. The respondents are reluctant to live among sick people and to get to know them despite their declared understanding towards mentally disturbed people who commit illegal acts.

Keywords. Internees, Mental Disorders, Prohibited Act

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Title of presented paper: Assessment of the quality of life of the patients addicted to psychoactive substances during treatment

Authors: Karolina Drygała
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Type of the paper: Research paper
Introduction and aim. Quality of life is not only the opportunity to enrich the mind, spirit, education, but also being in the physical sense. The use of psychoactive substances has a destructive effect on the physical, mental and family sphere. The aim of the presented work was complex. The concept was to assess the quality of life of patients in the drug detoxification ward, and it was checked whether this assessment is related to selected socio-demographic characteristics.
Material and methods. The study involved a total of 100 patients in the treatment of withdrawal syndrome after psychoactive substances. 78. 0% of the respondents were men. Women made up 22. 0% of the respondents.
Results. In the light of the obtained studies, calculations were made for the most important variables. On a scale of 0 to 10 (where 10 is very good), 14. 0% of patients rated satisfaction with their quality of life as 9. A small proportion of survey participants (1. 0%) indicate the lowest score. The largest number of respondents (20% each) rate them at level 7 or 8.
Conclusion. The conclusion of the study showas that the satisfaction with the quality of life of the respondents was not differentiated due to their level of education, gender, length of use of psychoactive substances. While most respondents with children very often experienced negative feelings such as depression, despair, anxiety, depression, and most of the chidless people experienced them often.
Keywords. Detoxification, Treatment of Addiction, Quality of Life

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Title of presented paper: Genetic variables of the glutamatergic neurotransmission associated with suicidal behavior

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Type of the paper: Research paper

Introduction and aim. Every year, approximately 703,000 people commit suicide worldwide. Half of those are affected by major depressive disorders (MDD). Recent genomic studies indicate a significant relationship between genetic factors and suicide risk. Pathological alterations in glutamatergic system, observed in psychiatric disorders, suggest a potential link between this system and genetic vulnerability to suicide. Proton magnetic resonance spectroscopy has revealed reduced glutamate/glutamine and GABA levels in the prefrontal cortex of unmedicated depressed patients. Impaired glutamate neurotransmission in the cingulate cortex has been directly correlated with impulsivity and cognitive dysregulation, contributing to higher rates of suicide attempts in patients with increased impulsivity, regardless of depressive symptom severity.

Material and methods. A review of randomized control trials and systematic reviews published in the PubMed/Medline database was performed using the following keywords: Suicide*, mental health* Glutamatergic neurotransmission* and glutamate receptors*.

Results. Human postmortem studies have reported elevated expression levels of GRIN1 and GRIN2A (encode NMDA receptor subunits) in the brains of depressed patients with suicidal tendencies. Moreover, increased of GRIA2-4 (encoding AMPA receptor subunits) expression has also been demonstrated in the prefrontal cortex of MDD patients compared to controls, and GRIA3 in suicidal MDD patients compared to non-suicidal patients

Conclusion. GRIN2B, encoding the GluN2B subunit of NMDAR, emerges as a candidate gene in the pathogenesis of Treatment-Resistant Depression (TRD) and suicidal behavior. Furthermore, multiple studies have linked genes encoding AMPAR subunits to symptomatic severity and suicidal ideation. Consequently, these genes encoding glutamatergic receptors present potential candidates for elucidating the etiopathogenesis of depression and suicidal behavior. However, further empirical research is essential to replicate observed associations and confirm the involvement of these genes in TRD and suicidal behavior.

Keywords. AMPA Receptor, Gene Expression, Glutamatergic Neurotransmission, Mood Disorders, Depression, NMDA Receptor, Suicide

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Title of presented paper: Second-generation mood stabilizers in the treatment of bipolar disorder

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Type of the paper: Review paper

Introduction and aim. Bipolar disorder (BD) is a chronic mental disorder characterized by atypical shifts in mood, ranging from extreme highs (mania or hypomania) to lows (depression) Bipolar disorder is a chronic mental disorder characterized by alternating episodes of depression and mania or hypomania, with periods of remission in between. It BD can occur at any age (it may start in childhood or appear only at the age of 40–50). However, it most affects individuals aged 20-30. can onset at any age, beginning in childhood or emerging between the ages of 40 and 50, but it most commonly affects individuals around 20–30 years old. The incidence is equal among both genders and is not dependent on age, ethnic group, social class, or race. The incidence of BD is the same in both sexes and does not depend on age, ethnic group, social class or race.

Material and methods. So far, the specific causes of this disorder remains unknown. Its pathomechanism is related to the coincidence of various factors, including: chronic stress, day-night rhythm disturbance, substance abuse, the presence of somatic diseases, dysfunction of neurotransmission in the brain or genetic predisposition. As of now, the specific cause of this disorder remains unknown. It is influenced by the overlapping of various factors, including constant stress, lack of a regulated day-night rhythm, substance abuse, the presence of somatic diseases, dysfunction of neurotransmitters in the brain, and genetic predisposition.

Analysis of literature. While the condition is treatable, recovery is often prolonged. Comprehensive treatment includes pharmacotherapy, psychoeducation, and psychotherapy. Second-generation mood stabilizers are most commonly used in the pharmacotherapy of BD, including: second-generation mood stabilizers are commonly used in treatment, including medications such as clozapine, olanzapine, quetiapine, aripiprazole, risperidone, and most frequently, lamotrigine.

Conclusion. The aim of this study is to synthesize the most up-to-date data on the effectiveness of lamotrigine as well as other second-generation mood stabilizers in patients diagnosed with BD. In addition, the side effects of their use will be presented.

Keywords. Bipolar Disorder, Lamotrigine, Mood Stabilizers

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Title of presented paper: Exploring the relationship between insulin resistance and major depressive disorder

Authors: Maja Międlar
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Type of the paper: Review paper

Introduction and aim. With major depressive disorder (MDD) being ranked as the third-leading cause of burden of disease worldwide by the WHO, still rising in relevance, research is continuously conducted to further deepen our understanding of this disabling condition. Its comorbidity with other commonly occurring illnesses, such as insulin resistance and disorders closely associated with it, is under scrutiny and the topic of this work. The aim was to gather and review publications concerning the subject matter and analyse the processes underlying the bidirectional relationship between the two aforementioned pathological states.

Material and methods. For the sake of this paper, the PubMed and Google Scholar databases have been searched in order to obtain the most recent findings from years 2019 to 2024 concerning the topic.

Analysis of literature. Insulin resistance is concomitant of the atypical subtype of depression, which is characterised by an atypical presentation and unresponsiveness to treatment. The significance of insulin resistance is massive, as it directly modulates both serotoninergic and dopaminergic transmission, having an effect on guiding reward-seeking behaviour, as well as has an influence on glutamatergic transmission and glutamate turnover. Insulin binds to its specific receptors in the midbrain dopaminergic system, affecting those pathways, which is further explored in my work. Other parts of the brain, such as the anterior cingulate cortex, are also of significance when establishing these connections. The undisputable link between IR and MDD can be reinforced by the prevalence of chronic low-grade inflammation and its causes in both.

Conclusion. It has been found not only that depression symptoms can vary according to the level of insulin resistance, but also that therapy effects differ accordingly. It has been also proven that treatment of MDD with insulin-sensitizing drugs is effective and significantly improves its symptoms. That is why the understanding of those refined connections is valuable in everyday practice.

Keywords. Atypical Depression, Chronic Inflammation, Insulin Resistance, Major Depressive Disorder

Neurology session

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Title of presented paper: Porphyromonas gingivalis as a risk factor for the development of Alzheimer's disease

Authors: Natalia Góras
Supervisor: Magdalena Sowa-Kućma

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Type of the paper: Review paper

Introduction and aim. Alzheimer's disease (AD) is a neurodegenerative disease leading to progressive brain damage and, as a result, a gradual loss of cognitive and memory functions. It is estimated that there are approximately 47.5 million people suffering from AD worldwide, and this number is expected to more than double by 2050. The pathogenesis of Alzheimer's disease has not been fully explained, which makes possible therapy difficult, as there is still no specific molecular target for drugs. Therefore, continuous research and search for possible risk factors for the development of this disease is necessary in order to develop effective treatment. It is currently known that during the pathological processes taking place in AD, extraneuronal amyloid plaques (amyloid beta (Aβ) and intraneuronal neurofibrillary tangles (NFTs) accumulate in the nervous tissue. Studies have shown that *Porphyromonas gingivalis* (a bacterium inhabiting the oral cavity) may, thanks to its virulence factors, i.e., endo/exotoxins (surface membrane lipopolysaccharide - LPS and gingipains, and capsular polysaccharides), contribute to the development of many diseases, including AD. The aim of this study is to summarize and discuss in detail the importance of *P. gingivalis* in the development of AD.

Material and methods. Review paper based on scientific articles published in different medical database.

Analysis of literature. For this purpose, a review of the current literature (both preclinical and clinical studies) was performed in the Medline/PubMed database, using the following keywords: „Alzheimer's disease", „*Porphyromonas gingivalis* in Alzheimer's disease", „periodontal disease".

Conclusion. Based on the review, a strong association between P. gingivalis infection and the risk of AD was found, which is significantly higher in people carrying the capsulated form of P. gingivalis (compared to people carrying the non-capsulated bacterium). A potential mechanism contributing to the development of AD or intensifying its course may be related to the fact that gingipains lead to the cleavage of Aβ, accelerating its accumulation.

Keywords. Alzheimer's Disease, β-amyloid, Periodontal Disease, *Porphyromonas gingivalis*

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Title of presented paper: The gut–brain axis: the relationship between gut microbiota and pathogenesis in Parkinson's Disease

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Type of the paper: Research paper
Introduction and aim. Parkinson's disease (PD) is the second most common neurodegenerative disorder, affecting 1–2% of the population over 65 years of age. The primary neuropathology is the loss of midbrain dopaminergic neurons, resulting in characteristic motor deficits upon which the clinical diagnosis is based. A growing body of evidence supports the hypothesis that regulation of the brain-gut axis plays an important role in neurobiological processes. Studies (preclinical, clinal) have demonstrated that gut dysbiosis is involved in the occurrence, development and progression of PD. Bidirectional communication is now recognized as a significant factor in physiological and pathological conditions. Within this dynamic relationship, the microbiota assumes a key role.
Material and methods. A literature review was performed, including randomized controlled trials (RCTs) and systematic reviews from PubMed/MEDLINE published in 2016–2023. The search used the following keywords: *Gut microbiota *Gut-brain axis *Parkinson's disease.
Results. Numerous clinical trials have identified the characteristics of the changes in the composition of the gut microbiota. Preclinical studies in animal models of PD have shown that gut dysbiosis can influence the progression and onset of PD. Metabolites produced by a deranged microbiota may enter circulation (or even the brain) and affect neurological function. Microbial molecules can modulate neuroinflammation and aggregation of the protein α-synuclein (αSyn), often resulting in motor dysfunction as exemplified by Parkinson's disease (PD).
Conclusion. Gut microbiota can be considered a promising diagnostic and therapeutic target for PD, which can be regulated by probiotics, psychobiotics, prebiotics, synbiotics, postbiotics, fecal microbiota transplantation, and diet modifications. Prospective longitudinal studies in subjects at risk for PD are required to elucidate further the causal role of gut microbiota and microbial products in the development of PD and PD-associated dysmotility.
Keywords. Gut Microbiota, Gut-brain Axis, Parkinson's Disease

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Title of presented paper: Multiple sclerosis: the role of NRF2 in the context of new therapies

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Type of the paper: Review paper

Introduction and aim. Multiple sclerosis (MS) is characterized by a persistent and irreversible pathology primarily driven by immune-mediated mechanisms within the central nervous system (brain and spinal cord). In MS, axonal degeneration and neuronal mortality are observed, resulting in a variety of neurological symptoms. Despite the efficacy of diverse immunotherapies in mitigating relapse rates and alleviating symptom severity in cases of relapsing-remitting MS, a definitive cure for this debilitating condition remains undiscovered. The aim of this review is to discuss the potential effectiveness of nuclear factor erythroid 2-related factor 2 (NRF2) activators (including side effects) in MS based on preclinical and clinical studies published in the PubMed database.

Material and methods. A review of publications from the period 2015–2023 was conducted in the following databases: PubMed, Google Scholar, using the keywords: multiple sclerosis, nuclear factor erythroid 2-related factor 2, NRF2 dependent pathway activation, neurodegeneration, oxidative stress.

Analysis of literature. The analysis of literature on MS reveals that NRF2 emerges as a significant player in MS pathogenesis. NRF2 regulates the transcription of genes that protect human cells against oxidative damage, a process pivotal in MS progression. Oxidative stress not only initiates and sustains inflammatory processes in the active phase of MS but also contributes to neurodegenerative processes in the chronic phase. While NRF2 ordinarily plays a crucial role in mitochondrial protection, oxidative stress response, neuroinflammation, and degeneration, MS is characterized by insufficient endogenous activation of this factor. Thus, interventions aimed at increasing the level or activity of endogenous NRF2 are being sought to safeguard the brain against oxidative damage and inflammation.

Conclusion. In summary, MS presents a persistent immune-mediated pathology in the central nervous system, leading to axonal degeneration and neurological symptoms. Despite the effectiveness of diverse immunotherapies in managing relapse rates and symptom severity, a definitive cure for MS remains elusive. The dysregulation of nuclear factor erythroid 2-related factor 2 (NRF2) exacerbates oxidative damage and inflammation in MS, prompting the exploration of interventions to enhance its endogenous activation. Various exogenous NRF2 activators show promise in MS treatment due to their multidirectional cytoprotective effects, although their use requires careful consideration of potential drawbacks. This review highlights the importance of further investigating NRF2 activators' effectiveness and side effects to advance therapeutic strategies for MS management.

Keywords. Multiple Sclerosis, Nuclear Factor Erythroid 2-related Factor 2, NRF2 Dependent Pathway Activation, Neurodegeneration, Oxidative Stress

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Title of presented paper: Potential roles of oxidative stress biomarkers in therapeutic strategies for depression

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Type of the paper: Review paper
Introduction and aim. Depression is a disease that affecting approximately 350 million people. Treating of this disease can be challenging and time-consuming, and in addition to behavioral therapy, pharmacological support is essential. The present study aimed to demonstrate the role of selected oxidative stress biomarkers and their significance in pharmacotherapy of depression.
Material and methods. The study utilized a literature review from the years 2009–2018 encompassing research that conducted experiments primarily on individuals in the early stages of depression. The experiments aimed to demonstrate the association of oxidative stress biomarkers, such as catalase (CAT) and glutathione peroxidase (GPSH-x), or TBARS with effective antidepressant treatment.
Analysis of literature. The results obtained were unequivocal, indicating that the use of fluoxetine therapy combined with acetylsalicylic acid led to an improvement in parameters related to oxidative stress, a decrease in the activity of catalase (CAT), and glutathione peroxidase (GPSH-x). As well as studies showed that there is correlation between makers of lipids peroxidation and their highness with presents of depression.
Conclusion. Modulation of the oxidative stress response is a novel promising pharmacological strategy for depression. Combined therapy with fluoxetine and acetylsalicylic acid improves oxidative stress parameters in patients with depression. Also is has been proved that, incised level of TBARS is one of the best depression predictor. It has been proven, that there is correlation between markers of oxidative stress and different strategies in treatment of depression.
Keywords. Biomarkers, Depression, Oxidative Stress, Treatment

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Title of presented paper: The role of glutamatergic receptors in treatment-resistant depression.

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Type of the paper: Review paper
Introduction and aim. Treatment-resistant depression (TRD) is a significant challenge in treating mood disorders, with a growing number of patients unresponsive to conventional antidepressants targeting the monoaminergic system. Glutamate is the main excitatory neurotransmitter in the nervous system. Both ionotropic and metabotropic glutamate receptors play an important role in mood regulation. Many antidepressant drug candidates currently under development act antagonistically on NMDA receptors. These drugs seem to have particularly great potential for solving the problem of TRD. A good example is ketamine – an NMDAR channel blocker with a quick and lasting antidepressant effect.
Material and methods. The study aimed to review and analyze articles (2018–2023) published in PubMed/Medline regarding the treatment of TRD and the effectiveness of glutamatergic receptor ligands in this condition. The following keywords were used: depression, glutamate, NMDA receptor, MDD, treatment-resistant depression, TRD.
Analysis of literature. Numerous preclinical and clinical studies have been identified in which the efficacy and tolerability of glutamatergic receptor modulators (including: ketamine and esketamine, memantine, lanicemin, D-cycloserine, riluzole) in TRD have been investigated. Most studies have focused on ketamine acting primarily as a noncompetitive antagonist of NMDA receptors (ionotropic glutamate receptor). Extensive evidence has demonstrated the potent and persistent antidepressant and anticholinergic effects of ketamine.
Conclusion. Due to the proven role of glutamatergic transmission disorders in depression, glutamate receptors seem to be an important target for antidepressants, including those effective in the treatment of TRD. Of the tested compounds, the most promising and best-studied in the context of use in TRD is currently ketamine.
Keywords. Depression, Glutamate, NMDA Receptor, Treatment-resistant

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Title of presented paper: The impact of the personality traits on the required dosage of levodopa in Parkinson's disease patients

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Type of the paper: Research paper

Introduction and aim. Parkinson's disease is one of the most common neurodegenerative disorders. Parkinson's disease presents with a characteristic triad of motor symptoms including slowness, rigidity and tremor. However, non-motor symptoms are no less important and may occur even several years earlier than motor symptoms. Cognitive impairment, depressive and anxiety disorders are very troublesome and deteriorate the quality of life. Degeneration of the central nervous system may also cause personality changes, called Parkinsonian personality. Parkinsonian personality traits include conscientiousness, punctuality, diligence, reduced novelty-seeking, compulsivity, introversion and moral rigidity. There is no knowledge about the mechanism of personality changes, factors predisposing to their occurrence and their impact on the course of the disease. The aim of the study was to assess whether the personality traits correlate with the need for a higher levodopa equivalent daily dose.

Material and methods. Forty-three patients (20 females and 23 males) with idiopathic Parkinson's disease were included in the study. The patients were between 30 and 75 years old. Patients taking antipsychotic drugs or with implanted DBS were excluded from the study. All patients completed the NEO-PI-R test, which assesses 35 personality traits. Each patient's LEDD index at the time of the test was calculated per year of disease duration. The results of the NEO-PI-R test were compared with the LEDD index per year of disease duration and statistically tested by T-test for linear regression.

Results. The study showed that patients with higher levels of LEDD are less adventurous and interested in exploring new activities ($p<0.05$). They are also less hypersensitive, assertive and intellectually curious (but non-significantly). A higher dose of levodopa tended to be correlated with greater organization and conscientiousness among PD's patients.

Conclusion. Certain personality traits may influence a patient's response to the medical treatment of PD's. Neurologists should exercise caution and select medications not only after physical examination, but also after a neuropsychological consultation and analysis of personality disorders to avoid excessive doses.

Keywords. Parkinson's Disease, NEO-PI-R, LEDD

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Title of presented paper: The use of automated diagnostic imaging assistance in qualifying for ischemic stroke treatment by mechanical thrombectomy in centers without endovascular treatment

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Type of the paper: Research paper

Introduction and aim. Mechanical thrombectomy is considered the therapeutic standard in appropriately selected patients with ischemic stroke caused by occlusion of a large intracranial vessel. In the drip-and-ship model, patients eligible for endovascular treatment are transferred from Primary Stroke Units to the Interventional Stroke Center after initial clinical and radiological evaluation. Under these conditions, the delay in imaging evaluation and patient transport leads to worse outcomes or disqualification of some patients from endovascular therapy. A potential solution in reducing time to treatment would be the use of automated imaging study evaluation systems. The study goal is to evaluate the use of automated imaging evaluation systems in qualifying for ischemic stroke treatment by mechanical thrombectomy in centers incapable of a drip-and-ship model.

Material and methods. We retrospectively analyzed the medical data of 31 patients from one Primary Stroke Unit who were transported to the Mothership hospital for mechanical thrombectomy between January 1, 2022 and December 31, 2023. Imaging studies (non-contrast CT and CT angiography) were analyzed using an automated assessment system (RapiAI) with the ASPECTS score, the presence and location of intracranial vessel occlusion. Subsequently, a neurology specialist experienced in stroke treatment made an inclusion for treatment based on a blinded analysis of the presented data.

Results. In 77% (n=24) of patients included for endovascular treatment, the qualifying decision for treatment could be made based on the result of automated evaluation of images, without waiting for radiological analysis. In the group of patients with anterior circulation ischemic stroke, the percentage was 88%.

Conclusion. The analysis showed that the introduction of automated imaging evaluation systems into daily practice can reduce time to treatment initiation in Primary Stroke Units in the drip-and-ship model.

Keywords. Automated Imaging Study Evaluation System, Ischemic Stroke, Mechanical Thrombectomy

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Title of presented paper: Anti-NMDA receptor encephalitis- case study

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Type of the paper: Clinical case

Introduction and aim. Anti-NMDA receptor encephalitis is a condition characterized by an autoimmune reaction directed against N-methyl-D-aspartate receptors in the brain. This disease mainly affects young women, and in over half of the cases, it coexists with a tumor, most commonly an ovarian teratoma. The aim of this work is to present the case of a patient with anti-NMDA receptor encephalitis.

Description of the case. A 36-year-old, previously untreated patient who was admitted to the Neurology Clinic after her first epileptic seizure in life, resulting in secondary head injury. For the past two weeks the patient had been displaying: initially apathy and withdrawal, followed by productive symptoms, aggressive behaviors, and delusional content with a religious background. In the hospital, an EEG was performed, showing no seizure activity, and brain MRI in the initial assessment revealed no pathology or contrast-enhancing lesions. The lumbar puncture was performed, and cerebrospinal fluid was collected for analysis. Based on the results, a diagnosis of autoimmune encephalitis with anti-NMDAR antibodies was established. Ultimately, immunosuppressive treatment was initiated, and the patient was enrolled in a program for immunoglobulin therapy for neurological diseases

Conclusion. This case is presented, because anti-NMDA receptor encephalitis is often misdiagnosed as psychiatric disorders. Therefore, it is important to have knowledge of the course of the disease, which enables its quick diagnosis and implementation of appropriate treatment.

Keywords. Anti-NMDA Receptors Antibodies, Autoimmune Encephalitis, Epileptic Seizure

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Title of presented paper: The role of Gut Microbiota in mechanisms of pathogenesis and therapeutic strategies of Parkinson's disease

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Type of the paper: Review paper

Introduction and aim. Gut microbiota (GM) is crucial for maintaining immune and metabolic homeostasis and protecting against pathogens. Dysbiosis of the gut microbiota is associated with intestinal disorders, as well as with extraintestinal diseases such as neurological disorders, including Parkinson's disease (PD). In PD, gastrointestinal symptoms often precede the onset of motor and non-motor symptoms, and changes in GM composition accompany disease pathogenesis. The purpose of this study was to investigate the role of the gut microbiome in the progression and treatment of PD.

Material and methods. The causal links between the gut microbiota and PD are still not fully elucidated; however, there is emerging evidence from studies in animal models of PD that support that a dysbiotic gut microbiota can exacerbate PD pathology, while restoration of the gut microbiota can delay or correct the onset of PD.

Analysis of literature. Recent studies have suggested a link between the GM and PD, due to the bidirectional communication between the gut microbiome and the central nervous system (CNS), known as the gut-brain microbiota axis. Dysbiotic microbiota may play a key role in the occurrence of PD through various mechanisms, such as increased intestinal permeability, increased intestinal inflammation and neuroinflammation, abnormal aggregation of α-synuclein fibers, unbalanced oxidative stress and reduced neurotransmitter production.

Conclusion. The impact of the gut microbiome on human health is a subject of intense research to better understand the correlation between the microbiome and occurrence of neurodegenerative diseases, which may help develop new diagnostic tools and therapeutic targets for PD.

Keywords. Gut Microbiota, Gut-brain Axis, Neurological Disorders, Parkinson's Diseases

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Title of presented paper: Cerebral stroke as a rare complication of sphenoiditis - a case report

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Type of the paper: Clinical case

Introduction and aim. Ischemic stroke is mainly associated with atherosclerosis or cardiac embolism, seldom with inflammatory infiltration of cerebral arteries. We describe a case of sphenoiditis that resulted in an ischemic stroke.

Description of the case. A 72-year-old woman was admitted due to severe headache to the Otolaryngology Department with diagnosis of acute sphenoiditis. After undergoing intranasal sphenoidotomy she complained of diplopia and occipital area headaches; meningeal signs were present. Lumbar puncture revealed increased cytosis leading to a diagnosis of bacterial meningitis. Broad-spectrum antibiotic therapy has been applied and the patient was transferred to the Neurology Department. She became disoriented, restless, aggressive. Babinski sign was present on the right side, without significant paresis. Brain MRI showed inflammatory changes in the meninges and brain tissue. Meningoencephalitis was diagnosed. Then, the patient developed aphasia and right-sided hemiparesis. Next MRI additionally showed foci of restricted diffusion in the left hemisphere and inflammatory changes with restriction of blood flow in the left middle cerebral artery. Ischemic stroke of the left hemisphere was diagnosed. Antiplatelet therapy was introduced (apart from used so far heparin) along with post-stroke rehabilitation. After a few-weeks treatment, MRI showed a regression of both ischemic and inflammatory changes. The patient's neurological condition improved – withdrawal of hemiparesis occurred, but disorientation persisted, the patient required care. She was transferred to the Rehabilitation Department.

Conclusion. Complications of the sinusitis are uncommon and usually affect the immunocompromised patients. However, they should be also taken into consideration while examining the immunocompetent patients, because sinusitis can rarely result also in ischemic stroke.

Keywords. Ischemic Stroke, Meningoencephalitis, Sphenoiditis

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Title of presented paper: Myasthenia gravis and its challenges: fighting for every breath

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Type of the paper: Clinical case

Introduction and aim. Myasthenic crisis is a major medical emergency and it is determined by the weakening of the muscles in the upper and lower airways, presenting the risk of obstruction and aspiration, which can lead to the installation of respiratory failure. This is a life-threatening complication of myasthenia gravis, shaping a real struggle for survival, both for the patient and the doctor.

Description of the case. The authors present the case of a 67-year-old male patient with arterial hypertension, operated rectal neoplasm, diagnosed in 2019 with myasthenia gravis and receiving treatment at home with pyridostigmine and Prednisone, who presents himself with swallowing disorders, muscle fatigue, and nasal voice. The symptoms started one week before. The clinical examination reveals respiratory failure phenomena requiring oxygen via mask, bulbar syndrome, facial diplegia and rhizomelic muscle fatigue. During hospitalization, the patient's saturation drops to 88%, so that oxygen therapy via mask is initiated. The swallowing disorders worsen, leading to the placement of a nasogastric tube. One day after admission, the patient's condition deteriorates, presenting cyanosis, profuse sweating and low saturation values despite oxygen administration via mask, therefore the patient is transferred to the ICU. CT reveals aspiration bronchopneumonia. The patient was intubated, mechanically ventilated and antibiotic therapy wass initiated. The initial attempt to detubate the patient was unsuccessful, but the spontaneous breathing was subsequently resumed.

Conclusion. Despite the progressive worsening of the patient's status and the need for mechanical ventilation, the patient's evolution was favorable, the symptomatology being almost completely remitted under specific treatment.

Keywords. Fight, Myasthenia Gravis, Oxygen

Basic science session

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Title of presented paper: Leveraging social networks for cutting-edge toxicological surveillance: a deep dive into modern toxicovigilance

Authors: Marta Sowińska
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Type of the paper: Review paper
Introduction and aim. Introduction: Toxicovigilance can be defined as toxicological prevention. The methods of collecting and analysing data used in poison centres are becoming more and more effective, while toxicological exposure is increasing. Therefore, new tools are needed to assess the situation in near-real time to improve toxicological surveillance. The development of technological thought creates an opportunity to use the network and social networks for this purpose. Aim of the paper: Introduce the topic of toxicovigilance and present the possibilities of using social networks and social media as an effective tool for toxicological monitoring.
Material and methods. The research material is generally available articles, regulatory and legal documents describing toxicovigilance from recent years. Research methods: Scientific search engines such as PubMed, Scopus, Google Scholar, and Web of Science by searching for keywords such as prevention, social network, and toxicovigilance. The data from selected articles, analysed and elaborated, enabled the formulation of conclusions.
Analysis of literature. There is a correlation between the appearance of substance abuse among people using social networks and the content they post. The most helpful methods to extract key information for toxicological surveillance from full of data social networks are: natural language processing (NLP), analysis of the frequency of occurrence of specific words in the text, clustering, classification and analysis of the so-called n-grams.
Conclusion. Although the toxicological monitoring system is not perfect, the combination of traditional and modern methods will allow a more accurate and faster assessment of toxicological exposure, as well as its prediction.
Keywords. Prevention, Social Network, Toxicovigilance

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Title of presented paper: Aging and awareness: tackling medication poisoning in the elderly

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Type of the paper: Review paper

Introduction and aim. Introduction: About 80% of seniors suffer from more than two chronic diseases. Taking into account the rapid age progression of the population, this creates one of the most important challenges for modern medicine. The average senior takes five medications per day. Various factors can lead to improper prescription or use of medications. In addition, it often causes the appearance of serious adverse effects, such as drug poisonings. **Aim:** Introducing poisonings as a drawback to the excessive use of medications by elderly patients. Describing characteristic symptoms of overdosing with drugs commonly taken by seniors, along with known options of treatment, and measures that can be taken to prevent these poisonings.

Material and methods. Analysis of literature based on information included in open-access articles, reports and pharmacology, internal, and emergency medicine textbooks. The articles were obtained by searching databases such as PubMed and Google Scholar.

Analysis of literature. Polypharmacotherapy amongst elderly patients significantly increases the risk of adverse drug effects. Overdose of medications can be both intentional and unintentional. Each active substance has a characteristic set of symptoms that occur in the event of poisoning. Their knowledge allows swift detection of health hazards and introduction of the treatment in accordance with EBM. Prevention should focus on the use of pharmacotherapy adjusted to the patient's needs.

Conclusion. Rational pharmacotherapy is crucial in the treatment of seniors. While prescribing medications, physicians should take into account the state of the patient's physical and mental health, as well as educate them on the proper use of such medications.

Keywords. Drug Poisoning, Pharmacotherapy, Seniors

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Title of presented paper: Mercury menace revisited: old challenge, new disposal solutions

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Type of the paper: Review paper
Introduction and aim. Mercury is a toxic heavy metal that adversely affects human health in cases of acute and chronic poisoning. Despite the implementation of restrictions, mercury-containing items, such as old thermometers, are still encountered. Lack of awareness of the proper handling of mercury, as well as materials containing it and their disposal, may increase the risk of poisoning. This work focusses on presenting the possible effects of mercury exposure and how to reduce it through proper disposal. The aim of the work is to assess the risk of mercury poisoning resulting from ignorance and incorrect methods of mercury disposal and to provide information on how to properly dispose of mercury to reduce human exposure.
Material and methods. Review of literature using databases such as PubMed, ScienceDirect, and Google Scholar using keywords such as "mercury poisoning," "chronic mercury poisoning," "mercury utilisation," "mercury poisoning prevention," and comprehensive reviews of final legal acts in Poland, along with a broad exploration of "grey" literature.
Analysis of literature. On the basis of the analysed research and medical data on mercury poisoning, the risks associated with contact with mercury were summarised. The methods of its proper disposal are described, allowing you to avoid the most common mistakes resulting from lack of knowledge about potential threats, such as escaping mercury vapours.
Conclusion. The study emphasises the role of public awareness of the risks of mercury, its vapours, the threats resulting from its improper disposal, and ways to reduce the risk.
Keywords. Chronic Mercury Poisoning, Mercury Poisoning, Mercury Disposal

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Title of presented paper: Assessment of oxidative modifications of proteins in stimulated saliva from various nicotine delivery methods

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Type of the paper: Research paper

Introduction and aim. Addiction to smoking continues to be a global public health problem amongst people, despite the implementation and popularization of anti-tobacco programs. Cigarette smoke is responsible for the increased production of free radicals species, leading to the development of oxidative stress and oxidative modification of proteins. The use of electronic cigarettes and heat-not-burn products is considered less harmful to human health, although their effect on the human body is not yet widely documented. The objective of our study was to assess the concentration of 3-nitrotyrosine (3-NT) in stimulated whole saliva (SWS) of traditional cigarette smokers and alternative nicotine delivery methods users.

Material and methods. A total of 75 individuals using nicotine were recruited for the investigation, segregated into three groups of 25 based on their preference for nicotine delivery: traditional cigarettes, e-cigarettes and heat-not-burn products. The control group comprised 25 non-smoking individuals. All participants in the study shared similar characteristics in terms of age, BMI, and overall health. To standardize conditions, participants were advised to abstain from eating and smoking for a minimum of two hours before saliva collection. Saliva samples were collected using the spitting method. SWS secretion was stimulated by spotting 10 µl of 2% citric acid solution on the tip of the tongue. The saliva samples obtained were then analyzed for the concentrations of 3-NT.

Results. It has been shown that smoking traditional cigarettes leads to an increased concentration of 3-NT compared to the other three groups. Moreover, it has been proven that modern nicotine devices delivering to the body significantly increase the concentration of the tested compound compared to the control group.

Conclusion. It has been shown that smoking traditional cigarettes leads to an increased concentration of 3-NT compared to the other three groups. Moreover, it has been proven that modern devices delivering nicotine to the body significantly increase the concentration of the tested compound compared to the control group. It has been shown that smoking traditional cigarettes leads to an increased concentration of 3-NT compared to the other three groups. Moreover, it has been proven that modern devices delivering nicotine to the body significantly increase the concentration of the tested compound compared to the control group.

Keywords. Biomarkers, Oxidative Stress, Proteins, Saliva, Smoking

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Title of presented paper: Small-molecule LDN-0060609 PERK inhibitor in primary open-angle glaucoma treatment

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Type of the paper: Research paper

Introduction and aim. Glaucoma, 'silent thief of sight', characterized by a progressive neurodegeneration of the optic nerve, is proved to be implicated by dysregulation of UPR pathways within trabecular meshwork cells. The three key transducers of the UPR signaling route are: IRE1, ATF 6 and PERK, which is the first to be active among the three branches. Under normal conditions, BiP keeps all three UPR receptors inactive, whereas ER stress promotes dissociation of the GRP78 proteins from the UPR effectors, resulting in direct activation of the aforementioned transducers. PERK's downstream target, eukaryotic initiation factor 2α (eIF2α), is phosphorylated during ER stress, leading to increased translation of specific proteins such as ATF4.This protein promotes the expression of pro-apoptotic proteins, including CHOP, which is linked to increased expression of pro-apoptotic genes and apoptosis via the activation and mitochondrial translocation of Bax, which elevated level found in the optic nerve axons of absolute glaucoma. Aim of the study: to assess the effectiveness of small-molecule PERK inhibitor LDN-0060609 in cellular model of glaucoma.

Material and methods. Our research was conducted on a glaucoma model of human trabecular meshwork (HTM) cells. HTM cells were treated with thapsigargin (Th), as an ER stress inducer. The activity of LDN-0060609 PERK inhibitor was determined by measuring the level of p-eIF2α by Western blot technique. The cytotoxicity of the investigated PERK inhibitor was measured via the XTT colorimetric assay, lactate dehydrogenase assay and cell survival assay.

Results. Obtained results demonstrated that LDN-0060609 PERK inhibitor significantly reduced ER stress-dependent phosphorylation of the eIF2α and increased the HTM cells viability.

Conclusion. LDN-0060609 may provide an innovative, ground-breaking treatment strategy against primary open-angle glaucoma .

This work was supported by National Science Centre, Poland (grant no. 2016/21/B/NZ5/01411).

Keywords. Basic Sciences, Glaucoma, PERK Inhibitor, UPR Signalling

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Title of presented paper: Prevalence of back pain among health care workers

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Affiliation: College of Medical Sciences, University of Rzeszów, Rzeszów, Poland

Type of the paper: Research paper

Introduction and aim. Back pain is an important problem of modern medicine. According to WHO, 1.71 billion people suffer from musculoskeletal disorders, the majority of which are back pain. Rapid technological progress results in a limitation of the natural need for exercise. Pain significantly impairs mobility and results in reduced activity, participation in social life, and absence from work. It has been believed that the incidence of spine diseases increases with age, but it turns out that they also affect young, working people. Back pain syndromes are mainly caused by: a lack of time for rest and sleep, a sedentary lifestyle, obesity, and improper work ergonomics. The study assesses the occurrence of back pain among healthcare workers.

Material and methods. Material – a group of 160 respondents, medical staff. Diagnostic survey method.

Results. Statistical analysis of the material proved that the vast majority of the studied group suffered from spine pain. Problems occur regardless of age, affect women more often, and the frequency and intensity of back pain increases with work experience. It was also shown that medical staff know the principles of work ergonomics, occupational health and safety, and risk factors of back pain. It has been proven that lower back pain is more common among nurses, midwives, and medical caregivers.

Conclusion. Back pain has a global reach and is classified not only as a therapeutic problem but also as a social problem. The reason is low physical activity and ways of spending free time.

Keywords. Back Pain, Medical Staff, Spine Pain Syndrome, Work Ergonomics

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Title of presented paper: Outsmarting lead: from exposure to prevention

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Type of the paper: Review paper

Introduction and aim. Exposure to lead is toxic both for adults and children. The aim of this paper is to describe the toxic effects of lead on the human organism and to summarise lead toxicity sources. This work also focusses on the prevention of lead toxicity.

Material and methods. The data collected come from articles obtained by searching databases such as PubMed, MDPI, and Google Scholar, textbooks, and 'grey literature'.

Analysis of literature. The harmful impact of lead toxicity poses an elevated risk to young children, potentially leading to significant and enduring adverse health effects, particularly in the development of the brain and nervous system. Some items may contain too high of a concentration of lead. Recently, the Polish Office of Competition and Consumer Protection reported that one of the toys tested exceeded the permissible lead standards by up to 1,343 times.

Conclusion. The study emphasises the multifaceted nature of lead exposure and its harmful effect. In addition, it draws attention to possible preventive actions to minimise the risk of lead poisoning.

Keywords. Lead Poisoning, Lead Exposure, Prevention of Toxicity

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Title of presented paper: Cross-stress resistance in *Saccharomyces cerevisiae* cells

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Type of the paper: Research paper

Introduction and aim. With the research question "How does the exposure of different combinations of distinct stress factors lead *Saccharomyces cerevisiae* cells to develop cross-stress resistance?", the study focuses on the possible combinations that result in cross-stress resistance in *S. cerevisiae* cells, aiming to investigate the development of an optimum strategy for minimizing the damaging effects of stress agents..

Material and methods. The experiment consists of two consecutive stages. The first stage includes the separate application of different stress factors, including temperature, pH and heavy metal stress. The second stage consists of combined stress stimuli to determine whether cross-stress resistance would develop in the *S. cerevisiae* cells. Two different test methods have been determined to test the functions of yeast cells in each of the nine groups to adapt to the environment with a stress response or to test their viability. Determination of the rate of fermentation: After the incubation, 20 mL of the yeast solution and H_2O_2 solution were mixed in a 200 mL Erlenmeyer. After calibration, an O_2 sensor was placed at the top and covered to prevent gas escape. Maximum O_2 levels and time taken for that value were recorded. Determination of the yeast cell concentration: Once the incubation time was over, the solutions were added to cuvettes with sterile pipettes and then placed in a calibrated Shimadzu UV-2700i spectrophotometer. A "Standard Curve" was prepared with solutions in different concentrations, each was % 50 diluted. All readings were taken consecutively to prevent further budding. Before each measurement, the solution was shaken slightly for homogeneity. The whole procedure was then repeated five times.

Results. The result of the experiment shows that cross-stress resistance due to combined stress agents decreases the detrimental effects of single stress factors exposed to *S. cerevisiae* cells. The validity of the results is supported by the low standard deviations (ranging between 0.005 to 0.273), suggesting the consistency of the cell viability in different trials. The statistical test also provides evidence that the results of this test are statistically significant, confirming that a combination of the stress factors decreases the overall damage of individual stress factors. However, more trials will be needed in order to identify anomalies that occurred due to random errors. The anomalies in this investigation were also avoided in calculations to obtain reliable results. After the yeast solution was prepared and left for the first incubation period, it was observed that the yeasts settled at the bottom. To prevent a possible uneven distribution within the solution, the samples are shaken before each measurement. Solutions that were incubated at room temperature and more bubbles were observed at the surface than solutions incubated in the refrigerator, whereas solutions at -18°C was frozen and no bubbles were present. During the spectrophotometric readings, it was observed bubbles are produced on the surface of the cuvette. This suggests that the yeast solution continued fermentation during the measurement process. Groups that $CuSO_4$ solution is added turned a brown color when mixed with H_2O_2 solution during the measurements, suggesting that for these experiment groups there might be other reactions affecting the rate of O_2 production, as well as yeast fermentation.

Conclusion. The study provides an answer to the research question. The results, support the hypothesis that cross-stress resistance does develop when certain combinations of different stress stimuli are exposed to *S. cerevisiae* cells despite some anomalies. When multiple stress stimuli are given to yeast cells, there seems to be no overall increase in viability. Rather, a reduction in the damaging effects of specific stress agents is observed, which is the aim of cross-stress resistance In some cases, the combined stress was detrimental to the yeast cells, which eventually caused apoptosis and death of the cell. This may, in turn, be used in the yeast industry to increase efficiency and produce more resistant *S. cerevisiae* cells so they can adapt to the environmental changes caused by climate change. However, these results are only relevant for these specific experiment groups. Further investigation is needed to determine the type and amount of the stress agent that will be exposed to the *S. cerevisiae* cells for the development of cross-stress resistance response.

Keywords. Cellular Stress, Cross-stress Resistance, *Saccharomyces cerevisiae*, Stress Response

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Title of presented paper: Understanding the impact of E-cigarettes on human physiology: a comprehensive review

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Affiliation: Institute of Medical Sciences, Medical College of Rzeszów University, University of Rzeszów, Poland

Type of the paper: Review paper

Introduction and aim. E-cigarettes' popularity prompts health scrutiny. This review explores their impact on physiology, respiratory, cardiovascular, psychological, and oral health. Despite nicotine delivery without combustion, e-cigarettes pose respiratory risks like toxicity and alter lung function. They also raise cardiovascular risks, challenging their safety perception. Psychological effects, especially in adolescents, include depression and suicidal thoughts. Despite some oral health benefits, e-cigarettes may still contribute to oral diseases.

Material and methods. I thoroughly explored how e-cigarettes affect human health, focusing on respiratory, cardiovascular, oral, and psychological aspects. I searched PubMed, Scopus, and Web of Science using relevant keywords. Studies meeting our inclusion criteria provided evidence on health impacts, covering various aspects published between 2017 and 2022.

Analysis of literature. E-cigarette literature discusses reasons for use, perceptions, and health effects on cardiac, pulmonary, oral, and mental health. Potential risks include cardiovascular and respiratory issues, pulmonary toxicity, and mental health concerns. Public health policies are needed to address e-cigarette use and mitigate harms.

Conclusion. Assessing short- and long-term health risks underscores the need for further research to inform policies. Regulatory actions should balance harm reduction and youth prevention based on strong scientific evidence. Public health strategies should include awareness campaigns and clinician education. A comprehensive approach involving research, regulation, and public health initiatives is essential to minimize e-cigarette health effects.

Keywords. Cardiovascular, E-cigarettes, Health Impacts, Respiratory, Risks

Pediatric session

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Title of presented paper: Case report of a 14-year-old patient with SAPHO syndrome

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Affiliation: [1] Student Scientific Dermatology Society, College of Medical Sciences, University of Rzeszów, Rzeszów, Poland

Type of the paper: Clinical case

Introduction and aim. SAPHO syndrome is a highly rare disorder encompassing a combination of various symptoms related to the development of inflammation in bones, joints or skin layers. The acronym SAPHO corresponds to the most common manifestations of the condition namely synovitis, acne, pustulosis, hyperostosis, and osteitis. The etiology of the disease is not fully understood and treatment options lack evidence due to the rarity of the syndrome.

Description of the case. A 14-year-old boy was urgently admitted to the Dermatology Clinic due to widespread skin lesions on the trunk, limbs, and cheeks presenting as red-scaly plaques, scaly crusts with oozing and erosions on the hairy scalp. He also experienced joint pain with swelling in the left sternoclavicular joint associated with subfebrile temperature in the course of SAPHO syndrome. Periodic joint pain occurred in the right ankle and elbow, as well as the left hip and knee. Radiological examination confirmed signs of swelling and inflammation in the left sternoclavicular joint. A skin biopsy was performed for histopathological analysis. Treatment included minocycline, isotretinoin, clobetasol, betamethasone, salicylic acid, azathioprine, mesalazine, and infliximab. Due to significant exacerbation of psoriatic lesions, the patient was enrolled in a drug program focusing on specific areas.

Conclusion. SAPHO syndrome is a condition where skin changes coexist with musculoskeletal alterations. Due to the heterogeneous clinical presentation and rarity of the disease, an individualized approach to patient treatment is crucial.

Keywords. Acne, Joints Inflammation, SAPHO

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Title of presented paper: An unintended weight loss as the first indicator of a severe lung disease

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Type of the paper: Clinical case

Introduction and aim. A massive weight loss is a non-specific symptom which can be a demonstration of various diseases. Unintended thinning may be also the body's response to the applied treatment as the result of drugs' adverse effects.

Description of the case. We present the case report that describes the 17-year-old male patient with Asperger's syndrome with an accidental weight loss of 13 kg within 6 months. Initially, the weight loss was associated with the therapy of obsessive-compulsive disorder, because of the Escitalopram's side effects and the coincidence in time. However, when the treatment with Escitalopram stopped, the boy continued to lose weight. During the physical examination, particular attention was drawn to visible signs of malnutrition – the patient weighed 52 kg and was 175 cm tall. Additionally, the patient complained about a 2-month-long non-productive cough and a fever that appeared the day before the admission. The patient underwent all required childhood vaccinations. A chest RTG revealed the inflammation of superior lobe in the right lung and the cavity with a diameter of 5,5cm with fluid, which raised suspicion of pulmonary tuberculosis. Empirical treatment didn't improve the patient's condition. Three cultures for the presence of Mycobacterium tuberculosis were performed on BACTEC. After 50 days one of them tested positive and pulmonary tuberculosis was diagnosed.

Conclusion. Recently increasing amount of patients with tuberculosis allows us to analyze cases with an unclear course in patients for whom the primary diagnosis is unlikely and explore diagnostic difficulties, especially when undergoing long-term treatments where medications can mask the symptoms of the disease.

Keywords. Paediatrics, Pulmonary, Tuberculosis, Weight Loss

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Title of presented paper: Clinical pharmacokinetics of ganciclovir in neonatal cytomegalovirus treatment in clinical practice

Authors: Mateusz Moczulski, Bartłomiej Kot
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Affiliation: Students' Scientific Association "DRUG", Department of Drug Chemistry, Pharmaceutical and Biomedical Analysis, Medical University of Warsaw, Warsaw, Poland

Type of the paper: Research paper

Introduction and aim. Cytomegalovirus (CMV) is one of the most common viral infections in neonatal population. Approximately 1% of newborns are born with active CMV infection per year in Poland. Currently, the antiviral treatment is based on ganciclovir (GCV) or the oral prodrug valganciclovir (VGCV). Due to specific physiological aspects of premature babies and newborns, therapeutic drug monitoring seems to be a good alternative for antiviral therapy evaluation. This study aimed to assess a new validated method for ganciclovir determination in a small volume of plasma (35µl) for clinical practice.

Material and methods. The previously validated LC-MS/MS method has been successfully introduced in clinical practice at Children's Memorial Health Institute in Warsaw. The results of five patients' concertation monitoring have been introduced to pilot clinical pharmacokinetics monitoring in longitudinal antiviral therapy. In this case, the concentrations were measured before drug administration and 1 hour after intravenous infusion (or 2 hours after oral administration).

Results. In clinical practice, the safe GCV therapeutic levels established by the study were 0.50–1.00 µg/mL before the dose and 5–12 µg/mL thereafter. The doses of GCV/VGCV have been corrected based on TDM when necessary and recommended to be introduced by a neonatologist.

Conclusion. It was noticed that the correction of drug doses reduced the toxicity episodes as well as helped with infection eradication. The TDM lab in Children's Memorial Health Institute remains the only centre in Poland where it is possible to determine concentrations of this drug in the pediatric population as well as adults.

Keywords. Antiviral Therapy, Cytomegalovirus, Ganciclovir, Therapeutic Drug Monitoring, Viremia

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Title of presented paper: Mortality and intracranial bleeding complication in neonates receiving therapeutic hypothermia caused by hypoxic-ischaemic encephalopathy

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Type of the paper: Clinical case

Introduction and aim. Hypoxic-ischaemic encephalopathy (HIE) in neonates remains a significant cause of mortality and morbidity worldwide, often resulting in long-term neurodevelopmental disabilities. Therapeutic hypothermia (TH) has emerged as a promising intervention to mitigate the neurological sequelae associated with HIE. Despite its efficacy, TH implementation poses several challenges, including optimal patient selection, precise temperature control, and management of potential adverse effects.

Description of the case. Three patients with similar symptoms of severe HIE presented for TH. One was disqualified from treatment because admission occurred after the therapeutic window (10 hours after birth) and due to an extremely poor state—hypotension, pulmonary hypertension, meconium aspiration, and pneumothorax. The other two began TH in their 5th hour of life. After starting the cooling process, one neonate exhibited no electrical brain activity in an EEG, with no improvement over time, hypotension, and anuria, leading to the decision to withdraw treatment and initiate palliative care. The third newborn, in a very poor and unstable state as well, had an uneventful 72-hour period of hypothermia. However, on the 8th day of life, developed a large intracranial hemorrhage. Only one newborn survived.

Conclusion. TH represents a significant advancement in the management of HIE in neonates, improving survival and neurodevelopmental outcomes. However, continued research, innovation, and global collaboration are essential to optimize its efficacy and accessibility, ultimately reducing the burden of HIE-related disabilities worldwide. These cases serve to highlight currently unsolvable questions: Which stage of severe HIE is too advanced for TH? Where is the fine line in the qualification process that should not be crossed? It is crucial for neonatologists to share their experience and knowledge with each other to make the best decisions at the right time.

Keywords. Hypoxic-ishaemic Encephalopathy, Neonates, Therapeutic Hypothermia

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Title of presented paper: Posterior reversible encephalopathy syndrome in a 7-year-old female with acute post-streptococcal glomerulonephritis

Authors: Lidia Ziobro

Supervisor: Marta Olszewska, Aleksandra Buczyńska, Izabela Szymońska, Przemko Kwinta[1]

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Type of the paper: Clinical case

Introduction and aim. Posterior reversible encephalopathy syndrome (PRES) is a neurological condition with a variety of symptoms including headaches, seizures, impaired vision and altered consciousness. It is related to white matter vasogenic edema involving the occipito-parietal region. The syndrome is rare, especially in children. Triggering factors include hypertension.

Description of the case. A 7-year-old female with scarlet fever was admitted to the hospital because of fever, nausea, vomiting and cough. On admission, she presented with strawberry tongue, rash and diminished breath sounds on the right side. Laboratory tests revealed high C-reactive protein and procalcitonin levels. Chest X-ray confirmed right-sided pneumonia complicated by lung abscess and pleural empyema. She underwent a right thoracoscopy with lung decortication and received broad-spectrum antibiotics. After initial improvement, she manifested hypertension and edema. Urinalysis revealed microscopic hematuria. Estimated creatinine clearance decreased by 40%. Anti-streptolysis titer was 1600 IU/ml. Post-streptococcal glomerulonephritis (PSGN) was diagnosed and diuretics were applied. In the third week of hospital stay, she presented with confusion, headache, vomiting, visual disturbances and seizures. Magnetic resonance imaging (MRI) revealed abnormal hyperintensive signaling with mild restriction of diffusion involving occipito-parietal regions. Computed tomography angiography of the head was normal. Several days later clinical symptoms and MRI abnormalities resolved completely. Therefore, the diagnosis of PRES was made.

Conclusion. Although rare in children, PRES should be included in a differential diagnosis of rapidly developing neurological symptoms such as altered consciousness, seizures and visual disturbances. PRES can be caused by conditions leading to hypertension, like PSGN in the presented patient.

Keywords. Hypertension, Posterior Reversible Encephalopathy Syndrome, Post-streptococcal Glomerulonephritis

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Title of presented paper: Assessment of volumetric-absorptive microsampling technic to therapeutic drug monitoring of cyclosporine in pediatric renal transplant recipients

Authors: Bartłomiej Kot, Mateusz Moczulski
Supervisor: Arkadiusz Kocur

Affiliation: Students' Scientific Association "DRUG", Department of Drug Chemistry, Pharmaceutical and Biomedical Analysis, Medical University of Warsaw, Warsaw, Poland

Type of the paper: Research paper

Introduction and aim. Cyclosporine (CSA) is one of the main immunosuppressive drugs in the pediatric population after solid organ transplantation (SOT). Due to the narrow therapeutic index and relatively high inter- and intra-individual differences in pharmacokinetics, the therapeutic drug monitoring of CSA is strictly needed. In routine clinical practice, frequently uncomfortable venipuncture is necessary for whole-blood (WB) collection to check through CSA levels. Volumetric absorptive microsampling (VAMS) is an alternative strategy to WB collection. In this study, we aimed to validate and develop a liquid chromatography-tandem mass spectrometry (LC-MS/MS) method for CSA quantification in WB and VAMS samples.

Material and methods. Whole-blood (classic venous collection) and VAMS samples (finger puncture by a lancet) for this study were obtained during regular follow-up visits between January 2023 and February 2024 from 50 pediatric renal transplant recipients treated at the Children's Memorial Health Institute (CMHI) in Warsaw.

Results. The statistical correlation between whole blood and VAMS-based methods was satisfactory. The correlation between the developed and validated methods was evaluated using Passing-Bablok and Pearson correlation coefficient calculations.

Conclusion. This study demonstrated and confirmed the utility of VAMS-based CSA monitoring in the pediatric population. The VAMS method is patient-friendly and rearranges TDM; subsequently, it may minimize non-compliance with helpful regimens because of the straightforwardness of blood collection. Due to the restricted number of pediatric transplant centres and the latest SARS-CoV-2 widespread confinements, this approach to blood collection appears to be an appealing elective for youthful patients, their families, and all staff included in post-transplant pharmacotherapy.

Keywords. Cyclosporine, Pediatric Population, Renal Transplantation, Therapeutic Drug Monitoring, Volumetric-absorptive Microsampling

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Title of presented paper: The impact of parental depression on children: understanding the influence on child development and well-being

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Type of the paper: Review paper

Introduction and aim. Depression, characterized as a negative emotion, exhibits a noteworthy phenomenon of mutual transfer, especially within familial relationships. This transfer of depression can occur with considerable strength and speed, particularly in environments where parents and children experience daily stress in the same living space. In this context, the impact of parental depression on children's well-being emerges as a critical area of study. The aim of this work is to lay the groundwork for exploring how parental depression affects children, with an emphasis on the potential transmission of depressive symptoms within the family dynamic and its subsequent implications for child development and mental health.

Material and methods. A comprehensive review of the literature available on PubMed was conducted to explore the Impact of Parental Depression on Children. A total of 291 articles were initially screened. Exclusions were made for non-English language articles, those lacking full text, and those focusing on unrelated topics. Ultimately, 21 publications were selected for analysis in this narrative review.

Analysis of literature. Numerous studies have highlighted the impact of parents' poor physical or mental health on their children's mental well-being. Evidence suggests that children of parents with depression may not receive adequate treatment for their own psychiatric disorders. Parental mental health significantly influences children's internalizing issues and overall quality of life. Moreover, parental depression adversely affects caregiving, material support, and nurturing behaviors. Observational research has identified various parenting challenges among depressed parents, including heightened hostility, increased rates of negative interactions, and impatient use of directives when guiding their children's behavior. Additionally, depressed parents have been observed to be less responsive to their children's cues, exhibit less effective communication, display lower levels of synchrony with their infants, and engage in fewer positive interactions with their children. Consequently, children with more depressed parents may experience difficulties in developing essential socio-emotional skills, potentially attributed to their parents' reduced sensitivity and responsiveness during interactions.

Conclusion. Parental depression profoundly affects children's mental well-being and development, potentially leading to untreated mental health issues in children and hindering their socio-emotional skills. Addressing parental mental health is crucial for promoting positive outcomes for children.

Keywords. Caregiving Behaviors, Children's Mental Well-being, Parental Depression

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Title of presented paper: Enhancing pediatric cardiac care: integrating IoT with event holter telemetry automation

Authors: Filip Bossowski, Magdalena Skorupska, Szymon Bagiński, Katarzyna Anikiej, Anna Kożuchowska
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Type of the paper: Research paper
Introduction and aim. In the area of paediatric cardiac care, the transition towards personalised therapy is highlighted by the use of event Holter monitors. These compact, sophisticated devices are transforming arrhythmia detection and management, marrying bespoke care with the latest technology. By seamlessly connecting with IoT and medical telemetry, they offer tailored monitoring for each child's unique cardiac rhythm, enhancing diagnostic accuracy and facilitating treatments that acknowledge the individual needs of every patient.
Material and methods. Our methodology focused on the EHO-Mini device for cardiac monitoring in paediatric patients, integrating IoT and medical telemetry for precise ECG data collection and remote transmission. This advanced technology facilitated tailored cardiac care through customizable lead configurations and automated alerts, ensuring patient safety and comfort. We analysed paediatric cases from the Medical University of Bialystok, assessing the device's effectiveness and its role as a smart healthcare solution. This approach highlighted the potential of telemetric Holter monitoring in enhancing paediatric cardiac diagnostics and patient management.
Results. From September 2020 to March 2023, our study analysed telemetry data from 186 paediatric patients, revealing a significant increase in its use for cardiac diagnostics, with over 12,000 studies conducted. This highlights the vital role of telemetry in identifying critical cardiac issues, leading to direct clinical actions such as 33 ablations. Real-time ECG monitoring and analysis facilitated immediate interventions for severe arrhythmias, showcasing the importance of telemetry in modern paediatric cardiology. Statistical evaluations confirmed the effectiveness of telemetry in diagnosing diverse cardiac conditions, emphasising its impact on improving patient outcomes.
Conclusion. Our study highlights the crucial impact of the EHO-MINI Event Holter in enhancing paediatric cardiac care, proving its efficacy in arrhythmia detection and enabling precise interventions. These advancements underscore the vital role of telemetry in modern paediatric cardiology, significantly improving diagnostic and treatment accuracy.
Keywords. Arrhythmia Management, Cardiac Care, Continuous ECG Telemetry

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Title of presented paper: Advancing cardiac care: the impact of continuous ECG telemetry on managing complex arrhythmias

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Supervisor: Artur Bossowski

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Type of the paper: Clinical case

Introduction and aim. The treatment of complex cardiac conditions in young patients involves a holistic approach, incorporating advanced diagnostics and implantable devices for conditions like chronic heart failure, arrhythmias. This complexity is magnified by concurrent issues such as congenital heart defects and systemic conditions like Hashimoto disease. This case study highlights the importance of integrated medical interventions and continuous care adjustments for optimal outcomes.

Description of the case. A 17-year-old female with a complex medical history including chronic heart failure and paroxysmal tachycardia with variable QRS complexes, has undergone significant

interventions such as the implantation of an endocavitary cardioverter-defibrillator (ICD) and left-sided sympathectomy, amidst managing Hashimotos thyroiditis and a corrected atrial septal defect (ASD) II with an Amplatzer implant. She was qualified for continuous ECG telemetry due to the non-specific nature of her symptoms, which posed a considerable challenge in clinical management and diagnostic approach. The introduction of telemetry, particularly through the PRO PLUS system at the Białystok University Children's Clinical Hospital, facilitated a significant breakthrough in monitoring her condition. Over the past three years, this technology enabled the detection of numerous arrhythmic incidents, greatly reducing the necessity for emergency interventions during symptom onset.

Conclusion. The implementation of continuous ECG telemetry significantly enhanced the management of the patients cardiac condition, enabling precise monitoring and reducing emergency interventions. This advancement underscores the importance of innovative technologies in improving cardiac healthcare outcomes.

Keywords. Arrhythmia Management, Cardiac Care, Continuous ECG Telemetry, Patient Case Study

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Title of presented paper: A patient with dysmorphic features and spastic paraparesis of the lower extremities with mutations of GRID2 and SETX genes

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Type of the paper: Clinical case
Introduction and aim. A heterozygous c.1139G>C mutation (p.Gly380Ala) of the GRID2 (delphilin-glutamate receptor delta-2) gene, may be related to cerebellar spinal ataxia type 18 (OMIM: 602368). The c.5322G>T mutation (p.Gln1774His) of the SETX gene (senataxin 608465), may play a role in the development of spinal cerebellar ataxia with axonal neuropathy type 2 or amyotrophic lateral sclerosis type 4 (juvenile form, OMIM: 602465)..
Description of the case. A mother and her six-year-old son came to the Genetic Outpatient Clinic with a complaint of spastic paraparesis of the lower extremities and dysmorphic features. In the patient's medical history, a problem with walking and a wobbly posture was noted. Standing and independent walking stage occurred around the age of two years. The patient showed delayed speech development, and rehabilitation made moderate progress. The child's posture and walk suggested the presence of neuromuscular disorders. During walking, the patient showed inward rotation of the right foot, with Babinski's and Chaddock's signs bilaterally positive. MRI of the brain showed moderate dilatation of the ventricular system. Genetic test showed mutation of 5 genes, while mutations of GRID2 and SETX genes are clinically relevant.
Conclusion. Despite the genetic tests performed on the patient, the found variants do not explain the proband's current phenotype, according to the available current knowledge.
Keywords. Genetic Mutation, GRID2 Gene Mutation, SETX Gene Mutation

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Title of presented paper: Abnormal CHD4 and ZMYM3 gene variants – case report

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Type of the paper: Clinical case

Introduction and aim. Sifrim-Hitz-Weiss syndrome is a disorder with an autosomal dominant inheritance mode with delayed intellectual development and coexisting defects of multiple systems (skeletal, circulatory, genitourinary). Some patients may present with short stature, enlarged head circumference and thickened facial features. Pathogenic variants of the CHD4 gene are responsible for the occurrence of the disorder.

Description of the case. Parents with a one-year-old boy came to the Genetics Clinic for further diagnosis of developmental disorders and facial dysmorphia. The child is visibly delayed in terms of physical as well as psychomotor development. He does not hold his head and does not sit up. In addition, the patient was diagnosed with dilated ventricular system, anemia, hypertrophy, cardiovascular defects, cryptorchidism and respiratory failure. As recommended, a TRIO-WES test was performed on the proband and his parents. The result of the test indicated the presence of ZMYM3 gene mutations in a hemizygous pattern for the boy and in a heterozygous pattern for the healthy mother, indicating a possible sex-linked pattern of inheritance. In addition, the study revealed an abnormal mosaic de novo variant of the CHD4 gene, which was linked to Sifrim-Hitz-Weiss syndrome.

Conclusion. Based on the TRIO-WES study, the genetic cause of the patient's symptoms was not clearly established. Analysis of the morphological phenotypic features and the systemic defects of the internal organs found signify the possibility of a disorder in association with the CHD4 gene variant found. Currently, there is no literature data on cases of pathogenic CHD4 gene variants in the mosaic system. The influence of mutations in the ZMYM3 gene (XL, OMIM 300061), responsible for intellectual development disorders compressed with X-chromosome type 112 (OMIM 301111), which has also not been described in the literature, cannot be excluded.

Keywords. CHD4, Dysmorphia, Developmental Delay, Mutations, ZMYM3

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Title of presented paper: Challenges in the diagnosis of autism spectrum disorder in young women and girls: a systematic literature review

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Type of the paper: Review paper

Introduction and aim. Girls and women with autism frequently go undiagnosed, receive incorrect diagnoses, or are diagnosed later in life. This delay or misdiagnosis can lead to negative impacts on their overall well-being, mental health, educational attainment, employment opportunities, and ability to live independently. The diagnostic criteria for autism, as outlined in major classification systems, have historically been based predominantly on observations and research involving males. The aim of this work is to review unique manifestation of symptoms of autism in girls and females.

Description of the case. A comprehensive review of the literature available on PubMed was conducted to explore the challenges in diagnosing autism among girls and women. A total of 339 articles were initially screened. Exclusions were made for non-English language articles, those lacking full text, and those focusing on unrelated topics. Ultimately, 17 publications were selected for analysis in this narrative review.

Analysis of literature. Diagnostic criteria often overlook the distinct way autism presents in females, characterized by their enhanced compensatory abilities and adeptness at masking traits, making their social interactions resemble those of typically developing girls. Furthermore, many standard autism screening and assessment tools may not detect these differences. Current diagnostic instruments, considered the gold standard, do not explicitly measure sex-specific variations in autistic behaviors like camouflaging, raising concerns about potential under-diagnosis of girls compared to boys. Additionally, autism in females often coincides with a high prevalence of comorbidities during adolescence, including anxiety disorders, tic disorders, depression, elevated suicide rates, eating disorders, and various other medical issues

Conclusion. Concerns arise that girls are systematically under-diagnosed compared to boys because current gold standard diagnostic instruments fail to explicitly measure sex-specific differences in autistic behaviors, including camouflaging.

Key words. Autism Presentation in Females, Autism Spectrum Disorder, Masking Traits

Poster session

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Title of presented paper: Exploring the Impact of Vaping on Reproductive Health: A Systematic Review

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Supervisor: Piotr Tutka

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Type of the paper: Review paper

Introduction and aim. Infertility affects 186 million people worldwide. Electronic cigarettes (EC, vaping) use is increasing dramatically particularly among adolescents and young adults. There are serious concerns about the potential impact of EC on human reproduction. The aim: To review the existing evidence on effects of vaping on reproductive health.

Material and methods. Four databases (PubMed, Google Scholar, ScienceDirect, Medscape) were systematically searched for studies published from July 2014 to March 2023 in English. The search terms were "vaping", "electronic cigarettes", "fertility", "reproductive health" in the title or abstract or as keywords. A total of 72 references, excluding duplicates, were identified.

Analysis of literature. While data on the impact of EC on human reproduction are limited, numerous studies investigated their effect in animal models. The effect of EC on reproduction can result from the toxicity of nicotine, flavours, formaldehyde and heavy metals, however, the precise mechanism of the toxicity is hard to determine. Vaping was reported to alter male gonadal structure and semen quality, increases intratesticular oxidative stress, decreases testosterone levels, reduces sperm counts, motility and morphology, and disturbs sexual/erectile function. Moreover, the findings suggest potential mutagenic effects of EC on sperm. There is no clear evidence looking at alterations in oocyte quality and fertilization in women. However, in mice exposed to EC vapour estrogen levels were reduced. The main limitations of the analysed studies were their methodological inconsistencies (numerous varying components in e-liquids, animal models, conditions etc.).

Conclusion. There is a growing body of experimental studies that EC can exert numerous adverse effects on male and female fertility. Further investigations, particularly in humans should be conducted to identify precise adverse effects of EC on fertility. However, the EC users should be warned about the potential harmful effect of vaping on their reproductive health.

Keywords. Electronic Cigarettes, Fertility, Vaping, Reproductive Health

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Title of presented paper: Deep sea toxins: essential first aid for marine toxin injuries

Authors: Michał Orczyk
Supervisor: Kamil Jurowski

Affiliation: Toxicology Club "Paracelsus", Institute of Medical Studies, Medical College, Rzeszów University, Rzeszów, Poland

Type of the paper: Review paper

Introduction and aim. Envenomations with toxins from marine animals are a common problem that occurs worldwide, especially in tropical and warm waters, but also in areas like the Baltic Sea. Thus, they are a vital concern for the healthcare of coastal regions supporting local residents and tourists. The aim of this poster is to provide basic information on first aid in case of marine envenomation from various animals for medical students during encounters with marine wildlife.

Material and methods. A literature review of six articles was carried out, relying on scientific articles in English in the Google Scholar and PubMed databases. The following keywords were searched: ,,marine envenomation", ,,first aid" with a timeframe of 2000–2023.

Analysis of literature. Some species of marine creatures are particularly dangerous. This scientific work focusses on envenomations by cnidaria, stingrays and sea urchins. In most cases, prevention is enough, for example, protective equipment or awareness of danger. However, if encounter with venomous animal occurs, it is crucial to know the characteristic symptoms of the envenomation, such as swelling, pain or erythema, and to know the procedure in first aid. Prehospital care includes several steps, for instance, removal of the sting, hot-water or vinegar immersion, and administration of analgesic drugs.

Conclusion. Despite the fact that marine envenomations are quite easily preventable, they may still occur. It is then significant for medical students and anyone to know how to react in such cases. With proper knowledge of first aid, the patient can be effectively helped in prehospital care.

Keywords. Emergency Medicine, First Aid, Marine Envenomation

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Title of presented paper: Unearthing the Perils: A Deep Dive into Poland's Poisonous Plants

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Type of the paper: Review paper
Introduction and aim. Exploring Poland's flora unveils a fascinating yet potentially perilous aspect: poisonous plants. Poland hosts various species with toxic properties, presenting challenges to both avid botanists and unsuspecting passersby. Understanding these plants is crucial for environmental conservation, public safety, and medicinal research. This work delves into Poland's diverse botanical landscape, highlighting notable poisonous species, their effects, and contemporary relevance in both natural and cultural contexts. The aim is to introduce the concept of toxicovigilance in the context of preventing poisonings caused by toxic plants found in Poland.
Material and methods. Various data sources were used during the preparation of this work, such as scientific search engines (PubMed, Google Scholar), available academic textbooks, and widely understood "grey" literature.
Analysis of literature. Data collected for this work came from different sources, mostly available articles, academic textbooks, and 'grey literature'.
Conclusion. The study of poisonous plants in Poland underscores the role of toxicovigilance in the form of comprehensive research, public awareness, and proactive measures to mitigate the risks associated with poisonous plant species.
Keywords. Poisonous plants, Prevention, Toxicovigilance

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Title of presented paper: Botulinum toxin – modern therapy of neurogenic bladder in neurological patients

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Supervisor: Halina Bartosik-Psujek

Affiliation: College of Medical Sciences, University of Rzeszów, Rzeszów, Poland

Type of the paper: Review paper

Introduction and aim. The aim of the study was to provide an overview effectiveness of botulinum toxin injection in patients with neurogenic bladder, based on the literature analysis.

Material and methods. The PubMed scientific database was searched using words such as: "botulinum toxin", "neurogenic bladder", "urinary incontinence". Achieved 57 records published from 2020 to 2024. Four randomized clinical trials conducted in patients >18 years of age were included in the final analysis.

Analysis of literature. The studies looked at a total of 745 patients. There were patients with multiple sclerosis or spinal injury, and these conditions caused a neurogenic bladder that was resistant to pharmacological treatment. Patients received botulinum toxin type A at different therapeutic doses: 200, 240j+60j, 600j, 800j. The injection site was the displacement muscle or in the bladder triangle region. All studies showed a reduction in the number of episodes of neurogenic urinary incontinence due to displacement overreactivity and an improvement in quality of life. The most common side effects were hematuria, urinary tract infection, bladder discomfort and autonomic dysreflexia.

Conclusion. Botulinum toxin is a safe alternative for neurogenic bladder patients non-responsive to pharmacological treatment or in which multiple effects are present side effects of such treatment. In the treatment of neurogenic displacement hyperactivity, the main goals are to protect the upper pathways urinary tracts by lowering intra-bladder pressure and increasing bladder and improve quality of life by reducing urinary incontinence

Keywords. Botulinum Toxin, Neurogenic Bladder, Urinary Incontinence

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Title of presented paper: Hypnosis and hypnotherapy

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Type of the paper: Review paper

Introduction and aim. Research on the neurophysiological basis of hypnosis has been conducted since the 19th century, but only the current progress in neuroscience has made it possible to understand the phenomena accompanying hypnosis. The aim of this study to demonstrate the neurophysiology and therapeutic applications of hypnosis while also demonstrating the enormous clinical potential of this technique.

Material and methods. A systematic review of literature was conducted using the PubMed and Google Scholar databases using filters related to the type of articles.

Results. Studies have demonstrated that hypnosis modify both the external (environmental awareness) and internal (self-awareness) brain networks. Neuroimaging has shown that changes in brain regions associated with a particular psychological function correspond to changes in subjective responses to suggestions. Recent study indicates that when a person imagines something while in hypnosis, the same brain regions are active as when they experience that thing in real life. Furthermore, numerous studies demonstrate how hypnosis can effectively reduce pain. The primary focus is on pain in the context of cardiac and intensive care procedures, toothaches, and childbirth, among many other conditions. Hypnosis also appears to be a promising treatment option for improving weight loss, eating awareness, and reducing emotional eating. However, we cannot forget about its great importance in the treatment of psychiatric disorders, including: depression, anxiety, pain, psychosomatic and sexual disorders, addictions, and personality disorders.

Conclusion. What is more, there is growing evidence that hypnosis can be a helpful tool for patients and medical professionals to manage a range of conditions.

Keywords. Brain Regions, Hypnosis, Pain, Therapy

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Title of presented paper: Difficulties among women in the prevention of cervical cancer

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Type of the paper: Research paper
Introduction and aim. Cervical cancer is one of the most common cancers in women. According to widely available analyses, cancer diagnosed at an early stage is completely curable. This highlights the important role played by prophylactic examinations with a gynecologist, knowledge of risk factors and early symptoms of the disease. To address this need, we conducted a study among women to check their level of knowledge about prevention and to identify the difficulties they face.
Material and methods. The study used the method of diagnostic survey using the survey technique. The research tool was the original questionnaire of the survey consisting of 25 single or multiple choice questions, distributed via social networks (Instagram, Facebook) SKN Prevention of Civilization Diseases among women aged 18–55. The topic of the survey focused on issues related to gynecological visits and related adverse events, cytological examination and news about the Universal Cervical Cancer Prevention Programme.
Results. The study involved 120 women. After a preliminary analysis, it turned out that despite the fact that a significant proportion of women are aware of the importance of prophylaxis, nearly 40% of them do not attend prophylactic visits in gynecological offices. The main difficulties indicated by the respondents in making an appointment are the long waiting time for visits to the National Health Fund (23%) and the difficulty in registering for the date chosen by the patient (20%). The survey also asked about the Universal Cervical Cancer Prevention Program. 59 (8%) of respondents heard about it but only 2 (3%). Due to the low popularity of the Program, women are unaware of its conditions that allow them to take advantage of this opportunity. Unanimously, respondents note the need for greater popularity of the Programme both in health care facilities and on the arena of popular social networks, which currently have the largest audience. An online patient account, which would send relevant notifications, would also be a helpful tool in promoting the Programme.
Conclusion. The work was focused on an important aspect of the life and health of every woman. The results show that the female community requires continuous education in terms of prevention of cervical cancer. Also, the Cervical Cancer Prevention Program introduced by the National Health Fund needs to be amended, especially in its promotion, so that as many women as possible are aware of the possibility of using it and take care of a long, healthy life.
Keywords. Cervical Cancer, Ginecology, Prophylaxis, Woman

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Title of presented paper: Protein oxidation products in cystic fibrosis

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Type of the paper: Research paper
Introduction and aim. Cystic fibrosis (CF) is one of the most common, yet fatal genetic diseases in Caucasians. The presence of a defective CF transmembrane conductance regulator and the massive neutrophils influx into the airways contribute to imbalance in epithelial cell processes and extracellular fluids, and lead to excessive production of reactive oxygen species and intensification of oxidative stress. The concentration of protein oxidation products were estimated in the serum of the subjects with CF and healthy controls.
Material and methods. A single-center study was conducted in a sample of 42 CF patients, as well as in 16 control subjects. Advanced oxidation protein products (AOPP) and content of thiol groups were estimated in patients' sera.
Results. There were no differences in AOPP concentration between the groups ($p>0.05$). Our study indicates that the concentration of thiol groups was significantly lower in CF participants compared to control subjects (491.57±86.34 vs. 591.65±67.8 μmol/L, $p<0.001$). Analysis of bacterial infection and oxidative stress markers revealed that there was no difference in the concentration of AOPP. We found a significantly decreased concentration of thiol groups in CF participants infected with *Staphylococcus aureus* ($p<0.01$) as compared to healthy subjects.
Conclusion. Elevated levels of oxidative stress including products of protein were found in the serum of patients with CF. The presence of bacterial infection with *S. aureus* had only effect on thiol groups while co-infection by two species did not affect the level of oxidative stress which may suggest that oxidative stress is not affected by bacterial infection in CF.
Keywords. Biomarkers, Cystic Fibrosis, Oxidative Stress

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Title of presented paper: Serum and urine total antioxidant capacity in patients with prostate cancer

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Type of the paper: Research paper
Introduction and aim. Prostate cancer is one of the most commonly diagnosed cancers in developed countries and the fifth leading cause of death, with an estimated 1.4 million diagnoses worldwide in 2020. The relationship between oxidative stress and prostate cancer development has been frequently discussed. However, data on total antioxidant capacity (TAC) in subjects at high risk for prostate cancer remain elusive. This study aimed to investigate the differences in TAC in the blood serum and urine of patients with prostate cancer compared to a control group.
Material and methods. 50 men with prostate cancer and 45 healthy men as a control group were included. We determined the serum and urine TAC measured by method with ABTS• and FRAP.
Results. TAC measured by the method with ABTS• was significantly lower in men with prostate cancer than in healthy controls (210.15 vs. 285.27 μmol TE/L, $p<0.001$). However, this result was not confirmed in the TAC method with FRAP. For urinary markers, we observed that there was no difference in the TAC measured by ABTS• between the study groups. However, there was a significantly decreased TAC determined by FRAP (451.44 vs. 564.90 μmol TE/L, $p<0.05$).
Conclusion. Our study showed the evidence of association of oxidative stress in patients with prostate cancer.
Keywords. Biomarkers, Oxidative Stress, Prostate

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Title of presented paper: Nodular prurigo as a manifestation of mental disorders – case description of a 60-year-old woman

Authors: Aleksandra Roztoczyńska, Martyna Orzechowska
Supervisor: Justyna Szczęch

Affiliation: Dermatological Student Club, University of Rzeszów, Rzeszów, Poland

Type of the paper: Clinical case

Introduction and aim. Prurigo nodularis (PN) is a chronic skin response to scratching, manifested as numerous, pink or bluish-red nodules, usually located on the distal parts of the limbs, less frequently on the trunk. The condition can develop at any age and can be associated with various diseases that cause itching, both dermatological (e.g., atopic dermatitis) and internal (e.g., itching in kidney failure or diabetes). Increasing attention is being drawn to prurigo developing in the context of psychiatric disorders, such as depression or anxiety disorders, where merely treating dermatological symptoms may not be sufficient, and psychiatric treatment and specialized psychological care for patients become essential. **Aim:** Present the case of a 60-year-old woman suffering from nodular prurigo, which developed after a severe psychological stress.

Description of the case. A 60-year-old woman was admitted to the Dermatology Clinic due to worsening, itching skin lesions characterized by nodules located on the trunk and extensor surfaces of the limbs. The patient had previously been hospitalized for bothersome symptoms, but without success, hence the purpose of admitting the patient to the department was to determine further diagnostic and treatment procedures. Upon admission to the clinic, numerous partially scratched nodules with a diameter of approximately 2 cm were observed, as well as scabs, scars, and discoloration. The patient complained of increasing itching. Peripheral lymph nodes were not enlarged, and there were no other symptoms from other systems.

Conclusion. The described case indicates that the underlying cause of severe skin dermatosis, nodular prurigo, is a psychiatric disorder, and its resolution requires psychiatric consultation.

Keywords. Pruritus, Prurigo Nodularis, Mental Disorders

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Title of presented paper: Prevention and mechanism of poisoning of Amanita mushrooms – a case reports

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Type of the paper: Review paper

Introduction and aim. Toadstool poisoning returns every year as a very unpleasant issue related to the fall mushroom harvest period. The phallus mushroom (*Amanita phalloides*) resembles another edible species of mushroom, the cape mushroom (*Macrolepiota procera*). The mechanism of poisoning, the low toxic dose and the initial asymptomatic period of poisoning make it the most dangerous mushroom species that can be found in Polish forests. This work aims not only to precisely discuss the mechanism by which poisoning with the above-mentioned mushroom occurs but also to prevent its poisoning by showing the characteristic structures by which we can accurately identify the phalloide mushroom.

Material and methods. The information used to write this work came from scientific articles, academic textbooks, and publicly available sources.

Analysis of literature. When preparing the work, databases of scientific articles (PubMed, Google Scholar), current academic textbooks, guidelines, and the so-called "grey literature".

Conclusion. Current knowledge emphasizes the role of education and social awareness about the toxicity of the Amanita phalloides and its recognition in the prevention of poisoning and awareness of the consequences that can occur in the event of eating this mushroom.

Keywords. Amanita phalloides, Toxicovigilance, Poisoning Prevention

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Title of presented paper: High-dose methotrexate treatment in pediatric population – application of novel LC-MS/MS Method to therapeutic drug monitoring

Authors: Aleksandra Mikulska, Bartłomiej Kot, Mateusz Moczulski, Agnieszka Czajkowska
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Type of the paper: Research paper

Introduction and aim. Methotrexate (MTX) is a cytostatic drug used in cancer chemotherapy, especially in the lymphatic system (HDMTX). It is a highly toxic drug with documented prevention of side effects using compensatory therapy with leucovorin. During pharmacotherapy with MTX, routine monitoring of MTX and serum creatinine concentrations is performed while the dose of leucovorin infusion is adjusted simultaneously. The study aimed to introduce a novel method for simultaneous MTX and creatinine determination in routine TDM in the pediatric population.

Material and mehods. The previously validated LC-MS/MS (liquid chromatography-tandem mass spectrometry) method has been successfully introduced for simultaneous determination of MTX and creatinine in the same, low volume of the serum or plasma - 40µL. In the study, the 5 pediatric patients with leukaemia treated with MTX were introduced as a pilot trial. The serum or plasma samples were collected at selected time points (24 – 48 – 72h, etc.) from the infusion started. Subsequently, the MTX and creatinine concentration levels were measured using the LC-MS/MS technique.

Results. The measured concentrations of MTX interpreted concomitantly with creatinine levels were acceptable – the toxic effects were not observed clinically. The MTX concentrations were relatively low – ranging from 0.03 to 3.83 µmol/L. The method has been controlled by an international, external proficiency testing scheme.

Conclusion. The validated and successfully implemented clinical practice method for simultaneous determination of MTX and creatinine may be a good alternative for routinely used automatic immunochemical methods burdened with higher measurement bias.

Keywords. HDMTX, Leukaemia, Methotrexate, Creatinine, Therapeutic Drug Monitoring

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Title of presented paper: Knowledge, attitude and practices of dental students of Ukrainian University on their oral health

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Supervisor: Nataliia Yanko

Affiliation: Poltav State Medical University, Ukraine

Type of the paper: Research paper

Introduction and aim. Students studied Master's degree in Dentistry play important role in promotion of maintaning of oral health in their patients. Previously, some parameters of oral health were examined in the students of Poltava state medical university, but knowledge, attititudes and practices of dental students on their oral health were not studied yet.

Material and methods. To study knowledge, attitudes and practices of dental students on their oral health, and some their dental indices. The consent form and information sheet of the research project were emailed to each participant. After receiving the participants' consent, students got the link to the Google form with anonymous survey. It was conducted dental examination with DMF, OHI(S) indices and gingival index Silnes-Loe, also orthodontic pathology was examined. Data were analyzed statistically with t criteria.

Results. 58 students of the 2 year and 40 students of 4 year agreed to be interviewed. More 88% of the students showed knowledge about the most of questions about oral health. 88.4% of the students answered that brush teeth twice day, and 82.1% – brush for 2 min and more. 53.2% of students answered that use dental mouthwash and 72.3% – dental floss. 64.2% of students come to dentist for check-ups. Knowledge, attitudes and practices of showed no difference between dental students of the second and the fourth year. 23 students of the 2 year and 19 students of the 4 year agreed to be examined. Students of the second year had smaller DMF ($p<0.05$), bigger OHI(S) index ($p<0,001$), but orthodontic pathology and gingival index were not different ($p>0.1$).

Conclusion. Examined students showed adequate knowledge, attitudes and practices on their oral health. These data might positively impact students' ability to explain this information to their patients.

Keywords. Attitude, Knowledge, Practice, Oral Health, Students

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Title of presented paper: What do medical students think of own participation as subjects in clinical trials?

Authors: Aleksandar Sič, Tatjana Gazibara
Supervisor: Tatjana Gazibara

Affiliation: Institute of Epidemiology, Univeristy of Belgrade, Belgrade, Serbia

Type of the paper: Review paper

Introduction and aim. Testing of new drugs by means of clinical trials is essential in efforts to increase generalizable knowledge. Little is known about the medical students' perception of own participation as research subjects in clinical trials. The aim of this study was to examine willingness and attitudes of medical students toward own participation as volunteer subjects in clinical trials. The aim of this study was to examine willingness and attitudes of medical students toward own participation as volunteer subjects in clinical trials.

Material and methods. A cross-sectional study was conducted among 297 medical students in years 4, 5 and 6 at the University of Belgrade, from October to December 2023. Participants completed a pen-and-paper questionnaire including demographic characteristics, opinions on own participation in clinical trials, and attitudes toward clinical trials in general. Validity of the attitude scale was verified.

Results. One in five medical students expressed a positive opinion about own participation in clinical trials, with the majority (about one-half) remaining undecided. General attitudes of students about research and own participation were positive. Students with prior blood donation experience were more willing to participate. Lower socio-economic status and volunteering experience were also associated with more positive attitudes toward clinical trials in general.

Conclusion. Most students were undecided about own participation, but their attitudes toward clinical trials in general were positive. Positive general attitudes towards clinical trials did not uniformly translate to willingness for personal participation. Promotion of blood donation and volunteering at universities could be beneficial in providing students with hands-on experience with sharing of personal material and non-material properties for the purpose of common good.

Keywords. Clinical Trials, Medical Students, Participants

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Title of presented paper: Adherence evaluation during immunosuppressive therapy after transplantation

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Type of the paper: Research paper

Introduction and aim. Incompatibility with treatment regimens is a complex problem, especially in adolescents and children after transplantation. Long-term transplant outcomes in adolescents are disappointing despite excellent one-year graft survival. The primary risks of non-compliance are non-use of immunosuppressive drugs, low-income family support and poor mental functioning of the child. For example, lifelong treatment with tacrolimus (TAC, cornerstone of immunosuppressive therapy) is required for all transplant patients to avoid episodes of chronic or acute rejection. The study aimed to assess a new microsampling technique – volumetric absorptive microsampling (Mitra®) for remote therapeutic drug monitoring in pediatric patients after renal transplantation.

Material and methods. The 30 patients after renal transplantation (KTx) treated at The Children's Memorial Health Institute in Warsaw were included in the trial. The LC-MS/MS (liquid chromatography-tandem mass spectrometry) determined the TAC levels in self-collected microsampling devices. The samples were collected by patients (or legal guardians) at home and then sent to the pharmacokinetics laboratory with a questionnaire paper. The adherence has been evaluated based on TAC concentration variation and questionnaire survey results in each case.

Results. Following the results of TAC quantification and questionnaire survey, more than 95% of the patients during the 6-month observation period were presumed as adherent to immunosuppressive therapy. The results from home-based self-sampling TDM of tacrolimus could be used for pharmacotherapy optimization, including adherence evaluation.

Conclusion. Introducing the VAMS as a sampling strategy common with questionnaire evaluation could significantly increase adherence in pediatric patients after renal transplantation..

Keywords. Adherence, Renal Transplantation, Tacrolimus, Therapeutic Drug Monitoring

Oncology session

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Title of presented paper: Clinical challenges and multidisciplinary management of giant cell tumors: a case study of a tumor of the anterior cranial fossa

Authors: Piotr Starnawski
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Affiliation: Collegium Medicum of the Jan Kochanowski University in Kielce, Poland

Type of the paper: Clinical case

Introduction and aim. Giant cell tumor (GCT) is one of the most common benign tumors, which usually occurs in young adults. It is thought that the origin of GCTs is in the stromal cells of a bone marrow. GCTs are composed of round mononuclear stromal cells and giant multinucleated cells. Mostly it develops in the long bones-proximal tibia or humerus, and distal femur or radius, but can occur in unusual locations.

Description of the case. A 48-year-old male, with left-sided hearing loss since childhood, was hospitalized for a right-sided tinnitus and investigation of the cause of his deafness. A CT scan revealed a 45mm heterogenous soft tissue mass in the sphenoid sinus. The patients' visual acuity in the left eye had gradually deteriorated, leading to consultation with an ophthalmologist who diagnosed functional damage to the optic nerves (CN II). An MRI, biopsy and histopathological examination confirmed a GCT. Post-surgery, vision in the left eye gradually improved, but there was a gradual loss of vision in the right eye, currently on the verge of blindness. A GCT metastasized to the ethmoid cells, medial parts of the orbitals and maxillary sinuses. The tumor was partly embolize with Squid18 and removed via endoscopic access through the nasal cavity, resulting in complications: hypopituitarism and SIADH syndrome. The tumor was vascularized by right and left maxillary artery, right anterior and posterior ethmoid arteries, and left posterior ethmoid artery. Although the embolization was completed prematurely, approximately 80% of the tumor volume was removed. The tumor recurred and was partially removed. The patient started treatment with denosumab, which improved his condition. Now the patient begins chemotherapy treatment.

Conclusion. The case presents highlights of the clinical challenges associated with Giant Cell Tumors, emphasizing their potential for aggressive growth and recurrence even after initial intervention. This case underscores the importance of a multidisciplinary approach and continued research.

Keywords. Giant Cell Tumor, Denosumab, Tumor of the Anterior Cranial Fossa, Schwartz-Bartter Syndrome

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Title of presented paper: Successful chemotherapy of a recurrent anaplastic oligodendroglioma with irinotecam

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Type of the paper: Clinical case

Introduction and aim. Anaplastic oligodendrogliomas are fast-growing gliomas accounting for 4.5% of primary neuroepithelial neoplasms. They typically occur in frontal lobes in young adults. Current treatment recommendations suggest maximal resection followed by focal radiotherapy, with or without procarbazine, lomustine, and vincristine chemotherapy, or temozolomide chemotherapy. Some studies indicate the efficacy of irinotecam or combination of bevacizumab and irinotecan in the treatment of recurrent malignant gliomas

Description of the case. A 33-year-old man was admitted to the Neurology department with paresthesias of the left side of the body. MRI revealed changes indicating a cancerous process in the right temporal-occipital region. Consequently, it was decided to surgically remove the tumor by craniotomy. The post-operative histopathological examination classified the neoplasm as an anaplastic oligodendroglioma. Subsequently, the patient underwent adjuvant radiotherapy and chemotherapy with procarbazine, lomustine, and vincristine with good results. After 4 years, a follow-up MRI revealed tumor progression, prompting the decision to undergo reoperation and receive a supplementary chemotherapy with temozolomide. However, after six months, renewed progression in the brainstem region was observed. Since radiotherapy and gamma knife could have put the patient at risk of severe side effects, chemotherapy with irinotecam was chosen as the safest option. The treatment resulted in total regression of the tumor and currently no signs of a recurrence are seen.

Conclusion. Irinotecam represents a suitable treatment option for recurrent anaplastic oligodendrogliomas. Further research into the usage of diverse chemotherapy regimens for treating neoplasms is worthwhile, especially in the cases where other therapeutic options underperformed.

Keywords. Anaplastic Oligodenroglioma, Chemotherapy, Irinotecam, Neuroncology

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Title of presented paper: The role of genetics and family history in prostate cancer risk

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Type of the paper: Review paper

Introduction and aim. Prostate cancer (PC), most commonly adenocarcinoma, presents with a multifactorial etiology among which, unmodifiable risk factors such as a positive family history and genetic background, especially the presence of germline mutations in the BRCA genes (BRCA1/2) appear to be of great relevance. This paper aims to present the relative risks associated with the previously mentioned factors to provide a better understanding of PC within families and relatives.

Material and methods. Various studies and analyses from recent years were viewed to get an overview of the relative risks connected the presence of positive family history and/or germline mutations when compared to non-carriers and unaffected family constellations. Studies were review with reference to the risks of developing prostate cancer and biochemical reoccurrence along with the prognostic value of PC in people with present BRCA1/2 mutation and/or PC affected relatives.

Analysis of literature. Analysis lead to estimate that PC-associated BRCA germline mutations translate into a higher risk of disease development and recurrence and increased prostate cancer specific-mortality. Family member of PC affected relatives are at increased risk to develop PC themselves and at earlier age too. The greatest risk is displayed by higher numbers of affected first-degree relatives.

Conclusion. Germline mutations and positive family history represent clear risks in the development of PC and its associated elements. Therefor it is important to consider these factors during urological examinations when cancer is suspected and to check for the development of new screening tools which take hereditary and familial aspects of PC into account.

Keywords. BRCA Genes, Family History, Prostate Cancer, Risk

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Title of presented paper: Invisible disease with visible repercussions – a case of carcinoma occultum

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Supervisor: Katarzyna Sędłak

Affiliation: Department of Surgical Oncology, Medical University of Lublin, Poland

Type of the paper: Clinical case

Introduction and aim. Carcinoma occultum poses a challenge for today's medicine. In this case has been described as a metastatic axillary lymph node lesion originating from an elusive breast tumour. We herein report about a diagnostic and therapeutic journey of a patient presenting this rare clinical finding.

Description of the case. A 54- year old woman was presented to Department of surgical oncology, Medical University of Lublin due to right axillary adenopathy detected in routine gynaecological examination in April 2023. The biopsy of regional lymph nodes has been performed in early May 2023 and revealed metastatic lesions of unknown primary TXN3M0, suggesting breast cancer aetiology. Later, USG, mammography, X- ray, CT, MR and PET- CT imaging have been deployed without any results. Due to clinical history and histopathological examination, the patient was qualified for neoadjuvant TCHP chemotherapy by the multidisciplinary tumour board with good results. After 6 doses of TCHP, radical modified mastectomy has been performed in October 2023. Postoperative histopathological examination revealed no breast cancer occurrence in the removed lesions ypTx ypN0. The patient was qualified for postoperative treatment. She remains under treatment with 12 doses of Herceptin and adjuvant radiotherapy in a good condition.

Conclusion. Despite diagnostic methods evolution and administration of different therapeutic strategies, there are still diseases which are undetectable. In such situations, multidisciplinary cooperation and individual approach to the patient is crucial for the cure.

Keywords. Breast Cancer, Carcinoma Occultum, Oncology

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Title of presented paper: Lacrimal pleomorphic adenoma leading to orbital exenteration

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Type of the paper: Clinical case

Introduction and aim. Pleomorphic adenoma, also known as benign mixed tumor, is the most common epithelial neoplasm of the lacrimal gland. It is usually a slow-growing, well-circumscribed mass presenting with painless unilateral proptosis, diplopia, visual impairment, and eyeball displacement. Even though it has malignant transformation potential, patients diagnosed at an early stage generally have an excellent prognosis for vision.

Description of the case. A 58-year-old female presented with luxation of the right globe after feeling pinching under the right eyelid seven days prior. On the physical examination, the right globe was fully luxated through the eyelids with tumorous alternation of the surrounding tissue, conjunctival chemosis, keratotic changes of the cornea, and limited eye movements. Emergency orbital CT showcased a large heterogeneous, dominantly necrotic mass in the right orbit. The mass pushed orbital structures causing proptosis, penetrating the upper and lower eyelid and lacrimal gland. Further procedure included partial exenteration, a surgical procedure involving the removal of the entire globe and its surrounding structures with eyelid preservation. A biopsy of the removed tissue confirmed the diagnosis of pleomorphic adenoma. The patient was discharged symptom-free and in good general condition. On a 2-month follow-up, the patient fully recovered and was in the process of getting an ocular prosthesis.

Conclusion. Lacrimal gland tumors are overall rare and represent approximately 9% of all orbital masses with pleomorphic adenoma taking about 10%. Accurate clinical diagnosis followed by appropriate surgical excision leads to an excellent prognosis. Incomplete excision and malignant transformation are associated with increased mortality proving the necessity of adequate care.

Keywords. Exophthalmos, Lacrimal Gland, Orbit Evisceration, Pleomorphic Adenoma

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Title of presented paper: Retroperitoneal liposarcoma: unveiling diagnostic delays and multimodal treatment dilemmas

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Type of the paper: Clinical case

Introduction and aim. Liposarcomas are a prevalent subtype of soft tissue sarcomas, constituting less than 1% of all malignancies. Originating in the adipose tissue, they can manifest in various locations and are categorized into several subtypes: well-differentiated liposarcomas, dedifferentiated liposarcomas, myxoid liposarcomas, pleomorphic liposarcomas and mixed-type liposarcomas. These tumors typically affect middle-aged and older individuals and their incidence has been progressively increasing over the years. The aim of presenting this case report is to highlight the challenges in managing retroperitoneal tumors.

Description of the case. This report features a 54-year-old patient incidentally diagnosed with a substantial retroperitoneal tumor extending to the antero-lateral abdominal wall and inner thigh via the right inguinal ligament. The patient, with a previous three-year history of a right inguinal mass, sought acute care for a perianal abscess The histological examination revealed morphological aspects consistent with a low-grade myxoid liposarcoma. While surgery remains the primary treatment for retroperitoneal liposarcomas, controversies exist regarding the role of radiotherapy and chemotherapy in improving survival rates.

Conclusion. This case highlights the challenges in managing retroperitoneal tumors and underscores the importance of a personalized, multidisciplinary approach to optimize patient outcomes. As liposarcomas advance they tend to encase blood vessels and major organs. Often asymptomatic initially, symptoms arise as the tumor reaches a considerable size, exerting pressure on adjacent tissues and organs.

Keywords. Liposarcoma, Low-grade Myxoid, Retroperitoneal Surgery

Gynecology session

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Title of presented paper: A 3-stage hysteroscopic procedure for cutting the septum of the uterine cavity – the case of a 31-year-old patient

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Type of the paper: Clinical case

Introduction and aim. Uterine malformations are among the most common congenital abnormalities of the female reproductive system. One such defect is a uterus with a partial septum. Although many patients remain asymptomatic, the presence septate uterus can cause adverse reproductive consequences: infertility, recurrent miscarriages, or preterm labor. The treatment of choice for symptomatic uterine septum is hysteroscopic excision.

Description of the case. A 31-year-old female patient with a bad obstetric history was referred to the Gynecology and Obstetrics Department for a hysteroscopic uterine septum transection. Due to the massive septum, it was decided to perform a staged excision procedure. Gradually, fragments of the septum were resected, cutting out 2/3 of its length (stage I). After the procedure was completed, a copper IUD (NovaT380) was inserted into the uterine cavity. Four months later, the remaining widest ilium of the septum was cut, IUD was inserted (stage II). After two weeks, due to heavy genital tract bleeding, the IUD was evacuated. Four months after the second procedure the remaining part of the septum was cut, reaching almost to the corners of the uterine cavity (stage III). The patient was discharged home in good condition with a recommendation for follow-up after four weeks.

Conclusion. There are positive data on the treatment of this defect. It would be recommendable to extend the diagnosis of uterine malformations, especially for women with fertility problems. Early diagnosis and appropriate treatment allow to obtain satisfactory obstetric outcomes. If the patient has a thick, full uterine septum or coexisting vaginal septum, a staged procedure may be necessary.

Keywords. Hysteroscopy, Müllerian Anomaly, Septate Uterus

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Title of presented paper: Traffic accident involving a pregnant woman – diagnosis and treatment – a case report

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Type of the paper: Clinical case

Introduction and aim. A 27-year-old patient came to the emergency room after a traffic accident. The patient is in her 21st week pregnancy. Without losing consciousness. He reports pain in the lower abdomen, as well as pain in the hip and thigh on the side right. Within the skin around the right iliac plate and abdominal wall third degree treatment. There is a second-degree burn on the right thigh medially. The aim of the study is to present diagnostic and treatment options for a pregnant woman after a traffic accident.

Description of the case. The patient underwent a FAST ultrasound examination. No free fluid was diagnosed in the pleural cavities, pericardial sac or peritoneal cavity. A living, single fetus was visible in the uterus. The patient underwent an MRI examination. The parenchymal organs of the abdominal cavity do not show any post-traumatic changes. No free fluid was detected in the peritoneal cavity. Multiple fractures of the pelvic bones were found. Increased signal intensity on the STIR sequence from the left pubic bone near the pubic symphysis. Numerous hematomas in the vicinity of the fracture fissures. Due to extensive third-degree burns on the right abdominal wall, the patient underwent necrectomy. Due to the patient's condition, it was decided to conservatively treat the fractures and subject the patient to constant care at an orthopedic clinic. The patient was monitored by an orthopedic clinic due to problems with walking and pain in the area of fractures that appeared while lying down. The right lower limb was shortened by approximately 1.5 cm and rotational movements of the right hip were limited. After delivery, a pelvic X-ray was performed. The photo shows abnormal bone union of the fragments. The right anterior part of the pelvis is displaced posteriorly and medially relative to the pubic symphysis.

Conclusion. In the described case, the use of FAST ultrasound allowed for the quick exclusion of the presence of free fluid in the pleural cavities, pericardial sac and peritoneal cavity. It also confirmed that the fetus was alive and undamaged. The MRI examination allowed the woman to be diagnosed with pelvic fractures. An X-ray examination performed after the solution allowed for the assessment of the fracture healing process, which showed abnormal unions. The patient was treated conservatively. The orthopedist ordered rehabilitation treatments and exercises.

Keywords. Car Accident, Electroradiology, Pelvis, Pregnant Woman

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Title of presented paper: The role of Toll-like receptor 4 signaling pathway in ovarian, cervical, and endometrial cancers

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Type of the paper: Review paper

Introduction and aim. Ovarian, cervical and endometrial cancers belong to a group of frequently appearing cancers in the worldwide population. Amid characteristic features the following cancers have one feature in common - the influence of Toll-like receptor 4 on tumorigenesis. The present review paper aims to demonstrate the current overview on the subject of the role of Toll-like receptor 4 signaling pathway in ovarian, cervical, and endometrial cancers.

Material and methods. A systematic review of the literature was conducted using PubMed and Google Scholar databases using filters related to type of articles.

Analysis of literature. Toll-like receptor 4 is a transmembrane protein that is capable of establishing an environment for carcinogenesis through inflammatory response, angiogenesis and cell death. Uncontrolled TLR-4 signaling modifies the tumor microenvironment to proliferate and evade immunological surveillance. TLR-4 was observed to be expressed in both healthy and malignant ovarian cells. Patients who expressed positive TLR-4/myeloid differentiation (MyD88) signaling pathway had significantly shorter survival rate due to rapid ovarian cancer development. TLR-4/MyD88 signaling pathway is discovered to be an important mechanism for chemoresistance. Persistence cervical inflammation may predispose to tumorogenesis led by TLR-4. Furthermore TLR-4 is meaningfully correlated with HPV-16 infection in cervical squamous cell carcinoma. TLR-4 protein levels are indicated primarily in the epithelium and endometrial glands of patients with endometrial cancer.

Conclusion. Analysis of current literature emerged the fact that Toll-like receptor 4 play a crucial role in carcinogenesis through inflammatory response and disturbance of immune system although TLR-4 may be present in healthy tissues.

Keywords. Cervical Cancer, Endometrial Cancer, Ovarian Cancer, Toll-like Receptor 4

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Title of presented paper: One cancer, many organs – recurrence of vulvar squamous cell carcinoma in the uterus

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Type of the paper: Clinical case
Introduction and aim. Vulvar cancers, although rare, are becoming an increasingly serious threat to women's health. Surgery is the preferred treatment in early stages, including preoperative radiotherapy in locally advanced cases. Recurrent vulvar cancer occurs in approximately 24% of cases after primary treatment after surgery with or without radiation.
Description of the case. A 87- year old woman was admitted to the Department of Oncological Gynecology and Gynecology at Medical University of Lublin with a diagnosis of malignant vulvar carcinoma. She was qualified for radical vulvectomy. Additionally, a bilateral inguinal lymphadenectomy was performed. Histopathological examination of the lesion revealed keratinizing squamous cell carcinoma of the vulva G3. At the follow-up visit, the patient reported bleeding from the reproductive system. The patient was diagnosed with endometrial hyperplasia. Therefore, the patient was qualified for hysteroscopic removal of the lesion in the uterus. Histopathological examination of material from the uterine cavity showed recurrence of vulvar carcinoma. MRI examination of the uterus revealed a solid tumor infiltrating the parametrium. Due to the patient's age and the progression of the cancer process, the patient was qualified for radical radiotherapy followed by brachytherapy. The VMAT (Volumetric Modulated Arc Therapy) technique was used targeting the uterus with the tumor, the parametrium and regional lymph nodes in 12 fractions.
Conclusion. There is a need to educate patients that symptoms such as intense itching may serve as early signs of vulvar cancer. Self-monitoring and routine check-ups play a crucial role in the early detection of vulvar cancer recurrence.
Keywords. Endometrial Hyperplasia, Gynecology, Vulvar Carcinoma

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Title of presented paper: Small vascular anastomoses produce significant complications: a case presentation of TAPS treated with intrauterine procedures

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Type of the paper: Clinical case

Introduction and aim. Twin anemia polycythemia sequence (TAPS) is a chronic form of unbalanced feto-fetal transfusion through placental anastomoses in monochorionic twin pregnancies, resulting in anemia in the donor twin and polycythemia in the recipient twin. This is a case presentation of severe and spontaneous TAPS treated during prenatal period.

Description of the case. A 28-year-old woman at 21+1 gestational weeks presented for a routine ultrasound. The anomaly scan was normal, but the peak systolic velocity (PSV) of the middle cerebral artery (MCA) of one fetus showed a high value of 43.3 cm/s (1.6 MoM), while the MCA PSV of the other twin was 13.8 cm/s (0.5 MoM), resulting in a TAPS diagnosis. The patient was followed up weekly. Because of progression of TAPS, cordocentesis was performed at 25+3 weeks. Due to severe anemia in the donor twin and severe policythemia in the recipient twin, intrauterine transfusion and hemodilution were performed. The donor's hemoglobin changed from 2.4 to 9.5 g/dL and the recipient's from 21.7 to 18.6 g/dL. Subsequent transfusions to donor and hemodilution to recipient were performed at 26+4 and 28+4 weeks. At 33+1 weeks, both fetuses showed normal MCA PSV. At 34 weeks, an elective cesarean section was performed. Both girls were born with normal hemoglobin levels.

Conclusion. There is still a lack of an optimal treatment strategy for TAPS. In this case, despite the significant difference in hemoglobin levels between the two fetuses, the chosen therapeutic option was successful. The management should be based on the gestational age of diagnosis and severity of the condition.

Keywords. Hemoglobin, Monochorionic Twin, Pregnancy, TAPS

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Title of presented paper: COVID-19 infection impact on female reproductive health: a systematic literature review

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Type of the paper: Review paper

Introduction and aim. The global impact of the COVID-19 pandemic has been significant, touching upon the physical and mental well-being of individuals, as well as their social and economic conditions. The aim of this work is to review COVID-19 infection impact on female reproductive health.

Material and methods. A systematic literature study in PubMed was performed. In the current narrative review database were searched to identify all the related reports discussing the impact of COVID-19 on the female reproductive system. A total of 533 articles were analyzed. Non-English language, non-full text, focused on other topics articles were excluded. 17 publications were selected.

Analysis of literature. One significant aspect of the impact of COVID-19 on the female reproductive system involves the invasion and cellular internalization of SARS-CoV-2, which results in the down-regulation of membrane-bound angiotensin-converting enzyme 2 (ACE2) and elevated serum ACE2 levels. This process leads to a depletion of angiotensin-(1–7) and heightened angiotensin-2 (Ang II) activity, potentially causing menstrual irregularities, such as prolonged menstrual cycles, and decreased menstrual blood volume. However, most menstrual changes appear reversible within a short period. Another key point is the observed increase in sex hormone levels among certain COVID-19 patients. These hormones, which are known to reduce inflammatory responses, may elevate in response to decreased inflammation associated with cytokine storms. Additionally, abnormal hormonal patterns of follicle stimulating hormone, luteinizing hormone, and estradiol can affect the length of the menstrual cycle. Transient sex hormone changes quickly resume after recovery. Several studies have reported the absence of the virus in the oocytes and cervical exfoliated cells of female patients diagnosed with COVID-19.

Conclusion. The function of the female reproductive system can be impacted by SARS-CoV-2 infection through various mechanisms. Further investigation is necessary to comprehensively understand the long-term implication of COVID-19 infection on female reproductive health.

Keywords. COVID-19 Infection, Female, Reproductive Health