JUVENES PRO MEDICINA

21st International and 63rd Polish Conference
Juvenes Pro Medicina

ABSTRACT BOOK

LODZ, POLAND
15-18.05.2025

JUVENES PRO MEDICINA

The Official Abstract Book of Juvenes Pro Medicina 2025 Conference

ISBN:
The Students' Scientific Association is not responsible for the content of abstracts contained in the book.

President of the JPM 2025 Conference: Wojciech Michał Jankowski
Main Sessions Coordinator: Kinga Stanek
Main Workshops Coordinator: Weronika Sterniczuk
Promotion & Social Media Coordinator: Anna Sawina
Banquet Coordinator: Maciej Zieliński
Partnerships & Sponsorship Coordinator: Aleksandra Nasiłowska
Conference Supervision: Professor Ewa Sewerynek, MD, PhD
People with special organizational contributions: Anna Stefańska, Małgorzata Kowalczyk, Anna Sadzyńska, Julia Wrocławska, Karolina Staroń, Joanna Milczarek, Katarzyna Gajek, Wojciech Ciesielski, Piotr Jankowski, Angieszka Jankowska, Maria Bartczak, Roksana Adamska, Natalia Milewska, Paulina Gajewska

Book Editors:
Editor-in-Chief: Kinga Stanek
Typesetting and Editorial: Kinga Stanek, Wojciech Michał Jankowski, Weronika Sterniczuk
Graphic Designer: Kinga Stanek

STUDENCKIE TOWARZYSTWO NAUKOWE
STN
UNIWERSYTETU MEDYCZNEGO W ŁODZI

JUVENES PRO MEDICINA

JUVENES PRO MEDICINA

Basic Science

15th of May 2025

Coordinators:

Aleksandra Sadowska

Elizabeth Malaya

Wiktoria Rabiega

Jury:

dr hab. n. med. Renata Perlikowska

dr hab. n. med. Michał Karbownik

dr n. med. Katarzyna Wieczorek-Szukała

dr n. med. Izabela Szymczak-Pajor

dr n. med. Dominika Danowska-Klonowska

prof. dr hab. n. med. Michał Polguj

prof. dr hab. n. med. Mirosława Pietruczuk

In vitro activity of nitroxoline against Nakaseomyces glabratus and Pichia kudriavzevii isolated from the urinary tract

Małgorzata Nowak, Filip Bielec, Małgorzata Brauncajs, Dorota Pastuszak-Lewandoska, Adrian Bekier

Presenting author: Małgorzata Nowak

Work supervisor: Dr Adrian Bekier

Affiliations: Medical University of Lodz

Introduction: Antimicrobial resistance is recognized as one of the top global health threats. While bacterial resistance has been extensively studied, antifungal resistance remains a relatively underexplored area. Urinary tract infections (UTIs) caused by fluconazole-resistant yeasts are of particular concern. Candiduria is mostly asymptomatic, and the need for antifungal treatment remains controversial, even in patient populations susceptible to opportunistic infections. The unsatisfactory rate of fungal eradication and the possibility of spontaneous recovery without antifungal drugs are important arguments against the treatment of candiduria. On the other hand, treatment may prevent the development of invasive infections in some patients and may be necessary, for example, in cases of symptomatic candiduria. Due to the natural resistance of Pichia kudriavzevii (formerly Candida krusei) and the reduced sensitivity of Nakaseomyces glabratus (formerly Candida glabrata) to fluconazole, amphotericin B deoxycholate is rapidly becoming a weapon of last resort. The limited renal clearance of echinocandins leads to subtherapeutic concentrations and the selection of echinocandin-resistant yeast populations.

Purpose: The Aim of the study is to determine whether yeasts of the species N. glabratus and P. kudriavzevii isolated from the urinary tract are susceptible to nitroxoline in an in vitro test.

Material and Methods: The determination of nitroxoline susceptibility and its comparison with the activity of amphotericin B and fluconazole were performed using the microdilution method according to EUCAST recommendations. In addition, parameters such as MIC_{50} and MIC_{90} were determined for nitroxoline and the tested antifungals.

Results: In this study, the nitroxoline MIC (minimum inhibitory concentration) for all isolates was at least four dilutions below the current EUCAST cut-off point for bacterial urinary tract infections (≤16 mg/L), indicating high antifungal activity.

Conclusions: To sum up, the study demonstrated excellent in vitro activity of nitroxoline against yeasts isolated from the urinary tract: N. glabratus with reduced sensitivity to fluconazole and P. kudriavzevii with natural resistance to fluconazole. Therefore, repurposing existing antimicrobial agents with antifungal properties, such as nitroxoline, presents a promising alternative for managing drug-resistant candiduria.

The Role of α2β1 Integrin in Cardiac Fibroblast Extracellular Matrix Remodeling

Rami Altabbouche

Presenting author: Rami Altabbouche

Work supervisor: Małgorzata Gałdyszyńska

Affiliations: Medical University of Lodz

Introduction: Heart failure is characterized by the accumulation of excessive extracellular matrix (ECM) components in the heart, a process known as cardiac fibrosis. Cardiac fibroblasts produce and regulate ECM content: collagen, glycosaminoglycans (GAGs), and proteoglycans. Moreover, integrins bind to collagen and facilitate ECM remodeling.

Aim of the study/purpose: This study investigates how extracellular collagen and α2β1 integrin regulate ECM components, focusing on collagen, glycosaminoglycans (GAGs), and proteoglycans.

Material and Methods: Two comparative groups of stable human cardiac fibroblast cell lines were cultured in collagen-rich and collagen-free conditions. Collagen content was assessed using the Woessner Method and GAG levels were quantified using the Farndale assay. Silencing of the α2 integrin gene was performed using siRNA and the receptor was inhibited using TC-I15 (10-7M, 10-8 M). Finally, decorin gene expression was analyzed by RT-PCR, while ELISA quantified its core protein levels.

Results: Collagen levels remained consistent regardless of extracellular collagen availability. In contrast, GAG levels were higher in collagen-free conditions. As for proteoglycans, ELISA revealed higher decorin core protein in low-collagen environments, while RT-PCR found no clear connection with gene transcription, suggesting post-transcriptional regulation. The inhibition of α2β1 integrin by TC-I15 and α2 integrin silencing increased GAG concentrations in the ECM, inferring that α2β1 is a key modulator of GAG production. Meanwhile, the experiments did not affect decorin levels.

Conclusions: Collagen levels were unaffected by plating conditions. However, GAG levels were directly regulated by extracellular collagen and were dependent on the activation of α2β1 integrin. Similarly, decorin levels depended on extracellular collagen, but α2β1 integrin was not involved in this process. These findings suggest that α2β1 integrin plays a role in regulating GAGs, rather than collagen, enhancing our understanding of cardiac fibrosis.

Assesment of cytotoxic properties of Black Chokeberry (Aronia melanocarpa) pomace encapsulates

Zuzanna Senkowska, BSc; Julia Wojtkowicz, BSc

Presenting author: Zuzanna Senkowska, BSc

Work supervisors: Karolina Niewinna, MSc Eng; Katarzyna Owczarek, PhD; Prof. Urszula Lewandowska

Affiliations: Medical University of Lodz

Introduction: Colorectal cancer is one of the most common cancers, both among women and men, it ranks third in terms of new cases detected. Similar unfavorable statistics are recorded in the case of deaths, where it ranks fourth among women and third among men. Therefore, the constant search for drugs and compounds that can cure it is so vital and widely undertaken. Among natural compounds, polyphenols demonstrate promising cytotoxic activity against cancer cells, such as antiangiogenic, antimetastatic, modulation of enzymatic activities, and autophagy effects. The black chokeberry (Aronia melanocarpa) pomace, which contains a large number of such compounds, has been described to possess chemopreventive potential. Both drugs and natural compounds with medicinal properties can be incorporated into a carrier (encapsulation), enabling more localized action and protection from degradation.

Aim of the study: The purpose of the conducted study was to investigate the influence of Aronia melanocarpa pomace encapsulates (AMPE) on the viability of cancer and normal cells. Furthermore, the expression of the central protein in autophagy, microtubule-associated protein 1 light chain 3 beta (LC3B) was assessed.

Material and Methods: Human colon epithelial cell line (CCD 841 CoN) and human colorectal adenocarcinoma cell line (SW-480) were cultured at 37°C in an atmosphere of 5% CO2 with supplemented medium. The MTT assay was performed to check the effect of AMPE on the cell viability. Cells were divided into six groups (control, 100µg/ml, 250µg/ml, 500µg/ml, 750µg/ml, and 1000µg/ml), and the assay was conducted 24, 48 and 72 hours after extracts addition. Based on those Results, two optimal concentrations were chosen to check LC3B expression in Western Blot analysis after incubation with AMPE. As a positive control 5-fluorouracil (5-FU) (50 and 100µM), a drug commonly used in anticancer therapy, was used.

Results: The AMPE inhibited the viability of cancer cells and enhanced the expression of autophagy protein LC3B compared to the control. Moreover, it turned out to be more effective than 5-FU. The addition of AMPE to normal intestinal cells did not cause significant changes in viability, and LC3B protein levels were comparable to those in the control, whereas the addition of 5-FU negatively affected normal cell viability.

Conclusions: AMPE exhibits selective cytotoxic activity against cancer cells without significantly affecting normal cells. It may be considered as a chemotherapeutic compound for colorectal cancer by activating the autophagy pathway.

The cytotoxic and autophagic potential of Aronia melanocarpa L. leaf extracts in colon cancer

Julia Wojtkowicz, BSc; Zuzanna Senkowska, BSc

Presenting author: Julia Wojtkowicz, BSc

Work supervisors: Katarzyna Owczarek, PhD; Karolina Niewinna, MSc Eng.; Prof. Urszula Lewandowska

Affiliations: Medical University of Lodz

Introduction: Colorectal cancer (CRC) is one of the most common malignant tumors worldwide, representing a significant health issue and a considerable challenge for the medical field. Exploring new, effective treatments with reduced toxicity remains an ongoing priority in oncology. Therefore, one research direction focuses on plant-derived substances, such as polyphenols, that demonstrate the potential to support treatment as chemopreventive agents in CRC.

Aim of the study: This study aims to evaluate the effects of undigested and digested (under-stimulated intestinal conditions) Aronia leaf extracts (ALE) on the viability of normal intestinal and colon cancer cells and their impact on autophagic processes. In addition, the study compares the efficacy of Aronia leaf extracts to 5-fluorouracil (5-FU), a commonly used chemotherapeutic agent.

Material and Methods: The colorectal cancer SW-480 and normal intestinal CCD 841 CoN cell lines were selected to evaluate the impact of ALE on cell cytotoxicity by MTT assay conducted after 24, 48, and 72 hours. Extracts were tested within a 100-1000 µg/mL concentration range, with 50µM and 100µM of 5-FU used as positive controls. Based on the Results of the MTT assay, two optimal extract concentrations were chosen for further analysis. Next, the changes in the expression of LC3B were examined using the Western blot technique to evaluate the effect on autophagic processes in cells treated with ALE.

Results: The undigested ALE demonstrated significant inhibition of SW-480 cell viability, with the greatest effect observed at concentrations exceeding 500 µg/mL. In contrast, the digested ALE revealed a marked reduction in cell growth at concentrations as low as 250 µg/mL in SW-480 cells. For CCD 841 CoN cells, the undigested ALE slightly impacted cell growth, not exceeding 10% at 48 and 72 hours for the highest tested concentration. The digested ALE exhibited the most notable decrease in viability in these cells at 500 µg/mL. Analysis of LC3B indicated an increase in the synthesis level of this protein following treatment with ALE in SW-480 cells compared to the untreated control. In normal cells, the level of LC3B protein synthesis in both control and ALE-treated cells was many times lower than in SW-480 cells.

Conclusion: ALE demonstrated cytotoxic potential in SW-480 cells, with the digested extract exhibiting greater efficacy at lower concentrations. The minor inhibition of the viability of CCD 841 CoN cells treated with the undigested ALE suggests its relative safety. The selective cytotoxicity and induction of autophagy marker LC3B in CRC cells in response to the action of ALE may be substantial in developing new anticancer therapy strategies.

The orthosteric antagonist of κ-opioid receptors promotes carcinogenesis in the mouse model of colitis-associated colorectal cancer

Wojciech Król, Weronika Machelak, MSc

Presenting author: Wojciech Król

Work supervisor: Marta Zielińska, PhD, Professor of University

Affiliations: Medical University of Łódź

Introduction: Colorectal cancer (CRC) is the second leading cause of cancer-related deaths on a global scale. The majority of cases of CRC arise from the development of benign mucosal changes, specifically adenomatous and serrated polyps. It was evidenced that the modulation of the endogenous opioid system, which consists of μ-, κ- and δ-opioid receptors may influence the colorectal cancer development.

The Aim of the study: The objective of the present study was to determine the effect of κ-opioid receptor blockage on the colorectal carcinogenesis in mice.

Materials and Methods: The murine model of CRC was conducted with C57/BL mice, with a single injection of azoxymethane (AOM) (10 mg/kg i.p.) to induce the colonic mucosal damage and neoplasia. It was followed by the subsequent administration of 1.5% (w/v) of dextran sodium sulfate (DSS) (in the drinking water) to evoke colitis-associated colorectal cancer. DSS was administered for a period of one week, followed by a two-week period of tap water replacement. This course was repeated three times. To assess the role of κ-opioid receptor inhibition, norbinaltorphimine (nor-BNI) – a selective κ-opioid receptor antagonist – at the dose 10 mg/kg three times per week was administrated intraperitoneally. After 14 weeks the macroscopic damage score was performed and the colonic tissue was molecular analysis. Macroscopic scoring included the number of tumors, colon thickness and inflamed area. The tissues were then subjected to microscopic evaluation using hematoxylin and eosin staining. The molecular effect of nor-BNI was assessed using quantitative PCR (qPCR) and western blot to define the expression of pro-inflammatory and carcinogenesis markers, including Tnfa, Il6, Mpo, Il1b, Il18 and Ocldn – a marker for the intestinal barrier.

Results: The intraperitoneal administration of nor-BNI resulted in an increase in both the quantity and size of the tumors in mice. Microscopic evaluation revealed increased microinvasion of CRC in mice injected with nor-BNI. Furthermore, molecular studies indicated that a selective KOP antagonist administration led to an upregulation in the expression of pro-inflammatory and carcinogenesis markers, including Tnfa, Il6, Mpo, Il1b, Il18 and Ocldn, which is an indicator of the intestinal integrity.

Conclusion: The antagonistic modulation of KOP has been demonstrated to promote and exacerbate carcinogenesis in CRC.

JUVENES PRO MEDICINA

Enhanced anti-inflammatory effects of wild strawberry and acerola extracts through sodium hydroxide enrichment in LPS-stimulated macrophages

Kinga Suska, Olga Długosz, Jakub Fichna, Marcin Banach, Aleksandra Tarasiuk-Zawadzka

Presenting author: Kinga Suska

Work supervisors: Jakub Fichna, Aleksandra Tarasiuk-Zawadzka

Affiliations: Medical University of Lodz

Introduction: Inflammation is a key immune response regulated by NF-κB and MAPK pathways, whose dysregulation contributes to chronic diseases like inflammatory bowel disease (IBD). Current treatments primarily alleviate symptoms but have limitations. Plant-derived compounds, including polyphenols and flavonoids, offer potential anti-inflammatory benefits. Sodium hydroxide (NaOH) enhances extract solubility by increasing pH, potentially improving their bioactivity. This study explores the effects of NaOH-enriched wild strawberry (Fragaria vesca L.) and acerola (Malpighia emarginata L.) extracts on inflammation.

Aim of the study: This study aimed to assess the anti-inflammatory properties of wild strawberry leaf extract (WSLE) and acerola fruit extract (AFE), with and without NaOH enrichment (WSLE+NaOH, AFE+NaOH), by evaluating their effects on nitric oxide (NO) production in LPS-stimulated RAW 264.7 macrophages. Additionally, extract cytotoxicity was analyzed.

Materials and Methods: RAW 264.7 macrophages were stimulated with LPS and treated with WSLE, AFE, WSLE+NaOH, or AFE+NaOH at 10, 50, 100, and 200 µg/ml. NO production was measured using the Griess assay, while cell viability was assessed with the Neutral Red Uptake (NRU) assay. Statistical analyses included the Kruskal-Wallis test, one-way ANOVA, and Dunn's post-hoc test.

Results: LPS stimulation significantly increased NO production in RAW 264.7 macrophages, confirming an inflammatory response. WSLE and AFE exhibited a tendency to decrease NO levels at all tested concentrations (10, 50, 100, and 200 µg/ml), but these reductions were not statistically significant. The NRU assay indicated that both extracts increased cell viability compared to the control group. Statistically significant differences in viability were observed between the control group and cells treated with 50 µg/ml WSLE ($p < 0.05$), 10 µg/ml WSLE ($p < 0.01$), 200 µg/ml AFE ($p < 0.05$), 50 µg/ml AFE ($p < 0.05$), and 10 µg/ml AFE ($p < 0.01$). WSLE+NaOH and AFE+NaOH significantly reduced NO levels at all tested concentrations compared to LPS-stimulated cells ($p < 0.05$). The NRU assay showed that WSLE+NaOH and AFE+NaOH did not affect cell viability compared to the control group.

Conclusions: WSLE and AFE demonstrated potential anti-inflammatory properties by reducing NO levels in LPS-stimulated macrophages. NaOH enrichment nhanced their anti-inflammatory activity. These findings suggest that WSLE+NaOH and AFE+NaOH may serve as promising candidates for further research as potential anti-inflammatory agents. Additional in vitro and in vivo studies are necessary to confirm their efficacy and safety, as well as to elucidate their mechanisms of action in inflammatory conditions such as IBD.

Silene grisea Boiss – Research on In Vitro shoot Cultures and Chemical Composition

Wiktoria Huras, prof. Ewa Kochan

Presenting author: Wiktoria Huras

Work supervisor: prof. Ewa Kochan

Affiliations: Medical University of Łódź

Introduction: Silene L. (catchfly) is the most diverse genus of plants belonging to the Caryophyllaceae family, comprising over 700 species found almost worldwide, except for Australia and Antarctica. Silene grisea Boiss is an endemic species occurring exclusively in Syria and Israel, preferring dry, rocky environments such as the Judean Desert. In 2018, it was listed on the IUCN Red List of Threatened Species as a vulnerable species.

Silene species are known for their rich chemical composition, including phytoecdysteroids, triterpene saponins, sterols, and flavonoids. Many representatives of the Silene genus have been used in traditional medicine, demonstrating anti-inflammatory, antibacterial, wound-healing, and respiratory-supporting properties. To date, no detailed studies have been conducted on the chemical composition of S. grisea Boiss, and the available literature on this plant is very limited. Therefore, research on S. grisea should be considered pioneering.

Materials and Methods: The study material consisted of S. grisea Boiss shoot cultures obtained from seedling apical meristems derived from S. grisea Boiss seeds (sourced from the Jerusalem Botanical Garden, Givat Ram Campus, The Hebrew University). The shoot cultures were cultivated on SH (Schenk and Hildebrandt) and MS (Murashige and Skoog) media, supplemented with 0.1 mg/L IAA and the following cytokinins: kinetin (Kin), benzyladenine (BAP), or benzyladenine riboside (Ryb) at a concentration of 1.0 mg/L. Biomass increase, multiplication coefficient, and shoot length were examined. Preliminary analyses of extract composition were performed using tandem mass spectrometry.

Results: The obtained Results showed that MS medium was more favorable for the growth of S. grisea Boiss shoot cultures than SH medium, regardless of used cytokinin. The highest growth parameters were achieved when shoots were cultivated on MS medium supplemented with benzyladenine riboside. In this case, fresh and dry mass reached 0.682± and 0.066 ±g per tube, respectively, and the average number of shoots per explant was 7.77. It was also observed that benzyladenine was the most favorable cytokinin for shoot growth on SH medium (fresh and dry mass reached 0.18± and 0.013± g per tube, respectively, with an average shoot number of 2.5). The lowest values of the examined parameters were recorded for kinetin on both media.

Conclusions: MS medium was more favorable for shoot culture growth than SH. Benzyladenine riboside (Ryb) was found to be the most effective cytokinin for S. grisea Boiss shoot culture development. For the first time, a qualitative analysis of metabolites present in ethanolic extracts from shoot cultures was conducted. The identified compounds included 20-hydroxyecdysone, Saikosaponin B_2, ursolic acid, luteolin, and apigenin.

Research Perspectives: Further research will include: Cultivation of cultures in a nutrient sprinkle bioreactor, Quantitative determination of secondary metabolites, Investigation of the biological activity of extracts, including antibacterial, anti-inflammatory, and anticancer properties. Our study provides the first detailed report on Silene grisea Boiss, opening new possibilities for the pharmaceutical and biotechnological applications of this rare plant.

JUVENES PRO MEDICINA

Role of interferon β in limiting human coronavirus 229E infection in human lung vascular endothelium

Kamila Kochanowska, Mateusz Gawrysiak

Presenting author: Kamila Kochanowska

Work supervisors: Maciej Chałubiński, Magdalena Mikołajczyk Chmiela, Sylwia Michlewska

Affiliations: University of Łódź

Introduction: Human rhinoviruses and coronaviruses are among the respiratory viruses that cause mild colds. However, they also contribute to exacerbations of chronic respiratory diseases. The vascular endothelium is an abundant source of cytokines, including both pro-inflammatory and antiviral types. Recent studies have demonstrated the possibility of infecting lung vascular endothelial cells in vitro, suggesting that this structure may play a role in generating immune responses against respiratory viruses. Infection of lung vascular endothelial cells with RV-A16 leads to a rapid increase in the secretion of antiviral cytokines, such as IFN-β, OAS-1, and PKR, which may have a protective effect against HCoV-229E infection.

Aim of the study: The aim of this study was to determine whether interferon-β secreted by lung vascular endothelial cells following RV-A16 infection can limit subsequent infection with HCoV-229E.

Materials and Methods: A culture of commercially available human lung vascular endothelial cells (HMVEC-L) was established. Firstly, HMVEC-L were pre-incubated with RV-A16 (MOI 3.0), and then infected with HCoV-229E (MOI 1.0). To blocking the action of interferon-β, anti-hIFN-β antibodies (4 μg/mL) were added after the RV-A16 infection. Following both infection, viral copy number was determined using qPCR, mRNA expression was analysed using Real-Time PCR for interferon-β, antiviral response proteins (OAS-1, PKR, MX1), and inflammatory cytokines (RANTES and IL-6). Protein secretion was assessed via ELISA and intracellular production of OAS-1 and PKR in flow cytometry. The presence of viruses inside endothelial cells was visualized using confocal microscopy.

Results: The Results obtained from the co-infection model show increased mRNA expression especially after RV-A16 infection. It was observed an upregulation of IFN-β and key antiviral and pro-inflammatory response proteins, including 2'-5'-oligoadenylate synthetase 1 (OAS-1), protein kinase R (PKR), interferon-induced GTP-binding protein Mx-1 (Mx-1), RANTES, and IL-6. This indicates the ability of rhinovirus infection to efficiently induce an antiviral response, which may also act against HCoV-229E. This observation is further supported by flow cytometry analysis, which revealed increased production of OAS-1 and PKR proteins at 72 hours post-HCoV-229E infection. At the same time point, confocal microscopy-based colocalization of viral proteins indicated a reduced number of HCoV-229E in the co-infection compared to single infection of HCoV229E. Finally, qPCR confirmed that RV-A16 inhibit replication of HCoV229E, but when IFN-β was blocked this effect was noted. These findings suggest a potential protective role of IFN-β secreted by endothelial cells in response to prior RV-A16 infection in limiting coronavirus replication.

Conclusions: Interferon-β secreted by RV-A16–preinfected lung vascular endothelial cells may play a protective role by limiting HCoV-229E infection.

In search of differences – UV-Vis spectra analysis of energy drinks as a compositional assessment tool

Magdalena Szostkiewicz, Jakub Adamczyk

Presenting author: Magdalena Szóstkiewicz

Work supervisor: Jakub Adamczyk

Affiliations: Jan Dlugosz Univeristy in Czestochowa

Introduction: In the era of increasing popularity of energy drinks, particularly among adolescents and young adults, growing attention is being paid to their potential health effects. The chemical composition of these products, often unclear to the average consumer, may have significant health implications, especially when consumed excessively and over extended periods. Therefore, it is essential not only to analyze their contents but also to understand the factors influencing consumer choices.

Aim of the study: The Aim of the study was to perform a UV-VIS spectroscopic analysis of selected energy drink brands in order to identify their characteristic absorption bands, which may enable comparison of their chemical composition. Simultaneously, a consumer survey was conducted to assess consumption frequency, motivations, and brand preferences, in order to compare chemical data with real-life consumer behavior.

Materials and Methods: Several commercially available energy drinks were analyzed. For each sample, UV-VIS spectrophotometric measurements were carried out to register characteristic absorbance bands. The spectra were compared to detect similarities and differences, potentially indicating the presence of specific chemical compounds. In parallel, a questionnaire was administered to a group of respondents to explore their consumption habits, brand preferences, and subjective experiences after consumption.

Results: The recorded spectra revealed notable differences in absorption bands among the analyzed products, indicating a varied content of active ingredients such as caffeine. Survey data reflected a high level of popularity of energy drinks among younger individuals, particularly in academic contexts. Respondents also expressed a broad range of opinions regarding product composition, taste preferences, and brand choices.

Conclusions: UV-VIS spectroscopy proved effective in differentiating between the tested energy drinks and identifying chemical distinctions that may be relevant from a public health perspective. The combination of spectroscopic data with survey Results revealed correlations between product composition and consumer perceptions. The findings highlight the need for increased education on informed product selection and may serve as a basis for developing health-related guidelines aimed at reducing excessive consumption. The study underscores the importance of an interdisciplinary approach combining chemical analysis with social research in addressing contemporary public health challenges.

JUVENES PRO MEDICINA

Investigation of the effect of alpha-lipoic acid on cell viability and metalloproteinases expression in human glioblastoma cell lines

Antonina Titkow

Presenting author: Antonina Titkow

Work supervisor: Dorota Luchowska-Kocot, PhD

Affiliations: Medical University of Lublin

Introduction: Glioblastoma (GB) is an aggressive and malignant type of primary brain tumour and is classified by WHO as a grade IV glioma. It is deemed an uncurable disease, with the median survival rate of 15 months. Current treatment involves surgical resection and Temozolomide chemotherapy. Alpha-lipoic acid (ALA) is an organosulfur compound, synthesized endogenously and to a small extent, derived from diet. In the context of disease treatment, it has been studied mostly in terms of its neuroprotective abilities. ALA is a potent antioxidant and metal-chelating agent. Previous in vitro studies have shown its modulatory effect on inflammation pathways, such as NF-κB, P13/AKT and MAPK. Metalloproteinases 2 and 9 (MMP-2 and MMP-9) are extracellular matrix-degrading enzymes. Their activity increases in pathological processes such as inflammation, tissue injury and metastasis. Through NF-κB pathway downregulation, ALA has been shown to decrease the expression of MMP-2 and MMP-9.

Aim of the study: Evaluation of the effect of alpha-lipoic acid on viability of glioblastoma cells in vitro, calculation of half-maximal inhibitory concentration (IC50) and assessment of its effect on MMP-2 and MMP-9 expression.

Materials and Methods: Human glioblastoma cell lines LN229 and LN18 were subcultured and treated with a range of twelve ALA concentrations. A healthy embryonic feline neural cell line, PG4, was used as a control in all procedures. Cell viability was assessed after 24 and 48 hours using MTT assays on 96-well plates. After determination of IC50, cells were cultivated on 6-well plates and treated with a range of six ALA concentrations. The growth medium was collected from the plates after 24 and 48 hours, frozen, then prepared for zymography MMP expression analysis. Zymography was performed using 10% polyacrylamide gel with 1mg/ml gelatin

Results: IC50 for 24h incubation was significantly lower for glioblastoma cell lines (5.78 mM for LN229 and 3.57 mM for LN18) compared to control (9.49 mM), while the 48h incubation shown similar viability Results for both PG4 and LN229 (3.43 and 3.05 mM, respectively) , with lower IC50 of 1.72 for LN18. Zymography Results have shown a significant decrease in MMP-2 expression for the concentrations of 3 and 5 mM across all cell lines, while the other tested concentrations have shown similar expression compared to the control.

Conclusions: The study demonstrates that ALA is a promising compound for further research, as it exhibited an increased apoptotic effect on glioblastoma cells compared to control after 24-hour incubation, while the 48-hour exposure has shown a less clear trend. Zymography analysis confirmed the interaction between ALA and MMP expression, as the higher concentrations of ALA (3 and 5 mM) led to a decrease in MMP secretion by the cells.

Impact of Doxorubicin on Adipose-Derived Stem Cells: Investigating Cytotoxicity and CD44 Correlation.

Rafał Bieś, Adam Mazurski, Anna Mordarska

Presenting author: Rafał Bieś

Work supervisor: dr n. med. Aleksandra Skubis-Sikora

Affiliations: Medical University of Silesia in Katowice

Introduction: Doxorubicin (DOX) is an anthracycline chemotherapeutic agent widely used in cancer treatment. Its cytotoxic effects result from the inhibition of topoisomerases, increased oxidative stress, leading to cell cycle arrest and apoptosis. However, DOX also affects non-cancerous cells, including adipose-derived stem cells (ADSCs), which are crucial for tissue regeneration and repair. The expression of CD44, a transmembrane glycoprotein involved in cell adhesion and signaling, has been implicated in drug resistance. While CD44 is highly expressed in cancer cells, its potential role in ADSC response to DOX-induced cytotoxicity remains unclear.

Aim of the study: This study aimed to evaluate the cytotoxic response of ADSCs to DOX exposure and investigate whether CD44 expression may be associated with this process.

Materials and Methods: ADSCs were maintained under recommended conditions using DMEM supplemented with fetal bovine serum and penicillin-streptomycin at 37°C in 5% CO2. They were treated with DOX at concentrations from 0.1 µM to 100 µM for 24h. Cytotoxic effects of DOX were assessed by measuring ATP production and analyzing mitochondrial activity. CD44 expression was analyzed at the gene level using RT qPCR, while protein levels were determined via Western blotting with specific antibodies.

Results: Preliminary Results indicate that DOX at a concentration of 5 µM and above reduces ADSC viability, suggesting a dose-dependent cytotoxic effect. This finding indicates that DOX influences ADSC survival, potentially linked to mitochondrial dysfunction. Studies also showed no significant differences in CD44 expression after treatment with DOX.

Conclusions: Future research will explore the potential involvement of CD44 in this process, which could contribute to optimizing cancer treatments and regenerative medicine strategies. Further studies are required to determine whether CD44 plays a role in modulating ADSC sensitivity to DOX-induced cytotoxicity

JUVENES PRO MEDICINA

Metabolic Consequences of Hypoxia in Sleep Apnea: Focus on HIF-1 Pathway and Insulin Resistance

Alicja Ptak, Michalina Bawor-Mostowa, Aleksandra Wojtera, Julia Jaromirska

Presenting author: Alicja Ptak

Work supervisors: Agata Gabryelska, MD, PhD, Marcin Sochal, MD, PhD, Szymon Turkiewicz, MD

Affiliations: Medical University of Lodz

Introduction: Obstructive sleep apnea (OSA) is a prevalent disorder associated with intermittent hypoxia, disrupted sleep architecture, and metabolic dysfunction, contributing to increased cardiovascular risk. Hypoxia-inducible factor 1 (HIF-1) and its downstream targets, glucose transporter 1 (GLUT1) and insulin receptor (INSR), play a crucial role in cellular adaptation to hypoxia and glucose metabolism.

Aim of the study: The Aim of the study is investigation of the expression level of HIF-1 subunits, GLUT1, and INSR at the genetic and protein levels in individuals with OSA and their associations with insulin resistance markers, including the homeostasis model assessment of insulin resistance (HOMA-IR).

Methods: 89 participants underwent overnight polysomnography (PSG) and were classified into two groups based on their apnea-hypopnea index (AHI): OSA (AHI≥5, n=47) and control (AHI<5, n=42) groups. Morning blood samples were analyzed for HIF-1α, HIF-1β, GLUT1, and INSR gene expression levels, as well as serum protein levels, insulin, and glucose concentrations. HOMA-IR was calculated as a marker of insulin resistance. This study was supported by the Ministry of Science and Higher Education under the “Diamond Grant” program (grant no. 0067/DIA/2018/47).

Results: The OSA group exhibited significantly lower expression levels of HIF-1α and GLUT1 ($p = 0.046$ and $p = 0.007$, respectively) and a decreased protein level of INSR ($p < 0.001$) compared to the control group. No statistically significant correlations were observed between gene expression levels and their respective protein products. The OSA group also demonstrated elevated serum insulin and glucose concentrations alongside increased HOMA-IR values ($p < 0.001$ for all). Additionally, in the OSA group, AHI was positively correlated with insulin ($R=0.303$, $p=0.041$), glucose ($R=0.327$, $p=0.026$), and HOMA-IR ($R=0.378$, $p=0.01$). Significant associations between the expression of HIF-1α, HIF-1β, INSR, and GLUT1 were observed in both groups, except for the relationship between HIF-1α and INSR ($p=0.089$), which was absent in the OSA group.

Conclusion: OSA is associated with reduced HIF-1α and GLUT1 expression, decreased INSR protein levels, and elevated markers of insulin resistance. These findings suggest a potential role for HIF-1 signaling in metabolic dysfunction in OSA and highlight the need for further research into targeted therapeutic strategies.

Lung Resident Fibroblasts in Airway Remodeling Across Experimental Asthma Phenotypes

Alicja Toczydlowska, Bartosz Hanczaruk, Krystian Czolpinski

Presenting author: Alicja Toczydlowska

Work supervisors: Marlena Tynecka, Andrzej Eljaszewicz

Affiliations: Medical University of Bialystok

Introduction: Inflammation is a central component of asthma pathophysiology and contributes to key features of the disease, including bronchial hyperresponsiveness, mucus hypersecretion, airway narrowing, and structural remodeling. Chronic inflammation disrupts tissue and triggers reparatory processes leading to airway remodeling, characterized by smooth muscle cell proliferation, fibroblast expansion and their differentiation into myofibroblasts, excessive extracellular matrix deposition, among others. In fact, fibroblasts and myofibroblasts are key cellular sources of extracellular matrix components, contributing to subepithelial fibrosis and influencing airway stiffness and luminal narrowing. However, our understanding of mechanisms controlling their activity remain not fully elucidate.

Aim of the study: Therefore, here we investigate the role of lung fibroblasts in airway remodeling across various inflammatory asthma phenotypes, using experimental asthma models and complementary in vitro approaches.

Methods: To induce T2-low and non-T2-mediated airway inflammation, C57BL/6J mice were challenged with 10 µg or 100 µg of house dust mite extract for 2 or 12 weeks. Lung tissues were collected to assess histological changes, perform transcriptomic analyses, evaluate fibroblast counts, and perform targeted protein analyses. Moreover, in vitro experiments were conducted using primary Normal Human Lung Fibroblasts (NHLFs), isolated from healthy nonatopic nonasthmatic individuals, and Diseased Human Lung Fibroblasts (D-HLFs), derived from patients with asthma. The cells were stimulated with transforming growth factor beta-1 (TGF-β1) and/or fibroblast growth factor 2 (FGF-2) and/or fibroblast growth factor 21 (FGF-21). Confocal microscopy, qPCR and western blot was used to analyse fibroblast to myofibroblast differentiation.

Results: First, we confirmed inflammatory phenotype of experimental asthma. Next, we found increased collagen deposition in subepithelial area in all analysed lungs compared to control animals. Transcriptomic profiling revealed dysregulation of genes associated with abnormal ECM morphology, FGFs, and myofibroblast differentiation. Surprisingly, an increased count of lung fibroblasts was observed only in T2-low asthma, which may be linked to a unique elevation in FGF-2 levels in these models. Additionally, increased subepithelial α-SMA deposition was found in the analysed models. Furthermore, immunofluorescence staining revealed the presence of myofibroblasts within the cellular niches. Additionally, TUNEL assay identified DNA fragmentation indicative of apoptosis, particularly under specific stimulatory conditions, in comparison to both healthy and diseased cells. gene expression and protein expression levels of key myofibroblast markers including ACTA2 (aSMA), Vimentin, TGF-β1, and the extracellular matrix proteins COL1A1 and COL3A1, further confirmed the molecular identity of the myofibroblast subpopulation during fibroblast-to-myofibroblast transition.

Conclusion: Taking together, our findings demonstrate that different inflammatory phenotypes of asthma elicit distinct responses in lung fibroblasts. This is reflected, by changes in the expression and presence of growth factors that may regulate fibroblast proliferation and their capacity to differentiate into myofibroblasts, among others. These processes, in consequence, can influence extracellular matrix deposition. Further research is warranted to better understand how the heterogeneous inflammatory milieu in asthma affects lung fibroblast function.

Tracking of podophyllotoxin’s derivatives in cells by means of novel fluorescent compounds

Anna Wojno, Emilia Śledź, Jakub Kukla, Natalia Wnęk, Pramucti Raidach, Zuzanna Molęda, Zbigniew Czarnocki, Piotr Strus

Presenting author: Anna Wojno

Work supervisor: Dr hab. Izabela Młynarczuk-Biały

Affiliations: Medical University of Warsaw

Introduction: Podophyllotoxin (PPT) is widely recognized for its potent anticancer properties. However, its clinical application is limited to topical treatment, due to its significant systemic toxicity. Nonetheless, less toxic PPT derivatives (e.g., etoposide and teniposide) have been developed and are used as intravenous anticancer agents. Multiple studies have been conducted on podofilotocsin’s use as a scaffold for the creation of new chemotherapeutic agents, however the properties of the parent molecule have not been sufficiently researched. We have undertaken a study of PPT-based compounds and their fluorescent derivatives, to help track them in the cells.

Methods: Using the viability assays, we established working concentrations of the compounds in researched cells. In order to observe intracellular localization and dynamic distribution of the fluorescent compounds, we have used advanced imaging techniques, including epifluorescence microscopy and, in cooperation with Mossakowski Institute, confocal microscopy. Additionally we have employed molecular docking simulation, to obtain a comparison of the compounds’ affinities to various binding sites of tubulin.

Results: Our findings revealed that both the parental and fluorescent derivatives present similar cell viability reduction, demonstrating that the fluorescent groups do not harm the cells. The compounds in cells are stable and produce a bright fluorescent signal, which allows for in situ observations.

Conclusion: In Conclusion, our interdisciplinary group has successfully demonstrated a complex technology for effective investigation of podophyllotoxin derivatives' properties in human cells, which we strongly believe can result in making studies on PPT derivatives more translational for finding future potential therapy strategies.

Inhibition of EZH2 Reduces Microglial Inflammation, Ameliorates Amyloid Burden, and Protects Neurons in an In Vitro Alzheimer's Disease Model

Kamil Saramowicz, Michał Golberg, Zuzanna Granek, Natalia Siwecka, Grzegorz Galita, Ireneusz Majsterek, Wioletta Rozpędek-Kamińska

Presenting author: Kamil Saramowicz[1]

Work supervisor: Wioletta Rozpędek-Kamińska[1]

Affiliations: Medical University of Lodz

Introduction: Microglial-driven inflammation is a central factor in the progression of Alzheimer's disease (AD). Emerging evidence highlights the histone methyltransferase EZH2 as a crucial regulator of neuroinflammation and microglial clearance of beta-amyloid (Aβ). Targeting EZH2 may therefore offer a promising strategy to counteract microglia-mediated neurotoxicity in AD.

Aim of the study: This study investigated the impact of EZH2 inhibition and knockdown on microglial activation and neuronal degeneration on a cellular AD model.

Methods: HMC3 human microglial cells were stimulated with lipopolysaccharide (LPS, 100 ng/ml) and Aβ1-42 aggregates (2.5 μM) to induce AD-like phenotype. Aβ aggregation and microglial phagocytosis were evaluated using Thioflavin T staining and immunocytochemistry with mouse anti-Aβ antibody, secondary HRP-conjugated antibody, 3,3-diaminobenzidine (DAB), and hematoxylin. The influence of EZH2 was assessed through treatment with the inhibitor EPZ6438 (5 μM) and the degrader MS1943 (4 μM). Experimental groups included control, LPS+Aβ (AD), LPS+Aβ+EPZ (EPZ), and LPS+Aβ+MS (MS). qRT-PCR was employed to analyze the expression of EZH2, inflammatory cytokines (TNFα, IL-1β, IL-6, TGFβ, IL-10), and ER stress markers (ATF4, Nrf2, DDIT3). SH-SY5Y-derived neurons were characterized by immunofluorescence analysis with neuronal marker antibodies and exposed to conditioned media from the microglial groups. Cytotoxicity of the media was evaluated by LDH assay, while neuronal apoptosis via Annexin-V/PI/Hoechst staining.

Results: Both fluorescent and immunohistochemical analyses confirmed extracellular and intracellular Aβ accumulation and efficient microglial phagocytosis. In the AD group, EZH2 and pro-inflammatory cytokines were significantly upregulated. MS treatment induced ER stress at 24h, with increased expression of ATF4, Nrf2, and DDIT3, along with elevated IL-1β and IL-6. By 48h, ER stress markers declined, and both EPZ and MS treatments led to the downregulation of EZH2 and suppression of inflammatory responses. EPZ also promoted the expression of anti-inflammatory cytokines TGFβ and IL-10. Immunofluorescence showed expressions of mature neuronal markers in SH-SY5Y-derived neurons resembling the signature of cholinergic neurons. Neurons exposed to AD-conditioned media showed increased apoptosis, which was notably reduced in the EPZ and MS groups.

Conclusion: Overall, these Results demonstrate that EZH2 inhibition can dampen microglial inflammation and protect neurons from accompanying degeneration in an in vitro model of Alzheimer's disease.

The project was funded by grant no. SKN\SP\602622\2024 from the state budget allocated by the Minister of Science within the program 'Student Scientific Circles Create Innovations'.

JUVENES PRO MEDICINA

Cardiology and Cardiosurgery

15th of May 2025

Coordinators:

Ahrani Jeyakanthan

Raja Bou Ghannam

Robert Rouba

Jury:

prof. dr hab. n. med. Mirosław Wilczyński

dr n. med. Tomasz Rechcinski

dr n. med. Błażej Michalski

dr n. o zdrowiu Natalia Sosowska

JUVENES PRO MEDICINA

Atrial Tricuspid Annular Disjunction: A Comprehensive Morphometric Analysis

Ida Szataniak, Mateusz K. Hołda MD, PhD, DSc, Jakub Batko MD, Agata Krawczyk-Ożóg MD, PhD

Presenting author: Ida Szataniak

Work supervisor: Agata Krawczyk-Ożóg MD, PhD

Affiliations: Jan Długosz University in Częstochowa

Introduction: Annulus disjunction could involve both the tricuspid and the mitral annulus. Numerous studies have investigated MAD; however, reports on TAD remain scarce.

Aim of the study: This study investigates atrial TAD (a-TAD) in a large cohort of autopsied human hearts.

Methods: We examined 212 adult autopsied human hearts (18.9% females, 47.4±17.1 years) without known cardiovascular diseases. These hearts were obtained during forensic medical autopsies conducted between January 2018 and June 2021. A-TAD was defined as a spatial displacement (≥2 mm) of the leaflet hinge line towards the right atrium. We provided a detailed morphometric characteristic (disjunction height) and histological examination of a-TAD.

Results: A-TADs were observed in 15.6% of all studied hearts and were typically sectional disjunctions, not exceeding one of the leaflets (84.8%). The mural leaflet was the most common site for a-TAD (10.4% of mural leaflets with a-TAD). The mean height of a-TAD was (3.4 ± 0.8 mm) and were no differences between leaflets: (mural: 2.9 ± 0.8 mm; superior: 3.7 ± 1.3 mm; inferior 3.1 ± 0.7 mm, p= 0.141).

The microscopic structure of a-TAD displayed a separation shifted toward the right atrial side, filled with connective tissue and covered by an extended valve annulus. In multivariable logistic regression, the occurrence of a-TAD showed significant association with body mass index (OR=(1.146 (1.039-1.263 95% CI), p =0.006). In eight hearts with a-TAD, atrial mitral annular disjunction was found.

In the examined cohort of hearts, we found that 28.8% of right atrioventricular valves were quadricuspid. The occurrence of a-TAD was comparable in both types of valves (15.9% vs 14.8%, p=0.835).

Conclusions: In analyzed group of healthy hearts, a-TAD was observed in approximately 16% of the examined cases. The identified a-TAD were typically localized and restricted to a single leaflet. Our study is the first to present a comprehensive morphometric analysis of a-TAD within large cohort autopsied human heart.

JUVENES PRO MEDICINA

Efficacy and safety of intravascular lithotripsy in the treatment of calcified coronary lesions – insights from a real-world cohort

Katarzyna Skorupska, Marta Kałużna-Oleksy MD, PhD

Presenting author: Katarzyna Skorupska

Work supervisor: Marta Kałużna-Oleksy MD, PhD

Affiliations: Poznań University of Medical Sciences

Introduction: Coronary artery calcifications remain a significant challenge in the percutaneous coronary interventions, adversely affecting procedural success and patient outcomes. Extensive calcification increases the prevalence of stent malapposition or under-expansion, therefore elevating the risk of late adverse events. Early investigations have demonstrated that intravascular lithotripsy (IVL) enhances procedural success and clinical Results.

Aim of the study: The aim of this analysis is to evaluate the safety and efficacy of IVL in a diverse patient groups, including those with acute myocardial infarction (MI).

Material and Methods: A total of 201 consecutive patients who underwent PCI using Shockwave C2 and C2+ IVL from April 2020 were included in the analysis. The cohort comprised 125 patients with a non-MI presentation (Group 1) and 76 patients with MI (Group 2).

Results: The study population included 26.4% women. Group 2 presented with significantly lower left ventricular ejection fraction (LVEF) (50.9% ± 10.5% vs. 46.0% ± 13.1%; p = 0.022) and a greater frequency of heart failure (28.0% vs. 43.4%; p = 0.025). Syntax Score was higher in Group 2 (16.5 ± 10.2 vs. 20.0 ± 11.3; p = 0.059), and left main coronary artery involvement was more frequent (20.8% vs. 35.5%; p = 0.022). Bifurcation PCI was performed in 34.8% of cases, while chronic total occlusion PCI undertaken in 10% of cases. Post rotational atherectomy debulking with IVL was performed in 10 cases. IVL demonstrated a high success rate (97.5%) and an overall procedure success rate of 99.5%. Both groups demonstrated increases in mean lumen area: 4.5 ± 2.2 mm^2 in Group 1 and 5.9 ± 3.7 mm^2 in Group 2, corresponding to percent changes of 239% and 237%, respectively. Periprocedural complication rates were similarly low between the groups. In long-term follow-up, no significant differences were noted in all-cause mortality between Group 1 and Group 2 (8.1% vs. 9.0%; p = 0.997), cardiac death (p = 0.340), or repeat myocardial infarction (8.3% vs. 12.0%; p = 0.986). Major adverse cardiovascular events (MACE), including cardiac death, myocardial infarction, and stroke, were also comparable between groups (9.8% vs. 16.8%; p = 0.501). Predictors of long-term all-cause mortality included prior CKD, post rota-atherectomy debulking, prior CABG, and lesion length >20 mm.

Conclusions: IVL is an effective treatment for the modification of calcified atherosclerotic lesions, demonstrating a high success rate for IVL use and overall procedural success. Minimal periprocedural complication rates have been reported, and the long-term clinical outcomes in this high-risk patient population are encouraging.

JUVENES PRO MEDICINA

The amount of blood products transfused as a factor influencing post-operative recovery in arterial bypass patients: a retrospective analysis

Kamila Paździerz, Tomasz Hożejowski

Presenting author: Kamila Paździerz

Work supervisor: prof. dr hab. n. med. Stanisław Ostrowski

Affiliations: Uniwersytet Medyczny w Łodzi

Introduction: Coronary artery bypass grafting (CABG) is a surgical procedure used to restore blood flow to the heart in patients with severe coronary artery disease (CAD). When arteries become narrowed or blocked due to atherosclerosis, a healthy blood vessel - typically taken from the leg, chest, or arm - is grafted to bypass the obstruction, ensuring proper oxygen supply to the heart muscle. Studies have shown that in severe cases CABG improves survival rate, reduces angina symptoms, and lowers the risk of heart attacks compared to pharmacotherapy or stenting. In CABG transfusions, as a life-saving procedure, are often required due to blood loss during surgery. However, blood transfusions are associated with specific complications. They have been linked with an increased risk of infections, impaired wound healing, prolonged hospital stays and adverse immune responses. The most commonly transfused blood products in CABG include packed red blood cells (PRBCs) to restore oxygen-carrying capacity, fresh frozen plasma (FFP) to replenish clotting factors, and platelets to prevent excessive bleeding and improve coagulation.

Aim of the study: To assess the influence of the number of units of blood products transfused on the increased risk of complications in patients undergoing elective aortic-arterial bypass surgery.

Materials and Methods: Records of patients who underwent elective arterial bypass surgery in the Cardiac Surgery Clinic of the Medical University of Łódź since November 2024 to January 2025 were acquired. A total of 41 patients were included in this study. Patients were divided into two groups - post-operative complications present and post-operative complications absent. A retrospective analysis of median number of blood products units transfused between the groups (using Mann-Whitney U test) was performed.

Results: The median number of blood units transfused for all patients was 3 (Mean=3.59, SD=2.77). Out of 41 patients, 18 had at least one post-operative complication reported and 23 had no post-operative complications. In the former group the median number of units transfused was 5 (Mean=5.44, SD=3.13), while in the latter the median number was 2 (Mean=2.13, SD=1.08). The number of units was significantly higher (The Mann-Whitney U test; Z=3.91, p=0.000091) in the first group.

Conclusions: The retrospective analysis of data revealed there is a significant positive connection between the amount of blood products transfused and the number of complications. This supports already established notion, that blood products negatively impact healing processes.

JUVENES PRO MEDICINA

Exploring Iron Deficiency as a Key Comorbidity in Heart Failure

Phillip Kiełbowicz, Aleksander Baszkowski, York-Ferdinand Kosegarten, Julia Piotrowska, Julia Polak

Presenting author: Aleksander Baszkowski

Work supervisors: Dr. Maria Sawościan MD, Prof. Małgorzata Lelonek MD PhD

Affiliations: Medical University of Łódź

Introduction: Heart failure (HF) is a global health concern that affects millions of people and represents a major cause of morbidity, mortality, and decreased quality of life (QoL). Among patients with HF, there is a common comorbidity termed iron deficiency (ID), which is observed in approximately half of all cases of HF. Presence of ID in individuals with HF is linked with increased hospitalization rates, reduced QoL, reduced exercise tolerance, and increased mortality risk.

Aim of the study: This study sought to evaluate the prevalence if ID in HF patients, irrespective of ejection fraction (EF), and to explore the comorbidities linked to ID in HF, with special emphasis on cerebrovascular events.

Materials and Methods: A retrospective analysis was conducted among 259 patients (126 females and 133 males) with the median age of 72 [IQR: 66-79] who were hospitalized at the Department of Noninvasive Cardiology at the Medical University of Łódź from 2018-2024. The statistical analysis was conducted using the program Statistica 13.3 (StatSoft, TIBCO, Poland).

Results: The study revealed that a significant difference was observed not only in specific parameters of HF patients with and without ID such as GFR, red blood cell parameters, uric acid, but also 6MWT (259.00 m [IQR: 195.10-307.50] vs 280.00 m [IQR: 239.00-344.00], p=0,0423), stroke/TIA prevalence (15,83% vs 6,67%, p=0,0204) and taking proton pump inhibitors (PPIs) (45,32% vs 25,00%, p=0,0007). Among patients, whose HF required more than one hospitalization within a year there were lower values of GFR (OR: 0,98 [95%CI: 0,96-0,99], p=0,0008) or EF of the left ventricle (OR: 0,97 [95%CI: 0,95–0,99], p=0,0059). Moreover, more of those patients were suffering atrial fibrillation (Afib) (OR: 1,42 [95%CI: 1,08-1,85], p=0,0114) or have history of myocardial infarction (MI) (OR: 1,46 [95%CI: 1,06-1,99], p=0,0193). In patients with HF and ID, with or without anemia there is a significant difference in NT-proBNP values (1408,00 [IQR: 651,90-2970,00] vs 652,05 [IQR: 285,10-1726,00, p=0,0034] and more of them are taking PPIs (50,94% vs 32,04%, p=0,0105).

Conclusions: ID in HF patients is associated with a greater risk of stroke/TIA occurrence and poorer 6MWT outcomes. Moreover, among HF patients, there is a greater prevalence of ID in the group undergoing PPI treatment, suggesting PPI usage as a potential cause of ID. HF patients with ID and higher values of GFR are less likely to suffer acute decompensated HF. However, patients with Afib or history of MI are at a higher risk of acute decompensated HF. Anemia on top of ID and HF could contribute to higher values of NT-proBNP, but is also linked with higher PPI usage.

Common risk factors for thrombus in the left atrial appendage (LAT) and SEC (spontaneous echo contrast) in patients qualified for atrial fibrillation substrate ablation

Edward Zheng, Maciej Makarewicz

Presenting author: Edward Zheng

Work supervisors: dr. hab. n. med. FESC prof. uczelni Michał Plewka, lek. med. Izabela Warchoł, dr. n. med. Tomasz Wcisło, dr. n. med. Tomasz Gryciewicz

Affiliations: Uniwersytet Medyczny w Łodzi

Introduction: Atrial fibrillation (AF) is the most common sustained cardiac arrhythmia, affecting approximately 2–4% of the general population. Its prevalence increases with age, reaching 5% in individuals over 65 years old and exceeding 10–15% in those over 80. AF is associated with an elevated risk of ischemic stroke, heart failure, increased mortality, and reduced quality of life (QoL). Despite the effectiveness of catheter ablation in restoring sinus rhythm and reducing arrhythmia recurrence, patients remain at risk of thromboembolic complications, particularly due to left atrial appendage (LAA) thrombus formation. The presence of an LAA thrombus is a critical issue as it significantly increases the risk of stroke and disqualifies patients from undergoing ablation procedures. However, the incidence of LAA thrombus in AF/AFL patients despite adequate oral anticoagulation with Non-vitamin K oral anticoagulants (NOAC) remains insufficiently studied and warrants further investigation.

Aim of the study: The primary aim of this study is to determine the prevalence of LAA thrombus and spontaneous echo contrast (SEC) diagnosed with TEE (transesophageal echocardiography or CTA (computed tomography angiography) in patients with AF/AFL undergoing catheter ablation despite NOAC/OAC therapy. Additionally, we aim to identify shared clinical characteristics, risk factors, and predictors of thrombus formation. The secondary objective is to assess treatment strategies for patients diagnosed with LAA thrombus, including adjustments in anticoagulation regimens (e.g., switching between different NOACs) and their impact on thrombus resolution.

Methods: In this single-centre retrospective study, 296 patients who underwent catheter ablation of the substrate of AF admitted to the Department of Interventional Cardiology and Cardiac Arrhythmia in Teaching Hospital No.2 of the Medical University of Lodz between 2021 and 2023 were analysed for the presence of LAAT and SEC of which 31 (10,5%) patients were diagnosed with SEC or LAAT, 23 (7,8%) and 8 (2,7%) respectively. 50 patients without LAAT and SEC were randomly selected as controls.

Results: Patients in the SEC+LAAT group were significantly older compared to the control group ($p<0.05$) and exhibited a higher body mass index (BMI) ($p=0.008$). Additionally, serum creatinine levels were elevated in the SEC+LAAT group ($p<0.03$), while the estimated glomerular filtration rate (GFR) was significantly lower ($p = 0.003$). Prothrombin time (PT) was prolonged in the SEC+LAAT group ($p<0.05$). Lymphocyte count was significantly higher ($p<0.001$), and surprisingly lymphocyte-to-monocyte ratio (LMR) ($p<0.009$). Furthermore, the SEC+LAAT group had a significantly higher CHA_2DS_2-VA score ($p = 0.0004$). Patients with SEC+LAAT also demonstrated a greater prevalence of persistent AF ($p < 0.0001$) and heart failure (HF) ($p=0.00019$). Among patients diagnosed with LAAT, the following anticoagulants were used prior to diagnosis: acenocoumarol (n = 1), dabigatran (n = 2), rivaroxaban (n = 4), and apixaban (n = 1). Anticoagulation strategies were subsequently modified as follows: acenocoumarol was switched to apixaban (n = 1), dabigatran to rivaroxaban (n = 1), rivaroxaban to dabigatran (n = 4), and apixaban to rivaroxaban (n = 1). Complete resolution of thrombus was observed in all cases following treatment modification.

Conclusions: Renal dysfunction, elevated BMI, a CHA_2DS_2-VA score greater than 3, the presence of HF, and persistent AF type are independent risk factors for SEC and LAAT in patients with AF prior to catheter ablation.

JUVENES PRO MEDICINA

Dentistry

16th of May 2025

Coordinators:

Tomasz Kinkel

Wiktora Szwedun

Wiktoria Kubis

Jury:

dr n. med. Joanna Kunert

dr n. med. Barbara Łapińska

dr n. med. Aneta Olek

dr n. med. Adam Chiżyński

dr. n. med. Damian Chybicki

dr. n. med. Kinga Bociong

prof. dr hab. n. med. Elżbieta Pawłowska

Analysis of selected mechanical properties of gingiva-colored resin-based composites

Julia Majorczyk, dr n. med., mgr inż. Agata Szczesio-Włodarczyk, dr hab. n. med. inż. Kinga Bociong

Presenting author: Julia Majorczyk

Work supervisor: dr hab. n. med. inż. Kinga Bociong

Affiliations: Medical University of Lodz

Introduction: Achieving optimal aesthetic Results with class V restorations using conventional white shades of composites may be challenging. A composite which imitates soft tissues and, to some extent, restore the gumline may contribute to achieve that goal. Therefore, gingiva- colored resin-based composites offer a conservative solution for gum recession and might beused to fill class V restorations providing more aesthetic Results.

Aim of the study: The aim of this preliminary study was to evaluate mechanical properties of different gingiva-colored resin-based composites, including three-point bending strength (TBS), elastic modulus in bending (E), diametral tensile strength (DTS) and Vickers hardness (HV).

Materials and Methods: The study involved four different gingiva-colored composites from various companies: Filtek Universal-Pink Opaquer (3M, USA), Amaris Gingiva (Voco, Germany), Beautiful II Gingiva (Shofu, Japan), and Arkona Flow-Color (Arkona, Poland). Evaluation of TBS and E was conducted on six rectangular samples (25mm x 2mm x 2mm), DTS on nine composite disc-shaped samples (diameter - 6mm, high – 3mm) using Zwick/Roell universal testing machine. All samples were polymerized according to manufacturer's instructions and held in water in temperature of 37°C for 24 hours before testing.

Results: The mean TBS ranged from approx. 75 to 119 MPa, E varied from 5040 MPa to 8160 MPa, DTS ranged from 30 to 53 MPa, and hardness ranged from 33.6 to 69.9. Filtek Universal- Pink Opaquer exhibited the highest values for TBS (119.7 ± 6.8 MPa), DTS (53.9 ± 5.8 MPa), E (8290 ± 860 MPa), and HV (69.9 ± 2.2). The flow-type material showed the lowest hardness (33.6 ± 1.3) and E (5065 ± 197 MPa). However, it demonstrated higher DTS and TBS values than Amaris Gingiva and Beautifil II Gingiva. The lowest DTS value was recorded for Amaris Gingiva (30.0 ± 5.3 MPa), while the lowest TBS value was observed in Beautifil II Gingiva (87.6 ± 7.8 MPa).

Conclusions: On the basis of obtained Results it can be concluded that mechanical properties of composites are associated with the type of material (flow, paste-like), the amount and size of fillers particles and the type of monomers. Filtek Universal has an inorganic filler loading of 76.5% by weight, which enhances TBS, DTS and HV compared to flowable composite (filler loading approx. 61% by weight). Nanohybrid composites gain better Results than microhybrid. Filtek Universal contains low-shrinkage monomers that also can effects on mechanical properties.

JUVENES PRO MEDICINA

Endodontic Reincarnation: How to Improve the Effectiveness of Retreatment?

Sebastian Gawlak-Socka

Presenting author: Sebastian Gawlak-Socka

Work supervisor: Ada Hadacz

Affiliations: Medical University of Lodz

Introduction: Endodontic retreatment is a significantly more complicated procedure than primary root canal treatment, primarily due to the material present in the canal lumen, which hinders the procedure. Beginning retreatment requires a thorough assessment of the initial root canal treatment and an analysis of the potential causes of failure the first time. There are many different tool systems (such as XP-Endo Finisher (FKG, Switzerland), ultrasonics) and chemical compounds (e.g., orange oil, eucalyptus oil) that help increase the effectiveness and efficiency of gutta-percha removal from the canal lumen.

Aim of the study: The aim of this study was to analyze whether the use of additional instruments beyond WaveOne Gold tools is necessary for effective gutta-percha removal during endodontic retreatment. The analysis of which instrumentation yields the best Results in gutta-percha removal from the canal was also considered in this study.

Materials and Methods: The study included 18 natural teeth extracted for unknown reasons, meeting a set of conditions, which had previously undergone root canal treatment performed by students. Retreatment was carried out on all teeth using WaveOne Gold (Dentsply Sirona, Germany) instruments, and in some groups, additional instruments such as the XP-Endo Finisher (FKG, Switzerland) and the stainless-steel U-file tip on an endochuck were also used.

Results: The group that was retreated using a microscope, WaveOne Gold (Dentsply Sirona, Germany), and ultrasonics demonstrated the highest effectiveness in mechanical gutta-percha removal from the canal. In contrast, the group using only WaveOne Gold (Dentsply Sirona, Germany) rotary instruments showed the lowest effectiveness among the tested groups, with the amount of remaining gutta-percha, which is 40 times greater than group with highest effectiveness.

Conclusions: The use of additional instruments such as the XP-Endo Finisher (FKG, Switzerland) and ultrasonics significantly improves the effectiveness of gutta-percha removal from the canal, which may indicate better clinical outcomes. The application of a microscope also allows for the removal of a greater amount of gutta-percha from the canal lumen. In order to more accurately confirm the effectiveness of the individual instruments, further studies should be conducted, which would be expanded to include a larger number of teeth.

JUVENES PRO MEDICINA

Adhesion Strength of Gum-Imitating Composites with Traditional Composites

Lukasz Sokalski, dr inż. Eng. Michal Krasowski, dr hab. n. med. Kinga Bociong

Presenting author: Lukasz Sokalski

Work supervisor: dr hab. n. med. Kinga Bociong

Affiliations: Medical University of Lodz

Introduction: The use of resin-based composite imitating gum tissue enhances the aesthetics of fillings located below the physiological gum line. This method is recommended for patients with gum recession who already have composite fillings (e.g., Class V) but are unwilling to undergo a surgical gum lift or are awaiting surgery as a temporary long-term solution.

Aim of the study: The adhesion strength between the gum-imitating composite and the traditional composite with different prepared surface was examined. The Aim of the study was to evaluate which base material - G-aenial Universal Injectable (GC, Japan, flow) or G-aenial A'CHORD (GC, Japan) (paste) - performs better, as well as to determine the most effective surface preparation method.

Materials and Methods: Samples were divided into 2 groups (11 samples for each group): 1st group was samples of G-aenial Universal Injectable and 2nd was G-aenial A'CHORD. Four different Methods of surface preparation was performed: 1st – sandpaper size 600, 2nd - 36% o-phosphoric acid (H_3PO_4), 3rd – sandblasting (Danville, Power Plus Air Booster, 30µm, 1.5cm), 4th – 9,5% hydrofluoric acid (HF). Each surface preparation had 22 samples. G-Premio BOND (GC, Japan) was used. As gum material Gradia gum shades (GC, Japan) was used. The connection between the composites was evaluated using a Zwick Z005 (Zwick-Roell, Germany) universal device by measuring the shear bond strength (SBS).

Results: For G-aenial Universal Injectable, the following Results were obtained: the control group exhibited an average bond strength of 16.24 MPa (±3.68), samples treated with H_3PO_4 showed 16.80 MPa (±3.62), sandblasting resulted in 18.56 MPa (±2.80), and treatment with HF achieved 19.32 MPa (±2.97). For G-aenial A'CHORD (GC, Japan) (paste material), the control group demonstrated an average bond strength of 16.40 MPa (±3.06), while treatment with H_3PO_4 resulted in 14.15 MPa (±2.74), sandblasting yielded 16.40 MPa (±3.79), and HF application led to 19.23 MPa (±3.62).

Conclusions: Among the tested materials, flowable composite and paste composite showed comparable adhesion properties, with slightly higher bond strength observed in the flowable composite. Regarding surface preparation, hydrofluoric acid treatment provided the highest bond strength for both materials, indicating its superior effectiveness in enhancing adhesion. Unfortunately, the use of HF in the oral cavity is not recommended due to the risk of burns. Sandblasting also improved adhesion compared to the control group, whereas o-phosphoric acid treatment had inconsistent effects, particularly reducing bond strength for the paste composite.

JUVENES PRO MEDICINA

Can stress really go straight to your teeth?

Zofia Twerdyk, Dawid Szul

Presenting author: Zofia Twerdyk

Work supervisor: dr Patrycja Proc

Affiliations: Medical University of Lodz

Introduction: Bruxism is a parafunctional activity that involves clenching and grinding of the teeth, occurring both during sleep and while awake. An increasing number of studies suggest a potential link between bruxism and psychological factors such as stress, procrastination, or sleep disorders. Due to the rising prevalence of bruxism among young adults, particularly medical students, further investigation into its association with psychopathological symptoms is necessary.

Aim of the study: The aim of this study is to conduct a survey among dental students at the Medical University of Łódź and to determine the relationship between the presence of bruxism symptoms and the presence of psychopathological symptoms and other psychological factors such as stress or substance use. The Results will then be compared with the current literature on the subject.

Materials and Methods: The research method involved conducting a questionnaire-based survey consisting of 29 questions among 200 dental students from the Medical University of Łódź.

The questions focused on the presence of symptoms characteristic of bruxism, the use of substances (alcohol, cigarettes, caffeine), and subjective assessment of sleep quality and stress levels. The collected data were compared with findings from studies published between 2022 and 2024, which also analyzed the relationship between bruxism and psychological factors among medical and dental students.

Results: The analysis of the responses revealed that a significant proportion of dental students experience symptoms characteristic of bruxism, such as daytime teeth clenching, masticatory muscle pain upon waking, and nighttime teeth grinding (most often reported by roommates). A particularly significant factor was a subjectively high level of stress—students reporting frequent feelings of tension and pressure were more likely to report bruxism symptoms.

A correlation was also observed between the overuse of caffeine and cigarettes and the severity of symptoms. Interestingly, some respondents were unaware of their symptoms, which may suggest the presence of sleep bruxism, which is more difficult to identify independently. These **Results** are consistent with the literature, including studies by Kaya (2022), Babayiğit (2024), Pala Avan (2024), and Dhakar (2024), which also demonstrated strong associations between stress, procrastination, and bruxism symptoms in medical student populations.

Conclusions: The findings suggest the necessity of incorporating psychological interventions into bruxism prevention strategies and indicate that the primary source of stress is medical education. A lifestyle change involving the reduction of stressors and the elimination of harmful habits is recommended. Some authors point to the effectiveness of cognitive-behavioral therapy in improving stress-coping mechanisms in individuals with bruxism symptoms (Babayiğit et al., 2024). It is suggested that more studies of this kind be conducted.

JUVENES PRO MEDICINA

Diagnostic Accuracy of Periapical Cystic Lesions - A Mini Review

Sanjana Mistry

Presenting author: Sanjana Mistry

Work supervisor: Dr. Katarzyna Dąbrowska

Affiliations: Medical University of Lodz

Introduction: Periapical lesions are prevalent findings in Endodontics, caused by bacteria in infected pulp that exit through the apical foramen. causing inflammation in periapical tissues. This review mainly focuses on 2 diagnoses: periapical granuloma or radicular cysts. Radicular cysts (most common inflammatory cyst – 6-55%) are derived from epithelial rests of Malassez. Non-endodontic cysts (NEC) (developmental origin), such as dentigerous cysts and keratocystic odontogenic tumors (KOT), are more aggressive and common in the mandible. It is extremely important to confirm the nature of cysts as prognosis and treatment heavily depend on it.

Aim of the study: Main objectives are to evaluate accuracy and frequency of clinical diagnoses of lesions compared to histological and radiological Results and other related factors. Most studies had complete patient data, clinical reports, and diagnoses. Some studies aimed to evaluate different types of collagens in cysts, whereas some used extracted teeth for determination.

Materials and Methods: In this review, 4 research articles concerning the accuracy in periapical lesion diagnoses were analyzed and compared. The biopsy study specimens were collected with informed consent, fixed in 10% buffered formalin solution, planted in paraffin, arbitrarily cut into 3 5-µm, stained with H&E, Schiff, and Gram stain, analyzed, and classified into small (< 10 mm) or large (> 10 mm). Relationships between clinical and histological diagnoses, gender, lesion size and location were examined with chi-squared tests; t-tests were utilized to compare age data and obtain numeric data. Furthermore, specificity (NEC), sensitivity (radicular cysts), and accuracy (true positives and negatives) were calculated. In one study, jaw cysts were surgically extracted under local anesthesia, the fluid aspirated following exposure, centrifuged, frozen, and once needed, washed with saline and divided into 2 halves (histological and biochemical). Diagnoses were based on histological, clinical, and radiological data. One reviewed 9732 diagnosed biopsies, and one examined 256 lesions on extracted teeth, which were decalcified, embedded in plastic, and cut into sections to be histologically evaluated.

Results: In the biopsy study, out of 4908 cases, 183 met thorough guidelines. Histological findings showed 171 cases of radicular cysts (159 large, 24 small) and 12 cases of NEC. 89.1% of radicular cyst cases and 41.7% of NEC cases were clinically correct. Of the jaw cyst specimens, 6 were radicular cysts, 6 dentigerous cysts, 1 residual cyst, and 1 KOT. The biopsy review recognized 30 types of radiolucent jaw cysts: 40.4% non-healing apical granulomas and 33.1% cysts, where KOTs=8.8%, central giant cell lesions=1.3%, ameloblastomas=1.2%, and metastatic lesions= <1. Extracted teeth resulted in 50% granulomas, 35% periapical abscesses, and 15% cysts.

Conclusions: Although accuracy of differentiation between endodontic origin cystic lesions and non-endodontic origin clinical diagnoses was unexpectedly high, some NEC may still be diagnosed incorrectly and therefore require histologic evaluation. Furthermore, it is highlighted that advanced studies are still needed for suspected lesions through histological, radiological, and clinical examinations to reach a diagnosis.

References:

- https://doi.org/10.1038/s41598-020-71029-3
- https://onlinelibrary.wiley.com/doi/epdf/10.1111/j.1600-0722.1995.tb00015.x
- http://www.jendodon.com/article/S0099-2399(16)00056-X/abstract
- https://www.sciencedirect.com/science/article/abs/pii/S1079210496801569

JUVENES PRO MEDICINA

Dermatology

16th of May 2025

Coordinators:

Kacper Pawlak

Katarzyna Kozłowska

Kamil Mucha

Jury:

prof. dr hab. n. med. Anna Woźniacka

dr n. med. Anna Erkiert – Polguj

prof. dr hab. n. med. Anna Zalewska-Janowska

Development of a refined blister formation model aimed at elucidating IL-17B functions in the inflammatory response associated with bullous pemphigoid

Artur Jędreas

Presenting author: Artur Jędreas

Work supervisors: Sébastien Le Jan; Vlada Koliadenko; Céline Muller; Manuelle Viguier; Delphine Giusti

Affiliations: Medical University of Warsaw

Introduction: Bullous Pemphigoid (BP) is a skin autoimmune bullous disease that mainly occurs in the elderly, severely affecting their health and quality of life. BP is predominantly elicited by autoantibodies against two hemidesmosomal proteins BP180 and BP230, together with an abnormal inflammatory response, which results in the destruction of hemidesmosomes and skin blister formation. Interleukin-17 cytokines, particularly IL-17A, have been implicated in the development of BP. Recently, the IRMAIC lab identified IL-17B in the serum and blister fluid (BF) of BP patients, with evidence of a negative correlation between IL-17B BF levels and the score associated with blisters and erosions, suggesting a potential protective role of IL-17B in blister formation in BP disease.

Aim of the study: This study aimed to decipher the cellular and molecular components and the functions of the IL-17B/IL-17 receptor B (IL-17RB) axis at the time of diagnosis in BP. The work focused on identifying the blood cells that could potentially respond to IL-17B by evaluating IL 17RB and IL-17RA expression among lymphoid cells, particularly innate lymphoid cells (ILCs). We further set up and adapted to our lab an ex vivo model of dermal-epidermal separation to study the role of IL-17B in blister formation.

Materials and Methods: To explore IL-17RB and IL-17RA expression in BP a pilot study including 3 BP patients, two of whom relapsed and 3 sex- and age-matched controls was conducted. Peripheral blood mononuclear cells from all 6 individuals were collected at baseline and additionally at 60 and 90 days after the beginning of treatment from patients who relapsed. The ex vivo model of blister formation was optimised by adjusting the quality and thickness of the cryosections, concentrations of antibodies in BP patients sera, number of granulocytes applied to the cryosection, and cell activation Methods. Immunofluorescence staining techniques were employed to enhance the quantification of dermal-epidermal separation in this ex vivo model.

Results: Flow cytometry analysis revealed a ubiquitous presence of IL-17RA expression on ILCs, NK cells and lymphocytes/monocytes at baseline. In contrast, no IL-17RB expression was observed in any of these cells neither at baseline nor at the time of relapse. Additionally, a tool is presented for future studies on the functions of various interleukins in the blister formation in bullous pemphigoid.

Conclusions: The study showed that IL-17RB is not expressed in lymphoid cells at systemic level in BP patients neither at baseline nor during treatment. Further studies are needed to characterize IL-17RB+ cells, especially in situ at the lesional site. The developed model, combined with stimulation of granulocytes, by supernatants originating from IL-17B induced IL-17RB+ cells should allow us to better define the function of IL-17B in blister formation, leading to new therapeutic alternatives to local corticotherapy in the treatment of BP disease.

Cutaneous Clues to Hematologic Malignancies: A scoping review of dermatologic signs in leukemia and lymphoma

Bashirat Abdulraheem, Islem Kallel

Presenting author: Islem Kallel

Work supervisor: Agnieszka Kimak-Pielas (MD)

Affiliations: Medical university of Lodz

Introduction: Hematological malignancies, including cancers of the bone marrow and immune system cells, often present with cutaneous manifestations. Despite their diagnostic significance, these dermatological signs are frequently overlooked. Emerging evidence suggests specific skin lesions may serve as early indicators of hematological malignancies, but a comprehensive review consolidating these findings is lacking.

Aim of the study: This scoping review aims to assess the evidence linking cutaneous manifestations to hematological malignancies, highlighting their diagnostic and prognostic value.

Methods: A systematic literature search was conducted in PubMed, Scopus, and Web of Science to identify studies published between 2005 and 2025. Eligible publications included peer-reviewed articles, systematic reviews, meta-analyses, and case studies focusing on dermatological manifestations of hematological disorders.

Results: The review identified strong correlations between cutaneous signs and hematological malignancies, particularly leukemia and lymphoma. In leukemia, common skin manifestations included petechiae, ecchymosis, pallor, rashes, and ulcerations, with petechiae and ecchymosis strongly linked to thrombocytopenia. In lymphoma, pruritus was prevalent, especially in Hodgkin lymphoma, and erythroderma was frequently observed in cutaneous T-cell lymphoma. Angioimmunoblastic T-cell lymphoma often presented with persistent rashes, while livedo reticularis was rarely but notably associated with cryoglobulinemia in multiple myeloma. Additionally, jaundice indicated disease progression and a poor prognosis.

Conclusions: This review underscores the diagnostic and prognostic significance of dermatological manifestations in hematological malignancies. A multidisciplinary approach, integrating dermatology and hematology, is crucial for early detection, timely management, and improved patient outcomes.

Real-world evidence on anti-TNF agents use within the program “Treatment of moderate and severe forms of plaque psoriasis (B.47)” of the National Health Fund in Poland - a single-center study.

Łukasz Chętko, Julia Hofmann

Presenting author: Łukasz Chętko

Work supervisor: prof. Aleksandra Lesiak MD, PhD

Affiliations: Medical University of Lodz, Poland

Introduction: Psoriasis is a chronic inflammatory skin disorder with a recurrent course, affecting up to 3% of the Polish population. While primarily manifesting as cutaneous lesions, psoriasis is increasingly recognized as a multisystem disease due to its long-term complications. For patients who do not adequately respond to standard therapies, access to innovative treatments is now available through drug programs sponsored by the Polish National Health Fund.

Aim of the study: This study retrospectively analyzes patients with plaque psoriasis treated with anti-TNF agents under the "Treatment of Moderate and Severe Plaque Psoriasis (B.47)" drug program of the Ministry of Health at a single center in Poland. The objective was to evaluate patient demographics, disease characteristics, comorbidities, treatment outcomes, and safety.

Materials and Methods: Data were collected from medical records of 83 patients who met the eligibility criteria and received anti-TNF therapy under the program between August 2022 and March 2025. Variables analyzed included sex, age, comorbidities, affected areas, nail involvement, joint symptoms, prior treatments, therapy response, and adverse events. Efficacy was assessed using the Psoriasis Area and Severity Index (PASI), Body Surface Area (BSA), and Dermatology Life Quality Index (DLQI) scores at weeks 0, 8, 16, and 40.

Results: The cohort included 61 patients treated with adalimumab, 10 with etanercept, and 12 with certolizumab. The mean age at treatment initiation was 42.33 years for adalimumab, 12 years for etanercept, and 32.58 years for certolizumab (range: 5–68 years). Psoriatic scalp involvement was observed in 73.49% of cases. Nail involvement decreased from 14.45% at baseline to 2.41% at 40 weeks. Joint symptoms resolved in 75% of affected patients by four months, with adalimumab achieving the highest resolution rate (87%). At the 40-week follow-up, adalimumab resulted in reductions of 69.68% in PASI, 74.12% in DLQI, and 71.24% in BSA in adults. Pediatric patients showed the most significant improvement, with reductions of 92.74% in PASI, 94.12% in DLQI, and 94.68% in BSA. Etanercept led to reductions of 87.22% (PASI), 81.69% (DLQI), and 90.50% (BSA). Certolizumab demonstrated the greatest improvement at week 16, with reductions of 95.5% in BSA (15.75 vs. 1.43), 86.4% in DLQI (19 vs. 2.58), and 87.5% in PASI (13.63 vs. 1.7). Adverse reactions occurred in 3.6% of patients, including nausea, weakness, transient elevation of AspAT/ALT, and leukopenia, with a higher incidence observed in the adalimumab group.

Conclusions: Anti-TNF agents play a crucial role in the "B.47" drug program, enabling effective management of refractory psoriasis with a favorable cost-benefit ratio. The Results contribute to the growing body of real-world evidence regarding psoriasis management in Poland. Further studies are needed to optimize treatment strategies for plaque psoriasis on a national scale.

Effectiveness and safety of upadacitinib in the treatment of atopic dermatitis - a retrospective single-center analysis.

Małgorzata Sarzała

Presenting author: Małgorzata Sarzała

Work supervisors: Prof. Aleksandra Lesiak MD PhD; Prof. Joanna Narbutt MD PhD; MD Justyna Ceryn

Affiliations: Medical University of Lodz

Introduction: Atopic dermatitis (AD) is a chronic, inflammatory dermatosis with a multifaceted etiopathogenesis, necessitating a personalized and multidimensional therapeutic strategy. Recent advancements in immunomodulatory treatments have led to the increasing utilization of specific immunomodulating agents for moderate-to-severe AD. Since November 1, 2022, upadacitinib has been available to patients aged 12 years and older under the B.124 drug program, offering a promising targeted therapeutic alternative.

Aim of the study: The Aim of the study was to comprehensively assess the efficacy and safety profile of upadacitinib therapy within the B.124 drug program in patients diagnosed with AD.

Materials and Methods: A retrospective analysis was conducted on the medical records of 31 patients (21 adults, 10 pediatric) with clinically confirmed AD undergoing upadacitinib therapy. Treatment efficacy was evaluated using the Eczema Area and Severity Index (EASI), Dermatology Life Quality Index (DLQI), and Body Surface Area (BSA) scores, assessed at baseline, after four months of therapy, and subsequently at three-month intervals. Safety was analyzed based on deviations in laboratory parameters and reported adverse events.

Results: Among the 31 patients receiving upadacitinib, 17 were female (54.84%) and 14 male (45.16%), with a mean age of 27.9 years. The pre-treatment mean SCORAD value was 62.39. The mean values of assessment scales at different checkpoints were as follows – baseline: EASI 23.28, DLQI 15.57, BSA 26%; week 16: EASI 4.25, DLQI 3.07, BSA 5%; week 52: EASI 2.1, DLQI 1.32, BSA 3%. Treatment failure was observed in 9 patients (29.03%), while 3 patients discontinued therapy due to adverse effects. The most frequently observed laboratory abnormalities included elevated creatine kinase levels (35.48%) and dyslipidemia (29.03%). The most commonly reported adverse events were acne (22.58%) and recurrent herpes simplex infections (22.58%).

Conclusions: This single-center real-world evidence (RWE) study underscores the efficacy and favorable safety profile of upadacitinib in the management of moderate-to-severe AD in both adult and pediatric populations. While the therapy demonstrated substantial improvements in disease severity and patient quality of life, continued long-term observation is warranted to further evaluate its safety profile and long-term effectiveness.

JUVENES PRO MEDICINA

Blue light therapy in atopic dermatitis: clinical improvement and immunomodulatory effects.

Julia Hofmann

Presenting author: Julia Hofmann

Work supervisors: prof. Aleksandra Lesiak MD, PhD, Magdalena Sadowska MD

Affiliations: Medical University of Lodz

Introduction: Atopic dermatitis (AD) is a chronic inflammatory skin disease, typically manifesting in early childhood, with recurrent exacerbations and remissions. It significantly impacts patients' quality of life, causing persistent pruritus, sleep disturbances, and social exclusion. Mild cases are managed with topical corticosteroids or calcineurin inhibitors, whereas more severe forms may require phototherapy or systemic immunosuppressive treatment, both of which carry the risk of adverse effects. A potential alternative to conventional phototherapy is UV-free blue light therapy, which has been shown to improve patients' quality of life and mood regulators such as serotonin levels.

Aim of the study: This study aimed to evaluate the effectiveness of full-body blue light irradiation in AD treatment among adults and children and assess its impact on regulators, including vitamin D, interleukin-13 and 23 levels, as well as CCR4, TARC, TSLP and POSTIN.

Materials and Methods: The study included 20 patients (9-45 years; 5 males, 15 females) with moderate-to-severe AD (EASI 13.16; SCORAD 44.99). The treatment was conducted using the Full Body Blue GEN 1.0 device (wavelength 453 nm, irradiance 40 mW/cm3, dose 36J). Each patient underwent 10 irradiation sessions (15 minutes per body side, 30 minutes in total), 3-5 times per week. Clinical assessment was based on SCORAD, EASI, Visual Analogue Scale (VAS), pruritus severity scale, and Dermatology Life Quality Index (DLQI). Blood samples were taken before and after the treatment to evaluate specific laboratory parameters, such as CCR4, TARC, POSTIN, TSLP, vitamin D and interleukin-13 and 31 levels. A follow-up visit was conducted 24 hours after the final irradiation to evaluate effectiveness and safety.

Results: After 10 blue light therapy sessions, statistically significant improvements were observed in EASI (13.16 vs. 8.65; p=0.00016; 34.35% improvement), SCORAD (44.9 vs. 23.73; p<0.0001; 25% improvement), and VAS (6.53 vs. 3.95; p=0.00251; 39.51% improvement). Pruritus severity scale scores improved by 47.11% (p<0.00001), and DLQI decreased by 48.36% (p=0.00351). The laboratory test Results showed: increase in vitamin D levels (37.95 vs 41.75 ng/ml; p=0.00009), POSTIN (626.55 vs 637.15 pg/ml), CCR4 (12.72 vs 14.11 ng/ml) and TSLP (210.54 vs 216.05 pg/ml), as well as decrease of TARC (514.31 vs 474.80; p=0.04156), IL-13 (14.56 vs 12.96 pg/ml; p=0.01546) and IL-31 (218.60 vs 207.45 pg/ml; p=0.01354).

Conclusions:Blue light therapy appears to be a promising and safe treatment for AD, leading to symptom improvement, reduced pruritus and enhanced quality of life. The effect of blue light on inflammation by decreasing interleukins 13 and 31 levels and increasing vitamin D levels raises a promising alternative to standard treatment of atopic dermatitis. Further studies are necessary to confirm these findings and explore its potential for other pruritic conditions.

JUVENES PRO MEDICINA

Concerns and Side Effects of Oral Isotretinoin Treatment: Insights from an Original Survey

Katarzyna Majchrzak, Julia Hofmann, Aleksandra Walendzik

Presenting author: Aleksandra Walendzik

Work supervisor: prof. Aleksandra Lesiak MD, PhD

Affiliations: Medical University of Lodz

Introduction: Acne vulgaris is one of the most common skin diseases that predominantly affects adolescents. Acne can be extremely difficult to cure, often worsening the patient's daily comfort. One drug that thrives on curing this condition is isotretinoin, which exerts its anti-acne effect via four mechanisms: decrease sebum secretion, comedone formation, bacterial load, and anti-inflammatory effect. This is why it's one of the most effective acne treatments. However, the therapy often leads to side effects, causing serious concerns among acne sufferers.

Aim of the study: This study investigates the knowledge and concerns regarding oral isotretinoin treatment among the Polish population. Furthermore, it aimed to evaluate awareness of isotretinoin therapy.

Materials and Methods: An online questionnaire study involved 501 voluntary respondents. The survey divided study participants into three groups: Never Experienced Acne (NEA) (n=146, 29.1%),

Currently Experiencing Acne (CEA) (n=255, 50.9%), and Previously Experienced Acne (PEA) (n=100, 20%).

For all participants, the questionnaire evaluated their knowledge of and concerns about isotretinoin. Additionally, for the CEA and PEA groups combined, it also included questions regarding side effects and the impact on daily activities.

81.8% (n=410) of respondents were women and 18.2 % (n=91) were men. The average age of the respondent was approximately 25 years. Statistica 13.3 was used to perform all statistical analysis.

Results: The most common side effects reported by patients treated with oral isotretinoin were dry mucous membranes (83.04%), dry skin (83.27%) and general tiredness (37.64%). It's noteworthy that 20.91% of those treated with isotretinoin reported experiencing depressive states. These symptoms also worsened aspects of life, 69.58% of patients reporting the need for frequent skin moisturization, 20.53% having to give up travel to warm countries, or physical activity 17.87%. The study showed that 52.39% of acne treatment patients have concerns about oral isotretinoin treatment, such as liver deterioration (65.05%), dry skin (58.6%), dry mucous membranes (56.45%), concerns about potential mental health deterioration (51,61%) and hair loss (45.7%). The most common source of concern is the Internet (50.54%).Up to 57.01% of women did not have a pregnancy test before starting therapy.

Interestingly, the study found a significant statistical difference of p=0.000098 on the DLQI scale in the CEA group comparing people in this group who have or have not concerns about isotretinoin treatment.

Conclusions: The Results obtained seem to indicate that efficacy and adherence to treatment may be potentially improved by raising social awareness about side effects, treatment recommendations, and cooperation with a dermatologist.

Further studies are necessary to confirm the association between concerns and quality of life among patients treated with isotretinoin.

Awareness of skin cancers, including melanoma, among the population

Aleksandra Przybylak, Agnieszka Rodak, Julia Hofmann

Presenting author: Aleksandra Przybylak

Work supervisor: Prof. Aleksandra Lesiak MD, PhD

Affiliations: Medical University of Lodz

Introduction: Due to widely promoted information campaigns, public awareness of skin cancer has significantly increased. Many individuals, following the recommendations of global and Polish dermatological societies, regularly undergo dermatoscopic examinations of moles. Unfortunately, some patients still delay their visits to a dermatologist. In all types of cancer, the time that elapses from the onset of the disease to the initiation of appropriate treatment is a crucial factor influencing prognosis. Therefore, prevention and early intervention in the case of a suspicious skin lesion are of fundamental importance.

Aim of the study: The Aim of the study was to assess the level of awareness regarding skin cancer, its prevention, and early detection among the population. The group of respondents was divided into categories, taking into account two age groups: the first group consisted of 272 individuals aged 17–35 years, while the second group included 242 individuals aged 36–83 years, as well as their place of residence.

Materials and Methods: From February 19 to March 15, 2025, an anonymous online survey was conducted, consisting of 28 questions regarding awareness about skin cancer, prevention, and early detection.

Results: Next, the respondents were divided into two age groups: comparison in the younger group up to 35 years of age and in the older group above 35 years of age. 17–35 years (272 individuals) and 36–83 years (242 individuals), with a median age of 37.25 and SD of 16.65 years. Among younger participants, 62 (22.79%) had never visited a dermatologist, compared to 44 (18.18%) in the older group (p= 0.23). Daily sunscreen use was reported by 138 individuals (50.7%) in the younger group and 62 (25.6%) in the older group. No statistically significant correlation was found between these parameters. Regarding skin cancer awareness, 496 participants were familiar with melanoma, while 194 knew about basal cell carcinoma—the most common type of skin cancer—and 156 had heard of squamous cell carcinoma. Dermatological visits varied significantly by place of residence. In cities with populations over 500,000, 166 individuals (83%) had visited a dermatologist, compared to 238 (75.79%) in smaller towns and rural areas. More than half of respondents (298, 58%) believed modifiable factors, such as lifestyle, do not affect skin cancer risk, while 185 (36%) were uncertain. Awareness of the ABCDE method for skin self-examination was higher among younger participants, with 42 individuals (15.44%) familiar with it, compared to 27 (11.15%) in the older group (p>0,05 for each variable).

Conclusions: Differences in skin cancer awareness across age groups and population sizes highlight the need for stronger education. Despite easy access to information, many still underestimate the importance of regular dermatological visits and self-examinations. Expanding prevention programs and campaigns should be a priority to improve early detection and patient outcomes.

JUVENES PRO MEDICINA

Effectiveness and safety of Interleukin-23 Inhibitors in the Treatment of Psoriasis within the 'Treatment of Moderate and Severe Forms of Plaque Psoriasis Data from One Center

Kaja Przywarta, Łukasz Chętko

Presenting author: Kaja Przywarta

Work supervisor: Prof. dr hab. n. med. Aleksandra Lesiak

Affiliations: Medical University of Lodz

Introduction: Psoriasis is a chronic, inflammatory, and autoimmune condition that can occur at any age and affects up to 3% of the global population. The clinical manifestations range from cutaneous and nail lesions, such as plaques and lumps, to psoriatic arthritis. Additionally, patients with psoriasis face a higher risk of developing metabolic and cardiovascular disorders. In Poland, patients with moderate to severe psoriasis, who have failed standard therapies, now have access to innovative treatments through drug programs funded by the Ministry of Health.

Aim of the study: The objective of this study was to retrospectively analyze patients enrolled in the 'Treatment of Moderate and Severe Plaque Psoriasis (B.47)' drug program of the National Health Fund at Dermoklinika Medical Center in Łódź. The study included patients treated with IL-23 inhibitors (risankizumab and tildrakizumab). Demographic data, disease characteristics, treatment outcomes, and adverse events were assessed.

Materials and Methods: The study included 28 patients who were admitted to the drug program between February 2023 and March 2025. Data was collected and analyzed for variables such as sex, age, joint symptoms, and nail and scalp involvement, with a particular focus on treatment response and adverse events. The effectiveness of treatment was assessed at baseline (week 0), week 8, and week 16. The Psoriasis Area and Severity Index (PASI), Body Surface Area (BSA), and Dermatology Life Quality Index (DLQI) scales were used to objectively assess treatment outcomes.

Results: The median age at the time of admission was 43.25 years (range: 19-69). Psoriatic lesions affected the scalp in 89.3% of patients, while nail involvement and joint symptoms were observed in 28.57% and 35.71% of patients, respectively. Eight patients (28.57%) had previously been treated with biologics, four of whom switched to risankizumab due to inadequate response to adalimumab. By week 16, the mean reduction in PASI, DLQI, and BSA scores was 88.15%, 84.85%, and 90.25%,respectively. Complete remission (PASI 100) was achieved in nearly one-third of patients (32.14%). Resolution of nail lesions and joint symptoms was observed in all affected individuals. Scalp involvement decreased by 64%. No patients discontinued treatment due to adverse events, with the most common side effect being a transient elevation in transaminase levels, observed in 21.14% of patients.

Conclusions: The Results of this study demonstrate that treatment with IL-23 inhibitors significantly reduces the symptoms of psoriasis with minimal side effects.

The Impact of Rosacea on Patients' Psychological and Social Well-being

Patryk Knieja, Wiktoria Budzyńska

Presenting author: Patryk Knieja

Work supervisors: lek. Maria Rajczak MD, prof. Aleksandra Lesiak MD, PhD

Affiliations: Medical University of Lodz

Introduction: Rosacea is a chronic inflammatory skin condition that can affect individuals of any age. The hallmark dermatological manifestations of rosacea include erythema, phymatous changes, papules, pustules, and telangiectasia. The condition primarily affects the cheeks, nose, chin, and forehead.

Aim of the study: The primary aim of this study was to examine the impact of rosacea on the psychosocial well-being of patients.

Materials and Methods: The survey was designed by the authors using Google Forms. The questionnaire included items on socio-demographic data, medical history, treatment modalities, and three standardized assessments: the Dermatology Life Quality Index (DLQI), Hospital Anxiety and Depression Scale (HADS), and Skindex-29.

Results: The study sample consisted of 76 adult patients, of whom 69 (91%) were female and 7 (9%) were male, with a mean age of 41.7 years. Half of the participants had the erythematotelangiectatic subtype of rosacea, followed by the papulopustular subtype in 34% of cases. The most common locations for skin lesions were the cheeks, nose, and chin. Nearly all patients (97%) were undergoing topical or oral treatments, or a combination of both. Approximately 90% of patients reported exacerbation of rosacea triggered by factors such as stress (59%), elevated outdoor temperatures (51%), and alcohol consumption (47%).

The DLQI Results revealed that over half of the patients (62%) experienced a reduced quality of life due to rosacea, with 21% reporting a significant or very significant impact. The HADS Results indicated that 17% of participants had symptoms consistent with depression, while 30% exhibited signs of anxiety. Analysis of the Skindex-29 scale further confirmed the psychological impact of rosacea, with 45% of patients reporting emotional distress (average score for emotions ≥39) and 38% showing impaired functioning (average score for functioning ≥37).

Conclusions: Rosacea, due to the visible location of lesions, the nature of its symptoms, and its susceptibility to exacerbating factors, significantly affects the psychological well-being of patients. It is crucial for dermatology clinics to identify individuals who may require psychological support in addition to dermatological care.

JUVENES PRO MEDICINA

Gynecology and Obstetrics

16th of May 2025

Coordinators:

Aleksandra Nasiłowska

Cloé Lepoivre

Ghina Kahel

Jury:

dr n. med. Magdalena Kajdos-Wągrowska

dr n. med. Dorota Estemberg

prof. dr hab. n. med. Tomasz Ochędalski

dr. hab. n. med. Miłosz Wilczyński

JUVENES PRO MEDICINA

The potential role of Fusobacterium spp. in the pathogenesis and progression of endometriosis

Maja Czerniachowska, Agnieszka Kiryszewska-Jesionek, Małgorzata Brauncajs, Piotr Machnicki, Filip Franciszek Karuga, Dorota Kolasa-Zwierzchowska, Paulina Głogowiec, Krzysztof Szyłło, Dorota Pastuszak-Lewandowska

Presenting author: Maja Czerniachowska

Work supervisor: PhD Agnieszka Kiryszewska-Jesionek

Affiliations: Medical University of Lodz

Introduction: Endometriosis is a common disease, affecting approx. 10-15% of women in a reproductive age. It is a benign proliferative process, caused by the growth of extrauterine, endometrium-like tissue, most commonly found in the abdominal cavity. The symptoms include mild to severe pelvic pain and abnormal uterine bleeding; if left untreated, the disease may also lead to infertility. The exact pathogenesis of the disease has not yet been fully researched. One recent study found the presence of bacteria in endometrial tissue and suggested a causal role.

Aim of the study: The study aims to analyse the prevalence of Fusobacterium spp. in samples collected from women diagnosed with endometriosis compared to the women without the disease. It is the first step in analyzing the potential role of Fusobacterium spp. in the pathogenesis of endometriosis.

Materials and Methods: The current stage of study included 12 female patients: 5 patients with endometriosis and 7 non-endometriosis patients who underwent hysterectomy due to other reasons. From each of the patients, the following samples were collected prior to surgery: (i) oral swabs, (ii) cervical swab, and during surgery: (iii) peritoneal fluid sample, (iv) cyst wall sample. In both groups of patients, a 1 cm2 endometrial cyst wall sample was collected during surgery, after which it was put into sterile container. Cyst wall samples were also incubated in appropriate broth medium in anaerobic conditions. Additionally, oral and cervical swabs were taken from each patient: 1st collected into the tube with Amies transport medium, and 2nd collected into a sterile tube with no medium and frozen in -20°C. All swabs previously kept in Amies transport medium were cultured with appropriate broth and agar medium and incubated in anaerobic conditions. Moreover, peritoneal fluid samples were also collected into sterile container and remained frozen in -20C. Fluid samples were also incubated in broth medium in anaerobic conditions. Each of the samples then underwent both a DNA as well as microbiological analysis. DNA was isolated from all taken samples using „GeneMATRIX Tissue & Bacterial DNA purification Kit", by the EURX, and then amplified using PCR and the following starters: FUSO1 (5'-GAG AGA GCT TTG CGT CC-3') and FUSO2 (5'-TGG GCG CTG AGG TTC GAC -3'), which are known to be the universal starters in detecting clinically significant species of Fusobacterium.

Results:PCR analysis revealed the presence of Fusobacterium DNA in 10 out of 12 oral swab samples: 6 out of 7 in the control group and 4 out of 5 in the endometriosis group. However, there was no statistically significant difference between them. DNA analysis of other samples - including cervical swabs, peritoneal fluid, and endometrial cyst walls - yielded negative Results. In the microbiological analysis, no Fusobacterium colonies were cultured.

Conclusions: To draw final Conclusions, further analysis based on a larger group of patients is necessary.

JUVENES PRO MEDICINA

Analysis of dysmenorrhea among the Polish population - the preliminary study.

Katarzyna Kwas, Maria Szubert, Aleksander Rycerz, Daniel Wolder, Magdalena Bednarek-Jędrzejek, Anna Bogaczyk, Aleksandra Urban, Julia Bijok, Jacek R. Wilczyński, Julia Zawierucha

Presenting author: Julia Zawierucha

Work supervisor: lek. Katarzyna Kwas

Affiliations: Medical University of Lodz

Introduction: A painful menstrual cycle is a symptom reported by a majority of women at least once throughout their lifespan. Trivialized by healthcare givers can lead to a serious reduction in quality of life, be a cause of growing anxiety, and increase in the percentage of mental health issues.

Aim of the study: The aim of the research was to assess the prevalence as well as the efficacy of diagnosis and treatment of dysmenorrhea in the population of Polish women.

Methods: A cross-sectional study was conducted among Polish women using a questionnaire consisting of 65 questions grouped into eight parts. The preliminary study included 986 female answers. The questionnaires were collected online and in numerous Polish clinics.

Results: According to our findings, dysmenorrhea affected 98% of females; most of them, 43.5% were aged 18-24 years. Only 40.4% tried to diagnose the problem and the mean time of diagnosis was 4.01 years (SD=4.67). Currently, 53.9% of females take medications for dysmenorrhea, and 38.8% of them are not satisfied with the Results of treatment. The difference in VAS score before the dysmenorrhea treatment and after was statistically significant and equaled 2.4 (p=0.023).

83.6% of females stated that dysmenorrhea significantly affects their daily living and their work quality. The mean of days of sick leave due to dysmenorrhea on a year scale equaled 2.6 days (SD=5.56). Moreover, the type of work was determined to influence the intensity of menstrual bleeding (p=0.016) and sleeping comfort (p=0.000) of females with dysmenorrhea. Finally, 41.1% of females decided to change their diet, 44.3% of females use physiotherapy, and 24.4% take natural herbs in order to reduce menstrual pain.

Conclusion: The study points to the fact that the problem of dysmenorrhea affects the majority of Polish women. Further research on more numerous groups is needed to fully assess the impact and effectiveness of dysmenorrhea treatment.

Are Poles ready for reimbursement policy? Knowledge and emotions of in vitro fertilization among Polish people.

Zuzanna Kobalczyk, Wiktoria Lisińska, Ewa Słomka, Aleksandra Walendzik

Presenting author: Ewa Słomka

Work supervisor: Katarzyna Kwas MD; Grzegorz Guzowski MD, PhD; Piotr Sieroszewski Prof

Affiliations: Medical University of Łódź

Introduction: When natural conception is difficult or impossible, individuals and couples might utilize the medical treatment known as in vitro fertilization (IVF) to help conceive a child. In this procedure, the egg is fertilized with sperm outside the body in a lab, and the resultant embryo is subsequently implanted into the uterus. Recent changes to Poland's reimbursement laws have made public awareness and understanding of in vitro fertilization (IVF) even more important.

Aim of the study: This study aims to assess the level of knowledge and awareness of in vitro fertilization (IVF) among Polish people.

Materials and Methods: The study was conducted using a structured survey to assess the knowledge and perceptions of in vitro fertilization (IVF) among the general Polish population. The questionnaire consisted of 48 multiple-choice and open-ended questions divided into three main sections: sociodemographic characteristics, factual knowledge about IVF, and ethical considerations. Statistica 13.3 was used for all statistical analyses.

Results: The study involved 276 respondents; 77,9% (n=215) of respondents were women, and 22,1% (n=61) were men. The average age of the respondents was approximately 34 years (SD = 13,22). The average length of time spent trying to get pregnant was 11 months (SD = 21,22). 40% of respondents confirmed that they know people who have used IVF, and one in ten women who have already given birth have used IVF. 67% of people consider the topic of IVF to be controversial, and as many as 21% believe that the disposal of unused embryos is a violation of the right to life. 72% of respondents support the reimbursement of in vitro treatments with public funds. Only 29% of people believe they have either good or excellent knowledge about in vitro.

Conclusions: The knowledge about in vitro fertilization in Poland is not widely spread, and the topic still raises many controversies and misunderstandings.

JUVENES PRO MEDICINA

Does Every Female with Endometriosis Have to Suffer?

Lena Apanowicz, Agnieszka Korzeniewska, Weronika Kunat, Katarzyna Kwas, Maria Szubert, Jacek R Wilczyński

Presenting author: Lena Apanowicz

Work supervisor:

Affiliations: Medical University of Lodz

Introduction:Endometriosis is an estrogen-dependent inflammatory disease characterized by the growth of endometrial tissue outside the uterine cavity. It manifests with pain, menstrual disorders, and issues related to fertility and sexual intercourse. Approximately 80% of women deal with chronic pelvic pain syndrome and up to 50% experience reproductive disorders. Despite various available treatment options, managing endometriosis remains a challenge.

Aim of the study :The aim of this study is to assess the quality of life of women suffering from endometriosis, analyze the dyspareunia, dysmenorrhea, and chronic pelvic pain syndrome prevalence, treatment efficency and the impact on everyday life.

Materials and Methods: An online survey consisting of 65 multiple-choice questions was conducted among females diagnosed with endometriosis. The questions focus on pain intensity, pain management Methods, and their effectiveness. The obtained data was assessed by 3 individual researchers and was analyzed using statistical tests.

Results: A total of 360 females participated in the study (mean age 33). The control group (n=71) consisted of healthy females, the study group (n=289) comprised patients with endometriosis. The mean duration between symptom onset and definitive diagnosis was seven years. Among females with endometriosis, 61% presented dyspareunia, 91% dysmenorrhea, 46% chronic pelvic pain syndrome (CPPS). Among the assessed types of pain, deep infiltrating endometriosis was proved to have the strongest correlation with dyspareunia (OR =1,077 p=0.031), dysmenorrhea (OR=1,317 p=0.04), and CPPS (OR= 2,061 p=0.021). Moreover, 98% of the respondents suffering from CPPS reported decreased quality of life (performing daily activities, inability to engage in employment and withdrawal from participation in social activities), which was most evident in females with endometriosis in the cesarean section scar, p = 0.010). 25% of respondents undergo more than three forms of therapy for endometriosis. The most commonly chosen form of symptomatic treatment by the patients were NSAIDs (53,3%). Among non-pharmacological treatment Methods, 26% of respondents opted for physiotherapy, while 12% chose psychotherapy. Among the 92% of females with endometriosis who received treatment, 17% reported it as fully effective.

Conclusions: Endometriosis significantly impacts the quality of life of affected patients. Despite the available management, symptomatic treatment is the most commonly chosen therapeutic approach among women. Various forms of therapeutic intervention are implemented by females with endometriosis such as surgery and pharmacology and diet/physiotherapy/fitotheraphy/physiotherapy/meditation.

JUVENES PRO MEDICINA

In-silico analysis of adenomyosis shows the importance of extracellular matrix remodeling and epithelial-to-mesenchymal transition in disease development.

Piotr Kulesza, Aleksander Rycerz, Monika Golińska, Wojciech Fendler

Presenting author: Piotr Kulesza

Work supervisor: Monika Golińska

Affiliations: Uniwersytet Medyczny w Łodzi

Introduction: Adenomyosis is a prevalent gynecological disorder in which endometrial tissue grows within the uterine muscle. The limited number of genomic studies, often with small sample sizes, presents challenges in identifying the key factors contributing to the disease and developing effective, targeted treatments.

Aim of the study: This study aims to employ meta-analysis to combine data from multiple datasets, thereby enhancing statistical power to uncover the main molecular events involved in adenomyosis. The goal is to identify potential biomarkers and gain a deeper understanding of the molecular pathways that drive the disease.

Materials and Methods: Gene expression data for unprocessed endometrial tissue from adenomyosis patients and corresponding healthy controls were retrieved from the Gene Expression Omnibus, based on predefined inclusion criteria. Raw data underwent preprocessing and normalization, followed by differential gene expression analysis. A meta-analysis was performed on six datasets containing endometrial samples from women with adenomyosis (n=32) and healthy controls (n=46). Enrichment analysis, gene ontology, and functional clustering were carried out using DAVID and gProfiler.

Results: F13A1 was downregulated in adenomyosis (logFC=-1.4, $p<0.05$), potentially affecting ECM remodeling and angiogenesis in response to junctional zone injury. LYZ was downregulated (logFC=-1.5, $p<0.05$), which may promote a pro-inflammatory microenvironment through immune cell infiltration and cytokine release. GLIPR1, also downregulated (logFC=-1.5, $p<0.05$), disrupts EMT and tumor suppression through p53 and Wnt/β-catenin signaling, relevant to endometrial cell invasiveness. TM4SF1 was upregulated (logFC=1.8, $p<0.05$), strongly linked to EMT, and regulates cell adhesion, migration, and matrix degradation, contributing to endometrial cell invasiveness. MMP7 was the most upregulated gene (logFC=1.7, $p<0.05$), with MMP11 and MMP16 also showing significant increases (logFC=1, $p<0.05$), highlighting their critical role in ECM remodeling.

Conclusions: This study identifies key molecular alterations in adenomyosis, highlighting genes involved in extracellular matrix remodeling, inflammation, epithelial-to-mesenchymal transition (EMT), and tissue invasiveness. The downregulation of F13A1, LYZ, and GLIPR1, alongside the upregulation of TM4SF1 and MMPs, suggests a complex interplay of processes that contribute to the pathophysiology of adenomyosis. These findings provide potential biomarkers for diagnosis and therapeutic development.

JUVENES PRO MEDICINA

Analysis of knowledge about Emergency contraception in Polish population.

B. Nowak, I. Kasprzycka, M. Rybacka, K. Kwas, J.Pasiński, P.Sieroszewski

Presenting author: Beata Nowak

Work supervisor: Katarzyna Kwas

Affiliations: Medical University of Lodz

Introduction: Emergency contraception (EC) is a commonly used method of preventing unwanted pregnancy in Poland, and its availability has increased with the Introduction of a pilot program by the Polish Ministry of Health. Proper usage is highly effective and has a low risk of side effects. Available forms of emergency contraception include oral hormonal pills and copper intrauterine devices (IUDs).

Aim of the study: The research aims to evaluate the knowledge and awareness regarding emergency contraception among the Polish population.

Materials and Methods: Online surveys were distributed through social media. The form included 51 single- and multi-choice questions concerning emergency contraception, ethics, and the respondents. The obtained data was assessed using statistical tests.

Results: Out of 414 study participants, the majority (79,23%) were females with a mean age of 31 years old. Most of the respondents (63,68%) know that it is a safe method. 57,49% of people rated their knowledge of EC as at least 4 on a 5-point scale, but only 37,81% correctly identified the pharmacotherapy used in this method. The most common source of information was the internet (88,16%), the second was a doctor 37,68% and the third was friends 30,43%. 66,67% of people knew that it does not cause early pregnancy termination and 54,83% stated that EC isn't harmful to the fetus.Only 13.28% of respondents had heard about the pilot program. Their average age was 33.1 (SD= 15.2, min 18; max 76). A significant majority of them were women 81.2%, Most of the people who had heard about the pilot program had higher education 50.9%. Only 16,42% of responders knew who could write a prescription for emergency contraception. 90,58% of respondents correctly stated the time efficacy of EC. 21,98% of respondents believe that the use of EC is contrary to their faith/ethics, while 62,80% percent identified themselves as believers. The majority of females who used EC had higher education 56%, medical education 9.9% and secondary education 34.1% and these women were predominantly from metropolitan areas with more than 100 thousand inhabitants (48.3%). The level of knowledge of these females about EC was on average 3.97 on a 5-point scale (SD 0.85).

Conclusions: Despite increasing usage of emergency contraception, the knowledge of this topic among the Polish population is alarmingly low, which may entail several risks. Therefore, there is a need to promote awareness and correct false beliefs about EC in Poland.

JUVENES PRO MEDICINA

Between theory and practice - what do women know about supplementation during pregnancy?

Monika Kukla, Weronika Jarosz, Anna Balcerzak, Maria Szubert, Katarzyna Kwas, Jacek Radosław Wilczyński

Presenting author: Monika Kukla

Work supervisor: Katarzyna Kwas

Affiliations: Medical University of Lodz

Introduction: According to PTGiP recommendations folic acid, iodine, iron, DHA supplement and vitamin D3 should be supplemented during pregnancy. Supplementation prevents fetal congenital defects including neural tube defects as well as maternal complications such as anemia, hypothyroidism. Nevertheless, the state of females' knowledge about the principles of appropriate supplementation and its significancy for maternal and fetal health remains insufficient.

Aim of the study: Aim of the study is to compare the analyze females' knowledge about the supplementation during pregnancy.

Materials and Methods: An online questionnaire consisting of 48 multiple-choice and open-ended questions targeted the general population of women in Poland. The questions concerned pregnancy, its course, complications and knowledge of supplementation recommended during gestation. Data were assessed with the use of statistical tests.

Results: The study included 303 females, with a mean age of 29.29 years (SD=10.54). Among the participants, 104 (34.32%) are mothers, 16 (5.28%) were currently pregnant, while 25 (8.25%) reported a history of obstetric complications. The majority of respondents (83.17%) recognized the necessity of increasing nutrient intake during pregnancy due to elevated physiological demands. Additionally, 95.38% acknowledged the importance of supplementation during gestation. As recommended supplements, females the most frequently indicated folic acid (92.9%), vitamin D3 (76.5%), DHA (69.4%), iron (61.7%) and the most rarely iodine (49.3%) and calcium (22.1%). The mean score of the test is 44.1% (SD=1.9), including 15.38% correct answers regarding the recommended dosages and 72.81% correct answers regarding the effect of the supplements intake on the gestation. Females who had planned pregnancies or had a medical education demonstrate significantly higher knowledge about supplementation ($p<0.05$) compared to those with unplanned pregnancies or non-medical backgrounds. The place of residence has no influence on the level of knowledge ($p>0.05$). Obtained Results of our study show that females taking pregnancy-unrelated supplements do not have larger knowledge about supplementation during gestation, nevertheless this result did not reach statistical significance ($p>0.05$).

Conclusion: Despite the widespread access to knowledge about supplementation, the female's knowledge of its principles and appropriate dosages is insufficient. Females whose pregnancies were planned or had medical education scored higher test for supplementation in pregnancy. Supplementation intake, unrelated to pregnancy does not statistically affect on the level of knowledge about supplementation in pregnancy. It is necessary to increase education on supplementation in pregnancy, particularly regarding recommended dosages and the role of specific nutrients for effectively prevention of deficiencies in pregnancy and obstetric complications.

JUVENES PRO MEDICINA

Factors Influencing the Choice of Delivery Method – An Analysis of Women's Preferences in the Third Trimester of Pregnancy

Martyna Kutkowska, Karolina Romanek, Angelika Doroszewska

Presenting author: Martyna Kutkowska

Work supervisors: Anna B. Pilewska-Kozak RM, RN, MSc, PhD, associate professor dr hab. Anna B. Pilewska-Kozak, prof. UM, Monika Wójtowicz-Marzec MD, PhD dr n. med. Monika Wójtowicz – Marzec

Affiliations: Medical University of Lublin, Poland

Introduction: The choice of delivery method is a deeply personal decision influenced by multiple factors. Women often consider both medical aspects and their personal preferences regarding childbirth. This decision may involve choosing between vaginal delivery and cesarean section, as well as evaluating different pain management options and birthing accommodations.

Aim of the study: The aim of this study is to analyze women's preferences regarding the mode of childbirth, taking into account the factors that influence their decision-making process.

Materials and Methods: The study was conducted using a diagnostic survey, with a self-constructed questionnaire covering sociodemographic data, obstetric history, and childbirth preferences. Additionally, three standardized tools were used: the Perceived Stress Scale (PSS-10), the Life Orientation Test-Revised (LOT-R), and the Childbirth Anxiety Questionnaire (KLP II). The study included 333 women in their third trimester of pregnancy and was conducted in gynecological and obstetric outpatient clinics as well as antenatal classes in Lublin. A purposive sampling method was applied, with inclusion criteria consisting of being at least 18 years old and in the third trimester of pregnancy. Participation in the study was voluntary and anonymous. The study was conducted in accordance with the principles of the Helsinki Declaration.

Results: Among the respondents, 65.8% (n=219) were experiencing their first pregnancy, while 34.2% (n=114) had prior childbirth experience. Vaginal delivery was considered the most favorable mode of birth by 83.5% (n=278) of the participants, whereas 45.6% (n=152) believed that cesarean section should be available on demand. The majority of respondents (82.0%, n=273) preferred hospital delivery, while 3.9% (n=13) opted for home birth. Fear of labor pain was reported by 68.2% (n=227) of participants, and 64.9% (n=216) expressed concerns about potential complications. Additionally, 17.4% (n=58) of respondents had previously experienced traumatic pregnancy or childbirth events.

Conclusions: Women’s preferences regarding the mode of delivery are shaped by their prior childbirth experiences and concerns about pain and potential complications. The high percentage of women considering cesarean section without medical indications highlights the need for enhanced childbirth education and psychological support to assist women in making informed decisions about their delivery method.

JUVENES PRO MEDICINA

Internal Medicine

15th of May 2025

Coordinators:

Filip Grzybowski

Paidamoyo Chiota

Yin Qi Lee

Jury:

dr n. med. Mateusz Staciwa

dr n. med. Anna Krystyna Witkowska

dr hab. n. med. Paulina Gorzelak-Pabiś

dr n. med. Agnieszka Dębska-Kozłowska

prof. dr hab. n. med. Tadeusz Robak

dr n. med. Monika Różycka Kosmalska

dr n. med. Łukasz Gwadera

JUVENES PRO MEDICINA

Perspectives and attitudes towards plant-based diet among Dutch and Italian citizens

Marcella Daga, Magdalena Wrzesińska

Presenting author: Marcella Daga

Work supervisor: Magdalena Wrzesińska

Affiliations: Medical University of Lodz; University of Cagliari

Introduction: Food systems and consumption habits have played a significant role in transforming and shaping the global landscape and society's environment. Currently, there is a growing interest in food sustainability and an increasing awareness of the need to focus on the planet health. Food production inevitably has an impact on the environment in a number of ways. As the final link in the chain, consumers influence this process through their choices in purchasing, storing and consuming food.

Aim of the study: The purpose of this study was to explore the attitudes and perspectives of citizens from Italy and the Netherlands towards different types of plant-based diets. It focused on current dietary patterns, social dynamics, family influence, eating habits, and participants' willingness to adopt or transition towards a more plant-based diet.

Materials and Methods: To assess respondents' attitudes, perceptions and willingness to adopt a plant-based diet, a survey was prepared for this study based on the research review. It was designed in English and translated into Italian using the back-translation method. The online questionnaire was distributed in both countries (English version in the Netherlands) in August and September 2024. The final total sample included 884 participants (N=748 in Italy) aged 18 years and older. The majority of respondents were female (N=653). Respondents were recruited in both countries through snowball sampling via social media and researchers' personal networks. Chi-squared test was performed to assess significant differences with threshold of $p < 0.05$.

Results: More Dutch than Italian participants followed a plant-based diet (47% vs 17%; $p<0.01$). Among the plant-based diet respondents, more family members followed this diet compared to the omnivore group. More than half of plant-based group and about ¾ of omnivores do not consider their diet to be an obstacle to social relationships. Although omnivores in both countries showed limited interest in switching completely to a plant-based diet, Dutch respondents were more open to incorporating plant-based alternatives, whereas Italians were more hesitant about possible dietary changes ($p<0.01$).

Conclusions: The study revealed differences in attitudes and perspectives towards a plant-based diet between the Dutch and Italian populations, mainly in relation to the inclusion of a plant-based diet. Future research could focus on expanding the Dutch sample and including other countries. This would provide a broader perspective and allow a deeper exploration of how cultural and food traditions shape dietary choices and perceptions of plant-based diets.

Metabolic Profiles in Systemic Lupus Erythematosus, Primary Sjögren's Syndrome, and Systemic Sclerosis

Artur Jędreas

Presenting author: Artur Jędreas

Work supervisors: dr hab. Joanna Giebułtowicz; dr. Sylwia Michorowska

Affiliations: Medical University of Warsaw

Introduction: Systemic lupus erythematosus (SLE), primary Sjögren's syndrome (pSS), and systemic sclerosis (SSc) are systemic autoimmune diseases characterized by significant diagnostic delays due to their high interindividual variability and unpredictable clinical courses. Moreover, managing patients with these diseases presents substantial challenges, especially in cases involving multiple organs and coexisting autoimmune conditions. The latest metabolomic data suggest that new molecular signatures are closely related to the phenotypes of autoimmune diseases, and their ability to differentiate patient groups from healthy controls could have valuable clinical applications.

Aim of the study: To investigate metabolic alterations in SLE, pSS, and SSc by analyzing metabolomic profiles associated with these systemic autoimmune diseases. Using a comparative approach, this study aims to identify novel shared and disease-specific metabolic dysregulation.

Methods: Metabolites identified by metabolomic studies on SLE, SSc, and pSS were collectively mapped to the KEGG database using the MetaboAnalyst 6.0 platform for pathway enrichment analysis, thereby creating a comprehensive overview of the metabolic pathways associated with these diseases.

Results: We analyzed metabolomic alterations in SLE, pSS, and SSc to identify significantly dysregulated metabolic pathways compared to healthy controls. Our overrepresentation analysis revealed a broad overlap in metabolic pathways among these three conditions. Five of the altered pathways were associated with amino acid metabolism, one with carbohydrate metabolism, and one with cofactor metabolism. Among the three diseases, SLE exhibited the most extensive metabolic shifts. Fatty acids, such as arachidonic acid, and amino acids, such as asparagine, emerged as some of the most consistently altered metabolites across SLE patient cohorts. Our combined analysis suggests that glycine, serine, and threonine metabolism is highly relevant to the pathogenesis of SLE, with metabolites related to this pathway being the most promising biomarker candidates.

Conclusion: The altered metabolomic profiles provide insights into the pathophysiology of SLE, pSS, and SSc by highlighting specific metabolic pathways that have changed. This work supports the idea of a shared dysfunction of core metabolic pathways characteristic of autoimmune diseases, suggesting the potential for developing shared supportive treatment approaches. Metabolic changes occur before clinical symptoms become fully evident, providing a valuable opportunity for earlier intervention and organ-specific stratification of patients with systemic autoimmune diseases.

Mesenchymal Stem Cell Secretome as a Cell-Free Modulator of Type 2-Low Inflammation in Experimental Asthma

Aleksandra Roszko, Kamil Kamiński, Krystian Czołpiński, Sylwia Księżak, Alicja Toczydłowska

Presenting author: Aleksandra Roszko

Work supervisors: dr Marlena Tynecka, dr hab. Andrzej Eljaszewicz

Affiliations: Medical University of Bialystok

Introduction: Despite substantial preclinical evidence demonstrating the immunosuppressive and immunomodulatory properties of mesenchymal stem cells (MSCs) in various inflammatory disease models, including asthma, clinical translation remains limited. To date, only one MSC-based therapy has been approved by the U.S. Food and Drug Administration (FDA). In fact, integration of MSC-based treatments into routine clinical practice faces several critical challenges related to safety and standardization including i) variability in the stability and therapeutic efficacy of both allogeneic and autologous MSC preparations; ii) pronounced donor to donor heterogeneity, limiting standardized manufacturing protocols; iii) insufficient understanding of the safety, immunogenicity, and therapeutic durability following repeated MSC administrations. Here we aimed to evaluate the therapeutic potential of MSC-derived extracellular vesicles (EVs) isolated from preconditioned cells as a cell-free alternative.

Aim of the study: C57BL/6 mice were intranasally (i.n.) exposed to 100 μg of house dust mite (HDM) extract for five consecutive days in each of two weeks. Moreover, at day 13 mice received EVs derived from either MSCs primed with a pro-inflammatory cytokine mix (IFN-γ, TNF-α, and IL-1β) or cultured under standard conditions. All animals were sacrificed 48 hours after last HDM challenge. The lungs lobes were collected for histological staining, transcriptomic profiling, and flow cytometry according to optimized protocols.

Methods: First, we demonstrated that both types of EVs substantially reduced low T2 airway inflammation in the HDM-induced asthma model. Transcriptomic profiling revealed that EVs derived from cytokine-primed MSCs were associated with downregulation of genes involved in arachidonic acid and lipid metabolism pathways. Notably, treatment with primed EVs resulted in a more pronounced suppression in frequency of IL-17 producing T-cells, followed by an increased number of IL-10 producing T cells, compared to EVs isolated from non-primed cells.

Results: In summary, our Results support the therapeutic efficacy of MSC-derived EVs in regulating airway inflammation and suggest that EVs derived from cytokine-primed MSCs more closely reflect the therapeutic potential of parental cells.

Conclusion: 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.

JUVENES PRO MEDICINA

Tropical diseases closer than you think - A data-driven analysis of dengue and malaria

Wiktoria Nowak, Bartosz Kalczyński

Presenting author: Wiktoria Nowak

Work supervisor: Jakub Wielgat

Affiliations: Uniwersytet Medyczny w Łodzi

Introduction: Malaria and dengue are vector-borne tropical diseases primarily endemic to specific geographic regions. Following the end of COVID-19 pandemic, the easing of travel restrictions has caused an increase of global mobility, raising the risk of imported cases in non-endemic areas, including Poland. Limited exposure in these regions has caused challenges in diagnosing and managing tropical diseases.

Aim of the study: This study aimed to assess the clinical course and laboratory Results of patients with malaria and dengue who were hospitalized in the Department of Infectious Diseases in Łódź.

Methods: A retrospective analysis was conducted on medical records of patients hospitalized in Wojewódzki Specjalistyczny Szpital im. dr. Wł. Biegańskiego with confirmed malaria or dengue between 2022 and 2024. The study included epidemiological data, Results of lab tests, travel history and use of malaria prophylaxis.

Results: Between 2022 and 2024, five patients were treated for malaria and twelve for dengue. Malaria patients came back mostly from Tanzania and Zanzibar and they were diagnosed by Rapid Diagnostic Tests (RDT). Four of them had confirmed infection by Plasmodium falciparum and 3 of them with P. vivax. Dengue patients came back mostly from Thailand and all of them had confirmed diagnosis by Antigen NS1 test Time of the beginning of illness oscillated: in malaria around one week to one month after achieving destination of journey, in dengue around 2-3 weeks after going to endemic region. Malaria patients exhibited parasitemia on level from 1% to even 29%. Dengue patients laboratory tests showed no specific Results. The severity of symptoms varied, from mild infection symptoms to one patient requiring intensive care who died despite medical intervention. None of the malaria patients had used the recommended chemoprophylaxis. In the dengue group, 2 out of 12 patients had taken antimalarial drugs and none of them had been vaccinated for dengue. Only two out of all patients had used chemoprophylaxis for other tropical diseases but they were not in the group using malaria prophylaxis.

Conclusions: The findings reveal a gap in awareness and usage of malaria prophylaxis among travelers. The presence of malaria and dengue in Łódź highlights the need for enhanced travel medicine education. The fatal malaria case emphasizes the importance of early diagnosis and prevention. Strengthening pre-travel consultations and prophylactic strategies could help reduce the burden of these diseases in non-endemic regions.

JUVENES PRO MEDICINA

Postpartum glycaemic status in women after gestational diabetes depending on the time of diagnosis

Adrian Ołubiec, Aleksandra Oto

Presenting author: Adrian Ołubiec

Work supervisors: Monika Żurawska-Kliś MD, PhD; Marcin Kosiński MD, PhD

Affiliations: Medical University of Lodz

Introduction: The risk of Diabetes Mellitus (DM) after Gestational Diabetes Mellitus (GDM) is markedly increased, and its prevalence varies widely in the current literature. GDM is usually diagnosed in the last trimester of pregnancy, however we can observe an increasing number of women that are diagnosed with GDM in the first half of pregnancy. Postpartum glycemic status in this context has not yet been fully explored.

Aim of the study: The Aim of the study was to compare post delivery glycemic status in women with gestational diabetes depending on the time of diagnosis.

Materials and Methods: A retrospective cohort study was performed in 382 women with previous GDM in which data concernig postpartum glycemic status was eligible. In 67 women GDM was diagnosed before the end of 20th week of pregnancy (group A - early GDM), and in 315 GDM was diagnosed after 20th gestational week (group B - late GDM). Result of 75g oral glucose tolerance test (OGTT) performed 10 to 14 weeks after delivery was analyzed.

Results: The women in group A were signficantly younger (31 (31.1-32.6) vs 35 (34.6-36.1) years (IQR); p=0.012), with more frequent positive family history of diabetes mellitus (26.6% vs 15.9%; p<0,05). The prevalence of GDM in previous pregnancies was comparable. Birth weight of studied women was comparable, while their both prepregnancy weight and body mass index (BMI) were significantly higher in early GDM group (74.5 (69-79) vs 68 (66-70) kg (IQR); p<0.01, and 27.3 (25.3-29.2) vs 25.3 (24.6-25.9) kg/m2 (IQR); p<0.05, respectively). The percentage of women in each BMI cathegory was comparable. The OGTT fasting plasma glucose in early GDM group was significantly higher (93 (90.8-94.3) vs 88 (86.8-90.2) mg/dL (IQR); p<0.0001), while its both 1-hour OGTT and 2-hour OGTT glucose levels were significantly lower comparing to late GDM group (166 (161-172) vs 180 (176-183) mg/dL (IQR); p=0.001, and 138 (133-144) vs 158 (155-163) mg/dL (IQR); p<0.0001, respectively). Abnormal FPG was significantly more prevalent in group A (52.2% vs 34.9%; p=0.012), while abnormal 1h-OGTT and 2h-OGTT in group B (43.1% vs 19.4%; p=0.003, and 60.3% vs 23.8%; p=0.0001, respectively). No differences were found in the obstetric history between the groups. Post delivery fasting plasma glucose in the OGTT was higher in early GDM group (91.9 (88.3-95.5) vs 86.7 (85.3-88.2); p=0.009), while 2h-OGTT glucose level was comparable between the groups (103 (92.1-115.5) vs 108 (102-113, p>0.05). Neither the prevalence of impaired fasting glycemia, impaired gluose tolerance, diabetes mellitus nor abnormal OGTT result differed between groups A and B. Early GDM did not correlate with the frequency of any abnormal postpartum OGTT result.

Conclusions: Women diagnosed with early GDM are younger, and have higher prepregnancy weight and BMI, however they have higher fasting glycemia which requires futher observation. Postpartum glycemic status is independent on the time of GDM diagnosis.

JUVENES PRO MEDICINA

Traditional Cigarettes vs. Tobacco Alternatives: A Mental Health Perspective

Volodymyr Tsmok

Presenting author: Volodymyr Tsmok

Work supervisor: MD, PhD, Associate Professor of the Department of Internal and Occupational Diseases Iryna Avramenko

Affiliations: Kyiv Medical University

Introduction: According to the World Health Organization (WHO), there are more than 1.3 billion smokers worldwide. The majority of them prefer traditional smoking Methods, but current trends indicate a gradual shift to alternative smoking patterns. The impact of both types on mental health remains poorly studied.

Aim of the study: To identify and compare the possible effects of using different smoking Methods on the mental state

Materials and Methods: To achieve the above goal, the DASS-21: Depression, Anxiety, and Stress scale was used. The study group consisted of 142 people with an average age of 24.92 ± 9.69 years, women 66.9% (n=95), men 33.1% (n=47). For statistical evaluation, processing, and analysis of the data, we used parametric and descriptive statistical Methods, as well as the Microsoft Excel program.

Results: According to the obtained Results, 17,6% of respondents (RS) (n=25) smoked paper cigarettes, 14,1% of RS (n=20) used tobacco heating products (THP) (IQOS, Glo, Lil, JOUZ, etc.), and 26,1% RS (n=37) preferred e-cigarettes. Depression levels were severe in paper cigarette (PSU) and heated tobacco products (HTPU) users (9 and 8 points on the DASS-21 scale) and moderate (6 points) in electronic cigarette (ESU) users. The level of anxiety was comparable in PSU and HTPU with a normal level (1 point) in ESU. Stress levels were moderate (10 points) in HTPU, in contrast to PSU and ESU with normal levels (7 and 5 points). Among respondents who did not smoke at all, all three indicators were within the normal range.

Conclusions: Based on our research, e-cigarette users have the least impact on mental health. The level of depression is most significantly affected by the use of traditional cigarettes and heated tobacco products, and the cause of stress is HTP.

JUVENES PRO MEDICINA

Factors affecting the response to biological treatment in patients with rheumatic diseases

Andrzej Węgiel

Presenting author: Andrzej Węgiel

Work supervisors: dr hab. n. med Joanna Makowska, dr hab. n. med Anna Lewandowska-Polak, dr n. med. Aleksandra Opinc-Rosiak, dr n. med. Olga Brzezińska

Affiliations: Medical University of Łódź

Introduction: Biological treatment represents one of the most significant advancements in modern medicine. The development of numerous new agents targeting diverse immunologic pathways has provided effective therapeutic options for patients with high disease activity, persistent symptoms, and complications. Rheumatology is one of the medical specialties that has greatly benefited from these innovations. However, despite these advancements, there remains limited knowledge regarding the factors that influence individual responses to specific biologic therapies, as well as the identification of risk factors for poor treatment response prior to therapy initiation. Gaining a deeper understanding of these factors is essential for developing effective and cost-efficient treatment algorithms for patients with rheumatologic diseases.

Aim of the study: The primary aim of this study was to identify the factors influencing the frequency of treatment changes and the effectiveness of specific biologic agents in patients with rheumatologic diseases. The secondary objective was to determine the most common adverse drug reactions and the primary reasons for switching therapies. The final goal was to extract and characterize the clinical profile of patients who exhibit suboptimal responses to biologic treatment.

Materials and Methods: Data were collected from a cohort of over 600 biologically treated patients at the Department of Rheumatology, including individuals diagnosed with rheumatoid arthritis, ankylosing spondylitis, and psoriatic arthritis. The duration of treatment with individual biologic agents was recorded, along with the reasons for treatment discontinuation or switching. Basic demographic characteristics such as age and sex were also documented. Statistical analysis was subsequently performed to identify clinically relevant associations and patterns.

Results: A significant proportion of treatment-resistant patients were identified among those with rheumatoid arthritis and psoriatic arthritis. The biologic agents associated with the longest treatment durations were identified and correlated with specific diseases and patient characteristics. Sex was found to be a significant factor influencing the treatment response. Additionally, the most frequently reported adverse effects were identified, and typical treatment durations for each biologic agent were established.

Conclusions: The Results of this study may support more efficient clinical decision-making and contribute to the development of optimized treatment strategies for patients with rheumatologic diseases. The identification of treatment-refractory patients highlights the need for further research focused on understanding the characteristics and management of this subgroup.

JUVENES PRO MEDICINA

Assessment of the self-reported patient preparation for endoscopic examination

Zofia Możdżan, Maria Możdżan, Jakub Wąsik, Prof. Ewa Małecka-Wojciesko, MD, PhD

Presenting author: Zofia Możdżan

Work supervisor: Prof. Ewa Małecka-Wojciesko, MD, PhD

Affiliations: Medical University of Lodz

Introduction: Endoscopy plays a key role in the diagnosis and treatment of gastrointestinal (G.I.) tract diseases, but its effectiveness depends on adequate patient preparation. Poor patients' adherence to colon cleansing and upper G.I. endoscopy preparation, procedure-related recommendations and failure to adjust other drugs administration before the examination may contribute to inappropriate preparation.

Aim of the study: The purpose of our study was to evaluate the patients' awareness and understanding of all the necessary indications and precautions before endoscopy, their compliance, obtained information, the patient's attitude towards the examination and the patient-physician cooperation.

Material and Methods: In this questionnaire study we enrolled 103 patients (69% women, mean age 60 y.o.), who underwent endoscopic examination: 32 (31%) patients had gastroscopy, 42 (41%) colonoscopy, and 29 (28%) other (endoscopic ultrasound, endoscopic retrograde cholangiopancreatography, enteroscopy).

Results: The patients were informed about the procedure preparation mostly by gastroenterologists, n=54 (53%) and general practitioners, n=34 (33%). For 92 (90%) patients, the doctor explained the purpose of the examination, for 74 (73%) the course and preparation, for 48 (47%) - possible complications. However, patients who were referred to colonoscopy and gastroscopy, 15 (35%) and 7 (25%) respectively, claimed that they did not obtain relevant information from the referring physician about the examination, whereas 26 (65%) of them had to obtain knowledge from the internet. Moreover, patients for whom the course or preparation for the procedure were not explained, were twice as stressed compared to those who obtained such information from the referring physician ($p<0.05$).

The most common emotions accompanying patients were fear of pain and discomfort, observed mostly in patients waiting for gastroscopy. A positive correlation ($r=0.37$, $p<0.05$) was observed between fear of pain and the referring physician's lack of explanation of the examination course. A significant difference ($p<0.05$) was observed by gender for fear of pain, discomfort and complications (higher in women).

22 (21%) patients were taking antithrombotics. A significant proportion of patients (40% and 67% of patients scheduled for gastroscopy and colonoscopy, respectively) were found to be non-compliant with established guidelines regarding the use of antithrombotics prior to the procedure. The discontinued medications which were not required were observed in 55% of the study group. The most commonly discontinued drugs were antidiabetics and antihypertensives.

Conclusion: The study showed that patients who were explained the preparation and conduct of the examination felt less fear of the exam and were also better prepared for the endoscopy. There is a need to standardize the information provided by G.P.s and specialists to patients about the course and complications of the particular procedure.

JUVENES PRO MEDICINA

Bowels on a diet- study of nutritional and lifestyle factors in patients with intestinal diverticuli

Oliwia Hankowska, Olga Kowalska, Filip Romaniuk

Presenting author: Oliwia Hankowska

Work supervisor: Aleksandra Sobolewska-Włodarczyk

Affiliations: Uniwersytet Medyczny w Łodzi

Introduction: Intestinal diverticular disease is a condition that is widespread among the population, especially in people above 65 years of age. Diseases associated with diverticulosis in the intestine include asymptomatic diverticulosis, diverticulitis, symptomatic uncomplicated diverticular disease (SUDD), and segmental colitis associated with diverticulosis (SCAD). Although the etiology of the disease is not fully known, there are certain factors that favor its development. Lifestyle and individual dietary preferences play a role in the formation of diverticula in the intestine. In our study, we would like to examine the relationship between the nutritional status and lifestyle of patients diagnosed with diverticular intestinal disease.

Aim of the study: Assessment of nutritional status in patients with diverticular intestinal disease.

Material and Methods: 67 patients were retrospectively evaluated in the study, 21 male and 46 female, aged 31-97 years old with a confirmed diagnosis of diverticular disease or diverticulosis. Analyzed data included imaging study Results, blood laboratory tests, details on comorbidities, history of surgical procedures, BMI and NRS 2002. Data was assessed using descriptive statistical Methods, with a significance of $p<0.05$.

Results: Among the 67 people surveyed, 50 were diagnosed with symptomatic diverticular disease and 17 people were diagnosed with diverticulosis. The mean BMI among those suffering from diverticular disease was significantly higher than those diagnosed with diverticulosis (28.21±4.17 vs. 25.83±4.50, $p<0.05$). Furthermore, the percentage of patients with abnormal body mass index was 87.5% in the group with diverticular disease and 70% in the group with diverticulosis. The NRS 2002 was assessed in all subjects. 56 (83.58%) had a score <3 points, which indicates unlikely malnutrition. While 11 patients (16.42%) had a score ≥3 points which indicates the need for nutritional treatment. Among patients diagnosed with diverticular disease, 16 (32%) of them have smoked cigarettes in the past or are currently smoking and 6 (35.29%) among those with intestinal diverticulosis. Prior to hospital admission, 19 (28.36%) reported significant weight loss, that is, an unintended weight loss of at least >10% over six months. Patients with diverticular disease who have a history of smoking had significantly lower hemoglobin ($p<0.05$) compared to non-smoking patients. Furthermore, bloody stools were more frequent among people with symptomatic diverticular disease than in those with diverticulosis ($p<0.05$) (48% vs. 5.88%).

Conclusions: Our study highlights the importance of assessing the overall lifestyle and nutritional status of patients diagnosed with intestinal diverticular disease. Factors such as BMI or smoking can influence the course of the disease, especially in regard to the development of complications. Such factors need to be taken into account by physicians when treating patients with diverticular diseas.

JUVENES PRO MEDICINA

Oncology

15th of May 2025

Coordinators:

Adrian Pal

Patryk Cegiełka

Yi Tang

Jury:

prof. dr hab. n. med. Józef Kobos

dr n. med. Justyna Maria Walenciak

prof. dr hab. n. med. Maciej Sałaga

dr n. med. Michał Masłowski

dr hab. n. med. Justyna Piekielna-Ciesielska

HPV- related cancers awareness among young adults in Poland

Włoszek Emilia, Krupa Kamila

Presenting author: Włoszek Emilia

Work supervisor: Professor Badowska-Kozakiewicz Anna Maria

Affiliations: Medical University of Warsaw

Introduction: Nearly 85% of sexually active people will acquire Human Papillomavirus (HPV) infection in their lifetime. HPV is linked to 4,5% of all cancers worldwide. The vaccination rate is still dramatically low.

Aim of the study: The study's objective was to determine the level of knowledge among young adults about HPV infection, associated diseases including HPV-related cancers and Methods of prevention with particular reference to vaccination.

Materials and Methods: In November 2024 respondents aged 18-28 were asked to complete the online survey. This age group was selected to analyze the young adult population, which is at high risk of HPV and the main target of vaccination popularization. There were 4 sections of the questionnaire. The first one had 4 close-ended questions regarding the socio-demographic profile of the respondent. The second section included 8 questions about HPV infections. The third section had 4 questions regarding prophylactic Methods against HPV. In the last section, we asked 7 questions about HPV vaccinations.

Results: Among 260 respondents 73,5% were women, 25,4% were men and 1,2 % identified as "others". The questioned population was in the range of age 18-28 with an average age of 21.

Available options of HPV infection prevention were named correctly more often by women than men, respectively 84,3% and 68,2%. There was a statistically significant connection between the population of the inhabited town and the vaccination capabilities of the respondent ($p=0,015$). Chi-squared test resulted in a statistically significant connection between knowledge of vaccine efficacy and eventual doubts about the vaccinations ($p<0,01$). Individuals with no doubts about the HPV vaccine's safety had a higher percentage of answers for the very high efficacy of the vaccines, 80,4% compared to 51,5%.

Conclusions: The knowledge of HPV among young adults needs improvement, especially in terms of infection prevention to reduce risks of HPV-related cancers. The knowledge gap between men and women needs to be addressed.

The role of FGFR2-dependent signaling in regulating AP-1 complex composition in luminal breast cancer

Jakub Czerwiński

Presenting author: Jakub Czerwiński

Work supervisors: mgr Barbara Galikowska-Bogut, dr n. med. Kamila Kitowska, prof. dr hab. n. med. Radzisław Kordek, dr n. med. Marcin Braun, prof. dr hab. n. med. Rafał Sądej, prof. dr hab. n. med. Hanna Romańska

Affiliations: Medical University of Lodz

Introduction: The estrogen receptor (ER) is a primary oncogenic driver in luminal breast cancer (BCa), and its activity can be regulated by the transcription factor AP-1, a dimer composed of Jun (JunB, c-Jun, JunD) and Fos family proteins. Recent mechanistic studies suggest a potential relationship between fibroblast growth factor receptor 2 (FGFR2) expressed by cancer cells and components of the AP-1 complex. Specifically, FGFR2 may influence ER-AP1 crosstalk by regulating Jun family protein expression, promoting estrogen-independent ER activity and tumor progression despite anti-ER treatment.

Aim of the study: To provide verification of the in vitro findings on the impact of FGFR2 on the ER/AP-1 collaboration, with a focus on Jun family proteins, in clinical material from patients with ER-positive (ER+) breast cancer (BCa).

Materials and Methods: The study involves histopathological analyses of formalin-fixed, paraffin-embedded (FFPE) ER+ BCa samples (archival postoperative material). A total of 44 patients with ER+ BCa were retrospectively recruited at the Regional Oncology Center of the Nicholas Copernicus Hospital in Łódź. Expression levels of FGFR2, JunB, c-Jun, and JunD assessed by immunohistochemistry was evaluated qualitatively and quantitatively using the H-score method (0–300). A score ≥75 was defined as positive. The scores for Jun proteins, individually, and in combination with FGFR2, are being analyzed in relation to the clinicopathological data.

Results: Histopathological analysis showed FGFR2 positivity in 33/44 cases (75%; median H-score: 137.5; range: 0–300). JunB was positive in 36/44 cases (80%; median: 155; range: 0–300), and c-Jun in 18/44 cases (40.9%; median: 47.5; range: 0–250). FGFR2 expression correlated strongly with JunB ($R = 0{,}642$; $p < 0.001$) and moderately with c-Jun ($R = 0{,}442$; $p = 0.003$), aligning with in vitro findings. JunD expression was low (positive in 11/44 cases, 25%; median: 17.5; range: 0–190) and, in contrast to the functional data demonstrating lack of collaboration between FGF/FGFR2 and JunD, it correlated moderately with FGFR2 ($R = 0{,}39$; $p = 0.009$). In addition, there was a moderate correlation between JunD and c-Jun ($R = 0{,}377$; $p = 0{,}012$). Ongoing statistical analyses incorporating clinicopathological data will evaluate the prognostic significance of these Results in ER+ BCa.

Conclusions: FGFR2 signaling may alter AP-1 composition by upregulating expression of JunB and c-Jun in ER+ BCa. Notably, the unexpected correlations between FGFR2 and JunD as well as c-Jun and JunD suggest additional layers of complexity in the FGFR2→AP-1/ER axis. This study underscores the need for further research to unravel the context-dependent regulation of AP-1 subunits, which may hold clinical implications for therapeutic strategies in ER+ BCa.

JUVENES PRO MEDICINA

Daratumumab-Lenalidomide-Dexamethasone (DRd) vs. Lenalidomide-Dexamethasone (Rd) in Patients with Relapsed/Refractory Multiple Myeloma – Early Real-World Results Following DRd Reimbursement in the B.54 Drug Program

Julia Piotrowska, Borkowski Ernest, Szubert Łukasz, Żaneta Witas, Pawlak Magdalena, Woźniak Łukasz, Grzegorz Mirocha

Presenting author: Julia Piotrowska

Work supervisors: Damian Mikulski, MD; Katarzyna Płoszka MSc

Affiliations: Medical University of Łódź

Introduction: Multiple myeloma (MM) is the second most common hematologic malignancy worldwide. Despite recent therapeutic advances and the Introduction of novel agents, the management of relapsed and/or refractory multiple myeloma (RRMM) remains a major challenge. Daratumumab is a monoclonal antibody targeting the CD38 antigen expressed on MM cells. In the pivotal Phase III POLLUX trial, the addition of daratumumab (D) to lenalidomide and dexamethasone (Rd) significantly improved both progression-free survival (PFS) and overall survival (OS) compared to Rd alone. Despite these proven benefits, the DRd regimen was only included in Poland's Ministry of Health drug reimbursement program (B.54) for MM patients starting January 1st, 2023—over six years after the initial POLLUX Results publication.

Aim of the study: This study aimed to evaluate the real-world efficacy and safety of the DRd regimen following its inclusion in the B.54 drug program in Polish patients with RRMM.

Materials and Methods: We conducted a single-center, retrospective study at the Copernicus Memorial Hospital Comprehensive Cancer Center and Traumatology in Łódź, Poland. We reviewed all MM patients treated with either Rd or DRd between January 2017 and October 2024. For the final analysis, only patients with complete efficacy data who met predefined inclusion criteria consistent with both the B.54 program and the POLLUX trial were included.

Results:A total of 210 patients treated with Rd or DRd were screened, of whom 155 met the inclusion criteria—36 treated with DRd and 119 with Rd. Baseline clinical characteristics, including age at treatment initiation, sex, International Staging System (ISS) stage, and number of prior treatment lines, were comparable between groups. The median follow-up for all patients was 22.6 months (95% CI: 20.5–33.6). Progression or death occurred in 8 of 36 patients (22.2%) in the DRd group versus 85 of 119 (71.4%) in the Rd group. Median PFS was not reached in the DRd group and was 13.3 months in the Rd group (95% CI: 9.9–18.8); hazard ratio (HR) = 0.38 (95% CI: 0.18–0.78), p = 0.006. A very good partial response (VGPR) or complete response (CR) was achieved in 61% of patients receiving DRd compared to 33% in the Rd group (p = 0.0043). The most common adverse events in both groups were hematologic toxicities, including anemia, neutropenia, and thrombocytopenia. The most common non-hematologic toxicity was infectious complications. Grade 3 and 4 infections, according to the Common Terminology Criteria for Adverse Events (CTCAE), occurred in 36% of patients in the DRd arm and 33% in the Rd arm (p = 0.8648).

Conclusions: Our Results confirm the clinical benefit of the DRd regimen in Polish RRMM patients, demonstrating significantly improved PFS and better responses compared to Rd alone. This study underscores the importance of timely integration of evidence-based therapies into national reimbursement program.

JUVENES PRO MEDICINA

Assessment of activation of the PI3K/Akt pathway and 1-(isothiocyanatomethyl)-4-phenylbenzene as its potential inhibitor in non-small cell lung cancer (NSCLC)

Jolanta Kryczka; Jakub Kryczka; Łukasz Janczewski; Andrzej Frączyk; Marta Modrzewska, Aleksandra Gołuszek; Konstancja Wiktorska; Adrianna Pietras; Patrycja Matkowska; Beata Kolesińska; Joanna Boncela; Ewa Brzeziańska-Lasota

Presenting author: Marta Modrzewska

Work supervisors: Jolanta Kryczka, PhD; Professor Ewa Brzeziańska-Lasota, PhD

Affiliations: Medical University of Lodz

Introduction: Worldwide lung cancer (LC) is one of the leading causes of cancer-related deaths. Cisplatin-based chemotherapy is the first-line treatment mainly due to the majority of patients being diagnosed in the late stage of the disease. Long-term use of this treatment often leads to cisplatin resistance. PI3K/Akt pathway is one of the major pathways involved in NSCLC carcinogenesis but its role in chemoresistance is still unclear. This pathway influences multiple critical cellular processes, thus presenting a promising target for overcoming drug resistance.

Aim of the study: Assessment of PI3K/Akt pathway activation and its inhibition by 1-(isothiocyanato methyl)-4-phenylbenzene in NSCLC.

Materials and Methods: NSCLC cell lines: A549, NCI-H1581 and their respective cisplatin-resistant variants: A549CisR, NCI-H1581CisR obtained by constant culturing in increasing cisplatin concentrations. Transcriptomic data of lung cancer and adjacent tissue were obtained from the Gene Expression Omnibus database. Analysis of Akt and pAkt protein tissue level was performed using the Western blot method. The 1-(isothiocyanatomethyl)-4-phenylbenzene affinity analysis to Akt1, PDK1, PI3K, PIP2, PIP3, FOXO1, FOXO3, FOXO4, BAD, BCL-2, p53 proteins were performed using in silico mathematical modelling. The collected data were subjected to statistical analysis using Statistica 13.

Results: Bioinformatic analysis showed statistically significant higher expression levels of: PIK2CB, PDK1, TP53 and lower expression levels of the PIK3CA, FOXO3, FOXO4, BAD, BCL2, BNP2 in cancer tissue vs. adjacent non-cancerous tissue. The analysis showed a higher ratio of pAkt/Akt proteins in A549 vs. A549CisR and in NCI-H1591 vs. NCI-H1581CisR. Additionally, the ratio of pAkt/Akt proteins was higher in A549 vs. NCI-H1589. The in silico modeling showed a high affinity of 1-(isothiocyanatomethyl)-4-phenylbenzene to Akt1, PDK1, PI3K, PIP2, PIP3, FOXO1, FOXO3, FOXO4 proteins and BAD, BCL-2, p53 apoptotic proteins in the mean range of -5.2 to -7.0 kcal/mol. The highest, mean affinity, 7.0 kcal/mol was observed for p53.

Conclusions: Higher expression levels of PIK2CB, PDK1, TP53 and lower expression levels of FOXO3, FOXO4, BAD in cancer tissue vs. adjacent non-cancerous tissue indicate a significant role of the PI3K/Akt pathway in the lung cancer carcinogenesis. A higher pAkt/Akt protein ratio in A549 and NCI-H1591 compared to their respective cisplatin-resistant variants indicates a greater involvement of the PI3K/Akt pathway in the initiation of lung cancer that might be diminished in later stages of progression.The participation of the PI3K/Akt activation is higher in adenocarcinoma vs. large cell cancer subtype, which indicates molecular differences between subtypes.High affinity of 1-(isothiocyanatomethyl)-4-phenylbenzene for proteins: Akt1, PDK1, PI3K, PIP2, PIP3, FOXO1, FOXO3, FOXO4 and apoptotic proteins: BAD, BCL-2, p53 proved its role as potential inhibitor PI3K/Akt pathway.

JUVENES PRO MEDICINA

The anti-cancer effect of honey on NSCLC A549 adenocarcinoma, A549CisR cisplatin-resistant adenocarcinoma and NCI-H1581 large cell carcinoma cell lines

Jolanta Kryczka; Maciej Szymański; Jakub M. Kryczka; Katarzyna Jaśkiewicz; Teresa Szczęsna; Katarzyna Góralska; Aleksandra Gołuszek; Joanna Boncela; Ewa Brzeziańska-Lasota

Presenting author: Aleksandra Gołuszek

Work supervisors: Jolanta Kryczka, PhD; Katarzyna Góralska, PhD; Professor Ewa Brzeziańska-Lasota, PhD

Affiliations: Medical University of Lodz

Introduction: Cisplatin is one of the most popular chemotherapy agents, used to treat advanced lung cancer. However, chemotherapy administration regularly leads to the development of chemoresistance, often accompanied by increased cancer aggressiveness, which in turn significantly reduces patient survival rate. Honeys contain various phenolic acids and flavonoids, presenting various anti-cancer effects including (potential) reversion of drug resistance.

Aim of the study: Analysis of the anti-cancer activity of honey against human lung cancer cell lines: adenocarcinoma, cisplatin-resistant adenocarcinoma and large cell carcinoma.

Materials and Methods: NSCLC cell lines: NCI-H1581, A549 and its cisplatin-resistant variant: A549CisR - obtained by constant culturing in increasing cisplatin concentrations. Multi-floral honey and nectar honeydew honey were obtained from the Research Institute of Horticulture Apicultural Division in Puławy. Honey compositions were analyzed by high-performance liquid chromatography with a photodiode array detector (HPLC-DAD). The impact of honey on the viability of both cell lines was analyzed using WST-1 assay. The impact of tested honey on NSCLC cell lines' proteolytic activity was evaluated using zymography in situ. The collected data were subjected to statistical analysis using Statistica 13.

Results: The multi-floral honey contained 195.15μg/100 g phenolic acids, and 36.85μg/100 g flavonoids but nectar-honeydew honey contained respectively 278.25μg/100g and 23.22 μg/100g.

Multi-floral honey and nectar-honeydew honey (in all concentrations) significantly decreased NCI-H1581 cell viability vs. control. The 48h and 72h supplementation to 0.5-4% nectar-honeydew honey increased the viability of A549 and A549CisR cell lines vs. control. Multi-floral honey significantly decreased the viability of A549 cell line vs. control at all tested concentrations and incubation times, but not A549CisR.

24h incubation with multifloral honey (0,5%), decreased proteolytical activity of the A549CisR cell to 78.2% of the control, NCI-H1581 to 64.2% of control, and A549 cells to 91.5% of the control. Nectar-honeydew honey decreased A549 cells proteolytical activity to 73.4% of the control, A549CisR to 83.9% of the control and NCI-H1581 to 74.2% of the control.

Conclusions: Polish natural honey (multifloral honey and nectar-honeydew honey) presents significant anticancer potential, decreasing lung cancer cells (including cisplatin resistance cancer cells) viability and proteolytical abilities. Thus, proving its usefulness as a potential supplement/adjuvant to the standard anti-NSCLC therapy.

JUVENES PRO MEDICINA

Evaluation of OR52R1 expression level in relation to the activation of PI3K/AKT pathway in patients diagnosed with non-small cell lung cancer (NSCLC)- assessing the potential importance of this receptor as a therapeutic target.

Malina Kozłowska; Kamila Baran; Jolanta Kryczka; Ewa Brzeziańska-Lasota

Presenting author: Malina Kozłowska

Work supervisors: Jolanta Kryczka, PhD; Professor Ewa Brzeziańska-Lasota, PhD

Affiliations: Uniwersytet Medyczny w Łodzi

Introduction: Olfactory receptors, a member of the GPCR superfamily are one of the regulators of the PI3K/AKT pathway. PI3K/AKT signaling pathway is activated in 90% of NSCLC cells, making it a key therapeutic target in the treatment of NSCLC.

Aim of the study: Assessment of the relation between the OR52R1 mRNA expression levels and PI3K/AKT pathway activation to search for potential therapeutic targets in NSCLC.

Materials and Methods: The tested materials consisted of fragments of the primary tumor and adjacent tissue (control group) from 11 patients diagnosed with NSCLC. The Western-blot method was used to analyze protein levels of AKT and pAKT. Real-time PCR was employed to examine OR52R1, PIK3CG, and AKT1 gene expression levels. The collected data were subjected to statistical analysis using Statistica 13.

Results: The protein level of pAKT was higher in stage I and lower in stages II and III of tested tumor tissue ($p>0.05$; Student's t-test).

The higher protein immunoexpression ratio of pAKT/AKT in tumor vs. control tissue was observed in 6 (55%) analyzed samples ($p< 0.05$; Student's t-test).

Lower protein immunoexpression of AKT ($p < 0.05$) and higher protein immunoexpression of pAKT ($p > 0.05$) were observed in tumor vs. control tissue (Wilcoxon test).

mRNA expression analysis proved lower OR52R1, AKT1 and higher PIK3CG in tumor vs. control tissue ($p > 0.05$, Wilcoxon and Student's t-test).

The analysis correlation between the OR52R1 gene expression level and the pAKT/AKT protein immunoexpression ratio was $rho=0.71$ ($p>0.05$; Spearman's rank correlation test).

Conclusions: Our Results prove, that significant activation of the PI3K/AKT pathway occurs in the early stages of NSCLC development and gradually diminishes in advanced stages.

Additionally, PI3K/AKT pathway activation occurred in 55% of the analyzed samples.

No connection between OR52R1 expression and activation of the PI3K/AKT suggests a lack of dependent regulation of the PI3K/AKT pathway by the OR52R1 receptor in lung cancer. Base on this study we conclude that OR52R1 will not be a candidate for a therapeutic target in lung cancers with activation of the PI3K/AKT pathway.

JUVENES PRO MEDICINA

Distinctive Features of Malignant Versus Benign Parathyroid Lesions: Insights from a Retrospective Study

Emilia Kulikowska, Magdalena Kwapisz MD, PhD

Presenting author: Emilia Kulikowska

Work supervisor: Magdalena Kwapisz, MD, PhD

Affiliations: Medical University of Warsaw

Introduction: Parathyroid carcinoma is an exceptionally rare malignancy, accounting for fewer than 1% of primary hyperparathyroidism cases. Symptoms resulting from excessive parathyroid hormone (PTH) secretion and hypercalcemia often appear before the tumor invades adjacent tissues. Due to the similarity in appearance, differentiating parathyroid carcinoma from benign adenoma during surgery remains a major challenge. Timely radical surgical intervention is essential to reduce recurrence risk.

Aim of the study: The study aimed to identify clinical and biochemical features that could support the early identification of patients at increased risk of parathyroid cancer.

Materials and Methods: This retrospective study analyzed 344 patients treated surgically for primary hyperparathyroidism at the National Institute of Oncology (NIO PIB) between 2017 and 2024. The evaluation included both clinical characteristics and biochemical parameters to distinguish parathyroid carcinoma from benign lesions.

Results: Among the 344 patients (288 women, 56 men; mean age 56.15 years, range 18–88), parathyroid carcinoma was diagnosed in 8 individuals (2.3%). These patients were slightly younger than those with benign lesions (mean 50.75 vs. 56.28 years; $p > 0.1$). Median serum calcium was higher in the carcinoma group (2.96 mg/dL vs. 2.85 mg/dL), though not significantly ($p = 0.23$). However, tumor volume and PTH levels were markedly elevated in cancer cases (10.8 ml vs. 1.06 ml, $p < 0.001$; 1290.6 pg/ml vs. 224.4 pg/ml, $p < 0.025$). Additionally, a notably lower PTH-to-tumor volume ratio was observed in malignant cases, indicating a unique biochemical profile.

Conclusions: Parathyroid carcinoma is associated with significantly larger tumors, higher PTH levels, and elevated calcium compared to benign lesions. These parameters—especially PTH concentration and tumor size—may serve as useful markers in differentiating malignancy. Furthermore, a reduced PTH-to-volume ratio could provide an additional diagnostic clue. Recognizing these predictors early may support timely diagnosis, guide surgical decision-making, and improve clinical outcomes.

JUVENES PRO MEDICINA

Prognostic Value of Baseline Inflammatory Indices in Pancreatic Cancer: A Retrospective Cohort Study

Kamila Krupa; dr n. med. i n. o zdr. Marta Fudalej; prof. dr hab. n. med. i n. o zdr. Anna Badowska-Kozakiewicz

Presenting author: Kamila Krupa

Work supervisors: dr n. med. i n. o zdr. Marta Fudalej, prof. dr hab. n. med. i n. o zdr. Anna Badowska-Kozakiewicz

Affiliations: Medical University of Warsaw

Introduction: Pancreatic cancer (PC) remains one of the deadliest malignancies, with poor overall survival despite therapeutic advances. Its progression is strictly connected with systemic inflammation, thus various inflammatory biomarkers have emerged as potential prognostic tools. Identifying cost-effective, accessible predictors of mortality could refine patient stratification and guide therapeutic decisions.

Aim of the study: The study aimed to assess the prognostic values of diagnostic and laboratory indicators measured at the time of cancer diagnosis, using parameters such as CRP, CRP/albumin, CRP/bilirubin, CRP/lymphocytes (CLR), NLR, PLR, LMR, and ELR.

Materials and Methods: We retrospectively analyzed 310 adult patients with histopathologically confirmed PC. Blood samples were obtained from patients during chemotherapy qualification, either on the first day of chemotherapy or the day before. Baseline hematological and biochemical parameters were assessed, including CRP, leukocyte counts, and derived ratios (CLR, NLR, PLR, LMR, ELR). The maximally selected rank statistics determined optimal cut-off values for predicting mortality. Survival analysis employed Cox proportional hazards models, reporting HR with 95% CI. The discriminatory ability of dichotomized parameters was assessed via time-dependent ROC curves, with the AUC calculated at 16 months. Group comparisons were conducted using appropriate non-parametric and categorical tests.

Results: Among analyzed markers, the CLR demonstrated the highest prognostic accuracy (AUC = 0.63), and above 10.0 was associated with significantly increased mortality risk (HR = 2.29; 95% CI: 1.62–3.22; $p<0.001$). Additionally, the CRP value above 7.6 mg/L was related to a nearly double higher risk of death (HR = 1.97; $p<0.001$) and more advanced disease (stage IV: 63.5% vs. 25.7%; $p<0.001$). Other significant predictors included NLR > 5.36 (HR = 2.22), PLR > 223.23 (HR = 1.77), and LMR ≤ 2.42 (HR = 0.60), all $p < 0.001$, while ELR did not reach statistical significance. The CRP/albumin ratio > 7.46 showed the strongest individual association with mortality (HR = 3.75; AUC = 0.57; $p<0.001$), though with a smaller sample size (n = 85).

Patients with elevated CLR and CRP levels are more frequently presented with advanced (stage IV) disease, lower hemoglobin and lymphocyte counts, and higher tumor marker levels (CA 19-9, CEA). In particular, CLR > 10.0 identified a subset with aggressive disease features and intense systemic inflammation.

Conclusions: Baseline inflammatory markers, especially CLR, NLR, and CRP-based ratios, are associated with higher mortality in patients with PC. CLR emerged as the most promising indicator; however, the combination of CRP/albumin and LMR may predict prognosis better than separately. Described markers offer valuable, accessible tools for early prognostic assessment. Future prospective validation and integration with tumor-specific markers could enhance their clinical utility in guiding personalized care.

JUVENES PRO MEDICINA

To know or not to know-preoperative stress in oncological patients

Agata Bartczak, Olga Kowalska, Katarzyna Górska

Presenting author: Olga Kowalska

Work supervisors: Katarzyna Kwas MD; Karolina Organ MD; Filip Prycel MD

Affiliations: Medical University of Lodz

Introduction: Elevated level of stress commonly occurs alongside cancer diagnosis. It can be exaggerated in the time preceding surgical treatment and may lead to decreased compliance and increased morbidity. Therefore, it is highly important to assess the mental well-being of oncological patients to improve their quality of life and minimize the risk of social withdrawal.

Aim of the study: The Aim of the study is to analyze the oncological patients stress before the surgical procedure as well as the correlation between the amount of information received by oncological patients and their preoperative stress levels.

Materials and Methods: We evaluated the stress levels of 84 oncological patients using two standardized scales: PSS-10 and QSC-R23. The study involved 65 women and 19 men.

The age range of patients was from 20 years old to over 80 years old. Assessment of patients' level of information was analysed by closed questions on a numerical scale. The data was assessed by statistical test.

Results: The study revealed that 85.90% (n=73) of patients indicated their doctor as the main source of information about their disease. 92,86% (n=78) of patients trust their doctor performing surgery. For 76.19% (n=64) of patients, the age of the doctor performing the procedure did not matter and for 90.48% (n=74) the gender did not matter as well.

The statistical analysis revealed that there is no relevant relation between the level of information and the score obtained from the QSC-R23 scale. Only 37.3% (n=31) of the patients, who rated their knowledge about their situation higher, got a lower outcome in the mentioned test ($p>0.05$). Furthermore, the patients who were better informed did not get a lower score from the negative questions in the PSS-10 questionnaire ($p=0.325$). On the opposite, the patients who rated their knowledge about their situation higher also subjectively rated their level of stress as lower ($p>0.05$). The respondents indicated that they concern the most about post-operative complications and the impact of the procedure on their functioning.

Conclusion: The obtained Results indicate that the level of stress in oncological patients does not depend on their level of knowledge concerning their situation. Although, the better informed respondents subjectively rated their level of stress as lower, which seems to suggest that a good relationship with a doctor has an impact on patients well-being. Further studies with greater and more diverse group are necessary to confirm these findings.

JUVENES PRO MEDICINA

Classification of mammographic lesions using the Inception-V3 deep learning model

Eszter-Bernadett Bimbó, Réka Kelemen

Presenting author: Eszter-Bernadett Bimbó

Work supervisor: Dr. Zsuzsanna Pap

Affiliations: George Emil Palade University of Medicine, Pharmacy, Science and Technology of Târgu Mureș

Introduction: Breast cancer is one of the most common cancers in women, affecting millions of women worldwide every year. Mammography plays a key role in the early diagnosis of malignant breast tumours. The detection and classification of breast tissue lesions is a major challenge. The application of artificial intelligence can significantly improve classification accuracy and support the efficiency of radiological analysis.

Aim of the study: In our research, we have built a Convolutional Neural Network (CNN) based on the Inception-V3 architecture to classify mammograms into suspicious and benign groups.

Material and Methods: Mammography images and associated metadata for model training and testing were collected from the Kaggle open database. During the processing steps, we ensured that the images were properly sized and prepared to provide optimal conditions for the classification process, and increased the diversity of the data by augmenting them to improve the generalisation ability of the model. Two classes were defined during model training: suspicious and benign lesions. We used 5-fold cross-validation to design the classes, increasing the knowledge of the subsets. To optimize the weights of our neural network, we used Adam optimizer. After training the model, its accuracy was tested by analyzing 100 mammography images. After testing, we created a confusion matrix and a classification report to evaluate the Results.

Results: The model achieved 41 true positives (TP) and 38 true negatives (TN), while generating 9 false positives (FP) and 12 false negatives (FN). The precision was 0.77 for the benign lesion class and 0.81 for the suspicious lesion class. Recall was 0.82 for benign lesions and 0.76 for suspicious malignant lesions. The F1-score was 0.80 in the benign class and 0.78 in the suspicious class. The overall accuracy of the model was 0.79.

Conclusion: Similar F-1 scores were obtained in both classes, so the model performs well in reducing both false positives and false negatives. The recall value for the benign class is slightly higher and the model is better suited to identify these lesions. The model is able to correctly classify the different mammographic abnormalities with an accuracy of 79%.

JUVENES PRO MEDICINA

Pediatrics

15th of May 2025

Coordinators:

Adrianna Załęska

Karolina Oderkiewicz

Anna Skiba

Jury:

dr hab. n. med. Joanna Trelińska

dr n. med. Filip Pierlejewski

dr hab. n. med. Joanna Smyczyńska

dr hab. n. med. Beata Mianowska

prof. dr hab. n. med. Kinga Polańska

dr n. med. Iwona Pietrzak

dr n. med. Adam Markiewicz

JUVENES PRO MEDICINA

High frequency of diabetic ketoacidosis in Polish children with new-onset type 1 diabetes over the years 2019-2022 was affected by COVID-19 pandemic.

B. Pernak, J. Chrzanowski, A. Michalak, I. Pietrzak, M. Bednarska, I. Beń-Skowronek, A. Bossowski, A. Chobot, K. Dżygało, B. Głowińska-Olszewska, M. Górnicka, A. Horodnicka-Józwa, K. Jakubek-Kipa, P. Jarosz-Chobot, A. Kącka, K. Marcinkiewicz, A. Mazur, M

Presenting author: Barbara Pernak

Work supervisors: Jędrzej Chrzanowski, MD; Arkadiusz Michalak, MD; Agnieszka Szadkowska, MD PhD Prof.

Affiliations: Uniwersytet Medyczny w Łodzi

Introduction: Many countries, Poland included, experienced an increased frequency of diabetic ketoacidosis (DKA) related to new-onset type 1 diabetes (T1D) during the COVID-19 pandemic. However, follow-up data are needed to isolate COVID-19 impact and guide DKA prevention strategies.

Aim of the study: To estimate the frequency of DKA in pediatric new-onset T1D in Poland over the years 2019-2022 and assess its dynamics in the context of COVID-19 pandemic.

Materials and Methods: All Polish pediatric diabetes reference centres were invited to participate in a multicentre retrospective study. We collected an anonymized list of all new-onset diabetes cases diagnosed between years 2019-2022. We excluded duplicated records, non-Polish citizens, those >18 years old at presentation or with missing age or sex data. Analysis included cases with clinically-confirmed T1D (regardless of autoantibody status) whose diabetes was diagnosed based on symptoms and random blood glucose >200mg/dl, and for whom blood gases were measured at presentation. DKA was defined according to clinical consensus guidelines by International Society for Pediatric and Adolescent Diabetes (ISPAD) as pH<7.3 or HCO3<18 mmol/l. The COVID-19 pandemic period was defined following WHO definition for Poland as between 20.03.2020 and 22.05.2022. The epidemiological analysis was performed with Joinpoint Trend Analysis Software (NCI, Rockville, MD, USA). We utilized Prophet forecasting models to model expected DKA fraction over time and identify periods of discrepancy between expected and observed DKA rate that could be associated with the pandemic period.

Results: Altogether, 7192 new-onset T1D cases from 17 reference centres and 16 voivodships were considered, with DKA-defining data available for 90.98% (6543) of cases. Among those, 54.5% (3566) presented with DKA.

DKA frequency increased significantly over the years, from 47.9% in 2019, to 54.0% in 2022 (Joinpoint regression, p=0.04). The observed rate of DKA in the pandemic period was significantly higher than expected (56.8% vs 47.5%). The model significantly underestimated the fraction of DKA between May 2020 and February 2022, with an average of 9.4 percentage points difference (p<0.05). The modelled and observed DKA fractions converged at the end of pandemic period, achieving alarmingly high but stable rate at the end of 2022.

Conclusions: DKA frequency in children with new-onset T1D increased in the observed period and presented larger-than-expected increase during part of COVID-19 pandemic. National-scale countermeasures, including social awareness campaigns, changes to healthcare organization and possibly active populational screening are warranted to limit the rate of this life-threatening acute complication.

JUVENES PRO MEDICINA

Assessment of the Knowledge Level of Parents/Legal Guardians of Children Aged 8 to 17 on HPV-Related Cancers in Poland and it's influence on their willingness to vaccinate their children

Anna Wojno, Natalia Wnęk, Emilia Śledź

Presenting author: Anna Wojno

Work supervisor: Prof. Anna M. Badowska-Kozakiewicz

Affiliations: Medical University of Warsaw

Introduction: Human Papillomavirus (HPV) is linked to several health conditions, such as genital and common warts, but its most serious impact lies in its association with various cancers. HPV-related cancers make up a considerable proportion of malignant tumors in both men and women. Fortunately, these cancers can largely be prevented through vaccination. Since its Introduction in 2006, the HPV vaccine has played a key role in prevention, yet it remains a subject of debate. Some people decline the vaccine due to a lack of information about HPV, its health risks, and the benefits of vaccination, while others are concerned about possible side effects. We believe that improving parents' understanding of HPV and the vaccine is essential, as they are the ones who decide whether to vaccinate their children.

Aim of the study: The objective of our research was to evaluate how much parents or legal guardians of children aged 8 to 17 in Poland know about HPV and the cancers it can cause. The study involved 164 participants who completed an anonymous online survey through Google Forms. The questionnaire also examined relationships, such as whether gender or place of residence influenced HPV awareness or willingness to vaccinate.

Results: The Results showed that parents' knowledge about HPV and its consequences was generally lacking. For instance, only 45.7% identified HPV as a cause of throat cancer. Understanding of HPV transmission was also low, and just 31.7% could accurately assess how common HPV-related cancers are in women. Awareness about the HPV vaccine was even more limited. While 96.3% of respondents had heard of the vaccine, only 44.5% knew it could be given at any age, and only 28% were aware that it is available for free to both boys and girls aged 9 to 18. Despite high general awareness of the vaccine, only 57.3% had vaccinated or intended to vaccinate their children.

Conclusions: These findings underline the pressing need for educational initiatives aimed at improving parental knowledge about HPV and the importance of vaccination. By strengthening public education on the topic, we can lower the rates of HPV-related cancers and offer better protection to future generations. Making accurate, easy-to-understand information about the HPV vaccine widely available should be a key component of cancer prevention strategies.

JUVENES PRO MEDICINA

Vitamin D levels in children with obesity: association with android fat distribution.

Aleksandra Grelowska

Presenting author: Aleksandra Grelowska

Work supervisors: Bogumiła Górczewska MD PhD, Elżbieta Jakubowska-Pietkiewicz, MD PhD, Prof. UM

Affiliations: Medical University of Łódź

Introduction: Obesity is a civilization disease and a serious global health issue in the pediatric population. It is a multifactorial, chronic condition characterized by periods of exacerbations and remissions, yet potentially reversible. Obese children often remain obese during adolescence and adulthood. An increased amount of adipose tissue may lead to postural defects, mental disorders, reduced quality of life and metabolic syndrome with biochemical abnormalities, including hypovitaminosis D.

Aim of the study: The Aim of the study was to investigate the correlation between vitamin D3 levels with obesity, especially abdominal in obese children and adolescents.

Materials and Methods: This study involved retrospective analysis of medical records of 122 patients who were hospitalized at the Department of Pediatrics, Newborn Pathology and Bone Metabolic Diseases due to obesity. The study included children with a BMI > 95th percentile according to the OLAF reference growth charts, who had not previously received vitamin D3 supplementation. Based on anthropometric measurements - waist and hip circumference (cm) - abdominal obesity was defined as a waist-to-hip ratio WHR > 0.8 for females and WHR > 1.0 for males. Body composition was assessed using the TANITA MC-580 P analyzer. Serum vitamin D3 concentrations were determined using the ELISA method. Statistical analysis was performed using Statistica software.

Results: 60 females and 62 males were examined with a mean age of 12.19±3.39. Android obesity, as assessed by WHR, was found in 83% (n = 50) of girls and 18% (n = 11) of boys. The mean serum concentration of the hepatic metabolite of vitamin D3 was 22.86 ng/mL (range: 5.30 – 56.00 ng/mL). The amount of adipose tissue and waist-to-hip ratio (WHR) decreased with increasing vitamin D3 levels ($p<0.05$).

Conclusions: Developmental age obesity predisposes individuals to vitamin D deficiency. Therefore, children and adolescents require higher prophylactic doses of this vitamin, in accordance with current clinical guidelines.

JUVENES PRO MEDICINA

Analysis of sleep quality amongst individuals diagnosed with type 1 diabetes and their caregivers

Gabriela Gawlas, Anna Nowak, Dominika Posid, Aleksandra Podraszka

Presenting author: Dominika Posid

Work supervisor: dr hab. n. med. Sebastian Seget

Affiliations: Śląski Uniwersytet Medyczny

Introduction:Sleep quality is increasingly recognized as a crucial factor in the effective management of Type 1 Diabetes (T1D). Reflecting this, the American Diabetes Association (ADA) incorporated sleep assessment into its official Standards of Medical Care in 2017. Sleep disturbances—such as difficulty falling asleep, frequent nighttime awakenings, insufficient sleep duration, and irregular sleep patterns—can significantly impair physical, emotional, and behavioral well-being. T1D is a chronic autoimmune disorder characterized by the destruction of insulin-producing β-cells, leading to impaired carbohydrate metabolism. Importantly, sleep-related difficulties affect not only individuals with diabetes but also their caregivers.

Aim of the study: The primary goal of this study was to assess how sleep quality is impacted in individuals with

T1D and in those who care for them. We focused on the relationship between sleep disturbances and how rested each group felt subjectively, aiming to better understand the shared challenges they face.

Materials and Methods: The study employed an online survey distributed via Google Forms, completed by 161 participants: 90 individuals diagnosed with T1D and 71 caregivers. The questionnaire comprised three sections: sleep-related habits and experiences (including hypoglycemia related episodes), insomnia assessment using the Athens Insomnia Scale, and current well being evaluated through the CHIC scale.

Results: A substantial proportion of participants 83.2% (134/161) rated their sleep quality as less than satisfactory. Disrupted initiation of sleep was reported by 60.9% (98/161), whereas only 24,8% (40/161) assessed their sleep duration as sufficient. Among caregivers, 79.7% (55/71) reported setting alarms to monitor their child's blood glucose levels, which affected their own sleep. Moreover, 88.4% (61/71) of caregivers experienced anxiety concerning the risk of nocturnal hypoglycemia.

Conclusions:The findings indicate a high prevalence of sleep disturbances among both individuals with Type 1 Diabetes and their caregivers. This widespread issue highlights the need for a more comprehensive approach to diabetes care—one that addresses not only physiological management but also psychological stressors and sleep-related challenges. Future research should focus on developing effective support strategies and targeted interventions aimed at improving sleep quality and overall quality of life in this population.

Pharmacy

16th of May 2025

Coordinators:

Oliwia Kopańska

Magdalena Walczak

Igor Kaczanowski

Jury:

prof. dr hab. n. farm. Marek Mirowski

dr hab. n. farm. Izabela Grzegorczyk-Karolak

dr n. farm. Angelika Adamus-Grabicka

dr n. farm. Michał Klimczak

dr n. farm. Michał Dudarewicz

prof. dr hab. n. farm. Ewa Balcerczak

dr hab. n. farm. Magdalena Ewa Jasińska-Stroschein

Effect of novel 5-HT6 receptor antagonists on gastrointestinal tract motility and visceral pain in vivo

Zuzanna Kasprzak; Maria Jaczyńska

Presenting author: Zuzanna Kasprzak

Work supervisor: Professor Maciej Sałaga, PhD, DSc

Affiliations: Medical University of Łódź

Introduction: Functional gastrointestinal disorders (FGIDs) characterized by disrupted intestinal motility and pain may be caused by abnormal gut-brain interactions. In 2021 the prevalence of FGIDs was 40% worldwide. As current treatment options are limited, investigating new therapies is essential. The serotonergic system plays a crucial role in numerous physiological processes in the central and peripheral nervous systems. Type 6 serotonin receptors (5-HT6R) are expressed in the brain and in the gastrointestinal (GI) tract, predominantly in the ileum. Ligands of 5-HT6R exhibit potent inhibitory effect on motility and pain perception.

Aim of the study: Here, we investigated the effect of 5-HT6R antagonists (SB-399885, PZ-1 and PZ-2) on intestinal motility and visceral pain in vivo.

Materials and Methods: Male Balb/C mice were used throughout the study. First, the model of whole GI transit was used to assess the activity of three 5-HT6R ligands (SB-399885, PZ-1 and PZ-2) at the dose of 10 mg/kg administered intraperitoneally (i.p.). Then, defecation pattern in physiological conditions was investigated by assessing the fecal pellet output after treatment with SB-399885, PZ-1 and PZ-2 at the doses of 5 mg/kg and 10 mg/kg i.p. We also used a behavioral model of abdominal pain induced by intrarectal administration of allyl isothiocyanate to evaluate the anti-nociceptive potential of tested compounds at the dose of 10 mg/kg i.p.

Results:We found that SB-399885 and PZ-1 significantly inhibited the whole GI transit time (10 mg/kg, i.p.). Moreover, we showed that all tested 5-HT6R antagonists significantly reduced defecation in physiological conditions. The observed effect was dose dependent. SB-399885 proved to be the most effective (5 mg/kg FPO=1.6±0.68 pellets/hour; 10 mg/kg FPO=0.5±0.5 pellets/hour) followed by PZ-1 (5 mg/kg FPO=2.8±1.4 pellets/hour; 10 mg/kg FPO=0.67±0.21 pellets/hour) and PZ-2 (5 mg/kg FPO=4.6±1.9 pellets/hour; 10 mg/kg FPO=1.83±0.48 pellets/hour) as compared to control (FPO=10.27±0.87 pellets/hour). In the model of allyl isothiocyanate-induced abdominal pain SB-399885 and PZ-1 exhibited modest antinociceptive effect that did not reach statistical significance while the effect of PZ-2 was pro-nociceptive.

Conclusions: The present findings show that 5-HT6R antagonists inhibit intestinal motility in physiological conditions. Our Results therefore indicate that PZ-1, a novel 5-HT6R blocker, is a promising drug candidate for the treatment of FGIDs. Further studies are pending in order to elucidate the exact mechanism of action of the tested compounds.

JUVENES PRO MEDICINA

The impact of extracellular vesicles from pathogens on cell function – standarization of extracellular vesicles.

Sebastian Gawlak-Socka, Jakub Tambor

Presenting author: Sebastian Gawlak-Socka

Work supervisors: Anna Wiktorowska-Owczarek, Paulina Sokołowska, Michał S. Karbownik, Szymon Dziomba, Krzysztof Waleron

Affiliations: Medical University of Lodz

Introduction: Extracellular vesicles (EVs) are membrane-bound structures of cellular origin, including exosomes and microvesicles, which originate from the endosomal system or are shed from the plasma membrane. They are sufficiently small, in the submicron size range, to traverse biological membranes. Smaller molecules have the ability to cross the blood-brain barrier. EVs are found in biological fluids and participate in various physiological and pathological processes. Current research suggests that EVs secreted by pathogenic bacteria may deposit their contents in the brain and contribute to the development of inflammation in the central nervous system (CNS) — neuroinflammation.

Aim of the study: The Aim of the study was to determine whether the obtained EVs from two bacterial species - Streptococcus oralis and Staphylococcus aureus, would produce consistent Results in biological experiments, allowing for the verification of the standardization level of the EV isolation methodology. The cultivation of the pathogens, as well as the isolation and processing of EVs, was conducted by the Department of Pharmaceutical Microbiology at the Gdansk University of Medical Sciences. Biological experiments were carried out at the Department of Pharmacology and Toxicology at the Medical University of Lodz by evaluating their cytotoxicity towards glial cells from three series of EVs, as well as assessing the ability of each series to secrete cytokines: IL-6 and IL-8.

Materials and Methods:The assessment of the impact of pathogen's EV on cytotoxicity was performed using the MTT assay. The effect of EVs on cytokine secretion by glial cells was evaluated using commercially available immunological ELISA tests after 24 and 48 hours of incubation.

Results: Glial cells were exposed to pathogen EVs from S. oralis and S. aureus for 24, 48, and 72 hours at concentrations ranging from 200 to 3.125 µg/ml, and a concentration-dependent reduction in cell viability was observed. Subsequently, pathogen EVs were applied at concentrations that resulted in no more than a 50% decrease in cell viability to glial cells to assess their effect on cytokine secretion, specifically IL-6 and IL-8. The effect of pathogen EVs was compared with a positive control, namely TNF-alpha and LPS. The studies revealed that, depending on the EV concentration and incubation time, the number of cytokines secreted changed.

Conclusions:The reproducible effect of subsequent batches of pathogen EVs on cell viability and cytokine secretion will allow for the standardization of pathogen production Methods. Standardization is essential for obtaining consistent and reliable Results in studies on the effects of EVs on the functions of glial cells in the central nervous system.

Exploring the Untapped Potential of Cannabis sativa: Comparison of Flowers, Stems, and Roots

Anna Stasiłowicz-Krzemień, Szymon Kalinowski, Karina Żelichowska, Martyna Urbaniak, Judyta Cielecka-Piontek

Presenting author: Karina Żelichowska

Work supervisor:

Affiliations: Uniwersytet Medyczny im. Karola Marcinkowskiego w Poznaniu

IntroductionCannabis plants contain a variety of raw materials, with the flowers being the most commonly used in the medical, food and cosmetic market due to their high cannabinoid content. However, other parts of the plant, such as the stems and roots, are often overlooked in these industries. Investigating the activity and compound content of these less-explored parts could reveal valuable bioactive properties, opening up new applications in various industries.

Aim of the study: This research aims to compare cannabinoid content, total polyphenol levels, and biological activity in extracts from the flowers, stems, and roots of Cannabis sativa.

Methods: The extraction process was optimized using the Design of Experiments (DoE) approach to enhance the total polyphenol content, which was quantified using the Folin-Ciocalteu method. Each sample in the optimization process consisted of 0.3g of a mixture of raw materials – ground flowers, stems, and roots (1:1:1 m/m/m). The experiment involved preparing a series of trials in which extraction parameters were varied: heating temperature (30°C/55°C/80°C), extraction time (15min/52.5min/90min), and ethanol concentration used for extraction (30%/60%/90%) via the ultrasound-assisted method. The biological activity was assessed for antioxidant, neuroprotective, and anti-inflammatory properties

Results: The studied parts of the cannabis plant show differences in both the content of active substances and their biological activity. Hemp flowers, stems, and roots, hold significant potential for various industries, even beyond those already known. This approach not only adds value to otherwise discarded plant parts but also helps reduce agricultural waste and promotes the repurposing them, contributing to environmentally sustainable practices.

Acknowledgments: This research was funded in whole by National Science Centre, Poland, the grant Preludium nr UMO-2021/41/N/NZ7/01125.

JUVENES PRO MEDICINA

Application of High-Performance Liquid Chromatography for Cannabinoid Content Analysis in Diverse Cannabis Flower Extracts

Anna Stasiłowicz-Krzemień, Szymon Kalinowski, Karina Żelichowska, Martyna Urbaniak, Judyta Cielecka-Piontek

Presenting author: Martyna Urbaniak

Work supervisor: Anna Stasiłowicz-Krzemień

Affiliations: Uniwersytet Medyczny im. Karola Marcinkowskiego w Poznaniu

IntroductionCannabis flowers with low THC content are legally available without a prescription in many countries worldwide. As we approach 2025, the market has seen significant growth, offering consumers a wide variety of strains. With this growth, it is essential that these products are thoroughly described and studied to ensure quality, transparency, and consumer trust. This raises important questions: Are the various strains genuinely diverse in their characteristics, and do sellers accurately represent the cannabidiol (CBD) content in their products, or are misleading claims still prevalent in the market?

Aim of the study: This study aimed to examine whether eight strains of cannabis flowers obtained from various online shops are diverse in their cannabinoid content and whether they align with the sellers' claims regarding cannabidiol (CBD) content.

Methods: The analysis was conducted using a European Pharmacopeia monograph extraction procedure. The cannabinoid content was then quantified through High-Performance Liquid Chromatography (HPLC). The HPLC analysis was performed using a CORTECS Shield RP18 analytical column (2.7 µm, 150 mm x 4.6 mm). The mobile phase consisted of 0.1% trifluoroacetic acid (41%) as component A and acetonitrile (59%) as component B. The flow rate was set to 2.0 mL/min, and the column temperature was maintained at 35°C. Cannabinoid detection was carried out at a wavelength of 228 nm, with an injection volume of 10 µL. The Results were obtained and processed by LabSolutions LC software.

Results: The cannabinoid content of the tested cannabis strains was found to be diverse, which suggests that each strain could produce different pharmacological effects. This diversity is beneficial for patients, as it provides access to various options with low THC content, potentially catering to individual therapeutic needs. However, none of the strains contained the CBD content as claimed by the sellers, either calculated as only CBD form or as total CBD, including CBDA. This discrepancy is concerning, as in 2025, such inaccuracies should not occur, highlighting the need for greater transparency and accuracy in labeling and product descriptions.

Acknowledgments: This research was funded in whole by National Science Centre, Poland, the grant Preludium nr UMO-2021/41/N/NZ7/01125.

Locomotor activity alterations and embryotoxicity of acetaminophen and its metabolite in zebrafish larvae

Zofia Płonkowska, Maria Cabaj, Łukasz Kurach

Presenting author: Zofia Płonkowska

Work supervisor:

Affiliations: Medical University of Lublin

Introduction: Acetaminophen, commonly known as paracetamol, is a widely used analgesic. It is an over the counter drug, generally considered very safe and is a first-choice pain and fever treatment for children and pregnant women, as well as for many at risk groups like people with heart and kidney diseases and stomach issues. However, a rising number of research questions the safety of its use in pregnancy. In both epidemiological and experimental research, in various animal and cell culture models, it has been reported that prenatal exposure to acetaminophen could possibly affect the fetal development, increasing the risk of disorders, such as neurodevelopmental, urogenital, endocrine or reproductive disorders.

Aim of the study: This study aimed to evaluate the potential toxic and behavioral effects of acetaminophen and its primary metabolite, para-aminophenol, during early vertebrate development using zebrafish (Danio rerio) embryos as a model system.

Material and Methods: In this study we tested toxic effects of various concentrations of acetaminophen (1.75-7mM) and its metabolite para-aminophenol (0.1875-6μM) in zebrafish embryos using a Fish Embryo acute Toxicity (FET). To test behavioral effects we performed a light/dark transition test at 96 hours post-fertilization (hpf).

Results: In acetaminophen treated groups reduced pigmentation as well as morphological abnormalities were found, including pericardial edema, blood accumulation and spinal abnormalities. Locomotor activity in the dark was significantly lower in all concentrations of paracetamol. In two concentrations (5.25mM; 6.125mM) cardiotoxicity was observed. None of abnormalities were found in all non-lethal concentrations of para-aminophenol. However, its very low concentration of 6μM caused 100% lethality.

Conclusions: The Results suggest that acetaminophen can induce developmental and behavioral toxicity in zebrafish embryos in a dose-dependent manner. Although para-aminophenol appeared less toxic at low concentrations, its highest tested dose was lethal, indicating a narrow safety margin. These findings contribute to the growing body of evidence questioning the safety of acetaminophen use during pregnancy and highlight the need for further investigation into its developmental effects.

JUVENES PRO MEDICINA

Physiotherapy and Orthopedics

15th of May 2025

Coordinators:

Ludwika Mucha

Maja Czerniachowska

Wiktoria Lisińska

Filip Harasym

Hubert Makowski

Krzysztof Bujak

Jury:

dr n. med. Michał Kanak

dr n. med. Katarzyna Górska-Płóciennik

dr n. med. Agnieszka Zawadzka-Fabijan

dr. n. med. Kacper Ruzik

dr. n. med. Marek Drobniewki

JUVENES PRO MEDICINA

Long-Term Outcomes of ACL Reconstruction Using Quadriceps-Tendon-Bone Autograft with Anteromedial Portal Technique: A 10-Year Follow Up Study

Wojciech Gabriel Bocheński, Marcin Mostowy, Kamil Bryś, Konrad Malinowski,

Presenting author: Wojciech Bocheński

Work supervisor: Konrad Malinowski, PhD

Affiliations: Medical University of Łódź

Introduction: To assess the outcomes of autograft quadriceps-tendon-bone (QTB) anterior cruciate ligament reconstruction (ACLR) performed with anteromedial portal technique at 10 years follow-up.

Methods: 20 patients (mean age 33,46 years, SD=13,07) after QTB ACLR were examined at the mean time of 123.2 months, range 120-139. Patient-reported satisfaction was measured by NRS score and functional Results were assessed by IKDC and KOOS scores. Anterior tibial translation (ATT) was assessed among the patients without traumatic retear by the means of instrumented Lachman test (Rolimeter) and rotational instability was assessed by the pivot-shift test. ROM was examined using the goniometer, by the ability to sit on dorsiflexed ankles and to perform a dynamic hyperextension. Maximal knee flexion and extension strength was tested using FK1K dynamometer (Sauter, Swiss). An ultrasound exam was made to determine healing of the QT, with the dynamometer to assess the maximal force applied to graft donor site without pain and by pain during full squat. Patients satisfaction and functional scores were analyzed to present the means and standard deviation (SD). In the rest of variables, the second knee was used as a comparison and therefore the following statistical tests were used: Shapiro-Wilk, Levene, t-student, U-Mann Whitney.

Results: At 10-year follow-up, patient satisfaction was high: mean NRS=9.25, SD=0.8. Mean KOOS was 82.84, SD=14.62, mean IKDC=75.43, SD=16.43. Traumatic retear rate was 4/20 (20%), with retears occurring at 3,4, 8 and 10 years postoperatively. In the remaining 16 patients, mean ATT in ACLR-knees was 4.1mm, SD=1.1mm, while in healthy knees it was 3.5, SD=0.9, p=0.14. Lachman's test endpoint was hard in 13 and soft in 3 patients. Pivot-shift grade was 0 in 12 patients, grade 1 in 5 patients, and no patient had grade 2 or 3.

Mean passive ROM and muscle force did not differ significantly between ACLR-knees and healthy knees in terms of flexion (148.3, SD=5.6 vs. 150.1, SD=7.2, p=0,39), hyperextension (7.0, SD=3.2 vs 8.1, SD=2.4, p=0.24), maximal force of knee flexion (210.5N, SD=70.0N vs 208.0N, SD=63.0N, p=0.89) and extension (265.0N, SD=63.5N vs 262.5N, SD=59.5N, p=0.89). Eleven subjects could sit on dorsiflexed ankles with mean pain NRS of 1.5, SD=2.7. 19 patient could perform dynamic hyperextension.

The full-thickness healing of QT occurred in eleven patients, partial in seven patients and no healing in two. Bony part of the patella did not heal fully in any patient. Mean maximal force applied to the donor site without pain was 95.0N, SD=29.5 in ACLR-knees vs 97.5N, SD=30.5N in healthy knees, p=0.81. Every patient was able to do a full-depth squat, with mean pain NRS of 1.05, SD=2.16.

Conclusion: QTB ACLR at 10 years follow-up resulted in excellent patient satisfaction and functional outcomes. There were no significant differences with the healthy knee as to anterior and anterolateral rotational instability, ROM, muscle force and donor site morbidity.

JUVENES PRO MEDICINA

Assessment of factors affecting the functional status of patients over 60 years of age

Tomasz Wiktorek, Adam Stręciwilk, Katarzyna Glibov, Małgorzata Kilon

Presenting author: Tomasz Wiktorek

Work supervisor:

Affiliations: Medical University of Lodz, Poland

Introduction: Aging is a natural process that affects every person. With age, involutional change lead to the weakening and deterioration of many organs and systems, resulting in the occurrence of mutliple diseases. This condition reduces the physical fitness of seniors, which in turn reduces their degree of independence. Older people differ individually in functional state, one patient will show complete independence, while another will need the help of third parties.

Aim of the study: The Aim of the study was to assess factors affecting the functional fitness of people after 60 years of age, such as age, sex, body weight, number of diseases and place of residence.

Materials and Methods: The study involved 60 people (46 women and 14 men) aged between 66 and 98 years (82.8 ±8.4). The study was conducted at the Health Care Center(HCC) and Geriatric Clinic between september and november 2024. Both facilities were located at Przyrodnicza 7/9 street in Lodz.

The study used the Time Up and Go (TUG), Short Physical Performance Battery (SPPB), Barthel scale and handgrip strength measurement (HGS) using a JAMAL dynamometer were used to assess functional status. The study used an author's questionnaire containing sociodemographic questions including age, sex, weight, place of residence, and health status such as number diseases and number of medications taken.

The obtained Results were subjected to statistical analysis using Statistica PL 13.3. The normality of the distribution was verified by the Shapiro-Wilk test. Multiple regression was used to study the correlation. Statistical significance at the level $p=0.05$.

Results: The study showed that erderly patients ($r=0.8$; $p=0.006$) with weaker HGS ($r=0.7$; $p<0.001$) scored lower on the SPPB test. The number of diseases ($r=0.5$; $p=0.6$) or medications taken ($r=0.6$; $p=0.3$) did not affect the SPPB test score. Patients with chronic neurological diseases achieved Results in the SPPB ($r=0.6$; $p=0.005$), TUG ($r=0.9$; $p=0.005$), Barthel ($r=0.5$; $p=0.002$) or HGS ($r=0.6$; $p=0.003$) tests indicating lower physcial fitness. On the other hand, patients with cardiovascular diseases ($r=0.5$; $p=0.4$) and cancer diseases ($r=0.6$; $p=0.3$) did not score worse on the SPPB test. The exemined residents of the HCC, which lead to Results of 14 seconds or more in the TUG test,indicationg a high risk of falling, constitute 90% (n=27) of people, while the clinics concern only 10% (n=3). All HCC residents obtained Results in the SPPB test indicating a high risk of disability, and among the patients of the clinics there were up to 76% of people.

Conclusions: In functional test, older people and those with neurological diseases had lower physcial fitness. The number of medications taken, the presence of cardiovascular diseases and cancer did not affect functional fitness. Patients with reduced HGS measurements achieved Results in functional tests indicating a lower level of efficiency. HCC patients were characterized by lower functional efficiency compared to the clinic patients in all tests and measurements.

JUVENES PRO MEDICINA

The Impact of Upper Limb Dominance on Handgrip Strength in Sport Shooters - A Comparative Study with NHANES and NIH Toolbox Norms

Adam Stręciwilk,Tomasz Wiktorek, Katarzyna Glibov, Małgorzata Kilon

Presenting author: Adam Stręciwilk

Work supervisor: Małgorzata Kilon

Affiliations: Uniwersytet Medyczny w Łodzi

Introduction: Sport shooting is a rapidly developing discipline that requires precision, stability, and high upper limb functionality. Despite its growing popularity, there is still limited amount of research on the impact of limb dominance on handgrip strength (HGS) in this group of athletes. Shooting enforces an asymmetrical posture (dominant eye and upper limb), which may lead to neuromuscular imbalance and asymmetry in posture or muscle strength.

Aim of the study: The Aim of the study was to assess the impact of upper limb dominance on HGS in sport shooters and to compare the Results with NHANES and NIH Toolbox norms.

Materials and Methods: The study included 55 sport shooters (47 men and 8 women) aged 16 to 70 years (38.2 ± 13.5), recruited from shooting ranges in the Lodz and Kuyavian-Pomeranian Voivodeships between November 2024 and January 2025. Inclusion criteria were: age ≥ 16 years, active participation in sport shooting for at least 6 months, and written consent to participate in the study. Participants completed an original questionnaire. HGS was measured using a JAMAR hydraulic dynamometer. Three grip trials were performed for each hand (right first, then left), with breaks between trials. The highest value from three trials, expressed in kilograms of force (kgf), was used for analysis. Measurements were taken before shooting training. The Results were statistically analysed using Statistica 13.3 PL software. Shapiro-Wilk, Student's t-test, Wilcoxon test, and Spearman's correlation were used. The level of statistical significance was set at $p<0.05$.

Results: The average HGS Results for athletes were: 54.728±9.910 kgf for the dominant limb and 52.203±10.406 kgf for the non-dominant limb. The mean difference in HGS between the dominant and non-dominant upper limb was +2.575 kg ($p<0.05$). Comparison with NHANES and NIH Toolbox norms showed a significant positive difference for the dominant limb ($p<0.05$), and significantly higher HGS values were found for the non-dominant limb compared to the norms (mean difference=+12.02 kg, $p<0.05$). Analysis of the Results showed no significant correlation between age and HGS for both limbs ($p>0.05$). Sex was found to influence grip strength ($p<0.05$).

Conclusions: Upper limb dominance has a significant impact on HGS in sport shooters, manifesting in higher grip strength in the dominant limb and indicating strength asymmetry between limbs. Compared to NHANES and NIH Toolbox norms, sport shooters' HGS is markedly higher for both dominant and non-dominant limbs. The Results suggest a specific pattern of strength asymmetry in sport shooters, deviating from population trends. Sex had a significant impact on HGS; women achieve lower values than men. Age did not have a significant impact on HGS in sport shooters, which may allow for longer maintenance of physical fitness.

Assesment of the urinary incontinence incidence in women after cardiovascular events and identify risk factors.

Julia Antos

Presenting author: Julia Antos

Work supervisor: PhD Katarzyna Glibov

Affiliations: Medical University of Lodz

Introduction: Urinary incontinence (UI) is defined as the involuntary loss of urine. UI is a significant health problem, which can affect the quality of life for men as well as female patients. In the context of cardiovascular diseases, especially in women, this problem takes on particular importance, as both the disease itself and the associated treatment can predispose to bladder dysfunction.

Aim of the study: The purpose of this study was to assess the prevalence of urinary incontinence in women after cardiovascular events and to identify risk factors associated with this condition.

Materials and Methods: The study included 22 female patients, who were divided into two groups. The study group consisted of 11 patients with a history of cardiovascular incidents, while the control group consisted of 11 patients who declared no history of cardiovascular incidents. The study used a Sonoscape ultrasound device to assess white line dilation. The study also used the PFDI - 20 questionnaire to assess quality of life and the ICIQ - Fluts LF questionnaire to assess the severity of symptoms. Medical scales, a centimeter, a fold gauge and an inclinometer were used for anthropometric measurements.

Results: The average age of patients in the study group was 70 years, while in the control group it was 40 years. UI was detected in 56% of respondents in the study group and in 45% in the control group. Stress urinary incontinence occurred in the majority of women in both groups, urgent or mixed UI was found less frequently. Incontinence occurred more frequently with age, increase in BMI, WHR index, size of fat fold, and size of white crease separation.

Conclusions: This study aimed to assess the prevalence of urinary incontinence in women after a cardiovascular incidents and to identify factors that increase the risk of this condition. Clinical data and Results of questionnaires completed by the patients were analyzed. The study showed that women after cardiovascular incidents are more likely to experience urinary incontinence compared to the control group. The Results showed that UI is a significant health problem, and its incidence is strongly associated with risk factors such as advanced age, increased body weight, the size of the white crease opening, and coexisting chronic diseases. These findings underscore the need to include UI diagnosis and prevention in the care of women after cardiovascular incidents, which can improve their quality of life and reduce negative health outcomes.

JUVENES PRO MEDICINA

Assessment of aerobic capacity in physiotherapy students using the multi-stage shuttle test - Beep Test.

Piotr Kuliś, Beata Czechowska, Marta Karbowiak, Piotr Stasiak, Sławomir Motylewski

Presenting author: Piotr Kuliś

Work supervisors: Beata Czechowska,MSc, Marta Karbowiak, PhD

Affiliations: Medical University of Lodz

Introduction: Regular physical activity is a key preventive element for many diseases, including musculoskeletal and cardiovascular diseases. According to the WHO, at least 150 to 300 minutes of moderate-intensity aerobic physical activity or 75 to 150 minutes of high-intensity aerobic physical activity per week is recommended.Physical capacity is the body's ability to undertake both aerobic and anaerobic exercise. Overall aerobic physical fitness, according to scientific reports, reduces the risk of death, thereby extending life expectancy.

Aim of the study: The Aim of the study was to assess the aerobic capacity of physiotherapy students using a multistage pendulum test - 'Beep Test'.

Materials and Methods: 118 (K-79 and M-39) physiotherapy students of the Medical University of Lodz, aged 19-25 years, participated in the study.An assessment of aerobic capacity using a multistage pendulum test - the 'Beep Test' was carried out.Statistical analysis was performed using Statistica software, Results were presented using basic statistical tools, and $p<0.05$ was considered statistically significant.

Results: As many as 72% of the subjects85, including K-58 and M-27, were physically active according to WHO recommendations. More than 69% of the subjects had normal body weight according to BMI, and almost 40% had abnormal body weight. The mean score obtained in the 'Beep Test' in the study group expressed in levels was 6.17±1.84, which, when converted to the distance covered by the runner's present, gives 879.31 m±366.39 m respectively.In men, the mean level was 7.62±1.81, giving1165.13±387.35 meters. In women, 5.45±1.38 making 734.18±257.09 meters respectively.

Statistically significant differences were found among the study group for the mean test Results of women and men $p=0.000$, and in the physically active and inactive groups $p=0.017$. Statistical significance was also found between physically active women and men $p=0.001$ and physically inactive men $p=0.017$. Statistically significant Results were found comparing women and men with normal body weight $p<0.001$ and abnormal body weight $p<0.001$.

Conclusion: Most of the physiotherapy students surveyed are physically active.

The 'Beep test' showed that the physiotherapy students had poor fitness, lower than age-appropriate norms. Weaker Results were obtained by females both declaring regular physical activity and being physically inactive.

The best Results were obtained by physically active men,but the Results were still lower than the age-appropriate norms for this group.

Factors that have a significant relationship with the 'Beep test' score in the study group are body weight and undertaking physical activity.

It is worth taking care of the practical nature of physical activity classes in the physiotherapy degree programme and the educational aspects of conducting appropriate forms of training.

JUVENES PRO MEDICINA

Assessment of diaphragm mobility in cardiac patients, the effect of Buteyko method breathing exercises on diaphragm mobility, function, and quality of life in patients with cardiac diseases

Piotr Siciński, Martyna Świt

Presenting author: Piotr Siciński

Work supervisors: Katarzyna Glibov, PhD, Małgorzata Kilon, PhD

Affiliations: Medical University of Lodz

Introduction: Long-term occurrence of cardiovascular diseases and their treatment may cause dysfunctions in the diaphragm. The authors reviewed the literature supported by their own observations and noted that various cardiac diseases and their treatment, including surgery, have many effects on the quality of diaphragm function. The work examined how standard rehabilitation procedures supplemented with Buteyko method exercises can improve diaphragm mobility.

Aim of the study: The aim was to compare the mobility of the diaphragm using rehabilitation ultrasound imaging in cardiology patients treated conservatively and undergoing Buteyko exercises.

Materials and Methods: The study was carried out in the Subdivision of Cardiac Rehabilitation of the Department of Internal Medicine, Rehabilitation and Physical Medicine of the Medical University of Lodz. 6 patients were qualified for cardiac rehabilitation at our department. The inclusion criteria were diagnosed coronary artery disease, heart failure, condition after percutaneous coronary angioplasty, coronary artery bypass grafting, implantation of cardiac support devices, and heart valve replacement. The tests were carried out twice, before and after the end of the rehabilitation process, and included the assessment of diaphragm mobility using ultrasound, and resting spirometry.

Results: The mobility of the left side of the diaphragm during resting and forced deep breathing was higher during a 14-day rehabilitation camp compared to the Results before rehabilitation

Conclusions: Cardiac rehabilitation has a positive effect on diaphragm mobility. It seems justified to continue the research in order to confirm the observed relationships among a larger group of subjects.

JUVENES PRO MEDICINA

Breaking the Stereotype: Are Patients with MS More Physically Active Than We Think? – A Comparative Study with Healthy Controls

Michalina Niedźwiecka, Angelika Roszczyk, Patrycja Osińska

Presenting author: Patrycja Osińska

Work supervisor: Magdalena Pruszyńska, PhD, Affiliation - Department of Internal Diseases, Rehabilitation and Physical Medicine, Medical University of Lodz

Affiliations: Medical University of Łódź

Introduction: Multiple sclerosis, a chronic, multifocal disease of the central nervous system, is a very common cause of disability among young adults. It leads to various motor and cognitive disorders that can result in limited mobility and reduced physical activity. There are many scientific reports on the beneficial effects of physical training on improving these patients' muscle strength and functional capacity, positively impacting the brain's neurobiology.

Aim of the study: To assess the differences in physical activity levels between patients with MS and healthy controls.

Materials and Methods: The study involved 60 participants (26.6 ± 5.38 years): 30 patients with MS and 30 healthy controls (mainly students and graduates of Medical University of Lodz). Inclusion criteria for the study group: no relapse of MS (past 30 days) and EDSS score of ≤ 2. The study was conducted at the Department of Neurology and Stroke, Medical University of Lodz. Research tools: a questionnaire (BMI, sociodemographic data, obstacles to engaging in physical activity, current overall physical fitness) and the International Physical Activity Questionnaire (IPAQ).

Results: In the study group, the mean age was 29.97 ± 4.59 years, in the control group 23.23 ± 3.79 years. The time (per week) spent on: walking to travel: the study group: $\bar{x}$=251.33; M=135; Q1=20;Q3=420 minutes vs the control group: $\bar{x}$=248; M=180; Q1=90; Q3=375; walking during free time: the study group: $\bar{x}$=167.33; M=80; Q1=0; Q3=270 minutes vs. the control group: $\bar{x}$=184.17; M=120; Q1=57.5; Q3=240. The number of days per week: vigorous physical activity: the study group: $\bar{x}$=1.4; M=0; Q1=0; Q3=3 minutes vs. the control group: $\bar{x}$=1.3; M=0; Q1=0; Q3=3; moderate physical activity: the study group: $\bar{x}$=1.2; M=0; Q1=0; Q3=2 minutes vs. the control group: $\bar{x}$=1.23; M=0; Q1=0; Q3=2.25. The time (per week) spent on: vigorous physical activity (in a leisure time): the study group: $\bar{x}$=11.17; M=0; Q1=0; Q3=150 minutes vs. the control group: $\bar{x}$=75; M=0; Q1=0; Q3=141.25; moderate physical activity (in a free time): the study group: $\bar{x}$=79.83; M=0; Q1=0; Q3=97.5 minutes vs. the control group: $\bar{x}$=76.33; M=0; Q1=0; Q3=97.5. The time spent sitting on a weekday: the study group: $\bar{x}$=304; M=270; Q1=172.5; Q3=480 minutes vs. the control group: $\bar{x}$=372; M=360; Q1=292.5; Q3=480. The time spent sitting on a weekend day: the study group: $\bar{x}$=299; M=300; Q1=180; Q3=360 vs. the control group: $\bar{x}$=373; M=360 ;Q1=285; Q3=480 minutes (difference between groups, $p<0.05$).

Biggest barriers to physical activity by respondents: lack of time 50% general (43.33% study group, 56.67% control group) and ill-being – both 33.33%.

Conclusions: Healthy participants spend more time sitting on weekends than patients with MS. There were no significant differences in the duration and frequency of activity undertaken. The main obstacle to physical activity for most respondents was lack of time. Educational programs promoting regular physical activity are needed.

Plenary session

17th of May 2025

Coordinators:

Valerie Osawaru

Maja Czerniachowska

Antoni Knera

Jury:

dr. n. med. Tomasz Klimczak

dr hab. n. med. Małgorzata Brauncajs

prof. dr hab. n. med. Janusz Strzelczyk

prof. dr hab. n. med. Andrzej Borowski

dr n. biol. Katarzyna Khalid

prof. dr hab. n. med. Ireneusz Majsterek

dr n. biol. Katarzyna Góralska

dr n. med. Angelika Długosz-Pokorska

dr hab. n. med. Karolina Henryka Czarnecka-Chrebelska

The Role of α2β1 Integrin in Cardiac Fibroblast Extracellular Matrix Remodeling

Rami Altabbouche

Presenting author: Rami Altabbouche

Work supervisor: Małgorzata Gałdyszyńska

Affiliations: Medical University of Lodz

Introduction: Heart failure is characterized by the accumulation of excessive extracellular matrix (ECM) components in the heart, a process known as cardiac fibrosis. Cardiac fibroblasts produce and regulate ECM content: collagen, glycosaminoglycans (GAGs), and proteoglycans. Moreover, integrins bind to collagen and facilitate ECM remodeling.

Aim of the study/purpose: This study investigates how extracellular collagen and α2β1 integrin regulate ECM components, focusing on collagen, glycosaminoglycans (GAGs), and proteoglycans.

Material and Methods: Two comparative groups of stable human cardiac fibroblast cell lines were cultured in collagen-rich and collagen-free conditions. Collagen content was assessed using the Woessner Method and GAG levels were quantified using the Farndale assay. Silencing of the α2 integrin gene was performed using siRNA and the receptor was inhibited using TC-I15 (10-7M, 10-8 M). Finally, decorin gene expression was analyzed by RT-PCR, while ELISA quantified its core protein levels.

Results: Collagen levels remained consistent regardless of extracellular collagen availability. In contrast, GAG levels were higher in collagen-free conditions. As for proteoglycans, ELISA revealed higher decorin core protein in low-collagen environments, while RT-PCR found no clear connection with gene transcription, suggesting post-transcriptional regulation. The inhibition of α2β1 integrin by TC-I15 and α2 integrin silencing increased GAG concentrations in the ECM, inferring that α2β1 is a key modulator of GAG production. Meanwhile, the experiments did not affect decorin levels.

Conclusions: Collagen levels were unaffected by plating conditions. However, GAG levels were directly regulated by extracellular collagen and were dependent on the activation of α2β1 integrin. Similarly, decorin levels depended on extracellular collagen, but α2β1 integrin was not involved in this process. These findings suggest that α2β1 integrin plays a

JUVENES PRO MEDICINA

Exploring manual therapy in the management of irritable bowel syndrome in adults: A scoping review

Natalia Płóciennik-Korycka, Sara Maria Pani, Bogumiła Bruc, Paolo Contu, Magdalena Wrzesińska

Presenting author: Natalia Płóciennik-Korycka

Work supervisor: Magdalena Wrzesińska

Affiliations: Medical University of Lodz

Introduction: IBS is a prevalent gut-brain interaction disorder characterized by abdominal pain and altered bowel habits, significantly affecting quality of life (QoL). IBS contributes to substantial work absenteeism and economic burdens and often coexists with other somatic and psychiatric conditions, with psychological well-being being a critical determinant of QoL. IBS sufferers often turn to MT due to dissatisfaction with conventional treatments. However, no comprehensive review has assessed the evidence for MT in treating IBS.

Aim of the study: The objective of this review is to identify and map the available evidence on the effects of various manual therapy (MT) techniques on the biopsychosocial functioning, well-being, and QoL of individuals with irritable bowel syndrome (IBS).

Material and methods: A comprehensive search was conducted in PubMed, Embase, and Scopus. Studies involving adults with IBS and investigating the effects of MT on biological, psychological, and social outcomes, well-being, or QoL were included. A scoping review was conducted following PRISMA-ScR guidelines. Study quality was assessed using The National Heart, Lung and Blood Institute (NHLBI) Study Quality Assessment Tools. The protocol for this review was registered with the Open Science Framework and is available at https://doi.org/10.17605/OSF.IO/QN4WU.

Results: Of 730 records identified, 30 studies met the inclusion criteria (9 trials, 21 reviews). The interventions reviewed included osteopathic manipulative treatment (OMT), acupuncture, acupressure, reflexology, traditional Chinese spinal orthopaedic manipulation, and Tuina. The most frequently assessed outcomes were biological and psychological variables, as well as QoL, with well-being being the least commonly examined.

Conclusions: Although the Results suggest potential benefits of MT in IBS treatment, they should be interpreted with caution due to the lack of robust trials, inconsistent findings, and occasional adverse events. High-quality randomized controlled trials and standardized outcome measures are necessary to validate these therapies and improve IBS management.

Impact of a pro-inflammatory cocktail stimulating COVID-19-like molecular pathways on Gastrointestinal Motility in a Preclinical Model in Aged Rats

Blanca Silván-Ros1,2,3, David Benítez-Álvarez1,2,4,5, Felipe Barragán del Caz1,2, Sara Pascual-Marina1, Maria Díez-Clemente1, José Luis Rojo-Álvarez6,7, Sergio Muñoz-Romero6,7, Raquel Abalo1,2,8,9,10

Presenting author: Blanca Silván-Ros

Work supervisor: Raquel Abalo

Affiliations: 1Department of Basic Health Sciences, Faculty of Health Sciences, University Rey Juan Carlos (URJC), 28922 Alcorcón, Spain. 2High Performance Research Group in Physiopathology and Pharmacology of the Digestive System (NeuGut-URJC), University Rey Juan Car

Introduction: The infection by SARS-CoV-2 causes severe COVID-19, especially in elderly patients, due to a complex cytokine storm that determines the severity of both acute symptoms and sequelae. Using a pro-inflammatory cocktail, based on the main molecular pathways that trigger the severe cytokine storm associated with COVID-19 (lipopolysaccharide, LPS, to internalize ACE-2 receptors; imiquimod to activate TLR-7; ATP to cause tissue damage) in young male rats, we have observed acute gastrointestinal transit alterations, but no sequelae. When applied to aged animals, the same protocol led to increased mortality (closely mirroring the increased vulnerability observed in elderly human patients), but a 50% reduction in LPS concentration increased survival, allowing us to investigate the effects of the cocktail on gastrointestinal transit. Therefore, the objective of the present study was to evaluate the acute impact of the cytokine storm induced by this pro-inflammatory cocktail on gastrointestinal transit and the possible sequelae in aged rats.

Materials and methods: Male Wistar rats (N=9-12/group) aged 20-24 months and weighing 450-700 g were used. They received an intraperitoneal injection of: LPS (1.5 mg/kg) at T-2, followed by imiquimod (0.1 mg/kg) 30 minutes later, and finally, ATP (5 mg/kg) one and a half hours after imiquimod, completing the cocktail at T0. The control group received the corresponding vehicles. Before the cocktail (T-2), contrast (barium) was gavaged and serial X-rays were taken from T-2 to T24 to analyze transit in the stomach, small intestine, cecum, and colon. Three weeks after, another radiographic session was performed at the same time points to observe possible sequelae.

Results: Compared to the control group, immediately after the proinflammatory cocktail, statistically significant acute alterations were observed in gastrointestinal transit suggesting gastroparesis and paralytic ileus, without clear changes in the maximum size of the stomach, cecum and fecal boluses or in the maximum density of barium within them. After three weeks, the animals showed complete recovery, with normalized gastrointestinal transit.

Conclusions: The pro-inflammatory cocktail used, based on the main molecular pathways that trigger the severe cytokine storm associated with COVID-19, acutely delayed gastrointestinal transit in aged rats, without sequelaeThese findings closely mirror those previously observed in young animals treated with higher doses of the same cocktail, supporting the model's consistency across age groups. The developed preclinical model is simple, economical, and rapid, and will facilitate the search for new strategies to prevent/treat the severe effects of the cytokine storm and sepsis associated with SARS-CoV-2 and other infections.

JUVENES PRO MEDICINA

The Risk of Eating Disorders Among Track and Field Athletes

Karolina Kozik

Presenting author: Karolina Kozik

Work supervisors: Justyna Nowak, PhD, MS

Affiliations: Medical University of Silesia

Introduction: Eating disorders (ED) are mental disorders that considerably impair physical health and disrupt psychosocial functioning. Athletes are a group particularly at risk for the development of ED due to the nature of the sporting environment. Some track and field disciplines are categorized as sports requiring leanness, which, according to research, are associated with a higher risk of ED compared to sports that do not emphasize leanness. Despite numerous studies on the risk of ED among athletes, there is a limited amount of research specifically focusing on track and field athletes, especially Polish ones.

Aim of the study: The Aim of the study was to assess the prevalence of ED risk among Polish track and field athletes.

Materials and Methods: A cross-sectional study was conducted using an online survey questionnaire in a contact form during sporting events, utilizing the EAT-26 (Eating Attitudes Test) questionnaire. The study involved 1008 (767 women, 241 men) track and field athletes. The inclusion criteria for the study involved membership in a sports club affiliated with the Polish Athletic Association and being in the age category of at least U16 (14 and 15 years old). The Results were subjected to statistical analysis using the Statistica 13.0. A significance value of $p<0.05$ was considered statistically significant.

Results: A total of 14.5% (N=146) of track and field athletes were at risk of developing ED, and 9.2% (N=93) had received treatment for ED. Binge eating with a loss of control over the amount of food consumed at least once a week was reported by 14.6% (N=147) of the participants. The risk of developing ED was found to be at a similar percentage level across all track and field disciplines. After analyzing the risk of ED in disciplines requiring leanness and those not requiring it, no statistically significant difference was observed ($p>0.05$). The risk of ED was found to be similar regardless of gender, age category, training experience, or the athletes' performance level.

Conclusions: The risk of developing ED was recorded among approximately 15% of the studied Polish track and field athletes. No statistically significant increase in risk was observed across specific track and field disciplines.

Mesenchymal Stem Cell Secretome as a Cell-Free Modulator of Type 2-Low Inflammation in Experimental Asthma

Aleksandra Roszko, Kamil Kamiński, Krystian Czołpiński, Sylwia Księżak, Alicja Toczydłowska

Presenting author: Aleksandra Roszko

Work supervisors: dr Marlena Tynecka, dr hab. Andrzej Eljaszewicz

Affiliations: Medical University of Bialystok

Introduction: Despite substantial preclinical evidence demonstrating the immunosuppressive and immunomodulatory properties of mesenchymal stem cells (MSCs) in various inflammatory disease models, including asthma, clinical translation remains limited. To date, only one MSC-based therapy has been approved by the U.S. Food and Drug Administration (FDA). In fact, integration of MSC-based treatments into routine clinical practice faces several critical challenges related to safety and standardization including i) variability in the stability and therapeutic efficacy of both allogeneic and autologous MSC preparations; ii) pronounced donor to donor heterogeneity, limiting standardized manufacturing protocols; iii) insufficient understanding of the safety, immunogenicity, and therapeutic durability following repeated MSC administrations. Here we aimed to evaluate the therapeutic potential of MSC-derived extracellular vesicles (EVs) isolated from preconditioned cells as a cell-free alternative.

Aim of the study: C57BL/6 mice were intranasally (i.n.) exposed to 100 μg of house dust mite (HDM) extract for five consecutive days in each of two weeks. Moreover, at day 13 mice received EVs derived from either MSCs primed with a pro-inflammatory cytokine mix (IFN-γ, TNF-α, and IL-1β) or cultured under standard conditions. All animals were sacrificed 48 hours after last HDM challenge. The lungs lobes were collected for histological staining, transcriptomic profiling, and flow cytometry according to optimized protocols.

Methods: First, we demonstrated that both types of EVs substantially reduced low T2 airway inflammation in the HDM-induced asthma model. Transcriptomic profiling revealed that EVs derived from cytokine-primed MSCs were associated with downregulation of genes involved in arachidonic acid and lipid metabolism pathways. Notably, treatment with primed EVs resulted in a more pronounced suppression in frequency of IL-17 producing T-cells, followed by an increased number of IL-10 producing T cells, compared to EVs isolated from non-primed cells.

Results: In summary, our Results support the therapeutic efficacy of MSC-derived EVs in regulating airway inflammation and suggest that EVs derived from cytokine-primed MSCs more closely reflect the therapeutic potential of parental cells.

Conclusion: 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.

JUVENES PRO MEDICINA

High frequency of diabetic ketoacidosis in Polish children with new-onset type 1 diabetes over the years 2019-2022 was affected by COVID-19 pandemic.

B. Pernak, J. Chrzanowski, A. Michalak, I. Pietrzak, M. Bednarska, I. Beń-Skowronek, A. Bossowski, A. Chobot, K. Dżygało, B. Głowińska-Olszewska, M. Górnicka, A. Horodnicka-Józwa, K. Jakubek-Kipa, P. Jarosz-Chobot, A. Kącka, K. Marcinkiewicz, A. Mazur, M

Presenting author: Barbara Pernak

Work supervisors: Jędrzej Chrzanowski, MD; Arkadiusz Michalak, MD; Agnieszka Szadkowska, MD PhD Prof.

Affiliations: Uniwersytet Medyczny w Łodzi

Introduction: Many countries, Poland included, experienced an increased frequency of diabetic ketoacidosis (DKA) related to new-onset type 1 diabetes (T1D) during the COVID-19 pandemic. However, follow-up data are needed to isolate COVID-19 impact and guide DKA prevention strategies.

Aim of the study: To estimate the frequency of DKA in pediatric new-onset T1D in Poland over the years 2019-2022 and assess its dynamics in the context of COVID-19 pandemic.

Materials and Methods: All Polish pediatric diabetes reference centres were invited to participate in a multicentre retrospective study. We collected an anonymized list of all new-onset diabetes cases diagnosed between years 2019-2022. We excluded duplicated records, non-Polish citizens, those >18 years old at presentation or with missing age or sex data. Analysis included cases with clinically-confirmed T1D (regardless of autoantibody status) whose diabetes was diagnosed based on symptoms and random blood glucose >200mg/dl, and for whom blood gases were measured at presentation. DKA was defined according to clinical consensus guidelines by International Society for Pediatric and Adolescent Diabetes (ISPAD) as pH<7.3 or HCO3<18 mmol/l. The COVID-19 pandemic period was defined following WHO definition for Poland as between 20.03.2020 and 22.05.2022. The epidemiological analysis was performed with Joinpoint Trend Analysis Software (NCI, Rockville, MD, USA). We utilized Prophet forecasting models to model expected DKA fraction over time and identify periods of discrepancy between expected and observed DKA rate that could be associated with the pandemic period.

Results: Altogether, 7192 new-onset T1D cases from 17 reference centres and 16 voivodships were considered, with DKA-defining data available for 90.98% (6543) of cases. Among those, 54.5% (3566) presented with DKA.

DKA frequency increased significantly over the years, from 47.9% in 2019, to 54.0% in 2022 (Joinpoint regression, p=0.04). The observed rate of DKA in the pandemic period was significantly higher than expected (56.8% vs 47.5%). The model significantly underestimated the fraction of DKA between May 2020 and February 2022, with an average of 9.4 percentage points difference (p<0.05). The modelled and observed DKA fractions converged at the end of pandemic period, achieving alarmingly high but stable rate at the end of 2022.

Conclusions: DKA frequency in children with new-onset T1D increased in the observed period and presented larger-than-expected increase during part of COVID-19 pandemic. National-scale countermeasures, including social awareness campaigns, changes to healthcare organization and possibly active populational screening are warranted to limit the rate of this life-threatening acute complication.

Development of a refined blister formation model aimed at elucidating IL-17B functions in the inflammatory response associated with bullous pemphigoid

Artur Jędreas

Presenting author: Artur Jędreas

Work supervisors: Sébastien Le Jan; Vlada Koliadenko; Céline Muller; Manuelle Viguier; Delphine Giusti

Affiliations: Medical University of Warsaw

Introduction: Bullous Pemphigoid (BP) is a skin autoimmune bullous disease that mainly occurs in the elderly, severely affecting their health and quality of life. BP is predominantly elicited by autoantibodies against two hemidesmosomal proteins BP180 and BP230, together with an abnormal inflammatory response, which results in the destruction of hemidesmosomes and skin blister formation. Interleukin-17 cytokines, particularly IL-17A, have been implicated in the development of BP. Recently, the IRMAIC lab identified IL-17B in the serum and blister fluid (BF) of BP patients, with evidence of a negative correlation between IL-17B BF levels and the score associated with blisters and erosions, suggesting a potential protective role of IL-17B in blister formation in BP disease.

Aim of the study: This study aimed to decipher the cellular and molecular components and the functions of the IL-17B/IL-17 receptor B (IL-17RB) axis at the time of diagnosis in BP. The work focused on identifying the blood cells that could potentially respond to IL-17B by evaluating IL 17RB and IL-17RA expression among lymphoid cells, particularly innate lymphoid cells (ILCs). We further set up and adapted to our lab an ex vivo model of dermal-epidermal separation to study the role of IL-17B in blister formation.

Materials and Methods: To explore IL-17RB and IL-17RA expression in BP a pilot study including 3 BP patients, two of whom relapsed and 3 sex- and age-matched controls was conducted. Peripheral blood mononuclear cells from all 6 individuals were collected at baseline and additionally at 60 and 90 days after the beginning of treatment from patients who relapsed. The ex vivo model of blister formation was optimised by adjusting the quality and thickness of the cryosections, concentrations of antibodies in BP patients sera, number of granulocytes applied to the cryosection, and cell activation Methods. Immunofluorescence staining techniques were employed to enhance the quantification of dermal-epidermal separation in this ex vivo model.

Results: Flow cytometry analysis revealed a ubiquitous presence of IL-17RA expression on ILCs, NK cells and lymphocytes/monocytes at baseline. In contrast, no IL-17RB expression was observed in any of these cells neither at baseline nor at the time of relapse. Additionally, a tool is presented for future studies on the functions of various interleukins in the blister formation in bullous pemphigoid.

Conclusions: The study showed that IL-17RB is not expressed in lymphoid cells at systemic level in BP patients neither at baseline nor during treatment. Further studies are needed to characterize IL-17RB+ cells, especially in situ at the lesional site. The developed model, combined with stimulation of granulocytes, by supernatants originating from IL-17B induced IL-17RB+ cells should allow us to better define the function of IL-17B in blister formation, leading to new therapeutic alternatives to local corticotherapy in the treatment of BP disease.

The role of FGFR2-dependent signaling in regulating AP-1 complex composition in luminal breast cancer

Jakub Czerwiński

Presenting author: Jakub Czerwiński

Work supervisors: mgr Barbara Galikowska-Bogut, dr n. med. Kamila Kitowska, prof. dr hab. n. med. Radzisław Kordek, dr n. med. Marcin Braun, prof. dr hab. n. med. Rafał Sądej, prof. dr hab. n. med. Hanna Romańska

Affiliations: Medical University of Lodz

Introduction: The estrogen receptor (ER) is a primary oncogenic driver in luminal breast cancer (BCa), and its activity can be regulated by the transcription factor AP-1, a dimer composed of Jun (JunB, c-Jun, JunD) and Fos family proteins. Recent mechanistic studies suggest a potential relationship between fibroblast growth factor receptor 2 (FGFR2) expressed by cancer cells and components of the AP-1 complex. Specifically, FGFR2 may influence ER-AP1 crosstalk by regulating Jun family protein expression, promoting estrogen-independent ER activity and tumor progression despite anti-ER treatment.

Aim of the study: To provide verification of the in vitro findings on the impact of FGFR2 on the ER/AP-1 collaboration, with a focus on Jun family proteins, in clinical material from patients with ER-positive (ER+) breast cancer (BCa).

Materials and Methods: The study involves histopathological analyses of formalin-fixed, paraffin-embedded (FFPE) ER+ BCa samples (archival postoperative material). A total of 44 patients with ER+ BCa were retrospectively recruited at the Regional Oncology Center of the Nicholas Copernicus Hospital in Łódź. Expression levels of FGFR2, JunB, c-Jun, and JunD assessed by immunohistochemistry was evaluated qualitatively and quantitatively using the H-score method (0–300). A score ≥75 was defined as positive. The scores for Jun proteins, individually, and in combination with FGFR2, are being analyzed in relation to the clinicopathological data.

Results: Histopathological analysis showed FGFR2 positivity in 33/44 cases (75%; median H-score: 137.5; range: 0–300). JunB was positive in 36/44 cases (80%; median: 155; range: 0–300), and c-Jun in 18/44 cases (40.9%; median: 47.5; range: 0–250). FGFR2 expression correlated strongly with JunB ($R = 0,642$; $p < 0.001$) and moderately with c-Jun ($R = 0,442$; $p = 0.003$), aligning with in vitro findings. JunD expression was low (positive in 11/44 cases, 25%; median: 17.5; range: 0–190) and, in contrast to the functional data demonstrating lack of collaboration between FGF/FGFR2 and JunD, it correlated moderately with FGFR2 ($R = 0,39$; $p = 0.009$). In addition, there was a moderate correlation between JunD and c-Jun ($R = 0,377$; $p = 0,012$). Ongoing statistical analyses incorporating clinicopathological data will evaluate the prognostic significance of these Results in ER+ BCa.

Conclusions: FGFR2 signaling may alter AP-1 composition by upregulating expression of JunB and c-Jun in ER+ BCa. Notably, the unexpected correlations between FGFR2 and JunD as well as c-Jun and JunD suggest additional layers of complexity in the FGFR2→AP-1/ER axis. This study underscores the need for further research to unravel the context-dependent regulation of AP-1 subunits, which may hold clinical implications for therapeutic strategies in ER+ BCa.

JUVENES PRO MEDICINA

Clinical Use of Ultrasonography to Evaluate Bypass Capacity Following Revascularization Surgery in Moyamoya Patients - a Systematic Review and Meta-analysis

Natalia Anna Koc, Maurycy Rakowski, Samuel D. Pettersson, Tomasz Szmuda, MD, PhD, Piotr Zieliński, MD,PhD

Presenting author: Natalia Anna Koc

Work supervisor:

Affiliations: Medical University of Gdańsk

Introduction: Moyamoya disease (MMD) is a chronic cerebrovascular disorder characterized by progressive stenosis and occlusion of major cerebral arteries, leading to fragile collateral vessel formation and an increased risk of ischemic stroke. Revascularization surgery, including direct and indirect techniques, is the standard treatment to restore cerebral blood flow. However, bypass patency or function may be compromised in about 5% of cases. While catheter angiography remains the gold standard for bypass assessment, it is costly, time-consuming, and invasive. Ultrasonography (US) offers a noninvasive, cost-effective alternative for evaluating bypass function and patency.

Aim of the study: This study aimed to assess the effectiveness of ultrasonography in evaluating bypass capacity following revascularization surgery in MMD patients.

Materials and Methods: A systematic literature review was conducted following PRISMA guidelines. PubMed, Web of Science, and Scopus were searched using the keywords: “moyamoya disease”, “moyamoya syndrome”, “MMD”, “revascularization”, “bypass surgery”, “STA-MCA bypass”, “indirect surgery”, “direct surgery”, “ultrasonography”, “ultrasound”, “transcranial doppler”, “TCD”, “TCCS”. Studies had to report the control imaging confirming the bypass capacity. Quality assessment was performed using the Newcastle-Ottawa Scale. Mean difference (MD) values were calculated for continuous variables using random-effects models. Patients were categorized into direct, indirect, and combined revascularization subgroups. High bypass capacity was defined as good patency or good collateral development post-surgery.

Results: Eight observational cohort studies comprising 268 MMD patients and 326 operated hemispheres were analyzed. High bypass capacity was observed in 169 hemispheres and 11 cases. Within two weeks post-surgery, superficial temporal artery (STA) parameters - peak systolic velocity (PSV, cm/s), mean flow velocity (MFV, ml/min), and end-diastolic velocity (EDV, cm/s) - were predictive of high bypass capacity (MD = 28.26, $p < 0.0001$; MD = 22.97, $p = 0.03$; MD = 33.45, $p < 0.0001$, respectively). At 3–6 months, STA EDV and external carotid artery (ECA) EDV correlated with high bypass capacity (MD = 8.13, $p = 0.006$; MD = 8.71, $p = 0.0002$, respectively). Lower anterior cerebral artery (ACA) MFV within 0–3 months was a significant predictor of high bypass capacity (MD = -64.98, $p = 0.001$) in the indirect subgroup.

Conclusions: Early postoperative increases in STA blood flow, PSV, and EDV are predictive of high bypass capacity. At 3–6 months, higher STA and ECA EDV values are associated with high bypass capacity. A decrease in ACA MFV within the first three months is predictive of high bypass capacity after indirect surgery. These findings suggest that ultrasonography is a valuable tool for postoperative hemodynamic assessment, offering a noninvasive way to predict bypass outcomes following revascularization surgery in MMD patients.

JUVENES PRO MEDICINA

Long-Term Outcomes of ACL Reconstruction Using Quadriceps-Tendon-Bone Autograft with Anteromedial Portal Technique: A 10-Year Follow Up Study

Wojciech Gabriel Bocheński, Marcin Mostowy, Kamil Bryś, Konrad Malinowski,

Presenting author: Wojciech Bocheński

Work supervisor: Konrad Malinowski, PhD

Affiliations: Medical University of Łódź

Introduction: To assess the outcomes of autograft quadriceps-tendon-bone (QTB) anterior cruciate ligament reconstruction (ACLR) performed with anteromedial portal technique at 10 years follow-up.

Methods: 20 patients (mean age 33,46 years, SD=13,07) after QTB ACLR were examined at the mean time of 123.2 months, range 120-139. Patient-reported satisfaction was measured by NRS score and functional Results were assessed by IKDC and KOOS scores. Anterior tibial translation (ATT) was assessed among the patients without traumatic retear by the means of instrumented Lachman test (Rolimeter) and rotational instability was assessed by the pivot-shift test. ROM was examined using the goniometer, by the ability to sit on dorsiflexed ankles and to perform a dynamic hyperextension. Maximal knee flexion and extension strength was tested using FK1K dynamometer (Sauter, Swiss). An ultrasound exam was made to determine healing of the QT, with the dynamometer to assess the maximal force applied to graft donor site without pain and by pain during full squat. Patients satisfaction and functional scores were analyzed to present the means and standard deviation (SD). In the rest of variables, the second knee was used as a comparison and therefore the following statistical tests were used: Shapiro-Wilk, Levene, t-student, U-Mann Whitney.

Results: At 10-year follow-up, patient satisfaction was high: mean NRS=9.25, SD=0.8. Mean KOOS was 82.84, SD=14.62, mean IKDC=75.43, SD=16.43. Traumatic retear rate was 4/20 (20%), with retears occurring at 3,4, 8 and 10 years postoperatively. In the remaining 16 patients, mean ATT in ACLR-knees was 4.1mm, SD=1.1mm, while in healthy knees it was 3.5, SD=0.9, p=0.14. Lachman's test endpoint was hard in 13 and soft in 3 patients. Pivot-shift grade was 0 in 12 patients, grade 1 in 5 patients, and no patient had grade 2 or 3.

Mean passive ROM and muscle force did not differ significantly between ACLR-knees and healthy knees in terms of flexion (148.3, SD=5.6 vs. 150.1, SD=7.2, p=0,39), hyperextension (7.0, SD=3.2 vs 8.1, SD=2.4, p=0.24), maximal force of knee flexion (210.5N, SD=70.0N vs 208.0N, SD=63.0N, p=0.89) and extension (265.0N, SD=63.5N vs 262.5N, SD=59.5N, p=0.89). Eleven subjects could sit on dorsiflexed ankles with mean pain NRS of 1.5, SD=2.7. 19 patient could perform dynamic hyperextension.

The full-thickness healing of QT occurred in eleven patients, partial in seven patients and no healing in two. Bony part of the patella did not heal fully in any patient. Mean maximal force applied to the donor site without pain was 95.0N, SD=29.5 in ACLR-knees vs 97.5N, SD=30.5N in healthy knees, p=0.81. Every patient was able to do a full-depth squat, with mean pain NRS of 1.05, SD=2.16.

Conclusion: QTB ACLR at 10 years follow-up resulted in excellent patient satisfaction and functional outcomes. There were no significant differences with the healthy knee as to anterior and anterolateral rotational instability, ROM, muscle force and donor site morbidity.

JUVENES PRO MEDICINA

Locomotor activity alterations and embryotoxicity of acetaminophen and its metabolite in zebrafish larvae

Zofia Płonkowska, Maria Cabaj, Łukasz Kurach

Presenting author: Zofia Płonkowska

Work supervisor:

Affiliations: Medical University of Lublin

Introduction: Acetaminophen, commonly known as paracetamol, is a widely used analgesic. It is an over the counter drug, generally considered very safe and is a first-choice pain and fever treatment for children and pregnant women, as well as for many at risk groups like people with heart and kidney diseases and stomach issues. However, a rising number of research questions the safety of its use in pregnancy. In both epidemiological and experimental research, in various animal and cell culture models, it has been reported that prenatal exposure to acetaminophen could possibly affect the fetal development, increasing the risk of disorders, such as neurodevelopmental, urogenital, endocrine or reproductive disorders.

Aim of the study: This study aimed to evaluate the potential toxic and behavioral effects of acetaminophen and its primary metabolite, para-aminophenol, during early vertebrate development using zebrafish (Danio rerio) embryos as a model system.

Material and Methods: In this study we tested toxic effects of various concentrations of acetaminophen (1.75-7mM) and its metabolite para-aminophenol (0.1875-6μM) in zebrafish embryos using a Fish Embryo acute Toxicity (FET). To test behavioral effects we performed a light/dark transition test at 96 hours post-fertilization (hpf).

Results: In acetaminophen treated groups reduced pigmentation as well as morphological abnormalities were found, including pericardial edema, blood accumulation and spinal abnormalities. Locomotor activity in the dark was significantly lower in all concentrations of paracetamol. In two concentrations (5.25mM; 6.125mM) cardiotoxicity was observed. None of abnormalities were found in all non-lethal concentrations of para-aminophenol. However, its very low concentration of 6μM caused 100% lethality.

Conclusions: The Results suggest that acetaminophen can induce developmental and behavioral toxicity in zebrafish embryos in a dose-dependent manner. Although para-aminophenol appeared less toxic at low concentrations, its highest tested dose was lethal, indicating a narrow safety margin. These findings contribute to the growing body of evidence questioning the safety of acetaminophen use during pregnancy and highlight the need for further investigation into its developmental effects.

JUVENES PRO MEDICINA

Analysis of selected mechanical properties of gingiva-colored resin-based composites

Julia Majorczyk, dr n. med., mgr inż. Agata Szczesio-Włodarczyk, dr hab. n. med. inż. Kinga Bociong

Presenting author: Julia Majorczyk

Work supervisor: dr hab. n. med. inż. Kinga Bociong

Affiliations: Medical University of Lodz

Introduction: Achieving optimal aesthetic Results with class V restorations using conventional white shades of composites may be challenging. A composite which imitates soft tissues and, to some extent, restore the gumline may contribute to achieve that goal. Therefore, gingiva- colored resin-based composites offer a conservative solution for gum recession and might beused to fill class V restorations providing more aesthetic Results.

Aim of the study: The aim of this preliminary study was to evaluate mechanical properties of different gingiva-colored resin-based composites, including three-point bending strength (TBS), elastic modulus in bending (E), diametral tensile strength (DTS) and Vickers hardness (HV).

Materials and Methods: The study involved four different gingiva-colored composites from various companies: Filtek Universal-Pink Opaquer (3M, USA), Amaris Gingiva (Voco, Germany), Beautiful II Gingiva (Shofu, Japan), and Arkona Flow-Color (Arkona, Poland). Evaluation of TBS and E was conducted on six rectangular samples (25mm x 2mm x 2mm), DTS on nine composite disc-shaped samples (diameter - 6mm, high – 3mm) using Zwick/Roell universal testing machine. All samples were polymerized according to manufacturer's instructions and held in water in temperature of 37°C for 24 hours before testing.

Results: The mean TBS ranged from approx. 75 to 119 MPa, E varied from 5040 MPa to 8160 MPa, DTS ranged from 30 to 53 MPa, and hardness ranged from 33.6 to 69.9. Filtek Universal- Pink Opaquer exhibited the highest values for TBS (119.7 ± 6.8 MPa), DTS (53.9 ± 5.8 MPa), E (8290 ± 860 MPa), and HV (69.9 ± 2.2). The flow-type material showed the lowest hardness (33.6 ± 1.3) and E (5065 ± 197 MPa). However, it demonstrated higher DTS and TBS values than Amaris Gingiva and Beautifil II Gingiva. The lowest DTS value was recorded for Amaris Gingiva (30.0 ± 5.3 MPa), while the lowest TBS value was observed in Beautifil II Gingiva (87.6 ± 7.8 MPa).

Conclusions: On the basis of obtained Results it can be concluded that mechanical properties of composites are associated with the type of material (flow, paste-like), the amount and size of fillers particles and the type of monomers. Filtek Universal has an inorganic filler loading of 76.5% by weight, which enhances TBS, DTS and HV compared to flowable composite (filler loading approx. 61% by weight). Nanohybrid composites gain better Results than microhybrid. Filtek Universal contains low-shrinkage monomers that also can effects on mechanical properties.

JUVENES PRO MEDICINA

The potential role of Fusobacterium spp. in the pathogenesis and progression of endometriosis

Maja Czerniachowska, Agnieszka Kiryszewska-Jesionek, Małgorzata Brauncajs, Piotr Machnicki, Filip Franciszek Karuga, Dorota Kolasa-Zwierzchowska, Paulina Głogowiec, Krzysztof Szyłło, Dorota Pastuszak-Lewandowska

Presenting author: Maja Czerniachowska

Work supervisor: PhD Agnieszka Kiryszewska-Jesionek

Affiliations: Medical University of Lodz

Introduction: Endometriosis is a common disease, affecting approx. 10-15% of women in a reproductive age. It is a benign proliferative process, caused by the growth of extrauterine, endometrium-like tissue, most commonly found in the abdominal cavity. The symptoms include mild to severe pelvic pain and abnormal uterine bleeding; if left untreated, the disease may also lead to infertility. The exact pathogenesis of the disease has not yet been fully researched. One recent study found the presence of bacteria in endometrial tissue and suggested a causal role.

Aim of the study: The study aims to analyse the prevalence of Fusobacterium spp. in samples collected from women diagnosed with endometriosis compared to the women without the disease. It is the first step in analyzing the potential role of Fusobacterium spp. in the pathogenesis of endometriosis.

Materials and Methods: The current stage of study included 12 female patients: 5 patients with endometriosis and 7 non-endometriosis patients who underwent hysterectomy due to other reasons. From each of the patients, the following samples were collected prior to surgery: (i) oral swabs, (ii) cervical swab, and during surgery: (iii) peritoneal fluid sample, (iv) cyst wall sample. In both groups of patients, a 1 cm2 endometrial cyst wall sample was collected during surgery, after which it was put into sterile container. Cyst wall samples were also incubated in appropriate broth medium in anaerobic conditions. Additionally, oral and cervical swabs were taken from each patient: 1st collected into the tube with Amies transport medium, and 2nd collected into a sterile tube with no medium and frozen in -20°C. All swabs previously kept in Amies transport medium were cultured with appropriate broth and agar medium and incubated in anaerobic conditions. Moreover, peritoneal fluid samples were also collected into sterile container and remained frozen in -20C. Fluid samples were also incubated in broth medium in anaerobic conditions. Each of the samples then underwent both a DNA as well as microbiological analysis. DNA was isolated from all taken samples using „GeneMATRIX Tissue & Bacterial DNA purification Kit", by the EURX, and then amplified using PCR and the following starters: FUSO1 (5'-GAG AGA GCT TTG CGT CC-3') and FUSO2 (5'-TGG GCG CTG AGG TTC GAC -3'), which are known to be the universal starters in detecting clinically significant species of Fusobacterium.

Results:PCR analysis revealed the presence of Fusobacterium DNA in 10 out of 12 oral swab samples: 6 out of 7 in the control group and 4 out of 5 in the endometriosis group. However, there was no statistically significant difference between them. DNA analysis of other samples - including cervical swabs, peritoneal fluid, and endometrial cyst walls - yielded negative Results. In the microbiological analysis, no Fusobacterium colonies were cultured.

Conclusions: To draw final Conclusions, further analysis based on a larger group of patients is necessary.

JUVENES PRO MEDICINA

Does maternal BMI influence the incidence of fetal heart defects?

Monika Reszka

Presenting author: Monika Reszka

Work supervisors: Professor Iwona Strzelecka, Professor Maria Respondek-Liberska

Affiliations: Uniwersytet Medyczny w Łodzi

Introduction: Maternal body mass index (BMI) is a modifiable risk factor implicated in adverse pregnancy outcomes, including congenital heart defects (CHDs). While global studies suggest a correlation between elevated BMI and CHDs, regional data remain sparse. This study investigates the association between maternal BMI and fetal cardiac anomalies in a Polish cohort, contextualizing findings within contemporary literature.

Aim of the study: To evaluate whether maternal BMI during pregnancy influences the incidence of fetal structural and functional cardiac anomalies, adjusting for confounders such as maternal age, comorbidities, and lifestyle factors.

Materials and Methods: A retrospective analysis of 83 pregnancies (82 singleton, 1 twin [1.2%]) from the ICZMP Prenatal Cardiology Clinic (2023–2024) was conducted. During this period, 1359 patients underwent 2087 prenatal echocardiographic studies; twin gestations were excluded from statistical analysis. Maternal BMI was categorized per WHO guidelines: underweight (<18.5), normal (18.5–24.9), overweight (25–29.9), and obese (≥30). Cardiac anomalies were classified using echocardiographic criteria such as statistical analyses included chi-square tests and multivariate logistic regression (SPSS v28), controlling for diabetes, smoking, and chronic diseases. The single twin pregnancy (included descriptively) showed no CHD occurrence.

Results: Of 83 mothers, 34.9% (n=29) were obese (BMI ≥30), 24.1% (n=20) overweight, 38.6% (n=32) normal, and 2.4% (n=2) underweight. CHDs were identified in 21.7% (n=18) of fetuses, including ventricular septal defects (VSDs, n=6; muscular subtype in 4/6 cases, one perimembranous in complex CHD), hypoplastic left heart syndrome (HLHS, n=2), and complex anomalies (n=5). Obese mothers exhibited a 2.3-fold increased odds of CHDs (95% CI: 1.1–5.0, *p*=0.03) compared to normal BMI. Adjusting for gestational diabetes (present in 19.3% of cases) attenuated the association (OR: 1.8, 95% CI: 0.9–3.7, *p*=0.09). No significant association emerged for overweight or underweight categories.

Conclusions: Elevated maternal BMI (≥30) was associated with a higher incidence of fetal CHDs in this cohort, though confounding by metabolic comorbidities may partially explain this relationship. The single twin pregnancy (1.2%) showed no CHD occurrence and did not influence Results. These findings align with global trends, underscoring the need for preconception weight management and targeted prenatal screening in high-BMI pregnancies.

JUVENES PRO MEDICINA

Efficacy and safety of intravascular lithotripsy in the treatment of calcified coronary lesions – insights from a real-world cohort

Katarzyna Skorupska, Marta Kałużna-Oleksy MD, PhD

Presenting author: Katarzyna Skorupska

Work supervisor: Marta Kałużna-Oleksy MD, PhD

Affiliations: Poznań University of Medical Sciences

Introduction: Coronary artery calcifications remain a significant challenge in the percutaneous coronary interventions, adversely affecting procedural success and patient outcomes. Extensive calcification increases the prevalence of stent malapposition or under-expansion, therefore elevating the risk of late adverse events. Early investigations have demonstrated that intravascular lithotripsy (IVL) enhances procedural success and clinical Results.

Aim of the study: The aim of this analysis is to evaluate the safety and efficacy of IVL in a diverse patient groups, including those with acute myocardial infarction (MI).

Material and Methods: A total of 201 consecutive patients who underwent PCI using Shockwave C2 and C2+ IVL from April 2020 were included in the analysis. The cohort comprised 125 patients with a non-MI presentation (Group 1) and 76 patients with MI (Group 2).

Results: The study population included 26.4% women. Group 2 presented with significantly lower left ventricular ejection fraction (LVEF) (50.9% ± 10.5% vs. 46.0% ± 13.1%; p = 0.022) and a greater frequency of heart failure (28.0% vs. 43.4%; p = 0.025). Syntax Score was higher in Group 2 (16.5 ± 10.2 vs. 20.0 ± 11.3; p = 0.059), and left main coronary artery involvement was more frequent (20.8% vs. 35.5%; p = 0.022). Bifurcation PCI was performed in 34.8% of cases, while chronic total occlusion PCI undertaken in 10% of cases. Post rotational atherectomy debulking with IVL was performed in 10 cases. IVL demonstrated a high success rate (97.5%) and an overall procedure success rate of 99.5%. Both groups demonstrated increases in mean lumen area: 4.5 ± 2.2 mm^2 in Group 1 and 5.9 ± 3.7 mm^2 in Group 2, corresponding to percent changes of 239% and 237%, respectively. Periprocedural complication rates were similarly low between the groups. In long-term follow-up, no significant differences were noted in all-cause mortality between Group 1 and Group 2 (8.1% vs. 9.0%; p = 0.997), cardiac death (p = 0.340), or repeat myocardial infarction (8.3% vs. 12.0%; p = 0.986). Major adverse cardiovascular events (MACE), including cardiac death, myocardial infarction, and stroke, were also comparable between groups (9.8% vs. 16.8%; p = 0.501). Predictors of long-term all-cause mortality included prior CKD, post rota-atherectomy debulking, prior CABG, and lesion length >20 mm.

Conclusions: IVL is an effective treatment for the modification of calcified atherosclerotic lesions, demonstrating a high success rate for IVL use and overall procedural success. Minimal periprocedural complication rates have been reported, and the long-term clinical outcomes in this high-risk patient population are encouraging.

JUVENES PRO MEDICINA

Prenatal Cardiology

16th of May 2025

Coordinators:

Julia Kwiatkowska

Anita Pawlaczyk

Maryline A. Chedid

Martyna Kopania

Jury:

prof. dr hab. n. med. Maciej Słodki

dr n. med. Łukasz Sokołowski

dr n. med. Oskar Sylwestrzak

JUVENES PRO MEDICINA

Does maternal BMI influence the incidence of fetal heart defects?

Monika Reszka

Presenting author: Monika Reszka

Work supervisors: Professor Iwona Strzelecka, Professor Maria Respondek-Liberska

Affiliations: Uniwersytet Medyczny w Łodzi

Introduction: Maternal body mass index (BMI) is a modifiable risk factor implicated in adverse pregnancy outcomes, including congenital heart defects (CHDs). While global studies suggest a correlation between elevated BMI and CHDs, regional data remain sparse. This study investigates the association between maternal BMI and fetal cardiac anomalies in a Polish cohort, contextualizing findings within contemporary literature.

Aim of the study: To evaluate whether maternal BMI during pregnancy influences the incidence of fetal structural and functional cardiac anomalies, adjusting for confounders such as maternal age, comorbidities, and lifestyle factors.

Materials and Methods: A retrospective analysis of 83 pregnancies (82 singleton, 1 twin [1.2%]) from the ICZMP Prenatal Cardiology Clinic (2023–2024) was conducted. During this period, 1359 patients underwent 2087 prenatal echocardiographic studies; twin gestations were excluded from statistical analysis. Maternal BMI was categorized per WHO guidelines: underweight (<18.5), normal (18.5–24.9), overweight (25–29.9), and obese (≥30). Cardiac anomalies were classified using echocardiographic criteria such as statistical analyses included chi-square tests and multivariate logistic regression (SPSS v28), controlling for diabetes, smoking, and chronic diseases. The single twin pregnancy (included descriptively) showed no CHD occurrence.

Results: Of 83 mothers, 34.9% (n=29) were obese (BMI ≥30), 24.1% (n=20) overweight, 38.6% (n=32) normal, and 2.4% (n=2) underweight. CHDs were identified in 21.7% (n=18) of fetuses, including ventricular septal defects (VSDs, n=6; muscular subtype in 4/6 cases, one perimembranous in complex CHD), hypoplastic left heart syndrome (HLHS, n=2), and complex anomalies (n=5). Obese mothers exhibited a 2.3-fold increased odds of CHDs (95% CI: 1.1–5.0, *p*=0.03) compared to normal BMI. Adjusting for gestational diabetes (present in 19.3% of cases) attenuated the association (OR: 1.8, 95% CI: 0.9–3.7, *p*=0.09). No significant association emerged for overweight or underweight categories.

Conclusions: Elevated maternal BMI (≥30) was associated with a higher incidence of fetal CHDs in this cohort, though confounding by metabolic comorbidities may partially explain this relationship. The single twin pregnancy (1.2%) showed no CHD occurrence and did not influence Results. These findings align with global trends, underscoring the need for preconception weight management and targeted prenatal screening in high-BMI pregnancies.

JUVENES PRO MEDICINA

Functional cardiovascular anomalies seen in 3rd trimester of pregnancy in large for gestational age (LGA) fetuses

Łucja Hanna Biały

Presenting author: Łucja Hanna Biały

Work supervisor: prof. Maria Respondek-Liberska

Affiliations: Uniwersytet Medyczny w Łodzi

Introduction: Background: The goal of this study was to determine if large for gestational age (LGA) fetuses in their 3rd trimester of prenatal life, later resulting in macrosomic newborns with a birth weight of over 4000 g, had common functional cardiovascular anomalies seen in the echocardiography examination. This problem was not yet studied in the last 10 years of medical literature.

Methods: A retrospective study was based on 1002 newborns who were examined during their fetal life in their 3rd trimester of gestational age in our fetal cardiology center. All fetuses were classified as “Normal Heart Anatomy” (NHA). The database from years 2018-2024 was used. Statistical analysis was made using Microsoft Excel 2024 and Statistica 13.1 and EasyMedStat (version 3.37.1). For assessing the relation between myocardial hypertrophy, cardiomegaly and the explanatory variables: obesity and diabetes mellitus (DM) a multivariate logistic regression was performed. Data were checked for multicollinearity with the Belsley-Kuh-Welsch technique. Heteroskedasticity and normality of residuals were assessed respectively by the White test and the Shapiro-Wilk test. The qualitative variables were compared between groups using the Pearson’s chi-square test ($p < 0.05$). A p-value < 0.05 was considered statistically significant.

Results: 1002 fetuses were divided into two groups. The study group (NHA-LGA) consisted of 167 fetuses born with weight of > 4000 g and the control group (NHA-AGA) was made of 835 fetuses with birth weight between 2500 and 4000 g. In the study group 14.4% experienced ductal constriction (DC), while in the control group it was 1.3%, ($p < 0.00001$). In the NHA-LGA group 18.0% of fetuses presented with myocardial hypertrophy compared to 8.6% in the NHA-AGA group, ($p < 0.0003$), moreover 11.4% of the NHA-LGA group fetuses showed cardiomegaly referring to 4.4% in the NHA-AGA group, ($p < 0.0004$).

Conclusions: LGA fetuses may present functional cardiovascular anomalies, such as ductal constriction, myocardial hypertrophy and cardiomegaly. In presented series it was up to 65%. Our Results suggest that fetal echocardiography screening in macrosomic fetuses could be potentially used for reducing perinatal complications.

Ductal constriction seen in 3rd trimester of pregnancy and its neonatal consequences

Łucja Hanna Biały

Presenting author: Łucja Hanna Biały

Work supervisor: prof. Maria Respondek-Liberska

Affiliations: Uniwersytet Medyczny w Łodzi

Introduction: The main goal of this study was to determine whether ductal constriction in 3rd trimester of a pregnancy during fetal echocardiography examination has an impact on the neonatal clinical condition during first days after birth.

Materials and Methods: A retrospective study was based on 348 newborns who were examined during their fetal life in 3rd trimester of a pregnancy in our fetal cardiology center. They were divided into two groups: the study group (n = 49): neonates with “normal heart anatomy” NHA, assessed by fetal echocardiography (ECHO) examination, and prenatally diagnosed ductal constriction (DC) and the control group (n = 299): NHA neonates without ductal constriction. The database from years 2018-2024 was used. A statistical analysis was made using Microsoft Excel 2024, Statistica 13.1 program and EasyMedStat. Normality and hetereoskedasticity of continuous data were assessed with Shapiro-Wilk and Levene’s test respectively. Continuous outcomes were compared with unpaired Student t-test, Welch t-test or Mann-Whitney U test according to data distribution. Discrete outcomes were compared with chi-squared or Fisher’s exact test accordingly.

Results: Prenatally DC was associated with other functional abnormalities, such as myocardial hypertrophy, cardiomegaly, tricuspid regurgitation, pericardial effusion and abnormal flow through foramen ovale. Neonates with prenatally diagnosed DC in 43% of cases presented with elevated neonatal bilirubin level requiring phototherapy treatment ($p < 0.006$). In the study group 27% of neonates showed signs of breathing difficulties in the first hours of life, ($p < 0.001$). Neonates with prenatal diagnosis of DC were hospitalized longer than neonates with normal heart study (NHS) ($p < 0.001$).

Conclusion: Neonates with prenatal diagnosis of ductal constriction are prone to having transient respiratory problems (up to 27%) and mild neonatal hyperbilirubinemia (in presented series up to 43%). Gestational diabetes can be associated with ductal constriction.

JUVENES PRO MEDICINA

„Level of knowledge about physical activity in pregnant women with fetal heart defects''

Ludwika Mucha

Presenting author: Ludwika Mucha

Work supervisors: dr hab. prof. uczelni Iwona Strzelecka, prof. dr hab. n. med. Maria Respondek Liberska, dr. n. med. Małgorzata Kilon

Affiliations: Medical Univeristy of Łódź

Aim of the study: The main Aim of the study was to assess the level of knowledge of physical activity of pregnant women with fetal heart defects.

Materials and Methods: The study included a group of 135 pregnant women-patients of the Department of Prenatal Cardiology of the Medical University of Lódź. The study used a propriety survey on physical activity, analysis of medical clerking. Patients were assigned to two groups: study group B = 20 women whose fetus had fetal congenital heart defect (CHD) and control group K = 115 women whose fetus had a normal heart anatomy. The inclusion criteria for the study was a conscious and voluntary consent to participate in the scientific research and the exclusion criteria were in incorrect or incomplete completion of the surveys. The study was conducted in the period of time from 1.11.2024 to 19.03.2025. The statistical analysis used elements of descriptive statistics –average, standard deviation, median, mode, maximum, minimum. The Wilcoxon test for independent samples and the chi-square test of independence were used to assess the significance of differences between the analyzed groups. The significance level of α=0.05 was adopted. I used MS Excel 2024 and the STATGRAGPHICS 18.

Results: The average age in the group of 135 women was 31.7±5.4, average week of pregnancy-29.8 ±5.0. In the study group, the average age was 30.3±6.7, average pregnancy week-30.4±5.2 and in the control group the average age was 31.3±5.2, average pregnancy week-29.7±5.0. There was no statistical difference between the occurrence of fetal heart defect and the age of the mother (p=0.485). There was no statistical difference between knowledge about physical activity and performing physical exercises (p=0.06), however the calculated p-value may indicate the existence of such a tendency. The performance of physical exercises by pregnant women is as follows: in group B-5.93%, K-48.15%. Asked pregnant women about their knowledge about the possibilities of activity women responded: YES- in group B-6.87%, K-38.93%; NO/MEDIUM- in group B-6.11%, K-37.40%. There is a statistically significant value of the occurrence of barriers to perform physical exercises and knowledge about physical activity (p=0.049), knowledge about activity and pregnancy risk at the level of (p=0.38) and between their opinions and knowledge about physical activity at the level of (p=0.02). During pregnancy, a tendency to limit physical activity was observed in group B-11.67%, K-64.17%. Statistical significance was observed related to the number of pregnancies and knowledge about activity (p=0.017)

Conclusion: The level of knowledge about the benefits of physical activity is definitely in a low level. Tendency was observed to stop exercising when women get pregnant. A lower level of physical activity is demonstrated by the women with fetus with CHD. The limitations of the study were–conducting a non-randomized study in only one center and the disproportion in the numbers between the study and control groups.

JUVENES PRO MEDICINA

Does the incidence of fetal congenital heart defects (CHDs) differ significantly between primiparous and multiparous women?

Monika Reszka

Presenting author: Monika Reszka

Work supervisors: Assoc. Prof. Iwona Strzelecka, PhD in Health Sciences, University Professor Prof. Maria Respondek-Liberska, MD, PhD, Full Professor of Medical Sciences

Affiliations: Medical University of Łódź

Introduction: Congenital heart defects (CHDs) are the most common congenital anomalies, affecting nearly 1% of live births, with multifactorial origins involving genetic and environmental interactions. While genetic predispositions (e.g., trisomy 21) and maternal factors (e.g., diabetes, teratogen exposure) are well-documented, the role of maternal parity remains unclear. Parity-related physiological changes, such as cumulative vascular stress or immune adaptations, may influence fetal cardiac development. Existing studies on parity and CHD risk yield conflicting Results, particularly for defects like the atrioventricular canal (AVC), often linked to genetic syndromes. Clarifying this relationship is crucial for improving prenatal risk assessment and understanding etiological pathways. This study examines the association between maternal parity (primiparous vs. multiparous) and the incidence of select CHDs, including AVC, hypoplastic left heart syndrome (HLHS), and transposition of the great arteries (TGA), within a tertiary care cohort.

Aim of the study: To analyze the frequency of CHDs in fetuses of primiparous versus multiparous women, focusing on common defects: hypoplastic left heart syndrome (HLHS), transposition of great arteries (TGA), tetralogy of Fallot (TOF), atrioventricular canal (AVC), and aortic stenosis (AS).

Materials and Methods: A retrospective analysis was conducted using data (2019–2024) from the Prenatal Cardiology Department at the Institute of Mother and Child Health in Łódź, a tertiary referral center. The prevalence of selected CHDs was compared between primiparous and multiparous women. Statistical analysis included the chi-square test and logistic regression, with significance set at $p < 0.05$.

Results: No significant differences were observed in the incidence of AS, HLHS, TGA, or TOF between primiparous and multiparous women. However, a statistically higher frequency of AVC was noted in multiparous women ($p < 0.05$).

Conclusions: The statistically significant higher incidence of atrioventricular canal (AVC) in fetuses of multiparous women may indicate a potential association between prior pregnancies and the risk of this specific congenital defect. However, further studies are necessary to identify potential biological or environmental mechanisms underlying this relationship, particularly regarding the potential accumulation of risk factors with successive pregnancies.

JUVENES PRO MEDICINA

Psychiatry and Psychology

15th of May 2025

Coordinators:

Anna Wieczorek

Natalia Krupińska

Kinga Kamińska

Jury:

dr hab.n.med. Tomasz Pawełczyk

dr hab.n.med. Magdalena Kotlicka-Antczak

dr n.med. Agata Orzechowska

dr n.med. Katarzyna Wachowska

dr n.med. Radosław Magierski

dr n.med. Agata Gabryelska

prof. UM dr hab. n. med. Dominik Strzelecki

JUVENES PRO MEDICINA

The Risk of Eating Disorders Among Track and Field Athletes

Karolina Kozik

Presenting author: Karolina Kozik

Work supervisors: Justyna Nowak, PhD, MS

Affiliations: Medical University of Silesia

Introduction: Eating disorders (ED) are mental disorders that considerably impair physical health and disrupt psychosocial functioning. Athletes are a group particularly at risk for the development of ED due to the nature of the sporting environment. Some track and field disciplines are categorized as sports requiring leanness, which, according to research, are associated with a higher risk of ED compared to sports that do not emphasize leanness. Despite numerous studies on the risk of ED among athletes, there is a limited amount of research specifically focusing on track and field athletes, especially Polish ones.

Aim of the study: The Aim of the study was to assess the prevalence of ED risk among Polish track and field athletes.

Materials and Methods: A cross-sectional study was conducted using an online survey questionnaire in a contact form during sporting events, utilizing the EAT-26 (Eating Attitudes Test) questionnaire. The study involved 1008 (767 women, 241 men) track and field athletes. The inclusion criteria for the study involved membership in a sports club affiliated with the Polish Athletic Association and being in the age category of at least U16 (14 and 15 years old). The Results were subjected to statistical analysis using the Statistica 13.0. A significance value of $p<0.05$ was considered statistically significant.

Results: A total of 14.5% (N=146) of track and field athletes were at risk of developing ED, and 9.2% (N=93) had received treatment for ED. Binge eating with a loss of control over the amount of food consumed at least once a week was reported by 14.6% (N=147) of the participants. The risk of developing ED was found to be at a similar percentage level across all track and field disciplines. After analyzing the risk of ED in disciplines requiring leanness and those not requiring it, no statistically significant difference was observed ($p>0.05$). The risk of ED was found to be similar regardless of gender, age category, training experience, or the athletes' performance level.

Conclusions: The risk of developing ED was recorded among approximately 15% of the studied Polish track and field athletes. No statistically significant increase in risk was observed across specific track and field disciplines.

JUVENES PRO MEDICINA

Prevalence and circumstances of combining alcohol with medications among university students – Results of an online survey

Zofia Kardas

Presenting author: Zofia Kardas

Work supervisor: dr n.med. Paweł Lewek

Affiliations: Uniwersytet Medyczny w Łodzi

Introduction: The concurrent use of medications and alcohol is a growing public health concern, particularly among young adults. University students, in particular, may be at increased risk due to lifestyle factors, social habits, and limited awareness of potential interactions. This study explores the prevalence, patterns, and perceived consequences of combining medications with alcohol among students, aiming to shed light on a behavior that is often overlooked yet carries significant health risks.

Aim of the study: The aim of this study was to assess the prevalence and context of combining medications with alcohol among students.

Materials and Methods: The study was conducted using an original, anonymous online survey developed by a medical student. The survey was shared among different university students and included questions about the frequency of use, types of medications combined with alcohol, circumstances of use, self-reported perceived adverse effects, and awareness of potential risks. The questionnaire also included questions whether or not the participants consulted healthcare professionals or the medication leaflet before consumption of the medication with alcohol.

Results: The survey included 192 participants, of whom 40,6% reported combining medications with alcohol within the last 12 months. The most commonly combined substances were over-the-counter painkillers, followed by antidepressants, sedatives, antibiotics and sleeping aids. Most students reported doing so sporadically, primarily during small social gatherings or parties. A significant portion of respondents (17,7%) experienced negative effects such as nausea, dizziness, palpitations, or memory disturbances. Additionally, 39,9% of students reported that they do not consistently consult a healthcare professional and 6,8% reported not reading the medication leaflet before combining alcohol with drugs. 12,4% declared knowing someone who had unknowingly consumed a substance mixed with alcohol, such as a “date rape” drug.

Conclusions: A considerable number of students report combining medications with alcohol, often without awareness of potential risks. Such behaviours are most commonly associated with social contexts and occasional use, but may lead to serious health consequences. Preventive measures and educational efforts targeting students should focus on raising awareness and promoting safer medication use, especially in relation to alcohol consumption.

JUVENES PRO MEDICINA

Mother-infant bond in the time of crisis

Ewelina Barszcz, Maksymilian Plewka, Dominika Kędzia

Presenting author: Ewelina Barszcz

Work supervisors: Klaudia Sójta, Aleksandra Margulska, Oliwia Gawlik-Kotelnicka

Affiliations: Medical University of Lodz

Introduction: Pregnancy is a transformative period characterized by significant hormonal, emotional, and social role changes. Central to this transition is maternal-fetal attachment (MFA), beginning prenatally and encompassing emotional bonding, affiliative behaviors, and maternal expectations. MFA, a crucial predictor of postnatal bonding (PB), is influenced by diverse sociodemographic, obstetric, cultural, and psychological factors.

Aim of the study: This study aimed to examine factors influencing MFA and PB, including perinatal depression, labor anxiety, resilience, sociodemographic, and health-related characteristics, and to explore anxiety related to the COVID-19 pandemic and economic crisis in Poland.

Materials and Methods: A prospective cohort study was conducted in two phases among perinatal women in Poland. The first phase occurred from February to November 2021 during the COVID-19 pandemic, while the second phase was conducted from June 2022 to April 2023, amidst economic instability and geopolitical tensions related to the war in Ukraine. Mental health was assessed using the Edinburgh Postnatal Depression Scale, Beck Depression Inventory, and Labour Anxiety Questionnaire. Anxiety specific to COVID-19, war, and global situations was measured using custom-developed questionnaires. Resilience was evaluated with the Resilience Measure Questionnaire. Prenatal attachment was assessed using the Maternal-Fetal Attachment Scale, and postnatal bonding was measured with the Postnatal Bonding Questionnaire.

Results: Severe depressive symptoms peaked at 4–6 weeks postpartum (33%), decreasing to approximately 10% at one year. Prenatally, 34.1% reported low MFA, with only 1.1% showing high attachment. PB difficulties, indicated by higher scores, were most pronounced 4–6 weeks postpartum (mean 19.7), moderately improving by six months (mean 14.9), and stabilizing at one year (mean 15.6). Over half of the women exhibited low resilience, particularly in personal and social competencies. Further analyses are ongoing.

Conclusions: Psychological interventions targeting depression, anxiety, and resilience enhancement may significantly improve maternal-fetal and postnatal bonding outcomes.

JUVENES PRO MEDICINA

Efficacy and Safety of Agomelatine in Depressed Patients with Diabetes: A Systematic Review and Meta-Analysis

Szymon Modrzejewski

Presenting author: Szymon Modrzejewski

Work supervisors: Adam Gędek, Adam Wichniak, Paweł Mierzejewski, Monika Dominiak , Michał Zarobkiewicz

Affiliations: Medical University of Lublin

Introduction: Major depressive disorder and diabetes mellitus are among the most common and pressing health challenges of the 21st century. Their frequent coexistence and complex bidirectional relationship continue to present a significant challenge for clinicians. Recent studies demonstrated that melatonin exerts a beneficial influence on diabetic parameters and alleviates complications associated with this condition. This indicates that the melatonin MT1 and MT2 receptors agonist and serotonin 5HT2C receptor antagonist – agomelatine may be a promising treatment option for comorbid depression and diabetes.

Aim of the study: The purpose of this study was to systematically review and meta-analyze data on the efficacy and safety of agomelatine in the treatment of patients with depression with comorbid diabetes, and its impact on diabetic parameters.

Materials and Methods: A systematic review and meta-analysis were conducted to assess the efficacy and safety of agomelatine in depressed patients with diabetes. Relevant articles were identified and evaluated for quality according to PRISMA guidelines. To assess eligibility criteria, we adapted the PICO model for preclinical, observational, and interventional trials. In addition, qualitative and quantitative analyses were conducted.

Results: A total of 11 studies were identified, both preclinical and clinical trials, however this paper focuses only on the Results of clinical studies. The meta-analysis demonstrated a statistically significant reduction in glycated hemoglobin (HbA1C) and fasting blood glucose (FBG) levels following agomelatine administration. The administration of agomelatine was found to result in a significantly greater reduction in HbA1C than that observed with the selective serotonin reuptake inhibitors (SSRIs). Three studies evaluated the effect of agomelatine on anxiety symptoms in patients with diabetes and in each of them agomelatine significantly reduced the Hamilton Anxiety Rating Scale (HARS) score compared to SSRIs. The drop-out rate from the included trials did not differ between patients taking agomelatine and SSRIs. Also, two studies reported fewer side effects in the group receiving agomelatine and no study reported any significant side effects.

Conclusions: Agomelatine may be a good choice for patients with diabetes and comorbid depression and anxiety. In addition to improving depressive and anxiety symptoms, it is also beneficial in glycemic control. It has a beneficial effect on the level of HbA1C, better than some SSRIs. Its safety profile is comparable to that of SSRIs, with no severe adverse events reported and a lower incidence of side effects such as insomnia and sexual dysfunction. However, further clinical studies on larger sample sizes are needed. Future research should focus on identifying the patient subpopulations most likely to benefit from agomelatine treatment.

JUVENES PRO MEDICINA

The long-term risk of developing dementia in patients treated with ECT: A meta-analysis

Szymon Modrzejewski

Presenting author: Szymon Modrzejewski

Work supervisor: Adam Gędek, Michał Zarobkiewicz

Affiliations: Medical University of Lublin

Introduction: Electroconvsive therapy (ECT) is one of the safest and most effective treatment of mental disorders. Temporary memory loss and cognitive impairment are the most common side effects of ECT. Few studies regarding the relationship of ECT treatment and long-term risk of developing dementia were published but the Results remain inconclusive.

Aim of the study: The purpose of this meta-analysis was to determine the long-term risk of developing dementia in patients treated with ECT compared to patients not treated with ECT (non-ECT). The specific objectives were to analyze the long-term risk of dementia in subpopulations regarding: gender, age and diagnosis

Materials and Methods: This meta-analysis was conducted according to PRISMA guidelines. To assess the quality, we used the New Castle Ottawa Scale. For the choice of effect measure, hazard ratio (HR) was used, as it is the most relevant indicator in the context of time-to-event analysis. For the data transformation we used natural logarithm of HR (logHR). In the statistical analysis a random-effect model was performed. Analyses were performed separately for the general population and for patients aged over 65 years.

Results: A total of 5 cohorts in 3 studies analyzing the relationship between ECT treatment and long-term risk of developing dementia were identified including in total 284 958 patients. The Results of this meta-analysis showed that the risk of developing dementia in general population after ECT wasn't statistically significant (Test for overall effect: Z=0.19, P=0.85). Sensitivity analysis after removing the outlier mainly responsible for high heterogeneity showed that the risk of developing dementia in general population after ECT still wasn't statistically significant (Test for overall effect: Z=1.44, P=0.15). In the analysis limited to patients over 65 the risk of developing dementia after ECT also did not reach significance (Test for overall effect: Z=0.06, P=0.95), but heterogeneity of the studies was high. However, in this case sensitivity analysis did not reduce heterogeneity. We were unable to conduct an analysis of subpopulations by gender and diagnosis due to the lack of raw data.

Conclusions: Based on currently available data, ECT treatment is not associated with a significantly increased risk of developing dementia. This also applies to patients older than 65 years. This indicates that clinicians shouldn't be afraid of using this form of treatment despite the temporary memory loss. Further clinical studies on larger sample sizes with a more homogeneous population are needed to further assess the long-term risk of developing dementia after ECT treatment

JUVENES PRO MEDICINA

Surgery and Transplantology

16th of May 2025

Coordinators:

Olga Kowalczyk

Julia Jaromirska

Aleksandra Adamczyk

Jury:

dr hab. n.med. Przemysław Przewratil

dr n. med. Łukasz Łaziński

prof. dr hab. n.med. Janusz Strzelczyk

dr n. med. Joanna Lipińska

dr n. med. Bartosz Bielecki-Kowalski

JUVENES PRO MEDICINA

Splenic torsion following blunt abdominal trauma

Wiktoria Jachymczak, Agata Grochowska

Presenting author: Wiktoria Jachymczak

Work supervisor: Piotr Arkuszewski

Affiliations: Medical University of Łódź

Introduction: Splenic torsion is a well-known and reported clinical problem. Splenic torsions after abdominal trauma are a small group of cases that involve surgical management. They manifest primarily as abdominal pain, and the diagnosis is made based on imaging studies - ultrasound, CT, and MRI.

Aim of the study: The work aimed to analyze traumatic splenic torsions in terms of their clinical course, symptoms, timing, involvement of imaging techniques in the diagnosis, histopathological examination, and overall outcome.

Materials and Methods: We searched databases using the desk research method under the keywords “splenic torsion”, “torsion”, and “spleen” along with in combination with “traumatic”, finding a total of 8 cases, which we included in our analysis.

Results: 8 cases were analyzed, comprising 4 females and 4 males, with an average age of 16.25 years (range 5–29 years). Traffic accidents were the most frequent cause of injury (5 cases), while the circumstances were unclear in the remaining 3. Immediate abdominal symptoms appeared in 6 patients. Splenic torsion was preoperatively diagnosed in 5 out of 7 confirmed cases. 7 patients underwent laparotomy with splenectomy. In one case, laparoscopy converted to laparotomy with splenopexy preserved the spleen. Histopathology, performed in only 2 cases, confirmed splenic infarction in 1 patient; infarction status could not be determined in the remaining 5 due to missing data.

Conclusions: Post-traumatic splenic torsions are a group of atypical injuries, as the primary and immediate consequence of the trauma suffered is not anatomical-structural damage to the organ such as a rupture. Mostly affecting young people, cases described in the professional literature involve the main spleen, which often requires imaging diagnostics to be recognized.

JUVENES PRO MEDICINA

Near Infrared Fluorescence Imaging - the future of parathyroid imaging

Igor Karolczak, Julia Kot, Oliwia Kowalska, Wojciech Kowalski, Nikola Werbińska

Presenting author: Igor Karolczak

Work supervisors: dr n. med. Ewa Machała, dr n. med Michał Kusiński

Affiliations: Medical University of Lodz

Introduction: Parathyroid adenoma is the most common cause of primary hyperparathyroidism (PHPT). Intraoperative PTH monitoring has been proven to have a major effect on the success rate of parathyroidectomy. In this study we evaluate the effectiveness of an additional intraoperative method: near-infrared fluorescence imaging (NIRAFI) which is based on the autofluorescent properties of the parathyroid glands.

Aim of the study: The aim of this study is to showcase the importance of autofluorescence intraoperative imaging before and after resection of parathyroid adenoma in comparison to visual evaluation.

Materials and Methods: The study group consisted of 21 patients (81% women, 19% men) who underwent parathyroidectomy from June 2022 to September 2024 due to primary hyperparathyroidism caused by parathyroid adenoma. Presurgical Methods used for locating adenomas consisted of USG, scintigraphy and in two instances PET with 18F choline. During and after surgery visual and then autofluorescence identification of parathyroid adenoma were performed. As a mean of surgery success, histopathological examination and levels of calcium and parathormone were set as markers.

Results: Proper visual identification before parathyroid excision was performed in 71% of cases, whereas both before and after resection, pathological parathyroids were correctly identified in 100% of cases using NIRAFI. The most common type of autofluorescence was heterogeneous (76%), while homogeneous autofluorescence was observed less frequently (24%). A statistically significant decrease in calcium and PTH concentrations after parathyroid resection was found using two Methods of identification ($p<0,001$).

Conclusions: Based on the conducted study, it can be concluded that NIRAFI is a useful additional real time method for the identification of parathyroid adenomas both before and after resection during surgery. The use of NIRAFI allowed for precise differentiation of parathyroid glands in surgical field, increasing the effectiveness of surgical intervention. Subsequently, the NIRAFI method can possibly reduce the need of intraoperative histopathological examination, thus decreasing the potential risks of surgery.

The levels of serum tumor biomarkers in patients with Pancreatic Neuroendocrine Tumors.

Karolina Kowalska

Presenting author: Karolina Kowalska

Work supervisor: prof. dr hab. n. med. Adam Durczyński

Affiliations: Medical University of Łódź

Introduction: Pancreatic neuroendocrine tumors (PNETs) are a heterogeneous group of tumors, accounting for less than 2% of all pancreatic malignancies. However, the number of PNETs diagnosed each year has been rising over time. Due to significant heterogeneity, the management of PNETs is very complex and remains an unmet clinical challenge. A reliable prognostic biomarker with both high sensitivity and specificity for PNETs has not been detected yet.

Aim of the study: This study shows the tumor markers in PNET and evaluates their values, including CA 19-9, CEA, CA 125, and CA 15-3.

Methods: 41 PNET patients were retrospectively evaluated from 2013 to 2024. The demographic information and clinical data, including tumor location, grading, surgical interventions, and serum tumor biomarkers (CA 19-9, CEA, CA 125, CA 15-3), were reviewed.

Results: PNETs were more frequently located in the body and tail of the pancreas (32 patients, 78.05%) rather than the head (9 patients, 21.95%). The median age of patients was 58 years (range: 25-79), with a predominance of females (65.85%). Tumor grading showed G1 in 31 patients, G2 in 8, and G3 in 2. Biomarker levels were as follows: CA 19-9 = 12.62 U/mL (0.60-89.30), CA 125 = 11.56 U/mL (1.10-52.50), CEA = 2.55 ng/mL (0.41-14.10), and CA 15-3 = 14.88 U/mL (1.10-30.30). Surgical intervention was performed in 38 patients, including distal pancreatic resection with splenectomy (58.53%), pancreaticoduodenectomy (17.07%), central pancreatic resection (4.88%), and tumor enucleation (12.2%), while 3 patients (7,32%) did not undergo surgery.

Conclusions: Serum tumor biomarkers, including CA 19-9, CEA, CA 125, and CA 15-3 are not consistently elevated in most patients with PNETs, suggesting their limited utility in diagnosis and disease monitoring.

JUVENES PRO MEDICINA

Bariatric Surgery – is It a Good Choice of Treatment for Young People With Obesity?

Hubert Knapik, Jakub Szymański, Zofia Sorysz

Presenting author: Hubert Knapik

Work supervisors: Anna Różańska-Walędziak MD, PhD, Anna Mierzejewska MD, PhD, Maciej Walędziak MD, PhD

Affiliations: Cardinal Stefan Wyszyński University, Warsaw

Introduction: In response to the continuously increasing prevalence of extreme obesity among youth and due to the inconsistent and short-term effect of lifestyle interventions, bariatric surgery has been introduced in the group of younger patients since the early 2000s. Bariatric surgery is associated with a risk of perioperative complications, however they are negligible when compared to complications associated with obesity and its comorbidities. Bariatric surgery is a mainstay of treatment for obesity as the only method leading to long-term effect of weight loss and remission of comorbidities. Efficient treatment for obesity is of special importance for young people in the period of psychophysical, mental and social development.

Aim of the study: The purpose of the study was to analyze the efficacy and safety of bariatric surgery in young people in terms of weight loss and remission of comorbidities, as well as short-term and long-term perioperative complications.

Materials and Methods: The study was designed as an online survey that included questions about the operation and its effect measured by the weight loss and remission of comorbidities. Data was collected from 55 patients from the youth group [15-24 years old] and from 55 patients from the control group (>24 years old).

Results: There were no statistically significant differences between the younger and the older group in terms of estimated weight loss, remission of comorbidities and the incidence of perioperative complications.

Conclusions: Bariatric surgery, followed by adequate lifestyle changes, should be considered a the mainstay of treatment for obesity also in young people. Further research is needed to establish bariatric surgery as a golden standard in treatment of adolescent obesity.

JUVENES PRO MEDICINA

"Causes of head injuries and related hospitalizations"

Mikołaj Donarski, Julia Dębczak

Presenting author: Mikołaj Donarski

Work supervisor: Dr Jan Sopiński

Affiliations: Uniwersytet Medyczny w Łodzi

Introduction: Head injuries are a common cause of hospitalization and their diagnosis is associated with high costs for hospitals.

Aim of the study: To assess the causes of head injuries in patients admitted to the Department of Endocrine, General and Vascular Surgery at the Copernicus Hospital in Łódź, and to analyze the associated hospitalization costs.

Methods: A total of 108 patients admitted to the Department between 2020 and 2025 due to head injuries were analyzed. Parameters such as age, gender, presence of accompanying injuries, and the frequency of alcohol intoxication in this patient group were examined.

Results: Between 2020 and 2025, 108 patients aged 18 to 95 were admitted to the Department due to head injuries. There were 69 men (63.88%) and 39 women (36.11%). Isolated head injuries were found in 66 cases (61.11%), while in 42 cases (38.88%) the head injuries were accompanied by other injuries. The most common cause was traffic accidents – 36 patients (33.33%), followed by falls from standing height – 25 patients (23.15%). Other causes included assaults – 13 patients (12.04%), falls involving stairs – 11 patients (10.19%), and other falls from heights – 8 patients (7.41%). Less common causes accounted for 7 cases (6.48%), and in 8 cases (7.41%) data were unavailable. Among patients under the influence of alcohol – 33 individuals (30.55%) – the most frequent cause of head injury was assault (11 patients, 33.33% of those intoxicated), followed by falls from standing height (6 patients, 18.18% of those intoxicated). The most frequently performed diagnostic tests included head CT, cervical spine CT, and abdominal ultrasound.

Conclusions: The most common cause of hospital admission due to head injury was traffic accidents. Men were more frequently affected. The average hospital stay was 3 days, ranging from a few hours to a maximum of 38 days. Alcohol intoxication was identified in 33 patients. Diagnostic tests significantly impacted the cost of hospitalization.

JUVENES PRO MEDICINA

Temporalis Tendon Transfer in Patients with Facial Nerve Paralysis Following Parotid Gland Tumors: Anatomical and Clinical Insights

Marta Szałkiewicz, Maciej Slipko, Marta Gabas

Presenting author: Marta Szałkiewicz

Work supervisor: Piotr Karauda, PhD

Affiliations: Medical University of Lodz, Lodz, Poland

Introduction: The temporalis tendon, a robust structure anatomically suited for dynamic transfer, is utilized in reconstructive procedures to restore facial symmetry and movement in patients affected by unilateral or bilateral facial nerve paralysis. This paralysis may occur as a result of parotid gland tumor progression or as a consequence of its surgical and radiotherapeutic treatment.

Aim of the study: The primary objective of this study is to delineate the anatomical characteristics of the temporalis tendon and to assess its clinical applicability in dynamic tendon transfer procedures for patients with long-standing facial nerve paralysis secondary to parotid gland malignancies or their treatment.

Materials and Methods: This study comprised two complementary components:

1. Anatomical Study: A total of 20 temporalis tendons (10 left, 10 right) were meticulously dissected from cadavers preserved in a 10% formalin solution (from a cohort consisting of 14 females and 6 males). The dissection focused on evaluating tendon dimensions, insertion sites, and potential laterality differences.

2. Systematic Literature Review: A comprehensive review was conducted by analysing 178 scientific articles from PubMed and Google Scholar. The review focused on the anatomical properties and clinical outcomes associated with temporalis tendon transfer, emphasizing minimally invasive, single-stage procedures with low complication rates.

Results: Anatomical dissection showed that the dimensions, insertion site, and overall structure of the temporalis tendon are suitable for dynamic transfer without causing excessive postoperative tension. No significant differences were found between left and right sides.

The literature review confirmed that temporalis tendon transfer is an effective, minimally invasive, single-stage procedure with a low complication rate. It improves both vertical and horizontal facial symmetry and oral commissure alignment, even in patients with advanced oncological history. Its quick aesthetic and functional effects make it especially useful for patients with limited prognosis, ineligible for complex reconstructions. In some cases, modifications such as tendon elongation or nerve grafting may be needed, especially when tissue loss is extensive.

The review also examined radiotherapy timing. Some evidence suggests preoperative radiotherapy may reduce the risk of complications like seroma or abscess, compared to postoperative treatment. This approach, however, requires cautious, individualized application.

Conclusions: The favourable anatomical features of the temporalis tendon make it an effective option for dynamic transfer in persistent facial paralysis after parotid tumors. This technique improves facial function, aesthetics, and overall patient well-being. Precise anatomical assessment and thoughtful surgical planning—including necessary modifications and individualized radiotherapy timing—are key to optimizing outcomes in this complex clinical scenario.

JUVENES PRO MEDICINA

Clinical Use of Ultrasonography to Evaluate Bypass Capacity Following Revascularization Surgery in Moyamoya Patients - a Systematic Review and Meta-analysis

Natalia Anna Koc, Maurycy Rakowski, Samuel D. Pettersson, Tomasz Szmuda, MD, PhD, Piotr Zieliński, MD,PhD

Presenting author: Natalia Anna Koc

Work supervisor:

Affiliations: Medical University of Gdańsk

Introduction: Moyamoya disease (MMD) is a chronic cerebrovascular disorder characterized by progressive stenosis and occlusion of major cerebral arteries, leading to fragile collateral vessel formation and an increased risk of ischemic stroke. Revascularization surgery, including direct and indirect techniques, is the standard treatment to restore cerebral blood flow. However, bypass patency or function may be compromised in about 5% of cases. While catheter angiography remains the gold standard for bypass assessment, it is costly, time-consuming, and invasive. Ultrasonography (US) offers a noninvasive, cost-effective alternative for evaluating bypass function and patency.

Aim of the study: This study aimed to assess the effectiveness of ultrasonography in evaluating bypass capacity following revascularization surgery in MMD patients.

Materials and Methods: A systematic literature review was conducted following PRISMA guidelines. PubMed, Web of Science, and Scopus were searched using the keywords: “moyamoya disease”, “moyamoya syndrome”, “MMD”, “revascularization”, “bypass surgery”, “STA-MCA bypass”, “indirect surgery”, “direct surgery”, “ultrasonography”, “ultrasound”, “transcranial doppler”, “TCD”, “TCCS”. Studies had to report the control imaging confirming the bypass capacity. Quality assessment was performed using the Newcastle-Ottawa Scale. Mean difference (MD) values were calculated for continuous variables using random-effects models. Patients were categorized into direct, indirect, and combined revascularization subgroups. High bypass capacity was defined as good patency or good collateral development post-surgery.

Results: Eight observational cohort studies comprising 268 MMD patients and 326 operated hemispheres were analyzed. High bypass capacity was observed in 169 hemispheres and 11 cases. Within two weeks post-surgery, superficial temporal artery (STA) parameters - peak systolic velocity (PSV, cm/s), mean flow velocity (MFV, ml/min), and end-diastolic velocity (EDV, cm/s) - were predictive of high bypass capacity (MD = 28.26, $p < 0.0001$; MD = 22.97, $p = 0.03$; MD = 33.45, $p < 0.0001$, respectively). At 3–6 months, STA EDV and external carotid artery (ECA) EDV correlated with high bypass capacity (MD = 8.13, $p = 0.006$; MD = 8.71, $p = 0.0002$, respectively). Lower anterior cerebral artery (ACA) MFV within 0–3 months was a significant predictor of high bypass capacity (MD = -64.98, $p = 0.001$) in the indirect subgroup.

Conclusions: Early postoperative increases in STA blood flow, PSV, and EDV are predictive of high bypass capacity. At 3–6 months, higher STA and ECA EDV values are associated with high bypass capacity. A decrease in ACA MFV within the first three months is predictive of high bypass capacity after indirect surgery. These findings suggest that ultrasonography is a valuable tool for postoperative hemodynamic assessment, offering a noninvasive way to predict bypass outcomes following revascularization surgery in MMD patients.

JUVENES PRO MEDICINA

Comparison of a Novel 3D-Printed Guide vs Standard Bougie in external guided intubation after Cricothyroidotomy: A Simulation-Based Study

Ho Hsin-lu, Przemysław Kluj, Paweł Ratajczyk

Presenting author: Ho Hsin-lu

Work supervisor: Tomasz Gaszyński

Affiliations: Medical University of Lodz

Introduction: Emergency airway management is a cornerstone of prehospital care, particularly in "can't intubate, can't oxygenate" (CICO) scenarios. Bougie guide has successfully facilitated external intubation, as illustrated in our previously published case report (doi: 10.53139/AIR.20241829). The use of bougie has been shown to improve first-pass success rates and procedural speed in resource-limiting environments. However, due to financial constraints, there is growing interest in developing more cost-effective alternatives, for instance, using 3D-printing technology. This study aims to compare and design a 3D-printed bougie-like guide, as a potential substitute with relatively lower cost, to the standard bougie in simulated emergency settings.

Aim of the study: To compare the performance and usability of a newly designed 3D-printed bougie-like guide with a standard bougie during simulated external intubation following cricothyroidotomy

Materials and Methods: This was a randomized, crossover simulation study involving 30 English division medical students without clinical experience in airway management. Each participant received a standardized orientation session, including a brief video tutorial, and performed two guided external intubations on high-fidelity manikins in randomized order- one using a standard bougie and one with the 3D-printed guide. The 3D-printed device was fabricated from flexible, biocompatible PLA material. The primary outcome was procedural success, defined as correct endotracheal tube placement with balloon inflation. Secondary outcomes included time to successful insertion (measured in seconds), number of errors or simulated complications (e.g., esophageal misplacement), participant-rated ease of use (Likert scale 1–5), and post-procedure device preference.

Results: 30 participants were enrolled to the study. Success rates were 83% (n=25) with the standard bougie and 87% (n=26) with the 3D-printed guide. The mean time to successful intubation was 54.9 seconds (SD ± 64.2) for the standard bougie and 56.2 seconds (SD ± 61.5) for the 3D-printed guide, showing comparable procedural efficiency. No complications were recorded in either group post-exclusion. Ease-of-use ratings favored the standard bougie (mean: 4.4/5) over the 3D-printed guide (mean: 2.6/5), reflecting a learning curve is needed with the new device. However, 35% of participants preferred the 3D-printed guide, citing its lightweight material for better handling. Interestingly, participants from Iraq, Iran, and Afghanistan achieved a 100% success rate with both devices. Participants from Egypt, who made up the largest subgroup, had a slightly lower success rate. Although the sample size is small, these differences may reflect variations in prior training, device familiarity, or clinical exposure to airway emergencies. Due to the extremely high success rates observed for both the standard bougie and the 3D printed guide, there was insufficient variability in outcomes to compute a meaningful correlation coefficient with clinical experience.

Conclusion: The 3D-printed bougie-like guide demonstrated comparable success rates and procedural times to the standard bougie, with no additional complications. Despite lower ease-of-use ratings, its performance and affordability suggest it may be a viable alternative for use in resource-limited settings or prehospital care. Further iterations may enhance usability and clinical adoption.

JUVENES PRO MEDICINA

Laparoscopic sleeve gastrectomy - fewer trocars, better outcomes

Maksymilian Bednarek, Zofia Sorysz, Stanisław Szpakowski

Presenting author: Maksymilian Bednarek

Work supervisor: Anna Różańska-Walędziak MD, PhD, Prof.

Affiliations: Interdisciplinary Student Association "Salus Aegroti", Cardinal Stefan Wyszynski University of Warsaw

Introduction: Laparoscopic sleeve gastrectomy, the most common bariatric procedure in Poland, is the optimum method of treatment for obesity, regarding long term Results measured by % excess weight loss and remission of co-morbidities. The conventional surgical procedure demands five trocars to insert surgical tools. The novel technique includes use of only three trocars.

Aim of the study:The study aimed to compare outcomes between patients treated with conventional five-trocar laparoscopic sleeve gastrectomy and three-trocar laparoscopic sleeve gastrectomy.

Materials and Methods: We analyzed the course of treatment in a group of 50 patients who had undergone a five-trocar sleeve gastrectomy and 50 patients who had undergone a three-trocar procedure within the time frame of twelve months (between 2022 and 2023), with 1-year follow-up. The main endpoints included surgery duration, early postoperative complications and length of hospital stay. The additional endpoints were % excess weight loss, postoperative incidence of gastroesophageal reflux disease and other late complications.

Results:No significant differences were observed between the two groups regarding age, weight, BMI, and sex distribution. Related health conditions were comparable between the two groups. The patients treated with the three-trocar technique had a shorter surgery duration and comparable length of hospital stay, lower rate of early postoperative complications. Additionally, the % excess weight loss was higher in the three-trocar group and the incidence of postoperative late complications was comparable between the two groups.

Conclusion: The three-trocar sleeve gastrectomy is a feasible, safe, and effective alternative to conventional five-trocar procedure, with shorter surgery duration, lower rate of early postoperative complications and higher % excess weight loss.

JUVENES PRO MEDICINA

Internal Medicine I Case reports

17th of May 2025

Coordinators:

Zofia Wieczorek

Heath Tinashe Pote

Marta Jóźwik

Jury:

prof. dr hab. n. med. Michał Nowicki

prof. dr hab. n. med. Elżbieta Skowrońska-Jóźwiak

dr n. med. Aleksandra Opinc-Rosiak

prof. dr hab. n. med. Ewa Małecka-Wojciesko

dr. n. med. Łukasz Durko

dr n. med. Elektra Szymańska-Garbacz

JUVENES PRO MEDICINA

Transcatheter paravalvular leak closure – less invasive does not always mean better.

Zofia Mik, prof dr hab. Piotr Lipiec, dr n. med. Katarzyna Wdowiak-Okrojek, dr n. med. Ewa Szymczyk, prof dr hab. Jaroslaw D. Kasprzak

Presenting author: Zofia Mik

Work supervisor: prof dr hab. Piotr Lipiec

Affiliations: 1st Department of Cardiology, Medical University of Lodz, Bieganski Hospital, Lodz Poland

Introduction: A 54-year-old man, cachectic (BMI 18 kg/m2) with a history of heart failure with preserved left ventricular ejection fraction, was admitted to the cardiology department due to progressively worsening dyspnea and high fever.

Case report: Transthoracic echocardiography revealed severe organic mitral regurgitation due to the perforation of the anterior leaflet; the image corresponded to a ruptured mycotic aneurysm. A bicuspid aortic valve with moderate regurgitation, moderate tricuspid regurgitation, enlarged heart chambers, and normal left ventricular systolic function were also observed. Laboratory tests showed elevated inflammatory markers and NT-pro BNP. Blood culture revealed the presence of S. Haemoliticus, confirming the infective endocarditis diagnosis.

After initial antibiotic treatment, the patient was qualified for the mitral valve replacement. He underwent the Epic 31 bioprosthesis implantation, aortic valve replacement with implantation of the Epic 23 bioprosthesis, and tricuspid annuloplasty. Echocardiography examination confirmed the satisfactory early effect of the procedure.

However, two months after the operation, the patient experienced a sudden deterioration of his clinical condition, with recurrence of dyspnea with large mitral paravalvular leakage on echocardiography. Due to the clinical condition and recent cardiac surgery, the patient was qualified to implant the Amplatzer occluder to close the paravalvular leak. The early effect of the procedure was good - a reduction in leakage was achieved.

However, hemolytic anemia requiring multiple blood transfusions was observed in a blood test a few weeks later. Based on the clinical picture and additional tests, the patient was referred for the mitral valve reoperation. He underwent removal of Amplatzer occluder and reimplantation of bioprosthesis (Epic 33).

Conclusions: The periprocedural period was without complications. The patient was discharged in stable condition. At follow-up, he had no shortness of breath. Echocardiography revealed a good operation outcome, and a reduction of left-sided heart chambers was observed.

JUVENES PRO MEDICINA

A rare combination of Dunbar and Nutcracker syndrome - a Case report

Barbara Bijak, Weronika Przybyszewska, Aleksandra Rymarz

Presenting author: Barbara Bijak

Work supervisors: Weronika Przybyszewska, Aleksandra Rymarz

Affiliations: Department of Nephrology, Dialysis and Internal Medicine of the Medical University of Warsaw, Medical University of Warsaw

Introduction: Dunbar syndrome is a rare condition caused by the compression of the celiac trunk by the median arcuate ligament. It can trigger severe pain that varies depending on the position of the body. What is difficult in recognizing this syndrome is that it can mimic a number of other conditions. Nutcracker syndrome also involves compression of the vessel - the left renal vein between abdominal aorta and superior mesenteric artery.

Case report: The 33-year-old woman was admitted to the Department of Nephrology, Dialysis and Internal Medicine of the Medical University of Warsaw from the regional hospital due to the first episode of severe diffuse abdominal pain for 4 days, radiating to the left lumbar region and exacerbating with movement. The patient had no significant past medical history and denied any additional symptoms, including weight loss, vomiting, diarrhea, or fever. Ultrasound of the abdomen was unremarkable, chest and abdominal X-rays showed no abnormalities. Laboratory tests were within normal limits, though urinalysis revealed proteinuria and hematuria. The pain reached at times 9/10 on the NRS scale and did not respond to NSAIDs and antispasmodics, improvement was only brought by the use of opioids. A previous CT scan of the abdomen revealed no specific changes, aside from suspicion of Dunbar syndrome. Doppler ultrasound revealed narrowing and compression of the left renal vein between the abdominal aorta and the superior mesenteric artery, though the kidneys showed no focal changes. To exclude any other potential causes of the pain patient underwent extensive diagnostic workup. MRI of the spine revealed a minor L5-S1 discopathy, which was unrelated to her clinical symptoms. Gastroscopy was also unremarkable. Combining the imaging results and clinical symptoms, a diagnosis of concurrent Dunbar and Nutcracker syndromes was confirmed. The patient was readmitted to the department following another episode of severe abdominal pain. Given the recurring symptoms and the lack of improvement with analgesics, she was referred to the surgical department for consultation and qualified for the vascular surgery to relieve the compression of the celiac trunk.

Conclusions: The concurrent occurrence of Dunbar and Nutcracker syndrome is extremely rare. A contributing factor in this case may be the patient's family history of similar vascular abnormalities. Due to the absence of specific symptoms for either condition, their diagnosis requires an interdisciplinary, individualized approach.

A rare but deadly threat- leptospirosis

Martyna Waszczyk, Maciej Saar

Presenting author: Martyna Waszczyk

Work supervisor: Jakub Wielgat

Affiliations: SKN Chorób Zakaźnych, Szpital im Biegańskiego Oddzial Chrob Zakaźnych i Hepatologii

Introduction: On October 29, 2024, the patient was transferred to the Wł. Bieganski Hospital in Lodz to the Infectious Diseases Department. The reasons for admission were progressive weakness, increasing fever, vomiting and jaundice. A fever had developed the day before. On October 27, a maculopapular, confluent erythematous rash appeared all over the body

Case report: On the day of admission, laboratory tests showed a total bilirubin level of 43.56 md/dl, as well as a decrease in eGFR and prothrombin time. Oxygen therapy was implemented due to low saturation and then mechanical ventilation was applied due to increasing respiratory failure and pulmonary edema. Cefitriaxone was implemented. During intubation, laboratory tests were performed which detected IgM leptospira antibodies. The family's history was expanded to confirm that the patient was a farmer and had recently struggled with a rat infestation.

The next day, the patient was transferred to the Intensive Care Unit, where monitoring of the patient continued and broad-spectrum antibiotic therapy was implemented.

While in the Intensive Care Unit the patient was under analgosedation. Mannitol was also administered to push diuresis.

On December 15, 2024, after 1.5 months in the Intensive Care Unit, the patient passed away.

Conclusions: Leptospirosis is a rare condition in Poland and only about 6-7 infections have been reported in the last two years.

Whereas, Weil syndrome which is jaundice-like leptospirosis with multiple organ failure, occurs in only 5-10% of those infected, an average mortality rate is estimated at about 20%.

Special care should be taken during floods, as contact with contaminated water can lead to infection, as proven by the number of cases in 1997 and 2014 when Poland experienced floods.

This case highlights the importance of obtaining a comprehensive medical history and carefully monitoring the progression of the disease, which followed a classic pattern described in medical literature.

JUVENES PRO MEDICINA

Chronic diarrhoea with an unexpected twist.

Liliana Klim

Presenting author: Liliana Klim

Work supervisor: Dorota Cibor, MD, PhD

Affiliations: Jagiellonian University Medical College, Cracow, Poland

Introduction: Diarrhoea is a common symptom of gastrointestinal disorders. Acute diarrhoea is usually caused by an infection, while chronic cases are due to chronic gastrointestinal disease. However, it can sometimes be a sign of a more complex problem.

Case report: A 65-year-old man was admitted to the hospital for chronic diarrhoea that had persisted for 2 years, with up to 15 watery stools per day without pathological admixtures. The patient did not report any accompanying symptoms, except for a weight loss of 5 kg during this time. He had previously been diagnosed with irritable bowel syndrome, arterial hypertension and osteoarthritis. The patient denied smoking and alcohol abuse. The dietary history revealed no correlation between the onset of symptoms and the type of diet. All blood tests, including blood count, CRP, liver tests, creatinine, mineral ions, glucose and TSH levels were within normal limits. The IgA anti-endomysial antibodies in the blood were negative, as were all microbiological stool tests. Colonoscopy revealed only a few diverticula in the sigmoid colon and histopathological examination revealed no pathological findings. The gastroscopy revealed a small hiatal hernia, the duodenal biopsy showed no changes and the urease test was negative. The CT scan of the abdomen showed a focal tumour in the left adrenal gland, which proved to be hormonally inactive - an incidentaloma. Finally, an ultrasound examination of the thyroid gland revealed a nodule in the middle and upper part of the left lobe. An elevated calcitonin level was found in the blood. After a biopsy the patient was diagnosed with medullary thyroid carcinoma (MTC). He underwent a total thyroidectomy but died 3 months after the procedure.

Conclusion: Although diarrhoea is mainly related to diseases of the digestive tract and gastrointestinal diagnostics make it possible to find the cause, it can also be a manifestation of other diseases. MTC can secrete substances such as calcitonin, prostaglandins, serotonin, vasoactive intestinal peptides and other peptides that stimulate the motility of the digestive tract. MTC is a rare cause of diarrhoea, but should be considered after ruling out the most common causes, especially if alarming symptoms occur.

JUVENES PRO MEDICINA

Budd-Chiari syndrome caused by metastatic melanoma: a Case report

Mia Maria Jurinjak, Vibor Šeša, Anna Mrzljak

Presenting author: Mia Maria Jurinjak

Work supervisor: Anna Mrzljak

Affiliations: School of Medicine, University of Zagreb

Introduction: Budd-Chiari syndrome (BCS) is a hepatic vascular disorder characterised by partial or complete obstruction of hepatic venous drainage anywhere from the hepatic venules to the right atrium. Common causes of BCS include hypercoagulable states, such as polycythemia vera. We present a rare cause of BCS caused by the malignant disease.

Case report: A 61-year-old male with history of arterial hypertension and hyperlipidaemia was admitted to the tertiary center due to subacute liver failure (SALF). The patient presented with sudden abdominal pain, jaundice, hepatomegaly, anasarca and encephalopathy. Laboratory analyses showed prolonged PT (0.39), decreased total proteins (55 g/L), low thrombocytes (66 1e9/L) and elevated ALP (240 U/L), GGT (550 U/L), AST (2060 U/L), ALT (1026 U/L) and CRP (50.7). Abdominal CT revealed an extremely enlarged liver occupying almost the entire abdominal cavity with the compression of hepatic veins and newly formed marginal thrombus along with a slightly enlarged spleen. Given the rapidly progressive BSC, the patient was considered for liver transplant (LT). Among other aetiologies leading to SALF, diffuse HCC was suspected and liver biopsy was performed revealing tumour tissue of melanocytic or mesenchymal origin. LT ceased to be a treatment option and the patient died shortly after. Heteroanamnesis revealed patient's progressive visual impairment in the right eye over the last 2 months, suggesting the possibility of primary uveal melanoma.

Conclusion: Liver failure resulting from BCS may be an urgent indication for liver transplantation. However, it is crucial to consider a wider range of causes leading to BCS. Metastatic melanoma infiltrating liver may lead to rapidly progressive BCS representing contraindication for LT given the malignant nature of the underlying condition. In such conditions, the liver biopsy is crucial to determine future treatment strategies.

References:

1. Parekh J, Matei V, Canas-Coto A, Friedman D, Lee WM et al. Budd-Chiari Syndrome Causing Acute Liver Failure: A Multicenter Case Series

Liver Transpl. 2017 Feb;23(2):135–142. doi: 10.1002/lt.24643

2. Lakhoo, Krutika MD1; Guzman, Grace MD2; Mikolajczyk, Adam MD2. S2906 Metastatic Ocular Melanoma Mimicking Budd-Chiari Syndrome. The American Journal of Gastroenterology 117(10S):p e1892, October 2022. | DOI: 10.14309/01.ajg.0000868264.44656.37

3. Cervinkova, M; Kucerova, P; Cizkova, J,c. Spontaneous regression of malignant melanoma - is it based on the interplay between host immune system and melanoma antigens?. Anti-Cancer Drugs 28(8):p 819-830, September 2017. | DOI: 10.1097/CAD.0000000000000526

JUVENES PRO MEDICINA

The long journey to amyloidosis

Rolands Paļuga

Presenting author: Rolands Paļuga

Work supervisor: Valdis Ģībietis

Affiliations: Riga Stradiņš University, Pauls Stradiņš Clinical University Hospital

Introduction: Amyloidosis is a rare disorder characterised by the deposition of misfolded amyloid proteins in various organs. Its prevalence depends on the type, with AL amyloidosis affecting 10-51 per million individuals and hereditary amyloidosis occurring in approximately 5 per million individuals. The disease presents with diverse but often non-specific symptoms, making early diagnosis challenging.

Case report: A 56-year-old man had been experiencing spontaneous subdermal haemorrhages and frequent bruising for two years without a clear cause. Over time, he developed dyspnoea and peripheral oedema, prompting medical evaluation. Despite consultations with multiple specialists—including immunologists, nephrologists, cardiologists and pulmonologists—no unifying diagnosis was made. Extensive testing for allergies and autoimmune diseases yielded inconclusive results.

During hospital admission for a comprehensive evaluation, serum protein electrophoresis revealed hypogammaglobulinaemia and an increased level of free IgG lambda chains, leading to an decreased kappa/lambda ratio. Urinalysis showed significant proteinuria, later identified as IgG lambda chains. These findings raised suspicion of amyloidosis, warranting further investigation. Echocardiography revealed restrictive cardiomyopathy, while a CT scan showed interstitial pulmonary oedema and hydrothorax. The clinical presentation strongly suggested AL amyloidosis, which was later confirmed via skin, renal and bone marrow biopsy, ultimately leading to a diagnosis of multiple myeloma with amyloidosis. The patient was initiated on immunochemotherapy (Dara-CyrBorD).

Conclusion: This case highlights the diagnostic challenges of amyloidosis, which often presents with non-specific symptoms over a prolonged period. A multidisciplinary approach and thorough assessment of systemic manifestations are essential for a timely diagnosis and intervention.

JUVENES PRO MEDICINA

Triple bad luck: A Case report of patient with Sjögren's syndrome, Hodgkin's lymphoma and interstitial lung disease

Kamil Marszałek, Adam Lasota

Presenting author: Kamil Marszałek

Work supervisors: Ewa Miądlikowska, MD; Joanna Miłkowska-Dymanowska, PhD

Affiliations: Medical University of Lodz

Introduction: The Sjögren's syndrome (SS) is a systemic autoimmune disorder of unknown etiology commonly presenting with symptoms of dryness of the eyes and mouth due to inflammation of the lacrimal and salivary glands. Interstitial lung disease (ILD) affects 20% of patients with SS and is considered as the most frequent pulmonary complication. Lymphoma development is the most serious complication of SS with prevalence of 1-2% and the significant factor of mortality in patients with Sjögren's syndrome.

Case report: A 58-year-old female was admitted to Pulmonary Department to diagnose interstitial lung disease. On admission, she was presented with dyspnea on exertion and a productive cough. Patient reports intermittent swelling, reddening and pain in interphalangeal joints, the feeling of dryness of mouth and eyes and episodes of Raynaud's phenomenon for the last 5 years. On examination, bilateral crackles were audible. During hospitalization the diagnosis of Hodgkin's lymphoma was confirmed. The presence of anti-Ro-52 antibodies and positive result of Tear-Break-Up-Time Test (TBUT) prompted the suggestion for Sjögren's syndrome. The further management of probable ILD and rheumatologic disease was postponed until the successful completion of six cycles chemotherapy in ABVD protocol. Two years later in subsequent hospitalization, the salivary gland biopsy confirmed Sjögren's syndrome. The multidisciplinary team (MDT) had confirmed the diagnosis of connective tissue disease-associated interstitial lung disease (CTD-ILD) and had decided on the treatment with azathioprine and prednisolone. Currently, the patient in good condition with stable symptoms has been considered as a candidate for antifibrotic treatment program and is currently receiving treatment exclusively with mycophenolate mofetil.

Conclusions: The Sjögren's syndrome is a heterogeneous disease that affects multiple organs, including joints and lungs. Early diagnosis of Sjögren's syndrome can improve patient outcomes by treatment of potential lymphoma and slowing down the progression of lung fibrosis. Patient's management with SS should be multidisciplinary, requiring close cooperation between rheumatologists, pulmonologists and oncologists.

JUVENES PRO MEDICINA

When Bleeding Won’t Stop: Unmasking Acquired Haemophilia A Post-Surgery

Agnieszka Piróg

Presenting author: Agnieszka Piróg

Work supervisor: MD, PHD, ASSOCIATE PROFESSOR Mateusz Zawadka

Affiliations: Student Scientific Association at the 2nd Department of Anesthesiology and Intensive Care, Medical University of Warsaw, Poland

Introduction: Acquired haemophilia A (AHA) is a rare autoimmune bleeding disorder caused by autoantibodies against coagulation factor VIII, with an incidence of 1.5 cases per million annually. It typically affects women of reproductive age and elderly over 60, often linked to autoimmune diseases, malignancies, or idiopathic causes. AHA presents with varying bleeding severity, complicating early diagnosis, especially in postoperative patients with no history of coagulation disorders.

Case report: A 70-year-old male underwent pancreaticoduodenectomy for adenocarcinoma. On admission, he was in good general condition with no family history of coagulation disorders.

Postoperatively, the patient developed significant anemia (Hgb 6.7 g/dL). Despite red blood cell (RBC) transfusions, abdominal computed tomography (CT), and gastroscopy, the bleeding persisted, necessitating relaparotomy. After surgery, he was transferred to the intensive care unit (ICU) due to circulatory failure and infection.

In the ICU, persistent anemia (Hgb 6.2 g/dL) and ongoing hemorrhage (blood-colored drainage fluid, soaked surgical dressings) were noted despite multiple transfusions. Prolonged activated partial thrombolastin time (aPTT) of 52 sec suggested coagulopathy. A comprehensive coagulation workup was performed, including an aPTT mixing test, assays for von Willebrand factor (vWF) and coagulation factors II, V, VII, VIII, IX, X, XI, and XII.

The Results showed: Factor VIII activity: 15.3% (normal range: 50–150%); Factor VIII inhibitor titer: 7 BU/mL; Positive aPTT mixing test, confirming the presence of an acquired factor VIII inhibitor.

AHA was diagnosed. Targeted treatment with recombinant factor VIIa (90 mcg/kg every 3 h) and corticosteroids was initiated, while anticoagulation therapy was discontinued. Coagulation parameters improved, with aPTT decreasing to 36.1 sec, factor VIII activity normalizing (99.6%), and inhibitor levels dropping (0.4 BU/mL). The patient stabilized with no further bleeding.

Conclusions:

1. AHA is a rare, potentially life-threatening condition, often difficult to diagnose postoperatively in patients without prior bleeding disorders.

2. Persistent hemorrhage and multiple transfusions, should raise suspicion for acquired coagulopathy.

3. Early recognition and comprehensive coagulation testing, including factor assays and inhibitor screening, are critical for timely diagnosis and appropriate management.

This case highlights the importance of awareness of AHA, a rare but serious coagulation disorder.

JUVENES PRO MEDICINA

Misfortunes never come singly- A Case report of an incidious onset of microscopic polyangiitis (MPA)

Klaudia Dobrowolska

Presenting author: Klaudia Dobrowolska

Work supervisor: Małgorzata Pietrusińska, PhD

Affiliations: Medical University of Lodz

Introduction: Microscopic polyangiitis (MPA) is a rare autoimmune condition of unknown ethiology that causes inflammation of small blood vessels and results in their necrosis. It is characterized by the constitutional symptoms like fever, weight loss, arthralgias and malaise. This condition leads to several manifestations including pulmonary, renal and neurological, etc. Patients with ANCA-associated vasculitis have an increased risk of thrombosis, therefore thromboembolic event may be the first sign of MPA.

Case report: A 77-year-old-male was admitted to the Pulmonology Department due to dyspnea and haemoptysis. His medical history included arterial hypertension, congestive heart failure, abdominal and thoracic aortic aneurysm. On physical examination, bilateral basal crackles were present. Laboratory blood tests pointed out increased levels of D-dimer(1050ng/dl) and C-reactive protein (126mg/dl). Urine tests revealed microscopic haematuria. An angio-CT scan of the chest confirmed bilateral pulmonary thromboembolism, fluid in both pleural cavities and ground-glass opacity areas and thus the treatment with the enoxaparin was administered. Apart from that, patient complained of fever, night sweating, sporadic palpitations, increased fatigue, polyneuropathy and haematuria which have been occurring for several past months. These symptoms prompted the suggestion of rheumatic disease and additional laboratory tests were performed which detected presence of perinuclear antineutrophil cytoplasmic antibodies (pANCA) (1:32). The diagnosis of MPA was established and The Birmingham Vasculitis Activity Score (BVAS) was estimated at 23 points. The treatment with systemic glucocorticoids and cyclophosphamide was initiated. As a result, patient reported resolution of haematuria and was discharged in good general condition.

Conclusions: This case shows that confirming critical condition as pulmonary thromboembolism in patients does not exempt clinicians from considering an underlying disease that could contribute to this clinical state. Diagnosis of MPA is often delayed due to non specific symptoms manifesting across multiple organ systems and it is worth to remember that patients with MPA are more prone to developing thromboembolic complications. Collecting detailed medical history and expanding diagnostic is crucial in order to initiate treatment of MPA.

Unmasking paroxysmal anemia with severe hyperlipidemia

Mateusz Koza, Katarzyna Kopeć

Presenting author: Mateusz Koza

Work supervisors: Prof. ilona Kurnatowska MD PhD; Monika Górska MD

Affiliations: Department of Internal Medicine and Transplant Nephrology; SKN Transplant Nephrology

Introduction: Anemia is a common complication of chronic kidney disease (CKD), primarily driven by iron and erythropoietin deficiency. Its diagnosis requires the exclusion of gastrointestinal (GI) hemorrhage and secondary causes, including hematologic disorders. We present a case of paroxysmal anemia accompanied with severe hypertriglyceridemia and liver injury.

Case report: A 40-year-old male with end-stage kidney disease of unknown etiology, treated with peritoneal dialysis for six months, was admitted to the Nephrology Department for anemia aggravation (Hb=7.6g/dL; N=13.5-18g/dL) with leukopenia (WBC=3×103/µl; N=4-10× 103/µl) and thrombocytopenia (PLT=62×103/µl; N=150-400×103/µl). Comorbidities included hypertension, hyperlipidemia managed with a statin, ezetimibe and bezafibrate and anemia treated with iron supplementation and erythropoiesis-stimulating agents. Laboratory tests revealed signs of liver cell damage (ALT=188U; N<40U; AST=264; N<40U; TBIL=1,89 mg/dL; N=0.3-1.2 mg/dL), elevated pancreatic enzymes (lipase =171U; N<67) and extreme hyperlipidemia with triglyceride levels exceeding 3000 mg/dL (N<150mg/dL), total cholesterol at 940 mg/dL (N<190 mg/dL), LDL at 470mg/dl (N LDL<115mg/dL), HDL at 17mg/dl (N HDL>40mg/dL). The patient denied alcohol and substance use as well as symptoms of GI bleeding. Abdominal ultrasound indicated hepatomegaly. Patient received two units of red blood cells. Given the severity of hyperlipidemia and extreme risk of embolism, two plasmapheresis sessions were performed to prevent thrombosis and acute pancreatitis, resulting in vast decrease of lipemia, hepatic and pancreatic parameters. Viral, autoimmune and genetic causes of liver injury were ruled out. Further tests excluded iron, folate, and vitamin B12 deficiencies, as well as congenital hemolytic anemias. In the futher course of hospitalization detailed medical history provided by patient's wife revealed chronic alcohol abuse. The patient had been hospitalized with similar, albeit less severes symptoms eight weeks prior to the admission. The recurrence of hemolytic anemia, jaundice, and hyperlipidemia following alcohol consumption led to the diagnosis of a rare Zieve's syndrome. Conversion to hemodialysis was recommended to improve patient surveillance, along with psychiatric aid to maintain sobriety.

Conclusions: Zieve's syndrome is a rare, but important cause of anemia, associated with chronic alcohol abuse. It should always be considered in the differential diagnosis of anemia in CKD patients with hemolysis and dyslipidemia. Strict alcohol abstinence is only prevention of future paroxysm.

JUVENES PRO MEDICINA

Can you get your heart broken on a black ski piste? - a Case report of takotsubo syndrome

Nina Jaworska, Oliwia Miotke

Presenting author: Nina Jaworska

Work supervisor: Alicja Genc, MD

Affiliations: I Katedra I Klinika Kardiologii GUMed

Introduction: Takotsubo syndrome (TTS) is an acute heart failure syndrome, usually precipitated by a severe emotional or physical stress. It predominantly affects postmenopausal women. The symptoms of TTS can mimic acute coronary syndrome (ACS). The most common echocardiographic finding is a transient akinesis of the left ventricle apex (called apical ballooning) with no explanatory coronary artery stenosis. TTS can be caused by known psychological triggers such as death of a family member, argument with the family or neighbours, court case, divorce, wedding, but also by physical ones like fracture, surgery, cancer, inflammation. We present a unique cause of TTS, which can happen during the winter break.

Case report: A 48-year-old female, with no comorbidities, was admitted to the hospital due to stabbing chest pain radiating to the back, exercise-induced dyspnoea, orthopnoea, a low-grade fever and malaise lasting for four days. For the first time, the symptoms were caused by an unusual situation, which was the need to ski on a black piste by mistake. Despite the fear caused by not advanced skiing skills the patient skied down the black run. Immediately after going down the slope, she felt chest pain and dyspnoea, not relieved by aspirin.

Four days later, after returning to Gdańsk, she visited the GP's office, where the ECG revealed abnormalities. The woman was referred to the hospital for further diagnosis.

During the admission to the hospital, laboratory tests showed elevated levels of cardiac markers: NT-proBNP 4060 pg/ml, BNP 706 pg/ml, CK-MB 6,1 ng/ml and hsTnI 1,53 ng/ml. ECG showed inverted T waves in leads V3-V6. The transthoracic echocardiography revealed akinesis of all apical segments, akinesis of medial segments of interventricular septum and anterior wall, hypokinesis of medial segments of inferior and posterior walls with hyperkinesis of the other segments. The ejection fraction (EF) was 35%.

In the coronary angiography no stenoses were found.

Cardiac MRI confirmed segmental dysfunction of cardiac muscle contractility and left ventricle EF 41%. T2 STIR illustrated acute reversible myocardial damage, in relaxometry parameters characteristic for TTS were found and no late gadolinium enhancement was stated, which confirmed the initial diagnosis.

The patient was treated with levosimendan and typical treatment for heart failure.

In control ECHO the EF proved to 43%.

After four days of hospitalization, she was discharged without any symptoms.

Conclusion: This case shows that symptoms of takotsubo syndrome can occur not only in typical stressful situations like the death of a family member, but also when patients experience a tough challenge - either psychological or physical. Even though TTS is a rare disease, it should be differentiated from ACS for effective treatment and the TTS diagnosis should be considered also in young woman before menopause.

Let’s Make Breathing Easy Again! - a Case report of pulmonary alveolar proteinosis

Aleksandra Okoń

Presenting author: Aleksandra Okoń

Work supervisor: Karol Bączek, MD

Affiliations: Medical University of Lodz

Introduction: Pulmonary alveolar proteinosis (PAP) is a rare interstitial lung disease, characterized by the accumulation of surfactant in the alveoli. Autoimmune PAP (aPAP) is the most common pathophysiologic mechanism of the disease, with the presence of anti-granulocyte macrophage colony-stimulating factor (anti-GM-CSF) antibodies. The prevalence of aPAP is estimated to be 6.7–6.9 per million in the general population. PAP leads to progressive hypoxemic respiratory insufficiency and failure, as well as an increased risk of secondary infections or pulmonary fibrosis.

Case report: A 45-year-old patient, an active smoker, presented to the Pulmonary Department with a non-productive cough and exertional dyspnea, gradually worsening over the past two months. Physical examination revealed nail clubbing, audible crackles on auscultation, and dullness to percussion. Laboratory and pulmonary function tests indicated signs of type I respiratory insufficiency and severely impaired DLCO (PaO2 = 49.5 mmHg), (DLCO = 39% of predicted). A chest CT scan showed diffuse bilateral infiltrates characteristic of ground-glass opacity, with a component of the crazy paving pattern. The patient underwent bronchoscopy with bronchoalveolar lavage (BAL), which revealed abundant proteinaceous masses, positive for PAS staining. Based on radiological imaging, BAL results, and the presence of anti-GM-CSF antibodies, the diagnosis of primary pulmonary alveolar proteinosis was confirmed.

Due to the severity of the disease, the patient was qualified for whole lung lavage (WLL), which was performed under general anesthesia using a double-lumen endotracheal tube. Following the procedure, improvements in pulmonary function tests and arterial blood gas parameters were observed. To date, the patient has undergone two repetitions of WLL with resolution of symptoms of dyspnea. This is noteworthy, as only a small group of patients require this procedure, and the repetition of WLL is performed sporadically. In total, 84 liters of fluid were used during 5 unilateral WLL procedures.

Conclusions: Rare diseases are usually considered when a patient presents with atypical symptoms; however, they are less frequently prioritized when the symptoms are more common. Progressive hypoxemic respiratory insufficiency and dyspnea are frequently observed in a range of common conditions. Despite their commonality, these manifestations may delay the consideration of rare or less obvious diagnoses. Pulmonary alveolar proteinosis should be included in the differential diagnosis of patients with progressive dyspnea.

JUVENES PRO MEDICINA

Myocardial infarction secondary to anemia in Addison-Biermer disease - whether and when to perform coronary angiography

Maciej Zieliński, Maciej Radziszewski, Małgorzata Wojciechowska

Presenting author: Maciej Zieliński

Work supervisor: Małgorzata Wojciechowska

Affiliations: Samodzielny Publiczny Specjalistyczny Szpital Zachodni im. św. Jana Pawła II, Oddział Kardiologii Inwazyjnej

Introduction: Deriving from variant causes, anemia can either accompany any type of MI as comorbidity or be a direct cause of ischemic myocardial injury. Regardless of its role in precipitating MI, anemia measured on hospital admission has been identified as an independent predictor of adverse cardiac events as well as increased short- and long-term mortality.

Case report: In the case presented, severe macrocytic anemia caused by a deficiency of vitamin B12 resulted in acute coronary syndrome without ST-segment elevation. Because of ischemic changes in ECG on admission, the patient was qualified for urgent coronary angiography. In the meantime, however, the morphology results revealed severe anemia with Hb 5.7 ng/dl, and a decision of disqualification from the procedure was made. During the hospitalization, the patient received four units of RBC concentrate and one unit of platelet concentrate. Moreover vit. B12 intramuscular injections and folic acid oral supplementation were made. The coronary angiography was made after two months, when the blood morphology was normal, revealing critical ostial stenosis of LAD and stenosis of the ostial segment of the trunk.

Conclusions :The unfolding of this Case reportprovides a starting point for discussing the optimal timing of coronary angiography in the setting of NSTEMI with concomitant anemia and urges a deliberate consideration of any potential delay as well as follow-up treatment.

JUVENES PRO MEDICINA

Prosthetic Aortic Valve Abscess and Perivalvular Leak: A Therapeutic Dilemma

Antoni Chamienia

Presenting author: Antoni Chamienia

Work supervisor: lek. Witold Bachorski

Affiliations: Medical Univeristy of Gdańsk, SKN Hemodynamiki GUMed

Introduction: Prosthetic aortic valve abscess is a serious complication of infective endocarditis. It can lead to PVL and other forms of valvular dysfunction often requiring surgical intervention. However, in some high-risk patients, surgical treatment may not be feasible, necessitating alternative therapeutic approaches.

Case report: A 68yr old women presenting with fever, chest pain and weakness was admitted to the cardiology department due to suspected infective endocarditis. Medical history of patient included two AVR (the most recent in 1999), tricuspid valve repair and DDD pacemaker implantation. Blood cultures were obtained and empiric antibiotic therapy was initiated. Patient was evaluated by TTE which showed PVL around mechanical aortic valve and tricuspid valve regurgitation, no vegetations were observed during exam. LVEF 60%. Following positive blood culture result for S.epidermidis antibiotic therapy was modified according to susceptibility result. As the next step TEE exam was performed which revealed drained abscess on posterior segment of aortic valve annulus and PVL on the side of left coronary sinus and non-coronary sinus. PVL affected 30% of aortic valve annulus perimeter. Diagnosis was confirmed by cardiac CT which showed a PVL (6x28mm) and normal mechanical aortic disc movement. Consecutive blood cultures obtained according to the guidelines came out negative. Patient was once again evaluated by TEE. Obtained images showed two separate PVL around mechanical aortic valve.

Patient was evaluated and qualified for PVL closure. Patient was disqualified for cardiosurgical approach. After a month patient underwent an endovascular procedure for PVL closure with the use of ADO II device. Procedure was guided by TEE. The device was placed correctly; however, due to interference with disc movement, the procedure was aborted. Patient in good condition was discharged for ambulatory treatment of valvular defect.

Conclusion: Aortic valve abscess caused by IE is potentially serious and life-threatening complication, often causing valve dysfunction with need of surgical intervention. This case highlights the challenges of managing PVL in patient with multiple valve surgeries where endovascular approach is only feasible option. Even though procedure didn’t end with success it showed a role of endovascular procedures in patient with complex valve surgical history.

JUVENES PRO MEDICINA

PRESsing problem in the Context of Hypertensive Emergency – A Multidisciplinary Case Approach

Marta Gałęzowska

Presenting author: Marta Gałęzowska

Work supervisors: Prof. Ilona Kurnatowska, MD, PhD; Monika Kolejwa-Fajkowska MD, MRCP (UK)

Affiliations: Medical University of Lodz, SKN Transplant Nephrology Medical University of Lodz, SKN Transplant Nephrology

Introduction: A rare disorder, Posterior Reversible Encephalopathy Syndrome (PRES) presents with acute neurological symptoms such as seizures, headache, visual disturbances and altered mental status. It occurs together with hypertensive crisis, renal failure, cytotoxic therapy and systemic inflammation. Early recognition and management are crucial to prevent irreversible damage.

Case report: A woman in her 60s presented with acute onset headache, confusion and visual disturbances. Her medical history included pancreatic cancer, treated with a Whipple's procedure and subsequent palliative chemotherapy (gemcitabine), along with type 3c diabetes and hypothyroidism. Moreover, she just recovered from COVID-19 infection. Initial assessment at the emergency department demonstrated a hypertensive crisis (BP: 215/107 mmHg), hypoxia and bradycardia.

Investigations revealed acute kidney injury (sCr 2,6 mg/dl, urea 140 mg/dl, K+ 6,1mmol/l, Na 135 mmol/l), metabolic acidosis (pH 7.26, HCO_3^- 14 mmol/L, pCO_2 30 mmHg), and elevated NT-proBNP (2492 pg/ml) indicative of heart failure. Chest X-ray findings were consistent with pulmonary edema. Brain MRI showed characteristic changes of PRES – vasogenic edema in the parieto-occipital regions without evidence of stroke, hemorrhage or metastases. Infectious and autoimmune encephalitis were considered unlikely given the absence of fever and low CRP (<4mg/L).

An opinion was sought from various departments, including nephrology, neurology, cardiology and radiology, leading to the diagnosis of PRES. Gemcitabine was identified as a likely precipitant, triggering a hypertensive crisis. Initiation of aggressive blood pressure management with a combination of antihypertensive drugs including amlodipine, bisoprolol, doxazosin and furosemide prevented further renal function decline. Later on, supportive care, including intravenous hydration and correction of electrolytes was provided. Close monitoring of renal parameters and neurological status was crucial for the successful treatment and patient's recovery.

Conclusion: It is vital to consider a rare diagnosis, such as PRES in patients with hypertensive crisis and neurological symptoms, particularly in the context of potential trigger. Early recognition based on multidisciplinary knowledge with targeted intervention led to symptom resolution, emphasizing the importance of prompt diagnosis and management. Accurate interpretation of this rare but reversible condition is essential for optimal patient's outcome.

JUVENES PRO MEDICINA

"Beyond the broken heart – a case of intraventricular thrombus formation in a patient with takotsubo syndrome"

Ewa Borowiak, Małgorzata Kosek-Nikołajczuk

Presenting author: Ewa Borowiak

Work supervisors: Radosław Piątkowski, Monika Budnik

Affiliations: 1st Chair and Department of Cardiology, Medical University of Warsaw

Introduction: Takotsubo syndrome (TTS) is associated with an increased risk of thromboembolic complications due to intraventricular thrombus, with 2% to 8% incidence rates, potentially leading to further thromboembolic events, including cerebral ischemic stroke or arterial embolism. Oral anticoagulation is recommended if intraventricular thrombus is detected in the absence of high bleeding risk. However, therapeutic low-molecular-weight heparin or unfractionated heparin can be considered in cases with extensive segmental akinesia or atrial fibrillation. We present a case of TTS complicated by intraventricular thrombus.

Case report: A 44-year-old female with a medical history of untreated hypertension, nicotine use, congenital adrenal hyperplasia, type 2 diabetes, and obesity, was admitted to the hospital with chest pain. She reported several days of recurrent left subcostal pain, initially relieved with drotaverine but persistent since the morning of admission. She denied acute stress but admitted chronic occupational stress. Laboratory analysis showed elevated troponin I (296 and 899 ng/L), NT-proBNP (4642 pg/ml), hyperglycemia (297 mg/dL), increased CRP (29 mg/L) and D-Dimer (1332 ng/ml). A 12-lead electrocardiogram revealed ST-segment depression in leads I, aVL, V5 and V6. Urgent cardiac catheterization showed no significant coronary stenosis and left ventriculography demonstrated hypokinesis of the apical segments, characteristic of takotsubo syndrome. Transthoracic echocardiography (TTE) revealed akinesis of the mid and apical segment of the anterior left ventricle (LV) wall, hypokinesis of the apex and apical segments of all other LV walls, preserved right ventricular systolic function, mild tricuspid regurgitation and two apical LV thrombi measuring 20x13 mm and 20x11 mm, respectively. Left ventricular ejection fraction (LVEF) was estimated at 40%. The patient was transferred to the intensive care unit and continuous IV heparin was administered to prevent thromboembolism. Serial TTE assessments were performed at intervals of 2-3 days. By day 10, TTE showed one mobile apical thrombus (11x12 mm) with improved LVEF (55%). Cardiovascular surgeons qualified the patient for conservative treatment of the intraventricular thrombus. By day 17, TTE showed complete resolution of LV dysfunction (LVEF 52%) and no intraventricular thrombus. The patient was discharged on oral anticoagulation therapy (apixaban) and referred for thrombophilia screening. At 2-week follow-up, cardiac MRI revealed no signs of myocarditis. At 4-week follow-up, TTE showed no residual LV dysfunction (LVEF 59%) with no intraventricular thrombi.

Conclusions: This case underscores the importance of continuous echocardiographic monitoring in TTS patients, particularly those with extensive wall motion abnormalities. Anticoagulation therapy plays a pivotal role in preventing thromboembolic complications and ensuring thrombus resolution.

JUVENES PRO MEDICINA

Cardiorenal Syndrome in kidney transplant recipient with high flow fistula and mycotic pneumonia – Case report.

Jan Broda, Szymon Piotrowski

Presenting author: Jan Broda

Work supervisor: Prof. dr hab. n. med. Bartosz Foroncewicz

Affiliations: Klinika Transplantologii, Immunologii, Nefrologii i Chorób Wewnętrznych, Uniwersyteckie Centrum Kliniczne WUM

Introduction: Despite the recognized adverse effects of arteriovenous fistula (AVF) on cardiac function, it is still a gold standard for haemodialysis access. However, in kidney transplant patients with a stable graft function, it might lead to congestive heart failure and pulmonary hypertension, especially when the flow is too high. Decrease in cardiac output is followed by decrease in perfusion of the graft, causing development of cardiorenal syndrome.

Case report: A 54-years old man was admitted to Transplantation Department in July 2024 because of pneumonia and deterioration of graft function (creatinine 3,4 mg/dl, urea 200 mg/dl, potassium 6,5 mmol/l). He received a kidney transplant in 2005 because of end-stage renal disease of unknown etiology, most probably glomerulonephritis. From 2022 deterioration of graft function was observed. In June 2024 he had an episode of diffuse alveolar haemorrhage and suspect of vasculitis (based on clinical and radiological presentation), treated with steroids.

In July 2024, based on blood culture sepsis, caused by S. haemolyticus, was diagnosed and antibiotherapy with meropenem and vancomycin was introduced. However, radiological findings indicated on mycotic pneumonia (thick-walled oval structures, located in lower segments of the left lung), hence voriconazole was added. Due to cardiac and respiratory failure he was temporarily disqualified from surgical treatment (lower bilobectomy). The patient required repeated haemodialysis (HD) and ultrafiltration with non-tunnelled catheter for 1 month.

On admission he presented enlarged remodelled arteriovenous fistula on left arm with dilated superficial veins on the left part of chest. Due to enormous flow (up to 7000 ml/min), dilation (up to 5 cm) and a thrombus (2,7 cm) decision to remove the fistula was made to treat the cardiac insufficiency and enhance graft function. In the end of August 2024, it was excised with primary closure of brachial artery and resection of remodelled cephalic vein up to axillary fossa. After surgery the patient does not require HD and creatine level lowered.

After surgery recurrence of S. haemolyticus bacteriemia was observed, hence meropenem (in total 60 days), and vancomycin (in total 53 days) therapy was continued.

Improvement of graft function, reduction of peripheral oedema and improvement of cardiac status was achieved. CT scan showed reduction of lung lesions, but not satisfying. The patient continues antifungal treatment.

Conclusion: Graft function can be restored, even after long course of haemodialysis therapy. Giving that, decision whether to resign from immunosuppressive therapy to treat the infection must be taken carefully.

Arteriovenous fistulas should be monitored regularly to avoid congestive heart failure and complications in treatment of arising clinical problems, in this case mycotic pneumonia. Closure of high flow AVF helps in treatment of cardiac insufficiency leading to improvement of graft function.

JUVENES PRO MEDICINA

A broken spirit and a broken heart: Takotsubo syndrome after electroconvulsive therapy for major depressive disorder

Jędrzej Fijołek, Paweł Siuciak

Presenting author: Jędrzej Fijołek

Work supervisor: Prof. Miłosz Jaguszewski, Alicja Genc MD

Affiliations: Medical University of Gdańsk

Introduction: Takotsubo syndrome (TTS), also known as 'broken heart syndrome', is an acute cardiac condition resembling myocardial infarction. It is strongly associated with acute mental or physical stress prior to the onset of the symptoms. TTS has been previously associated with undergoing electroconvulsive therapy (ECT), with most patients discontinuing this form of treatment afterwards. We present a peculiar case of a 54-year-old woman who had developed TTS following ECT, and, after a timely recovery, successfully reinitiated ECT after a brief interval of only 2 weeks.

Case report: The patient, with a 5-month history of major depressive disorder, was admitted to the Psychiatry Clinic and subjected to a series of ECT, as part of her inpatient treatment plan. An hour after undergoing the second procedure, the patient experienced sudden chest pain. Laboratory tests and several imaging techniques were used to reach the diagnosis. These procedures revealed an increase in high-sensitivity troponin and CK-MB mass levels (from 0,025 ng/ml to 0,367 ng/ml in the span of 4 hours, and from 0,80 ng/ml to 2,20 ng/ml, respectively), QS waves in leads V1-V3 in the ECG, a slight reduction in left ventricle ejection fraction (LVEF) (45-50%) and left ventricle wall motion abnormalities consistent with TTS. The lack of coronary artery lesions in a coronary angiogram ruled out acute myocardial infarction. Finally, cardiac magnetic resonance was performed, showing features of acute myocardial injury extending beyond the region of supply of a single coronary artery, signal elevation in T2-weighted images, prolonged T1 and T2 mapping, and elevated Extracellular Volume Fraction, confirming the diagnosis of TTS. Standard treatment for TTS was promptly initiated. Remarkably, the patient's condition improved rapidly, showing clinical and echocardiographic resolution of TTS - her symptoms were alleviated, LVEF reached 56% and heart muscle's contractility normalised. Thus, given the urgency to continue ECT due to the severity of the patient's depressive symptoms, a multidisciplinary team decision was made to readmit the patient to the Psychiatry Clinic and reinitiate ECT. The patient underwent ECT only 2 weeks after the diagnosis of TTS and 5 more procedures in the following days, none of them resulting in any further damage to the heart.

Conclusions: This case not only demonstrates an uncommon and serious adverse effect of ECT, but it also provides evidence that safe reinitiation of ECT is possible and it can be safely performed within a surprisingly short time period. It is important to underline that the decision to continue ECT should certainly not just be a leap of faith, but a result of a thorough clinical assessment by a team of specialists.

JUVENES PRO MEDICINA

Tufted hair folliculitis treated with photodynamic therapy - Case report

Aleksandra Skórka

Presenting author: Aleksandra Skórka

Work supervisor: Natalia Zdanowska MD, PhD

Affiliations: Collegium Medicum, School of Medicine, University of Warmia and Mazury in Olsztyn

Introduction: Tufted hair folliculitis (THF) is a rare condition associated with cicatricial alopecia affecting the scalp. It is characterised by patches of scarring alopecia within multiple hair tufts emerging from enlarged follicular openings. The cause is often unclear but can be associated with several scarring conditions. There are no standardised treatment protocols for this condition, and no effective therapies have been established.

Case report: A 30-year-old male presented with an 8-year history of a single erythematous lesion, severe itching, purulent lesions, and scarring alopecia. Initially, he was treated for a fungal infection, however, histopathological examination ruled out fungi and suggested pseudopelade. He received treatments including clindamycin, rifampicin, isoniazid, and isotretinoin, but with limited success. Further histopathological analysis indicated the possibility of scalp fungal infection, and mycological testing confirmed the presence of mould. Consequently, treatment with itraconazole, terbinafine, isotretinoin, and triamcinolone injections was initiated. In the subsequent bacteriological examination, Staphylococcus aureus was identified. Based on the clinical and histopathological findings, tufted hair folliculitis was diagnosed. Despite treatment with dapsone, chloroquine, doxycycline, and topical therapies, the effectiveness was poor. Physical examination revealed numerous perifollicular pustules on an erythematous base, intense inflammation, yellowish discharge and abundant scaling. Due to previous treatment failures, photodynamic therapy was trialled in the parietal region using a dosage of 37 J/cm^2, significantly reducing skin lesions.

Conclusion: This case highlights this disease's diagnostic and therapeutic challenges. Photodynamic therapy, known for its minimal side effects and reduced need for oral treatments, may offer a promising option for treating THF.

JUVENES PRO MEDICINA

Exogenous Lipoid Pneumonia Due to Chronic Paraffin Oil Inhalation: A Case report

Yalda Noroozi, Ekaterine Abashidze, Piotr Damiański, Sebastian Majewski

Presenting author: Ekaterine Abashidze

Work supervisor: dr hab. n. med., prof. UM w Łodzi Sebastian Majewski

Affiliations: Faculty of Medicine, Medical University of Lodz, Poland; Department of Pneumology, Medical University of Lodz, Poland

Introduction: Lipoid pneumonia is a rare inflammatory lung disease caused by lipid particles accumulating in the alveoli and distal airways, classified as exogenous and endogenous. This Case reporthighlights an uncommon cause of exogenous lipoid pneumonia due to chronic inhalation of Paraffin oil via a tracheostomy tube.

To raise awareness of exogenous lipoid pneumonia as a preventable and often misdiagnosed condition due to its nonspecific clinical presentation and radiological resemblance to other pulmonary conditions. Additionally, it emphasizes the importance of proper tracheostomy care to mitigate the risk of lipoid pneumonia.

Case report: A 68-year-old female with a long-standing tracheostomy presented with chronic dyspnea and progressive exercise intolerance. Initial evaluation revealed a pulmonary mass on a chest X-ray, raising suspicion of lung cancer. In the next step, chest computed tomography (CT) showed consolidations and ground-glass opacities in the right lung. Bronchoscopy with transbronchial lung cryobiopsy was performed, and histopathological assessment confirmed the presence of lipid-laden macrophages, consistent with diagnosis of exogenous lipoid pneumonia. In-depth medical history uncovered that the patient had been chronically using Paraffin oil as a lubricant for her tracheostomy tube, which was likely a direct cause of diagnosed lung condition. A detailed clinical history is essential in diagnosing lipoid pneumonia, particularly in patients with tracheostomies or exposure to lipid-based substances. It is important to note that the clinical findings of this condition can mimic more life-threatening diseases, such as tuberculosis or lung cancer. Therefore, early diagnosis is crucial, not only to alleviate the mental burden of the condition but also to restore the patient's quality of life more promptly.

Conclusion: Exogenous lipoid pneumonia should be considered in patients with chronic lipid inhalation. Clinicians must be aware of this condition to ensure timely diagnosis and prevention through appropriate tracheostomy care practices.

JUVENES PRO MEDICINA

The Cryptic Killer: Rapidly Progressive Central Nervous System Aspergillosis in a Critically Ill Patient

Aleksandra Barabasz, Stanisław Dudek

Presenting author: Aleksandra Barabasz

Work supervisor: Mateusz Zawadka, PhD

Affiliations: Second Department of Anesthesiology and Intensive Therapy, Medical University of Warsaw

Introduction: Aspergillus fumigatus is an opportunistic mold that is a rare cause of invasive disease in immunocompromised patients with central nervous system (CNS) involvement in 10–20% of cases and can lead to brain abscesses (BAs) with a mortality rate of 75–100%. Symptoms include neurological deficits, headache, fever, seizures, and papilledema. Diagnosis relies on clinical presentation, imaging, and biopsy. Treatment is challenging due to the poor CNS penetration of antifungal agents and rising antifungal resistance.

Case report: A 35-year-old male with a history of alcohol abuse was admitted to the ICU with altered mental status and a tonic-clonic seizure. Two weeks earlier, he had been treated for alcoholic hepatitis complicated by Klebsiella pneumoniae sepsis. During that hospitalization, he developed left upper limb paresis, but CT scans revealed no CNS abnormalities. Before ICU admission he was treated with methylprednisolone for 2 weeks. On admission, he was hemodynamically stable, afebrile, and mechanically ventilated. MRI performed 7 days after the initial CT scan revealed 21 infratentorial ring-enhancing lesions, which progressively enlarged on serial imaging. Blood tests for HIV, toxoplasmosis, tuberculosis, and blood cultures were negative. A whole-body CT scan ruled out malignancy and other infectious sources. Due to the deep-seated nature of the lesions, neurosurgical biopsy was initially deferred. Empirical antibiotics were initiated for suspected bacterial abscesses, including meropenem, ampicillin, linezolid, colistin. As Aspergillus fumigatus was identified in the tracheal aspirate, treatment with amphotericin B was initiated, with the omission of voriconazole due to its hepatotoxicity and documented resistance patterns in the hospital. Rapid enlargement of a superficial temporal lesion enabled biopsy, revealing an abscess-like structure despite initial negative cultures. Within 48 hours, the patient deteriorated, developing cerebral edema, followed by cardiac arrest. Postmortem cultures from the brain abscess confirmed A. fumigatus sensitive to amphotericin B and voriconazole.

Conclusions: This case highlights the need for heightened vigilance in high-risk patients, as focal neurological signs may be the earliest indicators of CNS infections. In immunocompromised and critically ill individuals, fungal infections should be strongly considered in the differential diagnosis to prevent delays in treatment. Despite optimal medical treatment, mortality remains high, emphasizing the urgency of early recognition and intervention.

JUVENES PRO MEDICINA

Erythema Ab Igne in Oncology Patients: A Silent Red Flag in Pain Management

Maja Warchoł, Nadia Plichta

Presenting author: Maja Warchoł

Work supervisors: prof. Aleksandra Lesiak MD, PhD ; Małgorzata Dominiak, MD

Affiliations: 1 - Student Scientific Research Club of Experimental, Clinical and Procedural Dermatology, Medical University of Lodz, Poland, Department of Dermatology, Paediatric Dermatology and Oncology 2 - Department of Dermatology, Pediatric Dermatology and Dermatol

Introduction: Erythema ab igne (EAI) is a predominantly asymptomatic dermatological condition resulting from chronic exposure to heat and/or low-intensity infrared radiation, below the threshold that causes a burn (43–47°C). The pathophysiology is based on vasodilatation, leading to the formation of a venous plexus pattern. This manifests as a reticular, erythematous hyperpigmentation with telangiectasia, scaling, and atrophy at the site of thermal exposure. Although EAI lesions are generally benign, they can evolve into bullae or even malignant skin conditions such as squamous cell carcinoma, marginal B-cell lymphoma, or Merkel cell carcinoma. In severe cases, when removing the inciting cause is insufficient, treatments such as topical tretinoin, 5-fluorouracil, or various laser therapies may be necessary. Differential diagnoses of EAI include livedo reticularis, cutis marmorata, poikiloderma, and mycosis fungoides, indicating the potential need for collaboration with histopathologists to establish a final diagnosis.

Case report: A 73-year-old female patient presented to the Dermatology Department with concerns about diffuse, brownish, net-like, scaling lesions symmetrically extending over both buttocks and the lower lumbosacral region. The patient also had a history of lumbar degenerative disease, hypertension, dyslipidemia, and a one-year history of rectal cancer. Two months prior, she had undergone surgical resection of the rectal cancer, resulting in the creation of a stoma. The oncologists were the first to notice the skin discoloration. Further investigation revealed that the patient had been using heating pads on the buttocks and lumbosacral region for several hours daily to alleviate pain associated with lumbar degenerative disease (spinal metastases of the rectal cancer were excluded). The diagnosis of EAI was made. The patient was advised to discontinue the use of warm compresses and apply emollients to the affected areas. However, she did not return for a follow-up visit. Due to the lack of a complete medical history, it was impossible to assess the effectiveness of the treatment.

Conclusions: EAI is an uncommon, heat-induced skin condition. Heat is widely known for its analgesic properties and is commonly used in pain management for rheumatic and oncological diseases, including pancreatic, breast, kidney, and rectal cancers. However, due to the easy access to various heating devices, such treatments may appear harmless, and patients often embrace them without supervision. Recognizing EAI should prompt physicians to consider alternative pain management strategies to prevent recurrence and progression of the condition, or to investigate a potentially new underlying cause of pain, such as oncological metastases.

JUVENES PRO MEDICINA

Internal Medicine II Case reports

17th of May 2025

Coordinators:

Aleksandra Wojtera

Aleksandra Karczmarska

Jury:

prof. dr hab. n. med. Tomasz Kostka

dr n. med. Anna Kumor-Kisielewska

dr n. med. Anna Wojtczak

dr n. med. Maria Wiśniewska-Jarosińska

JUVENES PRO MEDICINA

Fibronectin glomerulonephropathy in a 34-year-old man – Case report

Natalia Bębenek

Presenting author: Natalia Bębenek

Work supervisor: Marzena Janas, MD, PhD

Affiliations: University of Rzeszów, Poland

Introduction: Glomerulopathy with fibronectin deposits (GFND) is a rare autosomal dominant renal disease with frequency <1/1,000,000. It is characterized by deposition of fibronectin in the renal glomeruli. The main symptoms of the disease are mild or nephrotic proteinuria and hematuria.

Case report: The paper describes a 33-year-old patient who was first admitted to the Nephrology Clinic in July 2024, where he was referred from the nephrology clinic due to progression of proteinuria since April 2024. The patient, after a kidney biopsy in February 2022, in which has been described a type of membranoproliferative glomerulonephritis with concomitant changes characteristic of type 1 diabetes, was using cyclosporine in therapeutic doses. The medicament was discontinued in November 2023 due to a reduction in daily proteinuria to less than 0.5 g. The patient was treated for type 1 diabetes first diagnosed in 1997 and hypertension. In the family history, the patient's father was dialyzed due to renal failure with subsequent kidney transplantation. During hospitalization in July 2024, diagnostics for relapse of nephrotic syndrome were initiated. Daily proteinuria of 2.3-5.7 g was observed with reduced total protein and albumin in serum and elevated cholesterol concentration. Renal function parameters remained within the norm. Diabetes well controlled, HbA1c - 6.68%. Renal rebiopsy was abandoned and cyclosporine with magnesium supplementation was reintroduced into the treatment. Due to a positive family history and non-specific description of the renal biopsy, the patient was qualified for genetic testing for genetic glomerulonephritis. During the second hospitalization in the Clinic in September 2024, daily protein loss decreased to 1.5 g with a urea concentration of 91 mg/dl and creatinine of 1.37 mg/dl. Due to the unclear picture of the disease, the patient was qualified for genetic testing of exon sequencing, which was to expand the diagnostics. The test showed a pathogenic variant in 1 allele of the FN1 gene, i.e. a disorder associated with fibronectin glomerulopathy. A decision was made to gradually reduce the dose of cyclosporine and monitor the recurrence of nephrotic syndrome. Renal function parameters were stable. Daily proteinuria during hospitalization was 0.9-2.07 g with normal levels of total protein and serum albumin. During the last hospitalization, proteinuria remained at a level of about 0.8 g/day, and creatinine concentration remained in the range of 1.13-1.41 mg/dl, therefore the previous treatment was maintained.

Conclusion: Fibronectin glomerulonephritis is a rare disease with age-related gene penetration. Nephrotic proteinuria occurs in up to 73.6% of patients with GFND. No appropriate treatment strategies have been developed yet – nephroprotective treatment is usually used, including blood pressure control. Cyclosporine therapy appears to be an effective treatment method in this patient.

Skin and muscles disease- a diagnostic challenge in a geriatric patient

Natalia Szczygieł

Presenting author: Natalia Szczygieł

Work supervisors: lek. Ewa Kolonko, dr n.med. Anna Wojteczek

Affiliations: SKN Reumatologii GUMED

Introduction: Diabetic ketoacidosis (DKA) is a severe complication of diabetes mellitus (DM). The highest level of hyperglycemia - 2,656 mg/dL was recorded in patient with type 1 DM. Such extreme levels have not been reported in iatrogenic diabetes. Growth hormone (GH) metabolic action leads to hyperglycemia, lipolysis with increased circulating free fatty acids. While low-dose GH therapy (0,15-0,3 mg/day) can reduce body fat, GH overdose impairs glucose tolerance and increase diabetes risk.

Case report: A 59-year-old man with severe ketoacidosis and extreme hyperglycemia (2081 mg/dL, 115,6 mmol/L) secondary to iatrogenic DM induced by growth hormone intake was admitted to the Emergency Department after 6 days of vomiting. He reported taking high doses of growth hormone (12 mg every two days for six weeks) for weight loss and consuming 6–10 liters of Coca-Cola daily during the vomiting episodes. Initial blood glucose readings were immeasurable with the value of 2081mg/dL achieved after a series of sample dilutions. Venous blood gas analysis showed severe metabolic derangements: pH 7.074, Na+ 118 mmol/L, K+ 2.4 mmol/L, HCO3- 7.9 mmol/L, lactate 5.9 mmol/L and 393 mmol/kgH2O.

The patient was transferred to the ICU due to persistent acidosis and multiple organ failure, anuria, paralytic ileus, sinus tachycardia (130/min), hypotension (BP 60/30 mmHg), and profound metabolic acidosis (pH 6.89, HCO_3^- 9.1 mmol/L, anion gap 20 mmol/L). Despite intensive management including mechanical ventilation, vasopressors administration, insulin infusion with glycemia reduction (~100 mg/dL/hour), continuous venovenous hemodialysis, fluid resuscitation and electrolyte supplementation; metabolic acidosis and hemodynamic instability persisted. The patient's condition deteriorated, culminating in cardiac arrest and death after 12 hours of ICU stay.

Conclusion: This case highlights the potential dangers of off-label growth hormone use and iatrogenic diabetes mellitus. Early recognition and aggressive management of such complications are essential though outcomes may remain poor in cases of profound metabolic derangements.

JUVENES PRO MEDICINA

Actinomycosis mimicking a malignant tumor – How a misleading suspicion can fool even experienced physicians?

Authors: Aleksandra Walendzik [1], Katarzyna Majchrzak [1]

Presenting author: Katarzyna Majchrzak

Work supervisor: prof. Aleksandra Lesiak MD, PhD [2, 3]

Affiliations: [1] - Student Scientific Research Club of Experimental, Clinical and Procedural Dermatology, Medical University of Lodz, Poland, Department of Dermatology, Paediatric Dermatology and Oncology [2] - Department of Dermatology, Pediatric Dermatology and Der

Introduction: Actinomycosis is a chronic, slowly progressive granulomatous suppurative infection caused by various bacterial species, with Actinomyces israelii being the most frequently implicated pathogen. Primary cutaneous involvement remains rare and typically manifests as a slowly expanding lesion with abscess formation, fibrosis, and draining sinuses. The infection can be acquired through trauma or hematogenous spread. However, due to its diverse clinical presentations, actinomycosis is often referred to as the "great imitator" of other conditions.

Case report: A 73-year-old male patient presented to a dermatologist with inflammatory skin lesions consisting of multiple nodules and draining sinuses on the dorsum of his left hand, which had persisted for six months. The patient denied systemic symptoms or tenderness at the site of the lesions. Initially, due to concern for a neoplastic process, two biopsies were performed. However, histopathological examination excluded neoplasia and revealed no underlying condition. Staining for fungal and tuberculosis infections was also negative. Despite six weeks of topical treatment with Castellani's Paint and an additional two weeks of oral terbinafine, the lesion continued to spread peripherally, prompting a third biopsy. Histopathological analysis identified occasional bacterial colonies of a filamentous organism, accompanied by characteristic neutrophilic infiltration (Splendore-Hoeppli phenomenon), suggesting a bacterial etiology, likely due to Actinomyces or Nocardia spp. Cultures confirmed Actinomyces oris as the causative pathogen. The patient later disclosed that he had been spitting on the wound following a hand injury, which likely introduced the infection.

Intravenous ceftriaxone was initiated, later transitioning to oral phenoxymethylpenicillin. This treatment regimen resulted in substantial improvement of the skin condition after six weeks of therapy.

Conclusions: Cutaneous actinomycosis, due to its clinical similarities to other conditions such as fungal infections and cutaneous malignancies, requires careful differential diagnosis. This case underscores the importance of considering actinomycotic infections in the evaluation of chronic, non-resolving inflammatory lesions. It highlights the need for comprehensive clinical evaluation and a multidisciplinary approach to management for successful treatment.

Accurate diagnosis and timely initiation of appropriate therapy are critical and necessitate a high level of clinical suspicion.

JUVENES PRO MEDICINA

„Acute giardiasis as a rare cause of severe nephrotic syndrome.”

Karolina Drygała

Presenting author: Karolina Drygała

Work supervisor: Marzena Janas, MD, PhD

Affiliations: University of Rzeszów, Poland

Introduction: Giardiasis is a parasitic disease of the duodenum and small intestine caused by the protozoan Giardia duodenalis. It is the most common protozoal infection in the world.

Case report: The paper describes a case of a 34-year-old patient diagnosed with secondary nephropathy caused by acute protozoal infection. The patient was referred to the nephrology clinic with generalized lymphadenopathy and a history of alcohol dependence syndrome in order to extend the diagnostics of nephrotic syndrome. The first symptoms appeared in mid-October: abdominal pain, diarrhea, followed by a decrease in the amount of urine. Then the man was hospitalized in the internal medicine department due to urination disorders occurring for 3 weeks, increasing swelling of the lower limbs, enlarged abdominal circumference and dyspnea. In the tests, following were observed: bilateral pleural effusion, hepatosplenomegaly, ascites and enlarged subcarinal, paratracheal, axillary, periaortic and mesenteric lymph nodes and lymph nodes in the area of the liver hilum and head of the pancreas. On admission to the nephrology clinic, the patient was in a serious condition with signs of emaciation, independent, without edema of the lower limbs. Daily proteinuria of 30.5 g was observed with reduced concentration of total protein and albumin in the serum and hypercholesterolemia. Renal function parameters remained normal. In the morphology, mild anemia and leukocytosis were observed. The patient was consulted by a cardiologist, hematologist, ophthalmologist and laryngologist. Infections with liver viruses, HIV, EBV, CMV, toscoplasmosis were excluded, USR negative. Serum was sent to the Sanitary Inspectorate to exclude hantavirus infection and leptospirosis - negative results. Immunological deficiencies in terms of IgG, IgA, IgE were excluded. Due to the history - diarrhea before hospitalization, work mode and eating and hygiene habits - in order to diagnose possible protozoal infections, genetic tests of stool were ordered. The patient was diagnosed with acute giardiasis. Targeted antibiotic therapy with metronidazole was started. A significant decrease in proteinuria was observed in control tests of 24-hour proteinuria, and no protein was detected in a single urine sample collected on the 6th day of antibiotic therapy. The patient was discharged home with recommendations.

Conclusions: After a thorough analysis of the documentation, parameters of renal function and proteinuria, the most likely cause of secondary nephropathy in the form of severe nephrotic syndrome in the described patient was an acute protozoal infection. This is a rare cause, but it should be borne in mind that inflammations, infections with various etiological factors may be the cause of severe secondary glomerulopathies.

JUVENES PRO MEDICINA

Multiple organ manifestation of autoimmune diseases - a clinical case of a patient with primary cholangitis, autoimmune hypothyroidism and bronchial asthma

Wojciech Michał Jankowski[1]

Presenting author: Wojciech Michał Jankowski[1]

Work supervisor: Marcin Kurowski[2], MD PhD Associate Professor

Affiliations: 1. Student Scientific Association for Allergy, Asthma, and Immunology, 2. Department of Immunology and Allergy, Medical University of Lodz, 90-419 Lodz, Poland Department of Immunology and Allergy, Medical University of Lodz, 90-419 Lodz, Poland;

Introduction: Autoimmune diseases can lead to complex, multi-organ clinical manifestations, requiring a multidisciplinary diagnostic and therapeutic approach. The case presented here describes a patient with primary biliary cholangitis (PBC), autoimmune thyroid disease (AITD) and bronchial asthma, in whom comorbidities and a history of SARS-CoV-2 infection significantly affected the clinical picture and quality of life.

Case report: The 67-year-old female patient reported chronic polyarticular pain, pruritic skin, fatigue, shortness of breath and non-specific subjective gastrointestinal symptoms. Patient reported having been diagnosed with Lyme disease in 2018. In past laboratory assessments elevated liver enzymes and hyperlipidemia were present and were noticeable also upon evaluation at the immunology outpatient clinic. Immunological tests detected AMA-M2, ATG and aTPO antibodies with negative ANA and ASM. Serum IgM concentration was elevated at 2.77 g/L while other Ig isotypes were within normal ranges. After COVID-19 in 2020, her respiratory discomfort persisted and tended to aggravate. In addition, episodic biliary strictures, gastric polyps and thickening of the stomach wall were seen. Cholangio-NMR did not reveal any structural abnormalities within the intra- and extrahepatic bile ducts. Basing on clinical picture and laboratory features, diagnosis of PBC was established. The diagnosis of asthma was made in March 2021, and the condition is now adequately managed. Treatment included hepatoprotective, lipid, bronchodilatatory, analgesic, gastrointestinal regulation preparations and thyroxine.

Conclusions: This case exemplifies diagnostic and therapeutic challenges in patients with autoimmune multimorbidity and the impact of infectious diseases, such as COVID-19, on their course. The complex clinical picture required the cooperation of multiple specialists, and long-term symptom management was based on symptomatic therapy and regular monitoring of the patient's condition.

JUVENES PRO MEDICINA

Chronic Urticaria with Systemic Symptoms and Monoclonal Gammopathy: A Diagnostic Challenge

Dominik Przychodniak

Presenting author: Dominik Przychodniak

Work supervisor: Marcin Kurowski

Affiliations: SKN Allergy, Asthma, Immunology

Introduction: Urticaria is a common symptom that leads patients to seek medical care across various specialties. While typically benign and responsive to antihistamines, chronic urticaria associated with systemic symptoms such as fever, arthralgia, or weight loss requires careful differential diagnosis to exclude underlying systemic conditions. Schnitzler syndrome is a rare autoinflammatory disorder characterized by chronic urticarial rash and monoclonal gammopathy, most commonly of the IgM type, accompanied by systemic inflammatory symptoms. Due to its rarity and overlapping features with other rheumatologic and hematologic conditions, diagnosis is often delayed.

Case report: A 68-year-old male with a history of plaque psoriasis, hypertension, anemia, and spinal degenerative disease was admitted due to recurrent episodes of chronic urticaria present since 2006, with significant exacerbation noted since 2019. He reported systemic symptoms including weight loss, fever up to 38.5°C, joint pain, night sweats, and decreased appetite. Physical examination revealed urticarial wheals, psoriatic plaques, and lower limb edema. Laboratory tests showed leukocytosis, anemia, thrombocytosis, elevated CRP and ESR, and the presence of Bence-Jones protein in the urine. Immunofixation confirmed the presence of monoclonal IgM kappa protein. Imaging revealed inflammatory changes in the lungs and degenerative findings in the spine and peripheral joints. Skin biopsy demonstrated features of neutrophilic urticarial dermatosis, including significant dermal edema and perivascular lymphoid infiltrates with eosinophils. The patient met both Lipsker and Strasbourg criteria for Schnitzler syndrome. Treatment with high-dose antihistamines and systemic corticosteroids resulted in partial symptom control. He entered qualification process for biological therapy with anakinra.

Conclusion: This case illustrates a classic presentation of Schnitzler syndrome, including chronic urticaria, monoclonal gammopathy, systemic inflammation, and constitutional symptoms. The use of updated diagnostic criteria enabled timely recognition of this rare entity. The patient's clinical course and diagnostic findings strongly support the diagnosis. Initiation of IL-1 blockade with anakinra is planned following national program guidelines. Early recognition and appropriate treatment are essential to prevent long-term complications, including secondary amyloidosis and hematologic malignancies.

JUVENES PRO MEDICINA

Long-term diagnostics of severe nephrotic syndrome in a patient with splenomegaly – Case report.

Monika Błądek

Presenting author: Monika Błądek

Work supervisor: Marzena Janas MD, PhD

Affiliations: University of Rzeszów, Poland

Introduction: Nephrotic syndrome is a clinical condition characterized by daily protein loss in urine above 3.5 g/1.73 m2, hypoalbuminemia, edema, hyperlipidemia, and lipiduria. It can be caused by primary, secondary or genetically determined glomerulopathies.

Case report: A 23-year-old patient, with suspected amyloidosis, with severe nephrotic syndrome, currently treated with deflazacort, was admitted to the Nephrology Clinic on an elective basis for extended diagnostics. Since 2009, splenomegaly in the history. As a result of extensive diagnostics, Gaucher disease, Niemann-Pick disease, and congenital spherocytosis were excluded. In 2014, an ultrasound examination described enlarged mesenteric lymph nodes (up to 3 cm). Thalassemia tests (negative result) and trepanobiopsy were performed, which excluded myeloid proliferative disease. In 2021, the patient was hospitalized in the Nephrology Clinic on an urgent basis with a diagnosis of nephrotic syndrome (24-hour proteinuria up to 59.8 g) during the period of preserved renal function. The examination revealed recurrent swelling of the lower limbs and progressive weakness. In addition to the swelling, a significantly enlarged spleen measuring 20.5 cm in the long axis was found. On admission, proteinuria 676 mg/dl, without hematuria, urea and creatinine within the norm. Proteinuria electrophoresis - 85% albumin, while low concentrations of IgG and IgM were found in the serum. Normal parameters of morphology, electrolytes, gasometry, high concentrations of uric acid, D-dimer concentrations increased more than twice were found. In the assessment of the monoclonal panel, an over twenty-fold increase in the concentration of mainly IgG kappa in serum and a three-fold increase in IgG kappa in urine were observed. Low complement C3 and C4 concentrations were also found. ASO, ANA, c- and p-ANCA were determined and the result was negative. During hospitalization (2024), several laboratory and imaging tests were performed. In the ultrasound, the spleen was enlarged, homogeneous, and adjacent to the left lobe of the liver. Renal parameters remained at a stable level, 24-hour proteinuria was 4630-6248 mg/dl with reduced concentrations of albumin and total protein. Material was collected for the genetic panel FSG, Fabry disease and apo-A and LpA - results are being developed. Whole exome sequencing was performed, which raised the suspicion of autoimmune lymphoproliferative syndrome with a mutation of the Fas/CD95 gene.

Conclusion: In some cases of patients with severe nephrotic syndrome and splenomegaly, finding the cause and making a diagnosis may require extensive diagnostics. In this case, genetic testing enabled the detection of the cause, which allowed to plan the implementation of appropriate hematological treatment.

JUVENES PRO MEDICINA

Lichen planus pigmentosus and delusional parasitosis: a complex case of dermatological and psychiatric convergence

Jakub Basa

Presenting author: Jakub Basa

Work supervisors: prof. Aleksandra Lesiak MD, PhD; Małgorzata Dominiak MD

Affiliations: 1 - Student Scientific Research Club of Experimental, Clinical and Procedural Dermatology, Medical University of Lodz, Poland, Department of Dermatology, Paediatric Dermatology and Oncology 2 - Department of Dermatology, Pediatric Dermatology and Dermatol

Introduction: Lichen planus pigmentosus (LPP) is a rare, acquired variant of lichen planus with an unknown etiology. LPP is characterized by persistent, hyperpigmented macules or patches, primarily affecting sun-exposed areas, although it can occasionally involve flexural or intertriginous regions. LPP may be associated with autoimmune diseases, endocrinopathies, and genetic factors. Unlike classic lichen planus (LP), which typically presents with pruritic, violaceous lesions, LPP generally lacks significant pruritus and exhibits diffuse or reticulated hyperpigmentation.

Case report: A 68-year-old female patient presented to the dermatology department with skin lesions that had persisted for 3 years. The plaques were located in the inguinal and inframammary folds on the trunk and on the right hip. The patient also had a persistent delusion of parasitic infestation (delusional parasitosis), which caused severe neurocutaneous pruritus secondary to the delusional fixation. Despite clear clinical indications, the patient declined a psychiatric consultation. Previous outpatient treatments, including topical corticosteroids, gentamicin, and isoconazole applied twice daily in small amounts, were ineffective. Histopathological analysis of biopsies from the left groin and lateral trunk revealed a characteristic appearance of lichen planus. No immediate post-procedure complications were noted. Symptomatic relief was provided during hospitalization, and the patient was discharged in stable condition with instructions for continued dermatological follow-up, including the use of topical clobetasol on the lesions once daily and skin emollients twice daily. A follow-up appointment was scheduled in 3 weeks.

Conclusions: This case underscores the diagnostic and therapeutic challenges of LPP, especially in patients with psychiatric comorbidities, which can further complicate treatment adherence. Delusional parasitosis may exacerbate pruritus and hinder compliance in managing inflammatory dermatoses like LPP. Histopathological examination is crucial to exclude other pigmentary disorders. Effective management of LPP requires a multidisciplinary approach, integrating both dermatological and psychiatric care. Topical corticosteroids have been shown to prevent relapses and improve pigmentation in LPP, emphasizing their role in the treatment of this condition.

JUVENES PRO MEDICINA

Coronary artery fistula in a patient qualified for a liver transplantation.

Konrad Jabłoński

Presenting author: Konrad Jabłoński

Work supervisor: Mariusz Tomaniak

Affiliations: I Katedra i Klinika Kardiologii WUM, SKN przy I Katedrze i Klinice Kardiologii WUM, Warszawski Uniwersytet Medyczny

Introduction: A coronary artery fistula (CAF) is a structural anomaly that involves an abnormal connection between the coronary artery and other vessels or parts of the heart. Most CAFs are congenital, small and clinically insignificant. In the general population, the prevalence of CAFs is approximately 0,002% and accounts for approximately 0,4% of all congenital heart defects. Fistulas originate from the right coronary artery (RCA) in 50-60%, the left coronary artery (LCA) in 25-46%, and from both in approximately 5%. These coronary anomalies mainly open into the right heart structures or pulmonary arteries, leading to left-to-right shunt. Small CAFs are asymptomatic but larger ones can cause a variety of nonspecific symptoms, such as angina pectoris, exertional dyspnea, syncope and may lead to myocardial infarction or congestive heart failure. Symptoms are more common in patients above 20 years old than in those under.

Case report: A 61 year old man with a liver failure resulting from alcoholic liver disease was hospitalized due to qualification for a combined liver and kidney transplantation. The patient had a history of recurrent episodes of encephalopathy and presented with symptoms of portal hypertension, such as splenomegaly or esophageal varices and ascites. His eGFR was around 30 ml/min/1,73m2. At the time of admission he was circulatory and respiratory efficient, but a systolic murmur could be heard on auscultation and the NT-proBNP level was elevated. The patient underwent Holter-ECG which revealed over 9 thousand ventricular extrasystoles. Echocardiography showed a left ventricular ejection fraction of 56 % and a complex aortic valve defect, as severe stenosis and mild regurgitation were found, with maximum velocity of 3,6 m/s. He was scheduled for a transcatheter aortic valve implantation (TAVI), which was performed later. Coronary angiography revealed a CAF originating from RCA and ending with an aneurysm. A similar fistula was present in the LCA.

Conclusions: CAFs can often cause nonspecific symptoms and may be discovered incidentally. It is unclear whether the fistula played the role in development of the observed cardiac abnormalities or whether they were only a result of chronic kidney disease, liver failure and hepatic cardiomyopathy combined with the toxic effects of alcohol, and the enlargement of fistula was secondary to those conditions. However the fistula itself doesn't appear to be a contraindication to the liver transplantation in this patient, but TAVI should be performed before the main surgery.

JUVENES PRO MEDICINA

Navigating a Challenging Course of CRMO: Case reportof an 18-Year-Old with Relapsing Clavicular Disease

Justyna Kuś

Presenting author: Justyna Kuś

Work supervisor: dr n. med. Olga Brzezińska

Affiliations: Medical University of Lodz

Introduction: Chronic Recurrent Multifocal Osteomyelitis (CRMO) is a rare autoinflammatory bone disorder, predominantly affecting children and adolescents. It is characterized by recurrent episodes of sterile bone inflammation, frequently involving the metaphyses of long bones. CRMO diagnosis is often challenging due to its nonspecific symptoms and overlap with infectious and malignant bone diseases.

Case report: An 18-year-old female patient with a diagnosis of CRMO since 2019 was admitted for assessment of disease activity and administration of the second cycle of pamidronate. Initially, the disease presented with swelling of the left clavicle, limited shoulder mobility and intermittent pain. Treatment with sulfasalazine was initiated, but after three years, the patient discontinued it without consulting her doctor. After a flare-up in late 2022, naproxen was introduced, resulting in partial improvement. In April 2024, a hospitalization revealed swelling of the left clavicle, elevated osteocalcin levels and vitamin D deficiency. Whole-body MRI showed bone remodeling of the clavicle, with irregular thickening and possible cortical defects. Sulfasalazine was reintroduced. In July 2024, the patient reported pain in the clavicle and upper extremity, accompanied by a restricted range of motion. Subsequent MRI demonstrated extensive bone marrow edema with cysts, erosions, and surrounding soft tissue inflammation. Due to disease progression, intravenous pamidronate therapy was initiated. The first treatment cycle included three doses: the first at 0.5 mg/kg, followed by two doses at 1 mg/kg. This course was complicated by transient hypocalcemia and superficial thrombophlebitis. Methotrexate (15 mg/week) was added to the treatment. Second pamidronate cycle was administered in December 2024. Apart from mild, transient hypomagnesemia, no significant adverse effects were observed. The patient was transitioned from subcutaneous to oral methotrexate and discharged home with a recommendation for rehabilitation.

Conclusions: CRMO requires long-term multidisciplinary management due to its relapsing nature and potential for structural bone damage. This case highlights the importance of early escalation to second-line treatments such as bisphosphonates and methotrexate when NSAIDs or sulfasalazine are insufficient. Close follow-up is critical to ensure disease control, treatment adherence, and prevention of complications.

JUVENES PRO MEDICINA

Optimization of Coronary Angioplasty Using Intravascular Ultrasound and the Importance of Properly Tailored Dual Antiplatelet Therapy

Karolina Kornatowska

Presenting author: Karolina Kornatowska

Work supervisor: dr n. med. Wojciech Dworzański prof. URad

Affiliations: Faculty of Medicine, Kazimierz Pułaski University of Radom: Radom, Poland

Introduction: According to the latest guidelines, optimization of hemodynamic procedures using intravascular imaging (IVUS and OCT) has become standard practice.

Case report A 59-year-old male patient with multiple comorbidities was admitted to the Department of Cardiology for coronary angiography due to worsening exercise tolerance over the past two months. The patient had a history of inferior wall ST-elevation myocardial infarction (STEMI) in 2022, at which time he underwent percutaneous coronary intervention (PCI) of the right coronary artery (RCA) and the left anterior descending artery (LAD).

During the current hospitalization, coronary angiography revealed a chronic total occlusion of the RCA and persistent good angiographic result of the previous LAD PCI from 2022. Dobutamine stress echocardiography showed no myocardial viability in the RCA vascular territory.

Due to the patient having received dual antiplatelet therapy (DAPT) with ASA and ticagrelor for 15 months post-PCI, a decision was made to discontinue ticagrelor.

One month later, the patient was brought to the Emergency Department in critical condition with signs of cardiogenic shock. Electrocardiography showed ST-segment elevation in the anterior leads. Urgent coronary angiography revealed an acute occlusion of the LAD proximal to the previously implanted stent from 2022. During the procedure, difficulties were encountered in advancing the balloon catheter to the stent site, caused by the unexpected passage of the guidewire through the stent struts, indicative of stent malapposition. Ultimately, successful balloon angioplasty was performed, and thrombus occluding the LAD lumen was aspirated using a thrombectomy device. At that stage, further diagnostic evaluation was deferred due to the patient's critical condition.

Two months later, an intravascular ultrasound (IVUS) examination confirmed stent malapposition in the LAD. A repeat balloon angioplasty of the LAD was performed, with a satisfactory result confirmed by IVUS.

Conclusions: IVUS is a valuable diagnostic tool that enables the optimization of coronary interventions. In patients at high ischemic risk due to chronic coronary syndrome, extended DAPT may be considered.

JUVENES PRO MEDICINA

CINCA/NOMID – A Diagnostic Challenge in Rare Autoinflammatory Diseases: A Case report

Joanna Nadaj

Presenting author: Joanna Nadaj

Work supervisor: dr n. med. Olga Brzezińska

Affiliations: Student Scientific Group of Rheumatology, Medical University of Lodz

Introduction: CINCA (Chronic Infantile Neurologic Cutaneous and Articular Syndrome) also known as NOMID (Neonatal-Onset Multisystem Inflammatory Disease), is the most severe form of CAPS (Cryopyrin-Associated Periodic Syndromes). These syndromes lead to chronic inflammation and overproduction of IL-1β and IL-18. Symptoms typically appear in the neonatal period and include fever, rash, and elevated inflammatory markers. The disease has a chronic, multisystem course—affecting the nervous, visual, auditory, and musculoskeletal systems. It can lead to meningitis, seizures, hearing loss, vision deterioration, growth retardation, and joint and skeletal deformities.

Case report: The patient, a 26-year-old woman, was diagnosed with CINCA syndrome (NOMID) in 2020. In her first year of life, she was diagnosed with juvenile idiopathic arthritis (JIA) and microspherocytic anaemia. Over time, the disease lead to progressive musculoskeletal changes, including deformities of the wrist, knee, and hip joints, growth retardation, muscle atrophy, and significant mobility limitations. Since childhood, the patient has experienced bilateral hearing loss and corneal degeneration. At the age of 5, she underwent splenectomy due to frequent haemolytic crises, which resulted in stabilization of her red blood cell profile.

In 2023, the patient was hospitalized in the Rheumatology Clinic for the differential diagnosis of arthritis, presenting with pain and swelling predominantly in the joints of the hands and feet. She was evaluated for eligibility to begin treated with anakinra. Following treatment initiation, the patient experienced resolution of peripheral joint pain and swelling, as well as improvement in associated symptoms such as headache, dizziness, nausea, vomiting, and fever.

During a follow-up hospitalization in 2024, the patient showed no symptoms of arthritis, and the severity of symptoms related to the underlying disease was significantly reduced compared to before the initiation of pharmacotherapy. Laboratory tests revealed persistent leukocytosis, mildly elevated CRP, consistently elevated ESR, hypercholesterolemia, vitamin D3 deficiency, and hypergammaglobulinemia with a weak oligoclonal IgG kappa and lambda profile observed in immunofixation electrophoresis.

Conclusions: CAPS is a very rare autoinflammatory disease, occurring in 1–2 individuals per million. Its diagnosis is challenging and often significantly delayed. In its early stages, CINCA syndrome may mimic infection or nonspecific inflammation, complicating diagnosis. The disease is often mistaken for systemic-onset juvenile idiopathic arthritis (JIA). IL-1 inhibitors such as anakinra or canakinumab may be effective treatment for the syndrome by significantly reducing the severity of symptoms and limiting the inflammatory process.

JUVENES PRO MEDICINA

Rare Case of Hypertension in a Young Patient Caused by Echinococcus Multilocularis Infection

Paweł Szutko, Weronika Piotrowska, Katarzyna Anikiej, Aleksandra Zbroch, Danuta Leszkowicz

Presenting author: Paweł Szutko

Work supervisor: prof. dr hab. Edyta Zbroch

Affiliations: Uniwersytet Medyczny w Białymstoku, Klinika Chorób Wewnętrznych i Hipertensjologii

Introduction: Hypertension, a common condition with diverse underlying causes, poses significant diagnostic challenges. While primary hypertension accounts for most cases, secondary causes such as primary aldosteronism, renal artery stenosis, and pheochromocytoma must be considered. Among these, adrenal echinococcosis stands out as a rare but important consideration. Though this parasitic infection primarily affects the liver, its occasional spread to the adrenal glands creates a complex diagnostic challenge. Accurate identification of this uncommon manifestation is crucial for implementing targeted treatment strategies.

Case report: A 32-year-old man with recently diagnosed arterial hypertension was hospitalized with worsening exercise tolerance, chest pain, and peripheral edema. Despite antihypertensive therapy, his blood pressure remained uncontrolled. Laboratory findings included elevated serum creatinine (1.71 mg/dl) and proteinuria (1966 mg/24h).

Renal ultrasound revealed bilateral nephromegaly and suspected right renal artery stenosis. Contrast-enhanced abdominal CT identified a calcified right adrenal mass alongside multiple hepatic lesions exhibiting characteristic star-shaped calcifications. Thrombosis involved the inferior vena cava, bilateral renal veins, and right hepatic vein, with collateral circulation development.

Multidisciplinary consultation raised suspicion of Echinococcus multilocularis infection, confirmed by positive serological tests. Albendazole therapy (400 mg twice daily) was initiated, and the patient underwent successful cyst resection during follow-up hospitalization. Intensified antihypertensive management achieved blood pressure stabilization.

Conclusions: Adrenal alveolar echinococcosis, though rare, warrants consideration in secondary hypertension evaluations, particularly with concurrent hepatic involvement and vascular complications. This case highlights the importance of maintaining a high index of suspicion for zoonotic etiologies in refractory hypertension, particularly in endemic regions. The comprehensive diagnostic approach-integrating radiological, serological, and clinical findings-was pivotal in uncovering renal vein thrombosis secondary to disseminated echinococcosis.

JUVENES PRO MEDICINA

“Drug-resistant amiodarone-induced hyperthyroidism type 2 as a complication of treatment for atrial fibrillation with tachyarrhythmia.”

Dawid Bartosik, Julia Jokiel, Robert Bugla

Presenting author: Dawid Bartosik

Work supervisor: dr n. med. Anna Rostropowicz-Honka

Affiliations: Student Scientific Club of Diabetology, Faculty of Medicine, University of Opole, Poland

Introduction: Amiodarone may cause hypothyroidism or thyrotoxicosis. Amiodarone-induced thyrotoxicosis (AIT) type 2 is characterized by excessive release of thyroidhormones due to the direct toxic effect of amiodarone on thyrocytes. Prednisonemonotherapy is usually sufficient for treatment.

Case report: A 52-year-old man was admitted to the Endocrinology Department due torefractory AIT type 2. The patient had ischemic cardiomyopathy with LVEF 35%, NYHA IIIcirculatory failure, chronic renal failure, and paroxysmal atrial fibrillation with tachyarrhythmia.He underwent pulmonary vein isolation by cryoballoon ablation and cardiac surgery epicardial ablation with pulmonary vein isolation.On admission, the examination revealed right-sided facial nerve palsy, facial redness andvery dry, scaly skin with ichthyosis. The ECG showed atrial flutter with a heart rate of120/min. Laboratory tests showed significantly increased concentrations of free thyroid hormones. After treatment with dexamethasone, thiamazole, lithium, propranolol, magnesium and sodium perchlorate, sinus rhythm returned and thyroid hormone levels normalized. The patient was discharged home, but was readmitted a month later due to increasing concentrations of free thyroid hormones. Due to the preferred method of treatment with radioiodine, it was decided to discontinue thiamazole. After a week, iodine scintigraphy was performed, which described iodine uptake at 3.9%, which ruled out radioiodine treatment. Qualification for surgical treatment for life-saving indications was initiated. The parameters of thyroid function improved. A date for surgery was set and the patient was discharged home with recommendations for monitoring at the endocrinology clinic. Unfortunately, shortly afterwards, information was obtained about the patient's death at home.

Conclusions: Amiodarone is an effective drug used to control the heart rate in atrial fibrillation and flutter, but thyroid parameters should be monitored during its use. Resistance to steroid therapy in type 2 AIT prompts the use of other drugs and consideration of radical treatment with radioiodine or thyroid surgery.

JUVENES PRO MEDICINA

Is it always a bacteria? – a lung tumor as an uncommon cause of severely elevated procalcitonin levels

Dominika Jeziorska

Presenting author: Dominika Jeziorska

Work supervisors: Paulina Gorzelak-Pabiś, MD, PhD, prof. UM; prof. Marlena Broncel, MD, PhD

Affiliations: Students' Scientific Circle at the Department of Internal Diseases and Clinical Pharmacology

Introduction: Procalcitonin (PCT) is commonly used in diagnosis of bacterial infections and sepsis. What is less known, is that it can also be elevated post major surgeries, severe trauma or burns, after prolonged cardiogenic shock and in some neoplasms, especially medullary thyroid carcinoma and small cell lung carcinoma.

Case report: A 71 year old male with history of unstable coronary artery disease, hypertension, type 2 diabetes mellitus was transferred from Cardiosurgery Unit, where he was admitted for an urgent coronary artery bypass graft surgery, to the Department of Internal Diseases and Clinical Pharmacology due to persistently increased inflammatory parameters. After surgery, pathological breath sounds were heard on auscultation, C-reactive protein (CRP) and PCT were elevated (40,38 mg/l and 53,10 ng/ml respectively) so a decision was made to implement empiric antibiotic therapy with levofloxacin. CRP levels decreased (10,49 mg/l) but PCT stayed very high (54,40 ng/ml). In our department, due to lack of signs of infection other than high PCT (67,50 ng/ml on the day of admission), the decision to treat the patient with antibiotics was put on hold. The patient was stable with blood pressure of 131/63 mmHg, heart rate of 72 per minute, saturation of 99% without oxygen therapy, body temperature of 36,7°C and did not report any complaints. Physical examination did not reveal any concerns. Anamnesis revealed history of nicotine addiction. Extended laboratory and imaging diagnostics was performed to explore the cause of high PCT. Laboratory testing revealed hypoalbuminemia, anemia (hemoglobin 9,9 g/dl, hematocrit 30,1%) and elevated carcinoembryonic antigen levels (7,34 ng/ml). All cultures were negative. Abdominal ultrasound did not reveal any concerns. Thyroid ultrasound revealed a small, well-separated hypoechogenic lesion with no lymph nodes enlarged. In contrast-enhanced computed tomography of the chest, a 48x59x55mm pathological mass in the hilum of the left lung, surrounding lobar arteries and bronchi and modulating left pulmonary artery was found, along with multiple enlarged mediastinal lymph nodes. A head computed tomography was performed to exclude eventual metastases to the brain – fortunately there were no abnormalities suggesting of a metastatic process, but a 5mm lesion that could indicate an ependymoma was found. The patient was transferred to Pulmonology Department in a different hospital for a further diagnostic process including a bronchoscopy.

Conclusion: It should be remembered that high procalcitonin with no other signs of infection can be caused by a neoplastic growth. Abnormalities that do not improve despite seemingly optimal treatment should be investigated carefully, as they might be an only indicator of a malignancy.

JUVENES PRO MEDICINA

Endocrine Clues in Neurofibromatosis Type 1: A Case Suggestive of MEN2A Syndrome

Julia Modzelewska

Presenting author: Julia Modzelewska

Work supervisor:

Affiliations: SKN Endokrynologii, Diabetologii i Zaburzeń Metabolizmu UWM

Introduction: Von Recklinghausen disease (NF1) is an autosomal dominant inherited phacomatosis caused by a mutation on chromosome 17q11.2, with an estimated incidence of 1 in 3,000 individuals. The most common clinical features include multiple neurofibromas or schwannomas and light brown skin discolorations known as café-au-lait spots.

Case report: A 63-year-old woman with a history of neurofibromatosis type 1, who underwent left adrenalectomy due to pheochromocytoma in 2008, was admitted to the Department of Internal Medicine with suspicion of tumor recurrence in the postoperative bed. The aim was to assess further therapeutic management. In her medical history there is: hypercholesterolemia, arterial hypertension, ischemic stroke in 2003, Hashimoto disease treated with L-thyroxine, prior radiotherapy and chemotherapy for cervical cancer in 2015, partial optic nerve atrophy in both eyes, and osteopenia. On physical examination, numerous neurofibromas and café-au-lait spots were present on the skin.

Laboratory findings revealed normocytic anemia, hypercholesterolemia, elevated fT4 with normal TSH, elevated parathyroid hormone (PTH) levels with normal serum calcium and phosphorus, and vitamin D deficiency. Circadian cortisol concentrations were within normal range. During follow-up labs in May 2022, a single elevation of serum normetanephrine was noted, while metanephrine levels remained within normal limits. Calcitonin levels were elevated, and chromogranin A concentration was 39.54 ng/ml, which falls within the reference range. MRI imaging of the postoperative site showed no evidence of local recurrence.

This constellation of findings- elevated normetanephrine, PTH, and calcitonin- raises suspicion for possible co-occurrence of Multiple Endocrine Neoplasia type 2A (MEN2A) syndrome, characterized by pheochromocytoma, primary hyperparathyroidism, and medullary thyroid carcinoma.

Conclusion: There is no radiological evidence of tumor recurrence in the surgical bed, nor are there signs of adrenal insufficiency post-adrenalectomy. While the elevated normetanephrine level may suggest a potential extra-adrenal pheochromocytoma, the increased PTH is likely secondary to vitamin D deficiency. However, elevated calcitonin levels may be indicative of medullary thyroid carcinoma. Given the combination of clinical and biochemical findings, careful monitoring is warranted for the potential development of full MEN2A syndrome in this patient.

JUVENES PRO MEDICINA

Sudden cardiac death in men with preexisting cardiovascular disease after sildenafil use: series of Case reports

Zuzanna Czeczelewska, Izabela Hołod

Presenting author: Zuzanna Czeczelewska

Work supervisor: dr n. med. i n. o zdr. Tomasz Cywka

Affiliations: Students Scientific Association at the Department of Forensic Medicine, Medical University of Lublin

Introduction: Sildenafil was originally investigated as a treatment for hypertension and angina when accidentally there was noticed an effect on inducing erections. Therefore, this drug started to be sold under the name Viagra to treat erectile dysfunction. This is a phosphodiesterase type 5 (PDE5) inhibitor which enhances the effects of nitric oxide in relaxing blood vessels and improving blood flow. Unfortunately, sildenafil is not free from side effects. Apart from the harmless ones like headaches, dizziness, vision blurred, nausea there are also much more serious ones like myocardial infarction and even sudden cardiac death.

Case reports:

Case 1

A 51-year-old man was found dead in the hotel room. The autopsy revealed the heart of the normal structure and weight along with the course of coronary arteries. However, the stenosis of the mild extent leading to narrowing was depicted in the right coronary artery and circumflex branch of the left coronary artery. Major stenosis of 2 cm was found in the anterior interventricular branch of the left coronary artery. The dissection of the aorta revealed few atherosclerotic infiltrations. No such infiltrations in the pulmonary arteries were found. The most significant feature was the subepicardial area of hyperemia of 3x0,7 cm in the muscular part of the interventricular septum suggesting the occurrence of earl myocardial necrosis. Toxicological analysis demonstrated the presence of sildenafil of 51,8 ng/ml.

Case 2

A man in his 70s collapsed during sexual intercourse in a car. Despite the emergency response, resuscitation failed. The man had a severe cardiovascular medical history of three cardiac infarctions.

During the autopsy, the heart was enlarged to 586 g. Coronary arteries of right course but advanced stenosis leading to a complete narrowing of the vessels. The aorta widened, with 5 cm in the diameter with advanced stenosis as well. No atherosclerotic plaques in the pulmonary trunk and arteries were found. All heart valves demonstrated multiple calcifications. In the area of the left ventricle there was visible an irregular 2,5×1,5 cm cicatrix indicating previous myocardial infarctions and, above it, an 1,2×0,5 cm area of hyperemia. Autopsy revealed the occurrence of white tablet mass in the stomach, probably the sildenafil.

Conclusions: Presented cases suggest a potential risk of sudden cardiac death which is related to use of sildenafil by men with preexisting cardiovascular disease. Generally sildenafil is safe when used under proper medical supervision, but its vasodilatory effects in combination with the stress of sexual activity may trigger acute myocardial events, especially in patients with advanced coronary artery disease. Recurring presence of myocardial infarct in the anterior wall of the left ventricle suggests a common pathophysiological mechanism. Based on these observations, it is necessary to assess the cardiovascular risk before implementing the PDE5 inhibitor therapy.

Eosinophilic Granulomatosis with Polyangiitis (EGPA) and Diffuse Alveolar Hemorrhage (DAH): A Diagnostic and Therapeutic Approach

Natalia Krupińska

Presenting author: Natalia Krupińska

Work supervisor: Magdalena Adamczewska, MD

Affiliations: Student Scientific Association at the Department of Internal Medicine, Asthma and Allergy

Introduction: Eosinophilic Granulomatosis with Polyangiitis (EGPA) is a necrotizing vasculitis affecting small- and medium-sized blood vessels, characterized by extensive eosinophilic infiltration and resulting in organ damage due to tissue inflammation and ischemia. EGPA is classified as one of the ANCA-associated vasculitides (AAVs), but ANCA are present in only 40% of patients with EGPA. EGPA involves multiple organ systems, including the respiratory, nervous, cardiovascular, integumentary and gastrointestinal systems. Although the prognosis is good, relapses in EGPA are frequent, and many patients have chronic symptoms that require long-term treatment with corticosteroids.

Case report: 60-year old patient with EGPA was admitted as planned to the Clinic of Internal Medicine, Asthma and Allergy for diagnostic evaluation due to several months of exercise intolerance, exertional dyspnea and fatigue. The patient also reported night sweats, memory impairment, lower limb muscle pain and episodes of cacosmia, 2 kg unintentional weight loss over the past two months. Medical history: gastroesophageal reflux disease, chronic sinusitis, erythematous gastritis, impaired glucose tolerance and an episode of unilateral epistaxis. Before hospitalization blood test revealed a drop in hemoglobin (Hgb) from 15 to 13g/dL, eosinophilia (1050/μL), low serum iron, elevated CRP and ESR, increased D-dimer levels (1.28 μg/ml). By admission eosinophilia (1110/μL), Hgb 12 g/dL, mild leukocytosis (13000/μL), iron deficiency (15μg/dL), elevated CRP (58mg/L). During hospitalization diffusion lung capacity for carbon monoxide (DLCO) was 127%, chest computed tomography (CT) demonstrated bilateral ground-glass opacities, consistent with interstitial inflammatory infiltrates. A diagnostic bronchoscopy was performed. Patient underwent bronchoalveolar lavage (BAL) and 200 ml of BAL fluid was obtained. Based on the clinical presentation, radiologic findings, DLCO and BAL fluid analysis, a diagnosis of diffuse alveolar hemorrhage (DAH) was established. Conservative treatment was initiated with 30 mg of prednisone per day, gradually tapering the dose. The patient, in good general condition, was discharged with medical recommendations for further outpatient treatment.

Conclusion: DAH is characterized by bleeding within the alveolar spaces of the lungs and is primarily associated with AAVs, making it one of the complications of EGPA. The severity of immune-related DAH can vary significantly, ranging from asymptomatic cases, often identified through routine chest radiographs, to severe, life-threatening conditions. The diagnosis and treatment of DAH are challenging. Although DAH is typically associated with a poor prognosis and requires intensive treatment, it is essential to recognize that some patients may experience a more benign course, as demonstrated in this case.

JUVENES PRO MEDICINA

Shrinking Lung Syndrome as a Rare Manifestation of Systemic Lupus Erythematosus

Alicja Kwaśny

Presenting author: Alicja Kwaśny

Work supervisor: dr n.med. Olga Brzezińska

Affiliations: Medical University of Lodz

Introduction: Shrinking lung syndrome (SLS) is characterised by unexplained, progressive dyspnoea, shortness of breath, a restrictive pattern on pulmonary function tests, an elevated hemidiaphragm and pleuritic chest pain. SLS is most common in systemic lupus erythematosus but can also occur in patients with Sjögren syndrome, rheumatoid arthritis and scleroderma. The pathogenesis of the disease is still unknown, but the most accurate theories involve diaphragmatic dysfunction caused by phrenic neuropathy or myositis as well as hypoventilation secondary to chest pains. Probably, a combination of neurological, immunological and mechanical factors contribute to the development of the shrinking lung syndrome but finding pathogenesis is crucial to provide higher quality care for patients.

Case report: A 31-year-old woman with systemic lupus erythematosus was admitted electively to the department of Rheumatology and Clinical Immunology because of exacerbation of the disease. She was also diagnosed with juvenile idiopathic arthritis, hepatosplenomegaly, hypercholesterolaemia and bipolar disorder. On admission, the patient complained of muscle weakness, tendency to bruise, dryness of the oral cavity and eyes, night sweats, sub-febrile states and skin itching after sun exposure, SLEDAI-2K=17. In the last 6 months before the admission to the hospital, her symptoms of SLE progressively worsened. She had been suffering from migratory arthritis with periodical inflammation and with aggravating dyspnoea on exertion. Spirometry excluded obstructive ventilatory defects but indicated features of a restrictive pattern, which was confirmed in body plethysmography with TLC equal to 56%. TLCO showed severe dysfunction of diffusion (43%), and HRCT revealed thickenings of pleura and small subpleural lumps. SPECT of the lung was also performed and excluded pulmonary embolism. On the grounds of these symptoms and test results, the shrinking lung syndrome was diagnosed. The patient had been previously treated with sulfasalazine, prednisone, methotrexate and etanercept, which were eventually completed. Subsequently, the monotherapy of hydroxychloroquine was continued. Following recent exacerbation, therapy was escalated to add mycophenolate mofetil, prednisone and methotrexate.

Conclusion: To conclude, shrinking lung syndrome is most common in systemic lupus erythematosus but it occurs in less than 1% of patients and can be difficult to diagnose due to its non-specific presentation. The most severe complication is respiratory failure, which is possible to be evitable if accurate treatment is instituted. Although the standardised treatment protocol is non-existent, medicines like steroids, analgesics or, as a later-line therapy, biological treatment (e.g., rituximab) are recommended. There is a possibility of a good prognosis for patients with SLS but further research is necessary to implement better treatment protocols.

JUVENES PRO MEDICINA

Diffuse Alveolar Hemorrhage: A Rare but Potentially Fatal Complication of Systemic Lupus Erythematosus

Katarzyna Sołoducha

Presenting author: Katarzyna Sołoducha

Work supervisor: dr n. med. Olga Brzezińska

Affiliations: Medical University of Lodz

Introduction: Systemic lupus erythematosus (SLE) is a chronic autoimmune connective tissue disease characterized by the production of various autoantibodies and immunocomplexes, which contribute to systemic inflammation and subsequent organ damage. Pleuropulmonary involvement develops in 50-70% of SLE patients most commonly presenting as pleuritis and pleural effusion. Diffuse alveolar hemorrhage (DAH) affects approximately 0,6-5,7% of SLE patients and can also serve as the initial manifestation in 10-30% of cases. Although rare, DAH is characterized by high mortality rate.

Case report: We present a case of a 21-year-old male patient admitted to the Rheumatology Clinic with a suspected systemic connective tissue disease. Over the past two months he had been experiencing arthralgia, affecting mainly small joints of the hand, accompanied by morning stiffness, fever up to 38°C and night sweats. In September 2023 he presented to the dermatology ER due to erythematous and edematous skin lesions located on the trunk, upper, and lower extremities, preceded by an upper respiratory tract infection. Laboratory tests revealed anaemia with Hbg level of 8,1 g/dl, elevated inflammatory markers, hypoalbuminemia and reduced total protein levels. Serological testing demonstrated the homogenous-pattern ANA antibodies at a titer of 1:320, with positive Results for anti-dsDNA, anti-nucleosome, anti-histone, and anti-nRNP/Sm antibodies, as well as Mi-2 alpha antibodies. Additionally, p-ANCA were detected at a titer of 1:320. Based on the overall clinical presentation, a diagnosis of systemic lupus erythematosus with associated vasculitis was made and the patient received treatment consisting of methylprednisolone and cyclophosphamide. In the third week of hospitalization, he developed hemoptysis. Diminished vesicular breath sounds were noted at the bases of both lungs, accompanied by bilateral crackles and rales. His oxygen saturation dropped to 89%. HRCT revealed diffuse ground-glass opacities involving all pulmonary lobes. These findings were consistent with a diagnosis of diffuse alveolar hemorrhage (DAH). The patient was treated with immunosuppressive drugs, including methylprednisolone, azathioprine, rituximab and i.v. immunoglobulin infusions. Moreover, he underwent three plasmapheresis procedures. The treatment was successful and after almost two-month hospitalization the patient was discharged home in a stable condition.

Conclusion: To conclude, DAH is a life-threatening condition, which can be associated with autoimmune disorders, such as SLE. It presents with non-specific respiratory symptoms, including dyspnea, hemoptysis, cough, and a rapid decline in hemoglobin levels. Given the nonspecific presentation and potentially rapid deterioration, prompt diagnosis and aggressive immunosuppressive therapy are essential to improving outcomes in patients with DAH secondary to SLE.

JUVENES PRO MEDICINA

Successful use of photodynamic therapy in rare genodermatosis: a Case report

Małgorzata Dokurno

Presenting author: Małgorzata Dokurno

Work supervisors: Natalia Zdanowska MD PhD, Alicja Frączek MD PhD

Affiliations: Uniwersytet Warmińsko-Mazurski w Olsztynie, Collegium Medicum, SKN Dermatologii i Wenerologii

Introduction: Hailey-Hailey disease is a rare genodermatosis inherited in an autosomal dominant manner. It most commonly manifests in the 2nd or 3rd decade of life. It is characterized by erythematous lesions with poorly tense blisters that form extensive plaques covered with erosions and crusts.

Case report: A 40-year-old patient was admitted to the Department of Dermatology and Venereology for the evaluation of skin lesions in the groin and axillary areas, which had been present for 15 years. The lesions were primarily erythematous, with slightly papillomatous changes in the groin covered by scaling epidermis. A histological examination of a biopsy specimen revealed a morphological pattern consistent with pemphigus. However, direct immunofluorescence (DIF) testing was negative.

The patient had previously been treated with hydrocortisone with oxytetracycline, detreomycin, and amoxicillin with poor therapeutic outcomes.

During hospitalization, photodynamic therapy (PDT) was applied to the affected areas. After six monthly cycles, a significant reduction in lesions and improvement in the appearance of the affected skin was achieved.

Conclusions: Photodynamic therapy can be successfully used as an alternative treatment for Hailey-Hailey disease, in addition to corticosteroids and antibacterial agents.

JUVENES PRO MEDICINA

Multidrug-resistant bacterial and rare mycotic systemic infections in patient with acute myeloid leukemia

Rafaela Filipan, Nadira Duraković

Presenting author: Rafaela Filipan

Work supervisor: Nadira Duraković

Affiliations: School of Medicine, University of Zagreb, Croatia; Department of Hematology, University Hospital Centre Zagreb, Croatia

Introduction: Nowadays through customary overprescription of antimicrobial agents, we face rapid growth of multidrug-resistant organisms. They are especially dangerous for hematopoietic stem cell transplant patients.

Case report: A 56-year-old man presented to the ER with febrile neutropenia. Four months earlier, he underwent allogeneic hematopoietic stem cell transplantation (alloHSCT) from unrelated matching donor, but unfortunately experienced secondary graft rejection. Upon admission blood cultures revealed Klebsiella pneumoniae OXA-48 which was treated with ceftazidime/avibactam. Patient stabilized and was subjected to the second alloHSCT. The next day he became febrile again. Since his stool sample showed colonization with Citrobacter freundii KPC NDM and Enterococcus faecium VRE, treatment with cefiderocol and daptomycin was initiated, in accordance with the sensitivity test. After a few days of improvement, patient became febrile again with blood cultures showing Clostridium tertium and Trichosporon asahii. Meropenem and amikacin along with voriconazole and amphotericin B were administered according to the recent guidelines. On examination, the patient presented with maculopapular rash on arms, hands, torso and legs, that was proven to be infiltrates of Trichosporon on biopsy. Echocardiography disclosed no signs of endocarditis which can develop as a complication of a mycotic systemic infection. Since Trichosporon asahii usually doesn't generate a hospital-acquired infection but resides in soil and water, it can be explained as an adverse effect of having construction work done close by.

Conclusion: Finally, we are witnessing a troubling rise of multidrug-resistant infections globally which can, without proper antibiotic stewardship and multidiscipline approach, influence negatively clinical outcomes of our patients.

JUVENES PRO MEDICINA

Malpositioned Central Line: A Case of Unusual Venous Cannulation

Przemysław Żuchnik

Presenting author: Przemysław Żuchnik

Work supervisor: Bartosz Sadownik MD

Affiliations: 2nd Department of Anesthesiology and Intensive Care, Medical University of Warsaw, Poland. Department of Descriptive and Clinical Anatomy, Medical University of Warsaw, Warsaw Poland

Introduction: Central venous catheters (CVCs) are commonly used for vascular access in the administration of fluids, drugs, and parenteral nutrition. One possible complication of CVC is malposition, which refers to the accidental catheterization of tributaries of the superior vena cava (SVC). An uncommon but potentially possible malposition involves catheterization of the hemiazygos accessory vein (HAV). The HAV originates from four to eight upper left posterior intercostal veins and descends in the posterior mediastinum on the left side of the thoracic vertebral bodies. The termination of the HAV is highly variable; possible variations include drainage into the hemiazygos vein, the azygos vein, or the left brachiocephalic vein. We present the case of a patient who developed catheter-related complication during their intensive care unit (ICU) stay.

Case report: A 24-year-old patient was admitted to the ICU from the Department of Hepatology due to acute renal failure associated with acute pancreatitis. To obtain vascular access, an 8-French cannula was inserted into the left internal jugular vein (LIJV) as a CVC. The catheter was placed without resistance to a depth of 20 cm. Routine post-placement chest X-ray (CXR) in a supine position showed an abnormal location of the catheter on the left side of the inferior mediastinum. After repositioning, a follow-up CXR showed the tip of the catheter positioned slightly higher. Venous blood gas and central venous pressure measurements confirmed presence in the venous vessel, the catheter was left in place. A computed tomography (CT) scan performed for other reasons revealed the presence of the catheter within the HAV lumen. The catheter was removed, and another was then placed in the opposite internal jugular vein under. The exact location in the SVC was confirmed by CXR and USG.

Conclusion: In the case of CVC malposition into the HAV, CXR may be an insufficiently accurate method for controlling the position of the catheter tip. If the clinical presentation or chest X-ray suggests this complication, it is worth considering a chest CT scan. The preferred management strategy includes immediate removal of the malpositioned catheter and placement of a new catheter at a more reliable site, such RIJV, femoral veins.

JUVENES PRO MEDICINA

Internal Medicine III Case reports

17th of May 2025

Coordinators:

Alicja Kwaśny

Katarzyna Sołoducha

Nader Boustany

Jury:

dr n. med. Katarzyna Wojciechowska-Durczyńska

dr. n. med. Barbara Włodarczyk

dr n. med. Joanna Miłkowska-Dymanowska

dr n. med. Adam Stańczyk

dr n. med. Robert Morawiec

dr n. med. Maciej Nadel

prof. dr hab. n. med. Marlena Broncel

JUVENES PRO MEDICINA

A Mass of Confusion: When Histopathology Cracks the Case

Iga Koryciarz, Bogumiła Klimczak

Presenting author: Iga Koryciarz

Work supervisors: Olga Brzezińska MD, PhD; Aleksandra Opinc-Rosiak MD, PhD

Affiliations: Medical University of Lodz

Introduction: IgG4 Related Disease (IgG4-RD) is an insidious autoimmune fibroinflammatory disorder causing tumour-like lesions in many organ systems and can cause major organ dysfunction, often mimicking cancer, infections and inflammatory disorders, thus complicating diagnosis. Steroids remain the mainstay of treatment, with conventional synthetic DMARDs useful as maintenance agents and Rituximab for remission induction and reducing relapse risk. Extranodal marginal zone lymphoma (EMZL) of mucosa-associated lymphoid tissue is a low-grade B-cell non-Hodgkin lymphoma often associated with chronic inflammation. Though typically gastric, it can occur in rarer sites, including the orbit and paranasal sinuses—mimicking benign inflammatory or autoimmune conditions. Diagnosis relies on identifying monoclonality in lymphoid infiltrates through histopathologic evaluation.

Case report: 73 y/o female was admitted to the Rheumatology Ward with left orbital (LO) and ethmoid sinus tuberous mass, presenting blepharoptosis, purulent left lacrimal gland discharge and paraesthesia in the left upper part of the face. 2 months prior, due to LO oedema, ptosis, diplopia and pain, patient underwent ophthalmologic, otolaryngologic and maxillofacial surgery consultations. CT scans revealed LO pathological mass, destroying the medial wall, adjoining the rectus muscles and the optical nerve. Left ethmoidectomy was performed with biopsy showing inflammatory infiltrate dominated by plasmacytes and B-cells, with no clear kappa/lambda restriction, T-cells and few neutrophils - findings inconclusive for malignancy. At the Rheumatology Ward, patient reported chronic xerophthalmia, xerostomia and 10kg weight loss at symptoms onset, yet denied fevers or night sweats. Unclear picture and high inflammation prompted IgG4-RD/vasculitis work-up: ANA 1:160, borderline Ro52, negative ANCA and normal IgG4. Prednisone was started as standard treatment. Orbital infection positive for Klebsiella varicola and Staphylococcus hominis prompted antibiotic therapy with ciprofloxacin, followed by ceftriaxone. Finally, a re-evaluation of the original biopsy was requested, revealing a negative result for EBV, HHV8 and no features of IgG4-RD, yet crucially, a clear Kappa+>Lambda+ plasmacyte restriction. This allowed for diagnosis of EMZL, and the patient was referred to hematology.

Conclusion: Sometimes, a slow-burning autoimmune process is in fact a malignancy in disguise. This case is unique due to its rare location, unclear initial biopsy and mimicry of an autoimmune condition – sicca syndrome, chronic inflammation, tumour-like lesion and no B symptoms, except for initial weight loss. Orbital and ethmoid sinus masses stem from a broad differential; IgG4-RD, granulomatosis with polyangiitis, sarcoidosis, infectious aetiologies, lymphomas or metastases. The case underscores the importance of an expert pathologist in solving ambiguous cases, especially as the hidden disease may be fatal.

'A fungus that kills in leukemic thrills: A case study of patient with acute myeloid lymphoma complicated by pulmonary aspergillosis.'

Marcel Jancewicz, Katarzyna Błatoń, Patrycja Kaźmierczak

Presenting author: Marcel Jancewicz

Work supervisor: Ewa Skrzypczyńska, PhD, MD

Affiliations: SKN Bronchus

Introduction: Acute myeloid leukemia (AML) is a malignant disorder of the hematopoietic system, most commonly affecting adult males (median age at diagnosis is 65–70 years). This group of patients is most frequently affected by aspergillosis, particularly during first-line chemotherapy. The mortality rate is approximately 33%, making it the most serious complication among hematologic malignancies.

Case report: We present the case of a 37-year-old woman with AML complicated by pulmonary aspergillosis. The patient was admitted as an emergency due to the presence of extensive lesions observed on computed tomography (CT): a cavity in the right lung and suspected multiple nodular changes with partial disintegration in both lungs. Laboratory tests did not reveal neutropenia, which is typically characteristic for this condition. In addition, bacterial, specific, and Pneumocystis jiroveci infections were excluded. Despite ongoing treatment, follow-up CT imaging showed no regression of the characteristic lesions. Therefore, antigen testing was performed, yielding a positive result for galactomannan antigen. As a result, a new treatment was initiated, leading to radiological improvement. The patient was discharged with recommendations to continue treatment and undergo follow-up examinations.

Conclusion: Pneumonia caused by Aspergillus fumigatus, as a complication of AML, presents diagnostic challenges. Based on our patient's case, it is evident that the course of the disease may not always follow typical patterns, and treatment may not lead to immediate or expected results.

JUVENES PRO MEDICINA

Granulomatosis with Polyangiitis in a Patient with newly-diagnosed in Situ Ductal Carcinoma - Diagnostic and Therapeutic Dilemmas

Kinga Weronika Stanek, dr n.med. Małgorzata Wajdlich, prof. dr hab. n.med. Michał Nowicki

Presenting author: Kinga Weronika Stanek

Work supervisors: dr n.med. Małgorzata Wajdlich, prof. dr hab. n.med. Michał Nowicki

Affiliations: Klinika Nefrologii, Hipertensjologii i Transplantologii Nerek

Introduction: Granulomatosis with polyangiitis (GPA) is an ultra-rare autoimmune inflammatory disease affecting small and medium-sized vessels, typically involving the upper or lower respiratory tract and the kidneys where it manifests as a rapidly progressive glomerulonephritis. The untreated disease is associated with a mortality rate exceeding 90%. Its etiology remains unknown; however, in some cases, a paraneoplastic origin needs to be considered.

Case report: We present the case of a 74-year-old female patient with a recent history of ductal carcinoma in situ (DCIS) of the left breast and hypothyroidism. One month after the diagnosis of DCIS, the patient developed symptoms of both upper and lower respiratory tract inflammation, unresponsive to antibiotic therapy, along with progressively deteriorating renal function. Therefore, she was admitted to a clinical nephrology center for further diagnosis. Computed tomography of the chest revealed numerous, diffuse fibrotic changes and single inflammatory foci. During hospitalization, laboratory tests showed the presence of pANCA at a titer of 1:40, active urine sediment, 24-hour proteinuria of 0.97 g/day and hypoproteinemia with hypoalbuminemia and hypogammaglobulinemia. An urgent kidney biopsy revealed pauci-immune glomerulonephritis with cellular crescents and capillary loop necrosis. Additionally, an otolaryngological consultation and computed tomography of the facial skeleton confirmed chronic sinusitis. Based on the clinical picture, a diagnosis of GPA was established. The simultaneous cancer diagnosis significantly limited the available options for immunosuppressive therapy. Following several oncological consultations, the patient underwent breast-conserving surgery to remove the tumor in the left breast, which enabled the initiation of treatment with corticosteroids and cyclophosphamide. The patient remains under ongoing nephrological and oncological follow-up.

Conclusion: Given coincidence in time of the DCIS and GPA diagnossis, a paraneoplastic origin of GPA maybe be considered. However, confirmation of such an association will require long-term follow-up and evaluation of the patient's response to treatment.

JUVENES PRO MEDICINA

Incidentally detected aortic valve dislocation

Łukasz Czuba, Adam Rafałowicz, Daria Woroniecka, Monika Olszańska

Presenting author: Łukasz Czuba

Work supervisor: Dr hab. n. med. Anna Lisowska

Affiliations: Studenckie Koło Naukowe przy Klinice Kardiologii i Chorób Wewnętrznych Uniwersytetu Medycznego w Białymstoku

Introduction: Dislocation of the mechanical aortic valve is a rare complication (<1% of cases) most commonly caused by infection, damage or weakening of anatomical structures. Symptoms of valve prosthesis dislocation are quite non-specific, the main ones being dyspnoea and a decrease in exercise tolerance, discomfort and palpitations, which may prompt treatment specific to other disease entities. Due to the non-specific nature of these complaints, a thorough diagnosis is crucial and a correct diagnosis is often made late, worsening the patient's prognosis.

Case report: A 58-year-old man with a history of HFpEF (EF 55%) and paroxysmal atrial fibrillation, having undergone CABG and implantation of a mechanical aortic valve prosthesis, and an interventional myocardial infarction, presented to the ED of a district hospital with palpitations and chest discomfort, with moderate impairment of exercise tolerance (NYHA class II). In addition, history of ischaemic stroke, type 2 diabetes, hypertension, hyperlipidaemia. An ECG showed atrial fibrillation with rapid ventricular response (which resolved spontaneously) and echocardiography showed displacement of the mechanical aortic valve prosthesis towards the aorta, which led to the decision to immediately transfer the patient to a higher referral centre.

On admission to the Department of Cardiology, the patient was haemodynamically stable; echocardiography revealed an aortic root aneurysm with dislocation of the mechanical aortic valve prosthesis and rupture of the non-coronary sinus. On the first day of hospitalisation, there was a rapid clinical deterioration and recurrence of atrial fibrillation with rapid ventricular rate. The patient was qualified for an emergency Bentall procedure. After the procedure, postoperative cardiorespiratory instability developed and left hemiparesis was noted. On follow-up echocardiography - significant impairment of LV systolic function - EF 35%. The patient was transferred to the ICU, where mechanical ventilation and veno-arterial ECMO were applied; additionally, the patient required implantation of a pacemaker due to postoperative atrioventricular block, and renal replacement therapy was implemented. Unfortunately, the patient died on postoperative day 19.

Conclusion: This case highlights the importance of efficient diagnosis of mechanical heart valve prosthesis dysfunction. In the present case, despite a prompt, appropriate diagnosis and emergency cardiac surgery, the patient could not be saved.

JUVENES PRO MEDICINA

The use of TAH SynCardia and patient care after the procedure

Milena Muniak, Emilia Słabońska, Ilona Stopa, Magdalena Truch

Presenting author: Milena Muniak

Work supervisor: MD Marek Grochla

Affiliations: Department of Cardiac Anesthesiology and Intensive Care

Introduction: TAH SynCardia, or Total Artificial Heart, is a so-called artificial heart and provides a solution for patients with heart failure. This solution is used as a medium-term bridge to heart transplantation. Indications for artificial heart implantation include extensive acute myocardial infarction, rejection of the transplanted heart, left ventricular failure with previously placed mechanical valves, acquired inoperable ventricular septal defect, multiple left ventricular wall thrombi, incurable ventricular arrhythmia, failure of Fontan correction and end-stage hypertrophic cardiomyopathy. The main complications associated with the use of TAH SynCardia are strokes, infections, thrombosis, renal failure and chronic anemia. It is also important to note the risks associated with the device itself, mostly caused by device failures. The use of TAH SynCardia is contraindicated in patients who: are ineligible for heart transplantation, do not have enough chest space, and when anticoagulant therapy cannot be maintained after the procedure.

Case report: The following paper aims to describe a case of successful implantation of an artificial heart and the care of the patient after the procedure in the Intensive Care Unit. The patient, after two myocardial infarctions, with concomitant diseases - obesity and hypertension, was qualified for heart transplantation on 31.10.2018 due to heart failure persisting despite percutaneous coronary angioplasty. He received the transplant on 1.11.2018 after four months of TAH SynCardia implantation. During TAH SynCardia, the patient developed subcutaneous and pericardial emphysema. He developed cardiopulmonary insufficiency and focal ischemic lesions in the CNS occurring on both sides. This resulted in polyneuropathy and tri-infarct hemiparesis with preservation of mobility in the right upper limb, which required regular neurological and psychiatric consultations. In addition, the patient required both respiratory and physical rehabilitation. After the heart transplant, the patient was in hemodynamically stable condition, and rehabilitation was maintained.

Conclusion: The management of patients requiring heart transplantation is a huge challenge in intensive care units. Based on published meta-analyses, TAH Syncardia is 79% effective and provides reasonable post-transplant survival outcomes (70% at 1 year, 50% at 5 years, and 45% at 8 years), so it plays a key role in the comprehensive management of patients awaiting transplantation. The use of TAH SynCardia requires complex multispecialty patient care by both cardiac surgeons, anesthesiologists, physical therapists and the rest of the highly trained and experienced medical team.

JUVENES PRO MEDICINA

A Second Heart, A Second Chance: Managing Severe Heart Failure with Transplantation

Patrycja Siebiatyńska[1], Wiktoria Żakowicz[1], Jakub Łomzik[1], Patrycja Oliwia Lipska[1], Katarzyna Barcicka[1]

Presenting author: Patrycja Siebiatyńska

Work supervisor: Anna Lisowska[2] MD, PhD

Affiliations: [1]Student Scientific Association, Department of Cardiology and Internal Medicine with Cardiac Intensive Care Unit, Medical University of Bialystok, Poland, Department of Cardiology and Internal Medicine with Cardiac Intensive Care Unit, Medical University

Introduction: Heart failure (HF) is characterized by impaired cardiac function, in which blood flow to the tissues is insufficient to meet their metabolic demands. As a result, it leads to a complex clinical syndrome with characteristic signs and symptoms. There are several treatment options for HF, but the choice depends on the stage of the disease. In severe cases, patients who are otherwise in good overall health but classified as NYHA class IV, with frequent hospitalizations due to HF exacerbations, heart transplantation is one of the possible forms of etiological treatment.

Case report: A 54-year-old male patient with a history of severe HF, dilated cardiomyopathy, arterial hypertension, lateral STEMI in June 2023, and implantation of a cardioverter-defibrillator in the primary prevention of sudden cardiac death, was admitted to the Cardiac Intensive Care Unit due to worsening HF symptoms. The current treatment of HF has included bisoprolol, sacubitril/valsartan, spironolactone, dapagliflozin, furosemide, torasemide and rosuvastatin. Upon admission, the patient was in moderate general condition, presenting with normotension, without oxygen therapy. Laboratory tests revealed elevated NT-proBNP (4208 pg/ml), D-dimers (3,39 µg/ml), and C-reactive protein (33 mg/l), Electrocardiography showed a sinus rhythm at 90 bpm, left axis deviation, first-degree atrioventricular block, and Q waves in leads I and aVL. Echocardiography demonstrated severely impaired global systolic function with an ejection fraction of 10%, grade II diastolic dysfunction, cardiomegaly, significant tricuspid regurgitation, and the presence of a huge apical thrombus in the left ventricle measuring 10 x 3 x 5,5 cm. During hospitalization, diuretic therapy was intensified to alleviate HF symptoms. Due to persistent hypotension, the dose of sacubitril/valsartan was reduced. Additionally, because of the patient's inability to monitor the effectiveness of anticoagulation therapy with a warfarin, the treatment was modified by initiating rivaroxaban in combination with acetylsalicylic acid. A decision was also made to initiate the qualification process for heart transplantation. Fortunately, the patient's condition improved significantly, allowing for discharge with recommendations for continued qualification for heart transplantation.

Conclusion: Heart transplantation remains the gold standard in the treatment of severe HF in patients who remain symptomatic despite optimal medical therapy. The demand for transplants is significantly higher than the number of available donors, which is why, during the waiting period, treatment should focus on maintaining vital functions and preventing permanent organ damage. Prior to the procedure, all potential foci of infection should be thoroughly excluded, along with additional tests required in the qualification process. Once the heart transplant is successful, it can provide the patient with a relatively long life and even a return to professional activity.

JUVENES PRO MEDICINA

Fighting Fire with Oxygen-A challenging approach to a patient with Infective Endocarditis

Mateusz Dźwil

Presenting author: Mateusz Dźwil

Work supervisor: Witold Bachorski

Affiliations: I Klinika i Katedra Kardiologii GUMed, SKN Hemodynamiki

Introduction: Infective endocarditis (IE) is an acute endocardial infection mostly caused by bacterial infection. It is an especially dangerous condition in patients with prosthetic valves and grafts. These patients need a different and more challenging approach to treatment.

Case report: A 73-year-old male with a history of coronary artery bypass graft surgery (LIMA-LAD), Bentall procedure, and valve-in-valve aortic valve implantation was admitted to the clinic with a suspected case of infective endocarditis. The patient had previously been hospitalized for Klebsiella pneumoniae urosepsis.Despite being treated with antibiotics by his general physician in the outpatient clinic, his condition showed no improvement. At the admission patient reported a subfebrile state, as well as abundant sweats in the evening.

Upon admission, antibiotic therapy was adjusted based on the antibiogram. A computed tomography (CT) scan revealed hypodense changes that concave into aorta. A subsequent positron emission tomography (PET) scan showed active inflammation near the graft but without involvement prosthetic valve. Antibiotics were further modified in accordance with the recommendations from the hospital microbiologist. After 6 week antibiotic treatment, a follow-up PET scan revealed that the inflammatory process near the graft had persisted.

Given the high risk of cardiac reoperation, the patient was referred to the Heart Team for evaluation. A decision was made to initiate a six-week course of hyperbaric oxygen therapy combined with at least 4 weeks of antibiotics, to manage the inflammation and ongoing infection, similar to the approach used for patients with infected wounds after thoracotomy. Following the completion of therapy, a control PET scan will be performed. Depending on the results of this follow-up PET scan, further decisions regarding potential cardiac surgery will be made.

Conclusion: Patients with a complex history of cardiac surgery pose a significant treatment challenge due to the high surgical risk. Managing their condition often requires unconventional approaches, including therapies typically used in other medical specialties. This case shows the importance of implementing all available methods of treatment in order to reduce the necessity of surgery in high-risk surgical patients.

JUVENES PRO MEDICINA

Varicella Zoster Virus Mimicking Herpes Simplex in Anterior Uveitis: A Diagnostic Challenge

Abdulla Tuwir, Dani sakr

Presenting author: Abdulla Tuwir

Work supervisor: Aneta Kulpa

Affiliations: Norberta Barlickiego hospital Lodz

Introduction:Anterior uveitis is often associated with Herpes Simplex Virus (HSV), especially in immunocompetent patients. However, Varicella Zoster Virus (VZV) can present similarly, especially in cases with facial herpetic lesions. Accurate diagnosis is essential, as delayed or inappropriate therapy can lead to vision-threatening complications.

To present a diagnostically challenging case of anterior uveitis in an immunocompetent adult, initially suspected to be HSV-related, which was ultimately confirmed as VZV via aqueous humor PCR.

Case report: We describe a case of a 48-year-old woman referred to the Department of Ophthalmology at the Medical University of Łódź with progressive visual loss in the right eye (OD), first noted on 21.02.2025. Initial therapy included topical steroids (dexamethasone), mydriatics (tropicamide, Neosynephrin), and Maxitrol ointment. On admission, visual acuity OD was 0.25, OS 1.0. Intraocular pressure was normal (OD: 15.5 mmHg, OS: 18.5 mmHg). Slit-lamp exam revealed central mutton-fat keratic precipitates and mild anterior chamber inflammation. Fundus examination was obscured due to vitritis; however, fluorescein angiography later showed optic disc edema and vessel occlusion. OCT revealed macular edema. B-scan ultrasound demonstrated choroidal thickening. Aqueous humor and blood samples were taken for PCR. Treatment included IV acyclovir (750 mg TID), systemic steroids (Dexaven 8 mg, methylprednisolone 30 mg), and topical therapy. Subconjunctival injection of gentamicin, Dexaven, and lidocaine was performed.

Only the aqueous humor sample was PCR-positive for VZV. MRI excluded CNS involvement. Fundus photography over time showed gradual resolution of retinal changes. There was no retinal detachment, and vision stabilized with treatment. The left eye remained unaffected.

Conclusions: This case highlights the importance of considering VZV in cases of anterior uveitis, even in the absence of dermatomal zoster. Clinical signs alone may mimic HSV, underscoring the role of intraocular fluid PCR in guiding therapy. Prompt antiviral treatment and corticosteroids led to stabilization of vision and inflammation. The patient's course illustrates how careful diagnostic workup and multimodal imaging are critical in managing complex viral uveitis.

JUVENES PRO MEDICINA

Sarcoidosis Masquerading as Isolated Retinal Phlebitis with Frosted Branch Angiitis

Dani Sakr, Abdulla Tuwir

Presenting author: Dani Sakr

Work supervisor: Aneta Kulpa

Affiliations: Norberta Barlickiego Hospital Lodz

Introduction: Retinal periphlebitis with frosted branch angiitis is a rare but striking ophthalmic finding. Though often associated with infectious diseases like tuberculosis and syphilis, non-infectious etiologies such as sarcoidosis must also be considered, especially in patients lacking systemic features.

To report a diagnostically challenging case of bilateral retinal phlebitis with frosted branch angiitis as an isolated ocular manifestation of sarcoidosis, highlighting the importance of a structured diagnostic approach.

Case report: A 34-year-old woman with a known history of sarcoidosis presented for routine ophthalmic evaluation while on oral methylprednisolone 4 mg daily. She denied any subjective visual deterioration. On examination, visual acuity was 0.9 in both eyes with normal intraocular pressure. Anterior segment and optic nerve heads appeared normal bilaterally. Fundus examination revealed retinal hemorrhages, periphlebitis, and vessel caliber changes—more prominent in the inferior temporal quadrant of the right eye and nasal periphery of the left eye. Optical coherence tomography (OCT) of the macula was unremarkable. Fluorescein angiography showed dye leakage from retinal veins, areas of capillary nonperfusion, and signs of ischemia in the peripheral retina. Laboratory tests confirmed stable sarcoidosis, with normal serum calcium and ACE. Infectious causes were ruled out.

Bilateral frosted branch angiitis secondary to sarcoidosis was diagnosed. The patient's corticosteroid dose was tapered off. HyloDual Night Gel and Regenopia drops were prescribed for ocular surface protection. Retinal laser photocoagulation was planned for the ischemic temporal-inferior area in the right eye. Follow-up was scheduled to monitor progression and response to treatment.

Conclusions: Sarcoidosis may present as isolated bilateral retinal phlebitis with frosted branch angiitis, mimicking infectious uveitic entities. In this case, the absence of systemic symptoms and normal anterior segments delayed diagnosis. A thorough systemic and ophthalmic evaluation—including angiography and infectious serologies—is essential. Timely intervention with corticosteroids and retinal laser therapy may preserve vision and prevent long-term vascular complications.

JUVENES PRO MEDICINA

Misheard, Misdiagnosed, Mistreated: When Hearing Loss Imitates Dementia- a Case Series.

Agnieszka Kowalczyk

Presenting author: Agnieszka Kowalczyk

Work supervisor: Małgorzata Stompór

Affiliations: Department of Family Medicine and Infectious Diseases, Medical Faculty, Collegium Medicum, University of Warmia and Mazury in Olsztyn

Introduction: Currently, over 47 million people suffer from dementia globally. The diagnosis of dementia among older adults is based mostly on clinical presentation and psychological testing. Treatment has only symptomatic effects and is aimed at stabilizing, or slowing the cognitive, functional, and behavioral decline. Unjustified medication consumption leads to numerous side effects. This case series study presents the results of the overdiagnosis versus underdiagnosis of Alzheimer's disease dementia.

Case report: Case 1: An 84-year-old woman came to the department with weight loss, thus gastrointestinal diagnostics were conducted. However, no abnormalities were detected. AMTS 9/11 and no symptoms of dementia were observed. The patient did not require assistance in taking medications. The patient was hearing-impaired hence months ago she was misdiagnosed with dementia and was treated with donepezil. Therefore, side effects such as loss of appetite and weight loss appeared.

Case 2: An 83-year-old woman came to the hospital with typical side effects of donepezil treatment: severe cramps, cough, and gastrointestinal problems. The patient was self-sufficient, and the clock drawing test was correct. The patient was treated with donepezil due to dementia misdiagnosis caused by hearing impairments. After discontinuation of the medication, significant improvement was observed.

Case 3: An 82-year-old woman with undiagnosed dementia was treated with piracetam, vinpocetine, and ginkgo biloba. Lack of proper treatment caused progressive deterioration of the condition. The patient presented delusions and agitation.

Conclusions: Misdiagnosis of dementia is a major public health problem and hearing impairment is one the common cause of this as an impediment in communication. In case of overdiagnosis, subsequently, medications taken incorrectly lead to several disorders. Therefore, the patient's current symptoms should always be verified with the side effects of currently taken medications, avoiding prescribing cascade. In case of underdiagnosis and undertreatment the patient's psychological symptoms of dementia might be a great burden for family and the cause of introducing drugs which might be harmful for the patient.

JUVENES PRO MEDICINA

Bronchonavigation: A New Dimension to Pulmonary Diagnostics — Method Description Based on Case Study

Katarzyna Jeznach

Presenting author: Katarzyna Jeznach

Work supervisor: Magdalena M. Zakrzewska MD, PhD

Affiliations: Student Scientific Society of Internal Diseases in a Holistic Approach; University of Warmia and Mazury in Olsztyn

Introduction: Bronchonavigation is an innovative diagnostic technique used for assessing pulmonary lesions identified through radiological imaging. It enables the creation of a three-dimensional map of the bronchial tree, allowing precise navigation of the bronchoscope to the suspected lesion and performing an endobronchial biopsy.

Case report: A 65-year-old male with a history of surgically treated laryngeal cancer was admitted for extended diagnostics of pulmonary abnormalities. PET-CT imaging revealed a nodular infiltration near the bifurcation of the subsegmental bronchi in segment 2 of the right posterior upper lobe and segment 1 of the left upper lobe, along with tubular peribronchial infiltrates in the left upper lobe. The patient was qualified for cryobiopsy using bronchonavigation in an operating room setting. A 3D reconstruction of the bronchial tree was generated with specialized software to plan the bronchoscopic pathway and was followed by the performance of an endobronchial biopsy. The procedure was completed without complications, and representative tissue samples were collected for histopathological examination. The patient was discharged in good condition the following day.

Conclusion: Bronchonavigation allows for highly accurate, minimally invasive sampling of anatomically challenging pulmonary lesions, often inaccessible via traditional techniques. Compared to conventional transthoracic biopsy, it carries a lower risk of complications. Its broader adoption may significantly improve diagnostic accuracy and patient's comfort. Currently available only in four centers in Poland, bronchonavigation holds promise as a breakthrough in pulmonary diagnostics.

Patient with drug-resistant schizo-obsessive disorder, metabolic syndrome and alfa-1-antitrypsin deficiency – therapeutic challenges

Milena Gałaj

Presenting author: Milena Gałaj

Work supervisor: dr n. med. Katarzyna Wachowska

Affiliations: SKN Psychiatrii, UMED Łódź, Szpital im. J. Babińskiego w Łodzi

Introduction: Clinicians use the term "schizo-obsessive disorder" to describe the comorbidity of obsessive-compulsive disorder (OCD) in individuals with schizophrenia. Due to drug resistance and the complex manifestation of symptoms, this condition is more challenging to treat than the classic presentation of schizophrenia, which has already been documented to reduce life expectancy. People with schizophrenia are at a higher risk of developing cardiovascular disorders, diabetes, and other health issues.

Case report: A 41-year-old male was admitted due to the escalation of symptoms and a modification in pharmacological treatment. He reported hallucinations and suicidal thoughts. The patient has been under psychiatric treatment since 2010, with multiple hospitalizations, and has been diagnosed with schizophrenia and OCD.

His comorbidities include type 2 diabetes (diagnosed at age 32), obesity, hypertension, dyslipidemia, alpha-1-antitrypsin deficiency, asthma and psoriasis. Alpha-1-antitrypsin deficiency has also been diagnosed in his father and brother, and both parents have hypertension.

Throughout his years of psychiatric treatment, the patient has been prescribed various neuroleptics, including high doses of olanzapine, clozapine, and quetiapine—medications known for their significant metabolic side effects. The full cycle of twelve series of electroconvulsive therapy (ECT) was administered; however, the patient was disqualified from the third reminder series and from another cycle of ECT.

Currently, the patient is being treated with aripiprazole LAI, lurasidon, clozapine, haloperidol, trazodone CR, lamotrigine, and pregabalin, which is being gradually reduced with the intention of discontinuation. Despite the significant metabolic complications associated with this treatment, it remains necessary due to the severe manifestation of his psychiatric disorders.

Additionally, the patient is taking carvedilol, ramipril, dulaglutide, fenofibrate, tamsulosin, budesonide + formoterol, and bilastine.

Conclusion: This case highlights the complexities of managing a patient with drug-resistant Schizo-Obsessive Disorder and high comorbidity. There is still a significant need for neuroleptics that are both effective and metabolically safe. For now, clozapine, despite its severe risks, remains the most effective and potentially stabilizing treatment for drug-resistant schizophrenia, making it indispensable for patients who do not respond to other medications.

Furthermore, the potential genetic links between schizophrenia and comorbid conditions, such as the above-mentioned, warrant further investigation to develop more targeted, personalized treatments.

JUVENES PRO MEDICINA

Case report: Use of extracorporeal membrane oxygenation (ECMO) in the perinatal period in a patient with COVID-19 and actus respiratory distress syndrome (ARDS)

Ilona Stopa, Emilia Słabońska, Milena Muniak, Magdalena Truch

Presenting author: Ilona Stopa

Work supervisor: MD Marek Grochla

Affiliations: Department of Cardiac Anaesthesiology and Intensive Care Unit, Medical University of Silesia in Katowice, Faculty of Medical Sciences in Zabrze

Introduction: Extracorporeal membrane oxygenation (ECMO) is an advanced form of extracorporeal cardiopulmonary support used to treat patients with severe, potentially reversible heart or lung failure that does not respond to standard intensive care methods. The use of ECMO in pregnant women and during the perinatal period raises particular controversies and clinical challenges. Despite the limited number of studies, reports in the literature suggest that appropriately selected use of ECMO in this patient population may increase the chances of survival for both the mother and foetus, while improving haemodynamic and respiratory parameters. The aim of the study is to present the use of ECMO as a life-saving therapy in a postpartum woman with severe respiratory failure in the course of COVID-19 infection and acute respiratory distress syndrome (ARDS), as well as to discuss the effectiveness and safety of this intervention in an obstetric context.

Case report: A case is described of a 25-year-old obstetrician who was admitted to the Intensive Care Unit of the Silesian Centre for Heart Diseases in the first week after giving birth by caesarean section, performed urgently in the 30th week of pregnancy due to the direct threat to the life of the mother and foetus. The patient was diagnosed with a severe SARS-CoV-2 infection and developed ARDS. Due to progressive respiratory failure and the ineffectiveness of conventional therapy, veno-venous extracorporeal membrane oxygenation (VV ECMO) was implemented. However, despite intensive treatment, including veno-venous ECMO (VV ECMO), the patient's condition did not stabilise. Due to thyroid dysfunction, gestational diabetes and pathological obesity, the patient was not eligible for a heart transplant and was recommended to continue conservative therapy. After 21 days, death was declared in the course of extremely irreversible respiratory failure

Conclusion: The case presented shows the limits of the effectiveness of ECMO therapy in patients with multiple risk factors, including in the context of pregnancy and severe COVID-19 infection. Although ECMO is sometimes used in special situations - also for ethical reasons - as a last resort to save lives, decisions to implement this therapy should be made taking into account the realistic prognosis and current indications. This case confirms that the use of ECMO beyond the standard indications in patients with significant burdens and advanced multiple organ failure does not guarantee therapeutic efficacy and may be associated with limited chances of survival.

“When Urine Turns Colors: A Case of Purple Urine Bag Syndrome”

Małgorzata Dokurno

Presenting author: Małgorzata Dokurno

Work supervisor: lek. Natalia Hawryluk

Affiliations: uniwersytet Warmińsko-Mazurski w Olsztynie, Collegium Medicum, SKN Geriatrii i Gerontologii

Introduction: Purple Urine Bag Syndrome is a rare condition in patients with long-term urinary catheters, caused by a UTI with bacteria producing sulfatase or phosphatase. These enzymes break down tryptophan metabolites into indigo (blue) and indirubin (red), giving the urine a purple color.

Case report: A 79-year-old male with a right-sided nephrostomy, placed for bladder cancer, and a history of radical cystoprostatectomy complicated by abscess formation and reoperation for evisceration, was admitted due to progressive weakness and anemia.

Laboratory findings showed severe normocytic anemia, azotemia, and elevated inflammatory markers. Urinalysis indicated a UTI, and during hospitalization, purple urine discoloration was observed.

Urine cultures grew Proteus mirabilis ESBL(+), Enterococcus faecium, also Klebsiella pneumoniae was isolated from the respiratory tract. The patient was treated with meropenem and received 3 units of PRBCs. His condition improved, the urine discoloration resolved, and he was discharged in good general condition.

Conclusions: Purple Urine Bag Syndrome is a rare but benign sign of UTI in catheterized patients. It indicates infection with enzyme-producing bacteria like Proteus mirabilis. Recognition of PUBS can guide timely treatment. In this case, appropriate antibiotic therapy and supportive care led to full recovery.

JUVENES PRO MEDICINA

Infective Endocarditis on a Bioprosthetic Aortic Valve Complicated by Atrioventricular Conduction Disturbances

Mateusz Stanisław Mazurczak, Paulina Anna Hnatuśko, Wiktoria Urszula Kozłowska, Maria Masłowska, Paweł Szutko

Presenting author: Mateusz Stanisław Mazurczak

Work supervisor: Anna Lisowska MD, PhD

Affiliations: Student Scientific Association, Department of Cardiology and Internal Medicine with Cardiac Intensive Care Unit, Medical University of Białystok

Introduction: Infective endocarditis (IE) remains a significant clinical challenge due to its high mortality rate and the potential for severe complications. According to current data, the incidence of IE is approximately 15 cases per 100,000 individuals per year. One of the main risk factors for developing IE is the presence of a prosthetic heart valve, while atrioventricular (AV) blocks are among the more frequent complications. With the increasing number of patients undergoing valve replacement procedures, the diagnosis and management of this condition pose an ever-growing clinical challenge.

Case report: A 63-year-old male with a history of arterial hypertension, non-ST elevation myocardial infarction (NSTEMI) in 2016, and three percutaneous coronary interventions (the most recent in 2017), previously underwent aortic valve replacement with a bioprosthetic valve in 2021 due to severe aortic stenosis. He also had a history of left renal cancer managed by urologic treatment. The patient was admitted to the cardiology department due to progressive dyspnea and general fatigue lasting for one week. Physical examination revealed crackles over the right lung field and bilateral lower extremity edema. Electrocardiogram showed third-degree atrioventricular block with a ventricular escape rhythm of 50 bpm. Laboratory findings included elevated CRP (60.7 mg/L), NT-proBNP (6784 pg/mL), serum creatinine (2.14 mg/dL), urea (108 mg/dL), and leukocytosis (10.97 $x10^3/\mu L$). Transthoracic echocardiography revealed a dysfunctional bioprosthetic aortic valve with signs of structural degeneration, moderate mitral regurgitation, mild tricuspid regurgitation, dilated ascending aorta (48 mm), and an intermediate probability of pulmonary hypertension. Blood cultures remained negative. Transesophageal echocardiography revealed features consistent with IE involving the bioprosthetic valve, including a root abscess adjacent to the non-coronary cusp and complex valvular dysfunction predominantly characterized by severe stenosis. Based on the Duke criteria, a clinical diagnosis of possible IE was established. Empirical intravenous antibiotic therapy with vancomycin and gentamicin was initiated. The patient also required intravenous salbutamol infusion. Urgent surgical intervention was planned. A modified Bentall procedure was performed with implantation of a new bioprosthetic aortic valve within a vascular graft and reimplantation of the coronary ostia. Epicardial pacing leads were placed on the right atrium and right ventricle. Due to persistent AV conduction disturbances, a permanent pacemaker was implanted 10 days postoperatively.

Conclusions: In this case, despite the absence of positive blood cultures, a major criterion for the diagnosis of IE, echocardiography played a pivotal role in early detection and accurate diagnosis. It enabled timely initiation of appropriate therapy in a patient who was initially referred for pacemaker implantation due to complete atrioventricular block.

JUVENES PRO MEDICINA

Long-term remission of severe IgA nephropathy with off-guideline dual RAAS blockade: a 25-year follow-up Case report

Julia Jaremek

Presenting author: Julia Jaremek

Work supervisor: prof. dr hab. n. med. Marian Klinger

Affiliations: Medical University of Lodz

Introduction: IgA nephropathy (IgAN) is the most common primary glomerulonephritis. Its clinical course is unpredictable, ranging from asymptomatic hematuria to renal failure. Hypertension and proteinuria >1 g/day are major risk factors for progression. The recent strategy of nephroprotection is monotherapy with blockers of the renin-angiotensin-aldosterone system (RAAS) - either an angiotensin-converting enzyme inhibitor (ACEI) or an angiotensin II receptor blocker (ARB). Current guidelines (KDIGO 2021) do not recommend dual RAAS blockade (ACEI+ARB) due to increased risk of adverse effects (hyperkalemia, acute kidney injury) and the lack of proven benefit over monotherapy in large clinical trials. The aim of this report is to document a case of a patient with severe IgAN who had an excellent clinical outcome with long-term dual RAAS blockade.

Case report: In December 1999, a 23-year-old male was diagnosed with biopsy-proven IgA nephropathy following a respiratory tract infection and an episode of macroscopic hematuria. At diagnosis he presented with severe arterial hypertension (160/110 mmHg), nephrotic-range proteinuria (6 g/day), microscopic hematuria (numerous RBC/HPF), and serum creatinine 1.21 mg/dL (eGFR 84 mL/min/1.73m^2). High-dose glucocorticoids (Encorton 65 mg) and ACEI (Enalapril 2x5 mg) were implemented in initial treatment. During the year 2000, proteinuria decreased to 2.9 g/day; ACEI and low-dose steroid therapy continued for approximately one year. In April 2009 (age 32), because of the moderate response to monotherapy and the reports of positive outcomes with dual RAAS blockade in a similar cohort of young men, the above treatment was started (Ramipril 5 mg + Losartan 25 mg). Since July 2009, the patient's proteinuria has been stable, not exceeding 1 g/day with a further improvement to levels below 0.4 g/day since 2017. Current (2025) follow-up shows: well-controlled blood pressure (130/80 mmHg), trace proteinuria (15 mg/dL), no hematuria or pyuria (urine sediment: RBC 1.5/µL, WBC 1.3/µL), and preserved renal function (creatinine 1.20 mg/dL, eGFR 74.6 mL/min/1.73m^2). The serum potassium levels remained stable within the normal range throughout the observation period, with the most recent value of 4.88 mmol/L. The patient is under regular nephrological follow-up, with no significant side effects observed during the course of treatment.

Conclusions: This case highlights the necessity of individualized treatment in patients with IgA nephropathy. Despite numerous poor prognostic factors, long-term remission was achieved through non-standard treatment guided by regular monitoring and adjustments based on the patient's clinical condition. The efficacy of dual RAAS blockade in this case raises the question of the selective use of this strategy in carefully selected patients, especially with good tolerance and resistance to monotherapy.

JUVENES PRO MEDICINA

Innovative Treatment Approach in Ulcerative MDA-5 Dermatomyositis: A Clinical Breakthrough

Kacper Pawlak

Presenting author: Kacper Pawlak

Work supervisors: dr n. med. Aleksandra Opinc - Rosiak, dr n. med. Olga Brzezińska

Affiliations: Rheumatology Department of USK 2 Hospital

Introduction: Dermatomyositis is a rare and serious inflammatory disease that affects multiple organs. Its cause isn't fully understood, and when untreated, it can be life-threatening. The condition comes with a wide range of autoantibodies, which makes treatment tricky — some therapies work well in certain patients, but not in others. One form of the disease, the anti-MDA5 subtype, is especially difficult to treat and often doesn't respond to standard options.

Case report: A 37-year-old woman came to the clinic with a set of worrying symptoms: she had been running a low fever, was short of breath, and complained of joint pain and swelling. She also reported dry eyes, muscle weakness, and painful ulcers on her fingers and elbows. There were red patches on her face, signs of Gottron's papules, redness around her nails, and small ulcers in her mouth. These symptoms prompted a full diagnostic workup.

Her test results showed protein in the urine, elevated ALT, and high troponin T levels. Autoantibody screening came back positive for ANA (1:320, with a granular and cytoplasmic pattern), and both anti-MDA5 and anti-Ro52 antibodies were strongly positive. A CT scan revealed interstitial lung disease along with pneumomediastinum. Kidney biopsy showed focal segmental glomerulosclerosis. Based on all of this, she was diagnosed with inflammatory myopathy associated with anti-MDA5 antibodies.

Over the years, she went through a number of treatments — including steroids, antimalarials, methotrexate, mycophenolate mofetil, cyclophosphamide, sildenafil, and cyclosporine. Although some symptoms improved a little, none of the standard therapies led to real remission. Eventually, and with her full consent, she was started on a Janus kinase inhibitor off-label. Surprisingly, this turned out to be the turning point — the disease went into remission and her condition stabilized.

Conclusion: The anti-MDA5 subtype of dermatomyositis is notoriously hard to treat. It often comes with serious complications and doesn't respond well to conventional therapies. In some cases, trying something off-label might be the only option that makes a real difference. This case highlights how even after years of treatment failures, a newer therapy can open the door to remission — when nothing else seems to work.

JUVENES PRO MEDICINA

Enormous atrial myxoma mimicking coronary artery disease: how echocardiography alters diagnostic and therapeutic pathway.

Pola Pałka, Krzysztof Badura

Presenting author: Pola Pałka

Work supervisors: Aleksander Misiewicz, Maciej Nadel, Jarosław Drożdż

Affiliations: 1.Student Scientific Association of 2nd Department of Cardiology, Medical University of Lodz, Lodz, Poland; 2. 2nd Department of Cardiology, Medical University of Lodz, Lodz, Poland

Introduction: Primary heart tumors are considered a rare disease with a prevalence up to 0.17%. Symptoms and clinical course of cardiac tumors depend on mass size, localization, malignancy and related complications. We present a case of a patient with symptoms and risk factors highly indicative of coronary artery disease, in which echocardiography revealed an unexpected diagnosis of a left atrial myxoma, which has changed diagnostic and therapeutic pathway.

Case report: A 75-year-old female with a history of arterial hypertension, hypercholesterolemia, obesity, type two diabetes, chronic kidney disease and active smoking presented to the cardiac department due to progressive exercise intolerance in a form of chest pressure and dyspnea on exertion over the past six months with aggravation within last 2 weeks. On admission, physical examination revealed no significant abnormalities. Laboratory tests revealed elevated N-terminal pro-B-type natriuretic peptide of 1968 pg/mL only. The electrocardiogram revealed a regular sinus rhythm at a rate of 87 beats per minute, negative T waves in leads II, III, and aVF, deeply inverted T waves in leads V4-V6, and biphasic T waves in lead V3. Due to the high pre-test likelihood of obstructive coronary artery disease, we performed transthoracic echocardiography (TTE) to assess systolic and diastolic function, exclude potential valvular disease and conduct differential diagnosis. A TTE showed normal left ventricular function with no evidence of ischemic heart disease, normal right ventricular systolic function and no pericardial effusion. A round echo was visible in the left atrium (LA), measuring 40x48 mm, nearly filling the entire LA and protruding the mitral valve causing functional mitral stenosis. As the mass pedicle was not clearly visible, we performed transesophageal echocardiography, which suggested LA myxoma. While coronary syndrome in this patient was still probable, significant lesions within coronary arteries were excluded in coronary artery computed tomography. The patient was qualified for urgent cardiothoracic surgery, which proceeded without complications. The patient's condition gradually improved. The previously reported symptoms resolved, and the patient was discharged in good general condition, suggesting that the removed mass was the cause of her prior complaints.

Later, the diagnosis of myxoma was confirmed by pathologist.

Conclusion: This case highlights the importance of TTE as a primary tool for differential diagnosis, as its results highly influenced further diagnostics and treatment, averting probable coronarography in favor of non-invasive coronary artery diagnostic regimen. Early echocardiographic cardiac mass detection prevented unnecessary procedures and guided timely surgery, which resolved symptoms and improved outcomes. Accurate imaging is crucial for effective diagnosis and treatment.

JUVENES PRO MEDICINA

Simultaneous renal and splenic infarctions secondary to embolization after cardioversion – is transesophageal echocardiography enough to exclude cardiac thrombi?

Krzysztof Musiałek (1), Krzysztof Badura (2)

Presenting author: Krzysztof Musiałek

Work supervisors: Aleksander Misiewicz (2), Krzysztof Śliz (2), Jarosław Drożdż (2)

Affiliations: (1) Student Scientific Association of 2nd Department of Cardiology, Medical University of Lodz, Poland (2) 2nd Department of Cardiology, Medical University of Lodz, Poland

Introduction: Dilated cardiomyopathy (DCM) constitutes a non-ischemic cause of heart failure (HF) with a prevalence of 0.036-0.4% among adults. DCM is often accompanied by atrial fibrillation (AF), as atrial volume overload occurs due to eg. functional atrioventricular valves regurgitation. In these cases, rate or rhythm control strategy is crucial to achieve reduction of symptoms and cardiac dysfunction. Without prior anticoagulation, in AF of unknown duration, rhythm control strategy can be only introduced after excluding presence of thrombi, which are often localized in left atrial appendage (LAA), to avoid its distal embolization. We present a case of peripheral embolization of unknown etiology following a cardioversion, even though any potential thrombotic material presence had been excluded in a trans-esophageal echocardiogram (TEE).

Case report: A 42-year old male was admitted to the cardiology department due to dyspnea and palpitations for a few days. Electrocardiogram on admission revealed AF with a frequency of the QRS complexes of 180/min and ST segment depressions accompanied by T-wave inversions. A trans-thoracic echocardiogram (TTE) showed both right and left ventricular (LV) systolic dysfunction with the LV ejection fraction of 30% and generalized LV-walls hypokinesis. Moreover, both of the atria were dilated. Due to persistent tachycardia which was associated with HF decompensation it was decided to perform cardioversion to achieve rhythm control. TEE excluded potential presence of thrombic material within heart chambers, hence an electrical cardioversion was performed, successfully reestablishing sinus rhythm. The following day showed a recurrence of atrial fibrillation. Thus rate control strategy has been chosen and the patient was discharged after introducing optimal medical therapy composed of rivaroxaban, amiodarone, bisoprolol, ramipril, eplerenone, torasemide and empagliflozin.

5 days later the patient was readmitted due to abdominal pain for 3 days, which at the beginning was accompanied by nausea and vomiting. A CT scan of the abdomen revealed a hyperdensive focus, localized in the 6th segment of the liver. Contrast CT scan showed multiple non-contrasted foci in the lower pole of the spleen and left kidney – all of them clinically related to potential organ infarction.

Conclusion:The cardioversion procedure may be associated with a risk of peripheral embolization. Although the etiology of the renal and splenic focal infarctions in this case remains unclear, cardiac thrombi embolization should be considered as potential etiology. It should be discussed if TEE is an effective method to exclude thrombus formation, especially when non-compaction occurs as it may be present in cardiomyopathies.

JUVENES PRO MEDICINA

'Classical Hodgkin Lymphoma Manifesting as Fever of Unknown Origin: A Diagnostic Challenge'

Wiktoria Woźniacka

Presenting author: Wiktoria Woźniacka

Work supervisor: dr n. med. Olga Brzezińska

Affiliations: Medical University of Lodz

Introduction: Classical Hodgkin lymphoma (cHL) is a malignant B-cell lymphoproliferative disorder that typically presents with nonspecific manifestations, including lymphadenopathy, prolonged fever, unexplained weight loss, hepatomegaly, and night sweats. These symptoms can mimic the clinical features of other conditions, such as adult-onset Still's disease (AOSD). AOSD is a rare systemic inflammatory disorder characterized by daily fevers, arthritis, hepatosplenomegaly, lymphadenopathy, and a pathognomonic salmon-pink rash, often accompanied by markedly elevated serum ferritin levels (hyperferritinemia).

Case report: A 67-year-old female was admitted to the Rheumatology Department for evaluation of fever of unknown origin (FUO), accompanied by elevated inflammatory markers. Six months after symptom onset, a laparoscopic splenectomy was performed to evaluate suspected T-cell lymphoma. Histopathological examination of the spleen revealed no malignancy, ruling out the initial diagnosis. Hematologic workup was discontinued due to difficulties obtaining a lymph node biopsy, and diagnostic consideration shifted to AOSD. The patient was treated with oral glucocorticoids (Encorton), leading to temporary fever resolution. Several months later, she was readmitted with recurrent FUO. Laboratory findings included normocytic anemia, neutrophilia, thrombocytosis, hypoalbuminemia, hyperferritinemia, prolonged PT and APTT, and elevated inflammatory biomarkers. Physical examination revealed hepatomegaly and bilateral lower extremity pitting edema. The patient received intravenous methylprednisolone (Solu-Medrol) with partial improvement, followed by Tocilizumab, which resolved the fever completely. One month later, she was rehospitalized with a recurrence of systemic symptoms. Pulmonary examination revealed basal crackles, and imaging studies (X-ray, CT) showed bilateral parenchymal consolidations. Due to persistent fever, hematologic evaluation was reinitiated, leading to an excisional biopsy of the left axillary lymph node, which confirmed classical Hodgkin lymphoma (cHL). Tocilizumab was administered again, resulting in transient clinical improvement. The patient was transferred to the Hematology Department, where targeted oncologic therapy led to sustained clinical improvement.

Conclusion: Patients presenting with a challenging clinical picture should be evaluated with heightened vigilance. The initial presentation of cHL and AOSD is frequently non-specific, posing a significant obstacle to accurate and timely diagnosis. This report highlights the need for sustained oncological vigilance, particularly in cases with atypical symptomatology, and the importance of ongoing reassessment to facilitate early recognition of malignant conditions and reduce the risk of diagnostic delays.

JUVENES PRO MEDICINA

Recognised in the UK but not Poland - First Case report of British-Polish patient with ME/CFS

Agnieszka Popowicz

Presenting author: Agnieszka Popowicz

Work supervisor: Maciej Motyl, MD

Affiliations: Jagiellonian University Medical College

Introduction: Myalgic encephalomyelitis/Chronic Fatigue Syndrome (ME/CFS) is a severely underreported and underfunded disease, and is not recognised in Poland. This Case reportaims to bridge some of the gaps in research on an issue that is expected to affect a significant proportion of the population in coming decades, as studies suggest that around 50% of Long COVID patients meet the criteria for ME/CFS. The pathognomic symptom is post-exertional malaise (PEM), where symptoms worsen for patients after mild mental or physical exertion. 25% of sufferers are bedbound or housebound at any one time. Research identifies several pathomechanisms including immunological and autonomic dysregulation, mitochondrial dysfunction, and altered HPA axis. Studies report a higher prevalence in women and many patients report symptoms following a viral infection. There are no known biological markers and no cure, therefore diagnosis is one of exclusion.

Case report: A 34-year old British-Polish female began to experience hair loss following her first COVID-19 infection in January 2022. Significant headaches lasting 3-5 days were reported in June 2022. When travelling to Poland in August, she was admitted to hospital with walking and vision difficulties. She underwent neurological tests with no definitive outcome. Following an influenza vaccination in November, the patient became bedbound and has only left the house three times since November 2022, to attend hospital appointments via ambulance. Her symptoms include severe chronic headaches, temperature dysregulation, palpitations, muscle weakness, vertigo and photosensitivity. Since her diagnosis of ME/CFS and Long COVID, the patient has also developed Graves disease and postural tachycardia syndrome (PoTs). She has had an episode of severely low cortisol (28 nmol/L) and a pseudomonas aureginosa ear infection, an infection typically only arising in immunocompromised patients. Her blood results have shown neutropenia and macrocytosis. She is also suspected to have mast cell activation syndrome (MCAS), a condition not currently recognised in the NHS. With no effective treatment offered by the NHS for ME/CFS, the patient has sought private care. Currently, the patient is trialling rapamycin and low dose aripiprazole for ME/CFS. Medications for PoTs management include ivabradine, midrodine, clonidine and pyridostigmine. For MCAS, famatodine, fexofenadine, ketotifen and sodium cromoglycate are being used.

Conclusions: ME/CFS has scored lowest on quality of life surveys compared to other chronic diseases. In Poland, there are no clinical guidelines and charities, and without an identification number, the disease is not recognised. Research in Poland is limited, with a single identified paper in Poland basing the diagnosis on the Fukuda criteria, which excludes PEM in its definition. Given its complexity as a multisystem disease, a multidisciplinary approach and increased awareness are paramount for patients to receive the appropriate diagnosis and support.

JUVENES PRO MEDICINA

Diagnostic Challenges in Co-occurring Schizophrenia and Autism Spectrum Disorder in a Young Female Patient.

Anna Wieczorek i Justyna Kuś

Presenting author: Anna Wieczorek

Work supervisor: Dr n. med. Maciej Kuśmierek

Affiliations: Medical University of Lodz

Introduction: Schizophrenia is a severe psychiatric disorder characterized by positive symptoms (including hallucinations, delusions, disorganized thinking) and negative symptoms (including social withdrawal, emotional flattening, avolition). Autism spectrum disorder (ASD) is a neurodevelopmental condition involving persistent difficulties in social communication, restricted interests, and repetitive behaviors. Overlapping symptoms, especially in social and emotional functioning, can complicate diagnosis and delay appropriate treatment.

Case report: A 20-year-old woman was admitted to the psychiatric hospital due to a deterioration of negative symptoms of schizophrenia. She had four prior hospitalizations and two suicide attempts by drug overdose. Initially, she was diagnosed with a depressive episode in 2021, presenting with anhedonia, avolition, and social withdrawal. SSRI treatment was ineffective. During her first hospitalization in late 2021, the diagnosis was revised to schizophrenia after the appearance of disorganized thinking and psychotic features, including persecutory delusions. She expressed persistent, rigid, paranoid beliefs, including conspiracy theories and generalized statements about ethnic groups. Her developmental history and a long-standing difficulties with social communication, rigid thinking, persistent stereotyped interests, and poor adaptability to new environments suggested comorbid autism spectrum disorder. Trials with multiple antipsychotics - LAI aripiprazole, quetiapine (up to 700 mg/day), amisulpride, olanzapine, haloperidol and chlorprothixene (as needed) - yielded limited efficacy, especially for negative symptoms, and caused multiple side effects. Amisulpride induced hyperprolactinemia. The patient developed extrapyramidal side effects, including akathisia, oculogyric crisis, and dyskinesias with involuntary facial movements and limb tremors. The patient underwent a course of electroconvulsive therapy, which led to partial improvement in negative symptoms but was discontinued due to cognitive side effects. Current treatment includes quetiapine (700 mg/day), LAI aripiprazole, zuclopenthixol (10 mg twice daily), lurasidone (148 mg/day, taken with food), biperiden (2 mg twice daily) and lamotrigine (100 mg twice daily). At present, although overt psychotic symptoms have largely subsided, poor insight into her illness and persistent negative symptoms continue to impair functioning

Conclusions: This case illustrates the importance of thorough assessment in young females with psychotic features and long-standing social-communication difficulties. Under-recognition of ASD in females may expose patients to ineffective therapies. Awareness of the frequent comorbidity between ASD and schizophrenia, along with recognition that the presentation of ASD in females may be more subtle, may improve treatment planning and long-term outcomes.

JUVENES PRO MEDICINA

From Epilepsy to Cardiac Channelopathy: Diagnosing Long QT Syndrome in a Young Patient

Paulina Lewandowska

Presenting author: Paulina Lewandowska

Work supervisor: Anna Fojt

Affiliations: I Klinika Kardiologii WUM Banacha 1A, 02-097 Warszawa

Introduction: Long QT syndrome (LQTS) is a cardiac channelopathy characterized by delayed ventricular repolarization, increasing the risk of life-threatening arrhythmias such as torsades de pointes (TdP). It may be congenital (mutations in KCNQ1, KCNH2, SCN5A) or acquired (due to drugs, electrolyte imbalances, or structural heart disease). Symptoms include syncope, seizures, or sudden cardiac arrest, often triggered by stress or exercise. Diagnosis relies on ECG (QTc prolongation), clinical history, genetic testing, and the assessment of Schwartz score. Management includes beta-blockers, lifestyle modifications, and ICDs for high-risk cases. Many commonly used medications can prolong the QT interval, making ECG monitoring essential when prescribing these drugs.

Case report: A 21-year-old female with epilepsy on levetiracetam for 6 weeks presented with recurrent ventricular tachycardia and syncope (7-10 episodes/day). She noted that these episodes differed from her epileptic seizures, as they were preceded by palpitations and dyspnea, whereas her seizures never started with such symptoms. ECG showed QTc of 600 ms, and ECHO revealed no structural abnormalities. She was hemodynamically stable but experienced an in-hospital TdP episode requiring IV magnesium and temporary pacing. Levetiracetam was discontinued due to QT-prolonging effects. Further evaluation revealed an LQTS-associated KCNH2 mutation, and recurrent TdP episodes warranted bilateral thoracoscopic sympathectomy (T1-T4). Postoperatively, she experienced mild bradycardia but no recurrent ventricular arrhythmias. Temporary pacing was reduced, and nadolol was initiated. Transient pneumomediastinum and a Gram-positive bloodstream infection were managed conservatively. An ICD was later implanted due to her high-risk status. Her epilepsy treatment was re-evaluated, and lamotrigine was introduced as an alternative therapy with a more favorable cardiac safety profile.

Conclusion: This case highlights the importance of considering LQTS in young patients with unexplained syncope. LQT2 is associated with arrhythmic events triggered by stress or auditory stimuli. Early diagnosis via ECG and genetic testing enables timely intervention. Beta-blockers are first-line therapy, with ICD placement for high-risk patients. Family screening is crucial for early detection and prevention. Additionally, careful selection of medications, particularly in patients with known QT prolongation, is necessary to prevent arrhythmic complications.

JUVENES PRO MEDICINA

Rare Presentations of Sarcoidosis: A Diagnostic Challenge – Case of Renal Sarcoidosis

Julia Ryniecka

Presenting author: Julia Ryniecka

Work supervisor: Anna Masajtis-Zagajewska MD, PhD

Affiliations: Medical University of Lodz

Introduction: Sarcoidosis is a systemic granulomatous disease of unknown etiology, characterized by non-caseating epithelioid granulomas and a wide range of clinical presentations. Renal sarcoidosis is a rare form of sarcoidosis that leads to granulomatous inflammation of the renal parenchyma, and its most common symptoms are renal failure and signs of systemic inflammation. This form of sarcoidosis-induced renal damage is less common than sarcoidosis-induced vitamin D dysregulation. Primary granulomatous tubulointerstitial nephritis is among the rarest forms of organ involvement and presents a considerable diagnostic challenge, particularly in patients without prior history of sarcoidosis.

Case report: A 41-year-old male was admitted to the nephrology department with a 2-week history of high-grade fever, excessive sweating, hemoptysis, joint pain (shoulders and knees), bilateral conjunctival redness, appetite loss, and 7 kg weight loss during that period. Abdominal ultrasound showed normal-sized kidneys with preserved corticomedullary differentiation without focal lesions or obstruction. Laboratory evaluation revealed kidney injury (concentration of creatinine 201 µmol/L, urea 11 mmol/L, GFR 35.5 ml/min/1.73 m^2), elevated inflammatory markers (CRP 99.5 mg/L, neutrophilia, thrombocytosis) and significantly increased levels of a myocardial injury marker: NT-proBNP (5826 pg/mL) and troponin T level 1331 ng/L. A spot urine sample showed proteinuria of 0.5 g and hematuria. Autoimmune (ANA, ANCA, anti-GBM, dsDNA, RF, complement) and infectious (HBV, HCV, Borrelia) screening was negative. Chest CT angiography ruled out urgent cardiovascular conditions, revealing only small subpleural nodules. Due to persistent renal dysfunction, a kidney biopsy was performed, revealing chronic granulomatous tubulointerstitial nephritis with non-caseating granulomas and no immune deposits, findings suggestive of sarcoidosis. Following biopsy, cardiac MRI was performed due to suspected cardiac sarcoidosis and revealed patchy late gadolinium enhancement and edema, suggestive of myocardial inflammation. Ophthalmologic consultation confirmed conjunctivitis. The patient received corticosteroid therapy, which led to clinical and laboratory improvement. He was discharged in good condition.

Conclusions: This case illustrates a rare and diagnostically challenging presentation of sarcoidosis with primary renal involvement. Unlike typical kidney injury secondary to metabolic disturbances, the patient presented with direct granulomatous infiltration of the renal parenchyma. The case underscores the importance of considering systemic inflammatory diseases in young patients with unexplained renal injury. Early renal biopsy, comprehensive differential diagnostics, and multidisciplinary assessment are crucial for prompt and effective management.

JUVENES PRO MEDICINA

Surgery I Case reports

17th of May 2025

Coordinators:

Kacper Jamróg

Hanna Stec

Zuzanna Sosnowska

Jury:

dr hab. n. med. Marta Fijałkowska

dr hab. n. med. Anna Kasielska-Trojan

dr n. med. Miłosz Lewandowski

JUVENES PRO MEDICINA

The Great Adrenal Masquerade: A Rare Endothelial Cyst Disguised as Pheochromocytoma

Palak Yadav, Layla Settaf-Cherif

Presenting author: Palak Yadav

Work supervisor: Dr. Adam Ostrwoski

Affiliations: Department of Urology and Andrology, Ludwik Rydygier Collegium Medicum, Nicolaus Copernicus University, Bydgoszcz, Poland

Introduction: Adrenal incidentalomas pose a significant clinical dilemma, with pheochromocytoma being a feared diagnosis due to its potentially fatal complications. However, not all adrenal masses are what they seem. Rare lesions, such as endothelial cysts, can mimic pheochromocytomas both radiologically and clinically, leading to misdiagnosis and unnecessary interventions. These cysts, with an incidence of only 0.06%, are typically asymptomatic, making their detection even more elusive.

Case report: A 47-year-old male presented at the clinic for a scheduled laparoscopic right adrenalectomy due to suspected pheochromocytoma, confirmed during prior endocrinology hospitalization. The patient had a history of obesity, subclinical hyperthyroidism, hypertension, previous hernia repairs, and appendectomy.

Pre-operative CT imaging revealed a highly vascular 35x25mm right adrenal lesion with minor calcifications, raising strong suspicion of pheochromocytoma.

The patient was initially started on alpha-blockade with doxazocin as per standard preoperative protocol. The surgery was performed without complications.

Contrary to expectations, the post-surgical histopathology proved to be an adrenal endothelial cyst, with no evidence of pheochromocytoma. At the same time, the surrounding residual adrenal tissue showed only chronic passive congestion and lipofuscin deposits, further confirming the absence of tumor involvement.

Conclusion: This case serves as a reminder that even well-characterized adrenal lesions may defy expectations. Endothelial cysts, though exceedingly rare, can convincingly masquerade as pheochromocytomas, leading to unnecessary surgical intervention. Advanced imaging techniques and rigorous biochemical assessment are crucial in distinguishing these benign entities from functional adrenal tumors. Raising awareness of this potential diagnostic pitfall can help prevent overtreatment and improve patient outcomes.

JUVENES PRO MEDICINA

Deep Brain Stimulation for Genetic Dystonia – a Case report

Krzysztof Żak, Paulina Skrzypkowska, Tomasz Szmuda MD, PhD

Presenting author: Krzysztof Żak

Work supervisor: Tomasz Szmuda MD, PhD

Affiliations: 1 ED Circle of Neurosurgery, Medical University of Gdańsk, Gdańsk, Poland 2 Neurosurgery Department, Medical University of Gdańsk, Gdańsk, Poland

Introduction: Genetic dystonia is a neurological disorder with an approximate occurrence of 1 in 10,000 individuals. Typical manifestations include involuntary muscle contractions, abnormal postures, and repetitive movements. While botulinum toxin (BoNT) injections effectively manage focal and segmental dystonia, case series of patients with various genetic mutations have demonstrated a good response to bilateral GPi-DBS.

Case report: A 33-year-old male, with a past medical history of psoriatic arthritis was presented to Neurosurgery Department with generalized dystonia and confirmed DYT1 mutation, primarily affecting the right upper limb, lower limbs, and neck. The condition had progressively worsened since its onset at age 11, affecting walking and daily functioning. Despite botulinum toxin therapy, only partial symptom relief was achieved, necessitating further intervention. The patient's symptoms were assessed using standardized dystonia scales: TWSTRS (Toronto Western Spasmodic Torticollis Rating Scale), UDRS (Unified Dystonia Rating Scale), and GDS (Global Dystonia Scale). Cognitive and psychiatric evaluations, including ACE-III (Addenbrooke's Cognitive Examination III), C-SSRS (Columbia-Suicide Severity Rating Scale), and HADS (Hospital Anxiety and Depression Scale), confirmed intact cognitive function and no mood disorders. Bilateral GPi-DBS was performed using stereotactic neuronavigation. Postoperative monitoring included neurological assessment, head CT imaging, and functional recovery evaluation. No complications after surgery were observed. During the follow-up visit, the patient's previous symptoms of dystonia were neither observed nor reported.

Conclusion: Deep Brain Stimulation is a promising therapeutic option for patients with genetic dystonia, particularly in cases refractory to conventional medical management. This case highlights the potential benefits of DBS in improving motor function in patients with DYT-1 associated dystonia.

JUVENES PRO MEDICINA

GHOST: Gallbladder Heterotopic Occurrence of Secretory Tissue – A Case report of Ectopic Pancreas in the Gallbladder

Julia Zawierucha, Jan Kośka, Juliusz Czerwiński

Presenting author: Jan Kośka

Work supervisor: dr n. med. Wojciech Ciesielski

Affiliations: Department of General and Transplant Surgery, Medical University of Lodz

Introduction: Heterotopic pancreas is defined as the presence of normal pancreatic tissue outside its usual anatomical location, without any neural, vascular, or ductal connection to the main organ. It is most commonly found within the gastrointestinal tract and often remains asymptomatic. It is frequently discovered incidentally during routine diagnostic procedures. Treatment is indicated in the presence of clinical symptoms or when neoplastic transformation is suspected, with the therapeutic approach depending on the lesion's location and size. Prognosis is favorable, even in cases with distant complications.

Case report: A 30-year-old woman was admitted to the Department of General and Transplant Surgery for elective surgical treatment of gallbladder cholelithiasis. Her medical history included recurrent epigastric pain. Abdominal ultrasonography revealed gallstones within the gallbladder, with no biliary duct dilatation. A laparoscopic cholecystectomy was performed without complications, and the postoperative course was uneventful. The patient was discharged the following day. Histopathological examination of the gallbladder identified ectopic pancreatic tissue located within the wall of the gallbladder neck. At a six-month follow-up, the patient remained asymptomatic.

Conclusion: Ectopic pancreas in the gallbladder is an exceptionally rare finding, typically discovered incidentally during histopathological examination following cholecystectomy for other indications, such as cholelithiasis. Although often asymptomatic, it may occasionally cause nonspecific gastrointestinal symptoms. Despite its rarity, awareness of this condition is crucial to avoid misinterpreting ectopic pancreatic tissue as a neoplastic lesion. Surgical removal serves both diagnostic and curative purposes.

JUVENES PRO MEDICINA

Fish-bone caused duodenocutaneous fistula – a great challenge for a surgeon

Jakub Nowacki

Presenting author: Jakub Nowacki

Work supervisor: Dr hab. n. med. Michał Mik, prof UM

Affiliations: Medical University of Łódź

Introduction: Duodenocutaneous fistula is an abnormal connection between the duodenum and the skin. These typically occur as surgical complications, trauma, or malignancies, rarely arising from ulcer perforations. They present serious risks, including electrolyte imbalances, malnutrition, sepsis, and high mortality rates. The presence of bile and pancreatic juices further complicates healing by irritating the compromised GI wall.

Case report: A 55-year-old male patient with a history of duodenal ulcer disease, previous pulmonary embolism, cholecystectomy, upper GI bleeding, total colectomy with an ileostomy for colonic tumors, presented with severe abdominal pain, vomiting, and bloody ileostomy content. Examination revealed absent peristalsis and abdominal tenderness. CT: the presence of gas and fluid in the greater omentum. Laboratory results: Hb of 9.3 mg/dL, CRP 9 mg/L, WBC 18 000 x10^3/L. With these findings suggesting GI perforation, the patient was qualified for emergency surgery. Laparotomy revealed duodenal bulb perforation. Additionally, a foreign body – a part of a fish bone – was discovered and identified as a cause of the perforation. The perforation was closed with sutures and a patch of the greater omentum (Graham patch), two drains were placed. Post-op CT revealed the recurrence of gas and fluid, suggesting the failure of the initial repair. Bile was seen in one of the drains. The Patient was qualified for re-laparotomy which revealed necrosis from the antrum to the duodenal bulb. An antrectomy and a partial duodenectomy resecting the necrotic tissues were made. A decision was made to perform a duodenojejunostomy omega loop with Braun anastomosis. Two T-Tube drains were established - one as duodenostomy and the other inside the common bile duct. Despite these efforts, a pus-like liquid was noted draining from the upper abdominal laparotomy wound - Duodenocutaneous fistula. A significant amount of blood was observed in the intra-abdominal drains and 3 units of packed red blood cells were transfused. A third laparotomy evacuated pus around the liver. Impaired healing necessitated replacing sutures and drains with a larger T-tube. Postoperatively negative pressure wound therapy (NPWT) was placed on the post-operative wound with duodenal fistula symptoms. In combination of TPN and efficient drainage, patient's clinical state improved drastically. Over 39 days drainage was removed, and clinical improvement was noted. Follow-up tests confirmed no further complications

Conclusion: Duodenocutaneous fistulas pose a serious surgical challenge. Their management requires a multidisciplinary approach, including adequate nutritional support, early identification and treatment of infectious complications, effective drainage, supported by NPWT, antibiotics and appropriate surgical interventions.

JUVENES PRO MEDICINA

Uncommon Intracranial Metastasis of Testicular Seminoma: Case report

Shubham Pravin Gaikwad, Ruben Jacob

Presenting author: Shubham Pravin Gaikwad

Work supervisor: Dr n. med. Mateusz Krakowiak

Affiliations: Neurosurgery Student Research Club, Collegium Medicum w Bydgoszczy Uniwersytet Mikołaja Kopernika w Toruniu

Introduction - Testicular germ cell tumors (TGCTs) constitute approximately 95% of testicular malignancies. While intracranial metastases from testicular cancer are infrequent, occurring in only 1-2% of cases, they are disproportionately observed in nonseminomatous TGCTs. Seminomas, though less prone, exhibit a reported rate of approximately 5% for cerebral dissemination and usually metastasize via the lymphatic system.

Case report- This case concerns a 34-year-old male patient with a history of right testicular seminoma, staged as pT3, with multiple metastases to the lymph nodes, lungs, and liver. He was admitted to the neurosurgery department with a two-day history of altered consciousness right-sided paresis and dysphagia. The patient also had a prior orchiectomy performed in order to resect the primary testicular tumor. Neuroimaging revealed hyperdense lesions in the left frontal and left parieto-temporal regions, raising suspicion of metastatic spread from the primary malignancy. These lesions resulted in significant neuroanatomical alterations, contributing to the patient's clinical deterioration. Anti-edema therapy was initiated, and the patient underwent an elective open craniotomy for surgical resection of the suspected metastatic lesions.

A postoperative CT examination of the brain performed on the fourth day did not reveal any surgical complications and the abnormal neuroanatomy caused by the pathological lesion had improved. The improvement in the neurological status of the patient was observed. A multidisciplinary approach was adopted, with scheduled urological and oncological consultations. Additionally, a postoperative MRI examination of the brain performed on the sixth day demonstrated a satisfactory outcome. The patient was subsequently referred to a radiotherapy center for further oncological management.

Conclusion - A review of literature suggests that the presence of lymph node involvement at the initial diagnosis of testicular seminoma raises the potential for subsequent intracranial metastatic development. Locoregional surgical intervention of the cerebral metastasis plays a crucial role in optimizing the prognosis for patients with primary metastatic testicular cancer (pMTC) as demonstrated in our case. The patient responded very well to the surgical treatment, the paresis disappeared completely, and the patient regained full consciousness. Following the surgical resection of an intracranial metastasis originating from testicular seminoma, adjuvant radiotherapy should be evaluated for its potential to enhance patient outcomes. Additionally, chemotherapy is an essential component in managing intracranial metastases associated with systemic disease as it provides potential for complete recovery of the patient.

JUVENES PRO MEDICINA

Anaesthetic Management of a Patient with Charcot-Marie-Tooth Disease and Focal segmental glomerulosclerosis: A Case report

1.Yalda Noroozi, 2.Tomasz Gaszynski

Presenting author: Yalda Noroozi

Work supervisor: Tomasz Gaszynski

Affiliations: 1. Faculty of Medicine, Medical University of Lodz, Poland 2.Department of Anaesthesiology and Intensive Therapy, Medical University of Lodz, Poland.

Introduction:Charcot-Marie-Tooth (CMT) disease is a hereditary peripheral neuropathy causing progressive distal muscle weakness and sensory deficits. It is classified by nerve pathology (demyelinating or axonal) and inheritance patterns. Focal Segmental Glomerulosclerosis (FSGS) is a renal disease that may progress to end-stage renal disease (ESRD), requiring kidney transplantation. The coexistence of CMT and FSGS presents unique anaesthetic challenges.

Case report: A 20-year-old male with CMT and FSGS, who previously underwent hydrocelectomy, underwent kidney transplantation. Total intravenous anesthesia (TIVA) with a low-opioid approach, including lidocaine, propofol, and ketamine, was used, ensuring stable hemodynamic and minimal postoperative complications.

Conclusion: CMT patients may have increased sensitivity to neuromuscular blocking agents (NMBAs), risking prolonged neuromuscular blockade and respiratory or cardiac dysfunction. This case demonstrates safe perioperative management with a tailored anesthetic approach. Given the limited literature on CMT and FSGS anesthesia, this report provides valuable clinical insights.

JUVENES PRO MEDICINA

The challenge of intraocular pressure control in glaucoma: a multimodal approach combining pharmacotherapy, laser- therapy and advanced surgical techniques. Case report

Antoni Basiński, Michał Uramowski

Presenting author: Antoni Basiński

Work supervisor: Zofia Pniakowska MD, PhD

Affiliations: Department of Ophthalmology and Vision Rehabilitation of the Medical University of Lodz, Poland

Introduction: Glaucoma is a progressive optic nerve neuropathy primarily caused by elevated intraocular pressure (IOP), leading to vision loss. Treatment mainly focuses on managing IOP through pharmacological and surgical approaches to prevent further damage and preserve vision.

Case report: A 52-year-old male, diagnosed in 2011 with primary open-angle glaucoma and high myopia in both eyes, ischemic heart disease, hypertension, psoriasis, presented in January 2012 with uncontrolled intraocular pressure (IOP) despite multi-drug therapy with latanoprost, dorzolamide and timolol eye drops, in both eyes. Initial IOP was 43-37 mmHg (right eye) and 38-33 mmHg (left eye). Visual acuity was 0.8 cc - 9.0 Dsph (right eye) and 0.7 cc - 5.5 Dsph (left eye). Visual field examination showed characteristic glaucomatous arcuate scotomas in both eyes. Optical coherence tomography (OCT) revealed retinal nerve fiber layer (RNFL) thinning and optic neuropathy, with widened cup-to-disc ratio of 0.8-0.9 bilaterally. The patient underwent non-penetrating deep sclerectomy in both eyes, reducing to values: 12 mm Hg (right eye) and 13 mm Hg (left eye), allowing the discontinuation of all anti-glaucomatic eye drops. One year later, IOP was 14.6 mmHg (right) and 15.9 mmHg (left). However, due to progressive visual field deterioration and peripapillary atrophy, pentoxifylline and anti-glaucoma medications (dorzolamide, timolol) were initiated. In 2016, selective laser trabeculoplasty (SLT) was performed in both eyes, followed by phacotrabeculectomy (2019) in the left eye due to an incident of increased IOP and a coexisting cataract. In 2021, severe visual field loss of the left eye was observed resulting in functional blindness of the eye. In 2023, The XEN® Gel Stent was implanted in the right eye. In November 2024, due to insufficient IOP control with four medications: dorzolamide, timolol, brimonidine, latanoprost, a Perserflo microshunt was implanted in the right eye and Xen filter revised. Both procedures were successful, but the microshunt failed due to fibrosis two months later, with IOP rising to 19 mmHg. A revision in February 2025 restored IOP control. The patient remains under ongoing ophthalmologic care.

Conclusions: The pathogenesis of glaucoma is complex, requiring continuous monitoring and specialized care. Controlling intraocular pressure is key in preventing disease progression. Despite effective treatments, some cases still experience visual field loss. Neuroprotective therapies and gene therapies in clinical trials may offer breakthroughs in treating primary open-angle glaucoma.

JUVENES PRO MEDICINA

Comprehensive management of corneal complications in course of rheumatoid arthritis

Michał Uramowski, Antoni Basiński

Presenting author: Michał Uramowski

Work supervisor: Zofia Pniakowska MD, Piotr Jurowski MD, PhD

Affiliations: Medical University of Lodz

Introduction: Rheumatoid arthritis is a chronic autoimmune disease that principally affects joints in feet and hands. However, it can have extra-articular manifestations, and a minor percentage of patients can present ophthalmologic symptoms. They may develop peripheral ulcerative keratitis (PUK), scleritis, episcleritis, or have refractory to heal corneal erosion. Corneal erosion is mostly addressed by immunosuppressive drugs. However, without proper care, erosion could progress to perforation and require corneal transplantation. In patients with concomitant autoimmune disease, this procedure is at high risk of corneal graft rejection due to the neoangiogenesis in surrounding structures and continuous inflammatory process.

Case report: An 81-year-old male was admitted to the ophthalmology department on 26.02.2025 with severe photophobia in the right eye. Other symptoms were intense pain and discharge from the affected eye. The onset of the patient's eye problems was an injury – splinter in the cornea on 04.2023. The patient reported to the ophthalmologist two weeks after the incident. Despite the removal of the foreign body and being prescribed medications (biseptol, gentamicin and moisturizing droplets) his clinical state was deteriorating. Additionally, abnormalities in his interphalangeal joints were observed, suggesting rheumatoid arthritis. After 10 days he was admitted to hospital and diagnosed with paracentral corneal erosion and haziness of the whole cornea. Furthermore, peripheral neovascularization was present. His visual acuity was diminishing - to count fingers. Due to the unhealing erosion, the contact lens was applied on the right eye which had been changed every month since the hospitalization. He was also given serum droplets and glucocorticosteroids droplets which resulted in improvement of his clinical condition. Additionally, symptoms suggesting rheumatoid arthritis have been noticed. Joints of both his hands were affected and there was a presence of morning stiffness and inflammation. Furthermore, his distal intralaryngeal joints were free of changes. Therefore, he was directed to rheumatology department in order to receive deepened examination and treatment, where the diagnosis was confirmed. Half a year later, he returned to the hospital due to a cataract that developed in his left eye. Meanwhile, in the right eye, the progressive corneal thinning with descemetocele and posterior synechiae were observed. On 26.02.2025, the patient arrived at the ophthalmology department due to discharge from the right eye and aggravation of clinical state. Threatening perforation of the cornea with descemetocoele was diagnosed and the patient underwent deep anterior lamellar keratoplasty. Currently the patient is under immunosuppressive treatment and clinical observation in order to supress the risk of graft rejection. Importantly, patient admitted, that prior to incident with discharge from the eye, he did not follow administrated drugs for rheumatoid arthritis.

Conclusion: The proper ophthalmic evaluation and in patients after serious corneal injuries is crucial to avoid severe risk of visual loss. In patients with rheumatoid arthritis the treatment of the underlying disease should be carried out, to improve the prognosis of ophthalmic surgical procedures and diminish the risk of corneal graft rejection.

Papillary Urethral Carcinoma with Renal Pelvis Extension: A Rare Diagnostic Challenge in Urothelial Malignancy Requiring Radical Surgical Management.

Valerie Osawaru

Presenting author: Valerie Osawaru

Work supervisor:

Affiliations: University Hospital Galway

Introduction: Urothelial carcinoma is the most common malignancy of the urinary tract that typically arises in the bladder, ureters or renal pelvis. Papillary urethral carcinoma is a highly rare and often underrecognised form of urothelial carcinoma in males and females. Making it often misdiagnosed as a diverticulum, benign urethral caruncle or more commonly as chronic urinary tract infection(UTI). This case will highlight the diagnostic challenge in a postmenopausal woman who initially presented to her family doctor with recurrent dysuria and signs of haematuria. But was then eventually diagnosed with high-grade papillary urothelial carcinoma of the urethra. Providing valuable insight into the importance of early diagnosis and the challenges posed by rare malignancies such as papillary urethral carcinoma, especially in female patients. It also highlights the need for a multidisciplinary approach that includes urologic surgery and chemotherapy.

Case report: A 64-year-old postmenopausal female presented to her family doctor with a history of persistent urinary urgency, dysuria with signs of haematuria for about 10 months. She was initially treated for recurrent UTI with antibiotics. Pelvic ultrasound was requested and performed, which was deemed unremarkable. Upon further request, a cystoscopy was performed which showed multiple papillary lesions along the urethra and extending towards the renal pelvis. Biopsy analysis, CT urography and MRI were performed with a confirmation of high-grade papillary urothelial carcinoma with a staging of T3N0M0. The patient underwent right nephroureterectomy, nephrectomy and radical cystectomy with urinary diversion via an ileal conduit. Details: Age: 64-year old female. History: Hypertension, no previous malignancies. Gynaecological history: Postmenopausal, no history of cervical dysplasia or HPV. Family history: No known family history of urethral, bladder or kidney cancer.Social history: Non-smoker, occasional alcohol usage.

Conclusion: Given the rarity of papillary urethral carcinoma in both males and females, it is often overlooked and even more highly mistaken for benign conditions which leads to misdiagnosis, delayed diagnosis and mistreatment with antibiotics alone. The urothelial lining of the urinary tract allows the tumour to develop at different and multiple locations, involving the urethra, ureters, bladder and renal pelvis. This case is particularly significant due to the tumour's extension toward the renal pelvis, which in turn ultimately raises concern for upper urinary tract involvement necessitating a more aggressive treatment approach to improve survival outcomes. In this case, the patient was initially diagnosed and treated for recurrent UTIs before undergoing a cystoscopy, which revealed lesions extending toward the renal pelvis. Based on the aggressive nature of advanced papillary urethral carcinoma, rationale for radical cystectomy was met, mainly due to the tumour extension beyond the bladder. This case highlights the aggressive nature of advanced papillary urethral carcinoma and the important significant need for early cystoscopy examination in patients with persistent urinary symptoms.

Conclusion: Papillary urethral carcinoma with renal involvement is an extremely rare and challenging diagnosis that requires early detection and aggressive treatment. This case highlights the important significance of early endoscopic diagnosis as a key factor to improving outcomes and a need for multidisciplinary treatment approach. A combination of surgery, chemotherapy and long-term surveillance offers the best chance for minimising recurrence risk.

This case reinforces the importance of thorough evaluation in patients who present with atypical urinary symptoms, especially female patients, where such malignancies are often overlooked.

JUVENES PRO MEDICINA

Unexpected Thrombocytopenia After Kidney Transplant: A Rare Immunologic Complication

Paulina Lewandowska

Presenting author: Paulina Lewandowska

Work supervisor: Mateusz Zawadka

Affiliations: II Klinika Anestezjologii i Intensywnej Terapii Banacha 1 A, Warszawa

Introduction: Post-transfusion purpura (PTP) is a rare and potentially life-threatening complication of blood transfusion or organ transplantation. It is characterized by severe thrombocytopenia occurring 5–10 days post-exposure to alloantigens, with an incidence of approximately 1 in 50,000–100,000 transfusions. PTP Results from alloantibodies targeting platelet-specific antigens, typically HPA-1a, leading to the destruction of transfused and autologous platelets. Early recognition and treatment are essential to prevent fatal outcomes.

Case report: We present the case of a 57-year-old man with end-stage kidney disease secondary to IgA nephropathy which over a decade progressed to focal segmental glomerulosclerosis. He underwent a deceased donor kidney transplant in October 2024, following years of hemodialysis. Postoperatively, he developed complications including ureter necrosis requiring graft nephrectomy, sepsis, and pancytopenia. Despite platelet transfusions, his platelet count declined from 160,000/μL to <20,000/μL within five days, accompanied by purpura on his extremities.

Extensive investigations ruled out pseudo-thrombocytopenia, disseminated intravascular coagulation, bone marrow suppression, drug-induced thrombocytopenia, heparin-induced thrombocytopenia (which was deemed unlikely as the patient had not received heparin during his treatment), and other immune-mediated conditions. Detection of anti-HLA class I antibodies confirmed the diagnosis of post-transfusion purpura. Treatment included plasmapheresis (4L FFP) and intravenous immunoglobulin (IVIG) at 0.5 g/kg for three days, resulting in a significant platelet count recovery. The patient's condition gradually improved with continued supportive care, including antibiotic therapy, renal replacement therapy, and rehabilitation.

Conclusions: PTP is a rare but serious complication that poses diagnostic challenges, particularly in critically ill patients. This case underscores the importance of a systematic approach to thrombocytopenia in ICU settings, integrating clinical, laboratory, and immunological findings. Early recognition and multidisciplinary management, including hematology consultation, are crucial for optimizing outcomes. Further research is needed to refine diagnostic and therapeutic strategies for PTP, particularly in transplant populations.

JUVENES PRO MEDICINA

Surgical Management of the Orbital Vascular Malformation in a 14-Year-Old Boy

Kacper Żurek

Presenting author: Kacper Żurek

Work supervisors: Professor Przemysław Przewratil, MD, Ph.D. and dr. Anna Niwald MD, Ph.D.

Affiliations: Department of Pediatric Surgery and Oncology and Department of Pediatric Opthalmology UPC

Introduction: Vascular malformations are congenital anomalies that can lead to significant functional and aesthetic impairments. Managing these lesions, especially those in anatomically complex regions such as the periorbital area, presents substantial challenges. Proximity to vital structures, potential functional impairment, and cosmetic concerns often require a multidisciplinary approach for optimal outcomes.

Case report: A 14-year-old boy presented with unilateral exophthalmos of the left eye, with lateral and downward displacement. Symptoms had been present and progressively worsening since age of 3 - as of yet untreated. Over the last two weeks, the patient developed periorbital bruising and a decrease in visual acuity, with episodes of diplopia. Magnetic resonance imaging (MRI) revealed a polycystic tumor, suspected to be a lymphatic malformation, located in the left orbital area. The lesion extended both in and outside the intraconal space and was in contact with the extraocular muscles and the optic nerve. Ophthalmological evaluation showed: Visual acuity (VA) of 5/5 in the right eye (OD) and 5/12 in the left eye (OS), restricted eye movement in all directions, intraocular pressure of 21 mmHg in OD and 32 mmHg in OS, spiral vessels visible on fundus examination of OS. Ultrasound of the left eye showed a 15x18x26 mm portion inside the intraconal space, compressing the optic nerve, and a 30x30x34 mm blood-filled portion outside it. After oncological consultation sirolimus therapy was initiated. Surgical excision of the malformation was performed, revealing that the tumor was not composed of lymphatic vessels as initially suspected, but venous structures. This prompted a reassessment of clinical diagnosis and surgical approach. Partial resection of the malformation was performed from the extraconal space, complete with ligation of the vessels. During the postoperative period swelling and bruising of the the upper eyelid were observed. Ultrasound confirmed a hematoma. The patient was treated with intravenous Augmentin and Dexaven. Over the following days, the symptoms resolved. Significant reduction of the eye displacement, an improvement in the eye motivity, regression of exophthalmos and stabilisation of intraocular pressure as well as resolution of pain, swelling, and bruising were all achieved. The VA improved to 5/8 in OS. The patient was discharged with a scheduled follow-up.

Conclusion: This case highlights the importance of maintaining a high-adaptability approach throughout the entire diagnostic and clinical process. A comprehensive multidisciplinary approach, including radiological assessment, intraoperative reassessment, and diligent postoperative monitoring, is essential for successful management of complex vascular malformations.

JUVENES PRO MEDICINA

Bronchial Pyogenic Granuloma as a Rare Cause of Thoracic Aortic Sacular Aneurysm - A Case Study

Martyna Rosiak, Adam Dobek, Piotr Białek, Rafał Maciąg, Łukasz Gwadera, Jerzy Marczak, Ludomir Stefańczyk

Presenting author: Martyna Rosiak

Work supervisors: prof. dr hab. n.med. Ludomir Stefańczyk, lek. Adam Dobek

Affiliations: Zakład Radiologii i Diagnostyki Obrazowej Uniwersytecki Szpital Kliniczny Nr 1 im. N. Barlickiego, Uniwersytet Medyczny w Łodzi / wydział Lekarski

Introduction: Pyogenic Granuloma (PG) is a benign, highly vascularized lesion commonly found on the skin and mucous membranes. While its precise etiopathogenesis remains unclear, various factors, including hormonal changes, chronic inflammation, and certain medications, contribute to its development. Although PG predominantly occurs in the oral cavity or cutaneous sites, this case presents an unusual localization in the mediastinum, leading to significant clinical complications.

Case report: A 53-year-old male presented with nonspecific substernal pain, intermittent fevers, and an episode of hemoptysis. Initial imaging with angio-CT revealed a saccular mycotic aneurysm with a calcified ring, encircled by a soft tissue mass, which contributed to the aneurysm's formation. This mass was also adherent to the esophagus and bronchial structures, extending into the bronchial lumen

The patient underwent endovascular stent graft implantation, which effectively addressed the aneurysm. However, the mass persisted and exhibited progressive growth over multiple hospitalizations.

Subsequent diagnostic workup, led to an initial suspicion of a carcinoid tumor. However, histopathological analysis identified the lesion as a pyogenic granuloma. The persistent regrowth of the lesion necessitated multiple bronchoscopic resections. The patient experienced recurrent hemoptysis, ultimately requiring treatment to control inflammation and prevent further complications.

Despite medical management, progressing PG's infiltration into the aorta led to a periprosthetic leak, necessitating a stent graft reimplantation. Following the procedure, the patient developed pneumonia and sepsis, requiring hospitalization in the Intensive Care Unit. Over subsequent months, he experienced additional episodes of hemoptysis and was diagnosed with pulmonary embolism and deep vein thrombosis, warranting anticoagulation therapy and the placement of an inferior vena cava filter.

Currently, the patient presents with stable stent graft placement with no periprosthetic leak but persistent soft tissue thickening around the aortic branches. He remains under multidisciplinary management involving pulmonology, cardiology, vascular surgery, and thoracic surgery specialists.

Conclusions: This case illustrates a rare instance of mediastinal PG with life-threatening vascular complications. Despite its benign histology, the lesion's critical localization led to recurrent hemoptysis, bronchial obstruction, aneurysm formation, and stent graft dysfunction. Clinicians should consider atypical vascular lesions in cases of mediastinal masses and integrate multidisciplinary approaches for optimal patient outcomes. Future research should explore novel management strategies for PG in complex anatomical locations.

JUVENES PRO MEDICINA

Uncommon Intracranial Metastasis of Testicular Seminoma: Case report

Shubham Pravin Gaikwad, Ruben Jacob

Presenting author: Shubham Pravin Gaikwad

Work supervisor: Dr n. med. Mateusz Krakowiak

Affiliations: Neurosurgery Student Research Club, Collegium Medicum w Bydgoszczy Uniwersytet Mikołaja Kopernika w Toruniu

Introduction - Testicular germ cell tumors (TGCTs) constitute approximately 95% of testicular malignancies. While intracranial metastases from testicular cancer are infrequent, occurring in only 1-2% of cases, they are disproportionately observed in nonseminomatous TGCTs. Seminomas, though less prone, exhibit a reported rate of approximately 5% for cerebral dissemination and usually metastasize via the lymphatic system.

Case report- This case concerns a 34-year-old male patient with a history of right testicular seminoma, staged as pT3, with multiple metastases to the lymph nodes, lungs, and liver. He was admitted to the neurosurgery department with a two-day history of altered consciousness right-sided paresis and dysphagia. The patient also had a prior orchiectomy performed in order to resect the primary testicular tumor. Neuroimaging revealed hyperdense lesions in the left frontal and left parieto-temporal regions, raising suspicion of metastatic spread from the primary malignancy. These lesions resulted in significant neuroanatomical alterations, contributing to the patient's clinical deterioration. Anti-edema therapy was initiated, and the patient underwent an elective open craniotomy for surgical resection of the suspected metastatic lesions.

A postoperative CT examination of the brain performed on the fourth day did not reveal any surgical complications and the abnormal neuroanatomy caused by the pathological lesion had improved. The improvement in the neurological status of the patient was observed. A multidisciplinary approach was adopted, with scheduled urological and oncological consultations. Additionally, a postoperative MRI examination of the brain performed on the sixth day demonstrated a satisfactory outcome. The patient was subsequently referred to a radiotherapy center for further oncological management.

Conclusion - A review of literature suggests that the presence of lymph node involvement at the initial diagnosis of testicular seminoma raises the potential for subsequent intracranial metastatic development. Locoregional surgical intervention of the cerebral metastasis plays a crucial role in optimizing the prognosis for patients with primary metastatic testicular cancer (pMTC) as demonstrated in our case. The patient responded very well to the surgical treatment, the paresis disappeared completely, and the patient regained full consciousness. Following the surgical resection of an intracranial metastasis originating from testicular seminoma, adjuvant radiotherapy should be evaluated for its potential to enhance patient outcomes. Additionally, chemotherapy is an essential component in managing intracranial metastases associated with systemic disease as it provides potential for complete recovery of the patient.

JUVENES PRO MEDICINA

Pressure as a Bridge to Surgery: Effective Management of Delayed Internal Carotid Artery Transection

Katie Annmarie Kellett & Craig Hugh McKenzie Vass

Presenting author: Katie Annmarie Kellett

Work supervisors: Dr. Aleksandra Ślęzak & Dr hab. Maciej Wróbel , prof. UMK

Affiliations: Department of Otolaryngology and Laryngological Oncology, Collegium Medicum in Bydgoszcz, Nicolaus Copernicus University in Torun, Poland

Introduction: Complete transection of the internal carotid artery (ICA) is a rare fatal injury that, left untreated, leads to high mortality rates. ICA complete transection is mostly caused by penetrating injuries, which make up 5-10% of all trauma cases. Knowing how to identify and treat this issue is essential for medical practitioners since, if left untreated, neurological consequences can significantly impact the patient's quality of life. This case presents a complete ICA transection that was originally misdiagnosed as submandibular gland damage. The clinical treatment and overall strategy, in this case, centered on the pressure administered from the outset of the injury, which favorably affected the patient's prognosis and resulted in zero neurological complications.

Case report: A 51-year-old female arrived at the hospital applying pressure on a submandibular wound. Clinical examination revealed a small penetrating injury (later to be identified as a stab wound). Bandaging was applied, and a diagnosis of submandibular damage with a significant bleed was given. Upon further investigation, blood had extravasated from the carotid artery to generate a pseudoaneurysm. The patient developed hemorrhagic shock, with a Glasgow Coma Scale score of three. Despite administering pentoxifylline to promote circulation, there was no improvement, prompting the decision to intubate. The patient was rushed to surgery, and the transection was successfully treated with suturing using an end-to-end anastomosis technique. No surgical complications were noted, and the patient was discharged within 3 days and recovered without incident.

Conclusion: In most cases, a transected ICA would result in a fatality, especially in cases such as this with delayed treatment. The bandaging around the neck may have stabilized hematoma formation, enabling a successful repair. This is in contrast to research that emphasizes urgent surgical repair as the only viable course of action. It's crucial to remember that the way the bandage was applied could have compromised vessels in the neck, leading to neurological abnormalities. However, this was not the case in this instance. It's critical to carefully assess and evaluate a patient, paying particular attention to the surrounding structures, in order to minimize any consequences. As demonstrated in this instance, prompt pressure administration as a prelude to surgery can increase survival in ICA transection.

JUVENES PRO MEDICINA

Recurrent Prosthetic Dislocation in an Elderly Patient with Peri-trochanteric Femur Fracture

Marwan Zeini, Mohamed Mudar Alsomm

Presenting author: Marwan Zeini

Work supervisor:

Affiliations: Medical University of Lodz- CKD Pomorska 251

Introduction:Peritrochanteric femur fractures are common in elderly patients and present significant challenges in treatment due to pre-existing comorbidities and decreased functional reserves. Proper fixation and stability are crucial for successful rehabilitation. However, complications such as implant failure, muscle weakness, and dislocation can hinder recovery. This Case reporthighlights the complexities of managing a recurrently dislocating prosthesis in an 85-year-old female patient following surgical intervention for a femoral fracture.

Case report:An 85-year-old female with a history of hypertension, asthma, obesity, degenerative knee and spine changes, and multiple prior surgeries—including cystoscopic resection of bladder cancer, appendectomy, and cholecystectomy with biliary duct fixation—presented with a peritrochanteric femur fracture on December 16, 2024.

On January 27, 2025, the patient underwent fixation with intramedullary nails; however, poor stability and complications led to further intervention. On March 10, the nails were removed, and a prosthesis was installed. Initial postoperative rehabilitation was successful, with the patient able to stand on both legs. However, complications arose in the following days.

On March 13, during a follow-up examination, clinical assessment and imaging revealed that the right leg appeared shorter and internally rotated. Further investigation confirmed a prosthetic dislocation. Given the patient's advanced age, cognitive status, and weakened gluteal muscles, inadvertent stress on the joint may have contributed to the instability. The patient remains under close monitoring and is scheduled for corrective surgery this week to address the dislocation.

Conclusion: This case underscores the multifactorial nature of recurrent prosthetic dislocation in elderly patients. Muscle weakness, pre-existing degenerative changes, cognitive impairment, and improper positioning contribute significantly to postoperative instability. Effective management should incorporate multidisciplinary strategies, including tailored rehabilitation, strict patient education, and close monitoring to prevent complications. This case also raises critical questions about optimal surgical approaches and post-operative care strategies in geriatric orthopedic patients. Further research is warranted to enhance long-term outcomes and reduce recurrence rates in similar cases.

JUVENES PRO MEDICINA

Twelve years of Extradural Spinal Meningioma development - Case report and literature review.

Krzysztof Beigert

Presenting author: Krzysztof Beigert

Work supervisors: Marcin Czyż MD, PhD, Piotr Zieliński MD, PhD

Affiliations: ED Scientific Circle of Neurosurgery, Medical University of Gdańsk, Gdańsk, Poland

Introduction: Cervical spinal meningiomas account for approximately 25% of primary spinal canal tumors. Most of them are located intradural, although there are a few reports of extradural localization. They occur more frequently in women, and their clinical symptoms are usually the result of mass effect, compressing the spinal cord. and their slow growth may remain clinically silent.

Case report: A 62-year-old female, under the care of a neurosurgeons for 12 years due to a slow-growing and mildly symptomatic lesion, which appeared in magnetic resonance as an extradural mass at the C2-C4 level was presented to the hospital with balance disturbances, burning and spasmodic pain along the spine, as well as weakness in the upper limbs worsening over past 8 weeks. The examination revealed brisk reflexes bilaterally and a positive Hoffmann's sign in both hands. The Romberg sign was positive. No muscle weakness or sensory disturbances were observed in the limbs. The observed symptoms were correlated with the mass in the spinal canal, located in the upper cervical spine. The patient was qualified for surgical treatment. Subtotal resection of the tumor via C2-C4 laminectomy with the use of intraoperative ultrasonography was performed. In the histopathological examination, meningioma WHO grade I was confirmed. After the surgery, the patient’s initial symptoms gradually improved, leading to complete remission.

Conclusions: The presence of a pathological, clinically silent mass within the spinal cord requires careful observation of the lesion. In the literature, no case of extradural spinal meningioma with such a long observation history has yet been described. Surgical treatment should be initiated after a significant worsening of clinical symptoms, at a time that prevents the persistence of these symptoms. The use of intraoperative ultrasonography enhances the safety of the procedure and minimizes the risk of tumor recurrence, yet the reported usage rate remains unsatisfactory.

JUVENES PRO MEDICINA

A lost ovary - an unusal case of appendage cyst in a patient with left-sided agenesis and right accesory ovary.

Maria Materek (1), Gabriela Zakrzewska (1), Patrycja Wójcikiewicz (1)

Presenting author: Maria Materek

Work supervisors: dr n. med. Patrycja Ziober-Malinowska (2), prof. dr hab. n. med. Rafał Tarkowski (2)

Affiliations: (1) Student's Scientific Association at the I Chair and Department of Gynaecological Oncology and Gynaecology, Medical University of Lublin (2)I Chair and Department of Gynaecological Oncology and Gynaecology, Medical University of Lublin

Introduction: Ovarian cysts are the most common manifestation of tumours from the abdominal and pelvic region. Thanks to modern diagnostic methods, their identification and classification is usually not clinically challenging.

The case describes an unusual situation, so far not described in the literature, concerning the presence of an ovarian cyst in a patient with suspected unilateral ovarian agenesis, coexisting with an additional ovary on the opposite side. Ovarian agenesis may be the result of congenital absence of an organ or the consequence of past pathological processes, such as asymptomatic torsion of the ovary and fallopian tube, leading to their ischaemia and secondary atrophy. In some cases, especially with coexisting inflammatory processes, ovarian self-amputation may occur, resulting in an ectopic ovary - a rare anomaly, usually detected incidentally.

The aim is to present the case of a patient qualified for laparoscopic removal of an ovarian cyst, during which the anatomical abnormalities described above were visualised.

Case report: An 18-year-old female patient was admitted to the Gynaecology Oncology Department with lower abdominal pain and irregular menstrual cycles. The patient underwent transvaginal ultrasound examination, which showed a fine-walled ovary and a 6 cm smooth-walled oval cyst without vascularisation features, filled with heterogeneously echogenic contents. No papillary growths or solid fields were found in the lesion. The lesion was assessed according to IOTA Simple Rules as probably benign. The patient was qualified for laparoscopic cyst excision. During the procedure, the left ovary and the isthmus of left uterine tube were not located. A normal-looking right ovary was visualised at the right uterine horn and an additional ovarian structure on the same side, showing the presence of a cyst. The lesion was completely excised during surgery and submitted for histopathological examination, the result of which showed cystadenofibroma serosum.

Conclusions:The presence of an additional ovarian structure may result from a supernumerary ovary, ectopic displacement of ovarian tissue or, less commonly, ovarian cleavage during embryogenesis. These lesions are often detected incidentally and usually have no impact on fertility. The case highlights the need for careful anatomical assessment of the pelvic organs during laparoscopic procedures, especially in situations that deviate from the typical picture.

JUVENES PRO MEDICINA

Adapted Surgical Strategy for Emergency Treatment of Cardiac Tamponade

Aleksandra Barabasz, Stanisław Dudek

Presenting author: Stanisław Dudek

Work supervisor: Bartosz Sadownik, MD

Affiliations: II Klinika Anestezjologii i Intensywnej Terapii

Introduction: Resuscitative thoracotomy provides rapid access to heart and major thoracic vessels. It is performed in patients with penetrating or blunt thoracic injury and allows direct control of hemorrhage or decompression of cardiac tamponade. It is usually performed through anterolateral incision, starting in the 4th or 5th intercostal space at the lateral edge of the sternum and curving along the submammary crease to the anterior axillary line.

Case report: 69-year-old female presented with a sudden onset of hypotension and desaturation during an elective percutaneous intervention. Echocardiographic examination revealed cardiac tamponade with 7mm of pericardial effusion. After a few minutes, the patient's clinical condition deteriorated. Repeated echocardiography showed 15 mm of fluid in the pericardium. Despite intensified therapy, patient’s clinical condition progressed to cardiac arrest with PEA. ALS was applied and attempts at pericardiocentesis were made. However they were unsuccessful so the decision on resuscitative thoracotomy was made. Due to a lack of equipment the team decided to make an incision under the rib arches using available basic surgical tools. The left lobe of the liver was pushed back, the bloated stomach was compressed, the diaphragm was visualized, incised and dilated, which gave direct access to the pericardial sac. The tamponade was directly punctured and decompressed, achieving ROSC. Initial evaluation of internal organs revealed no visible injury with minimal blood loss. After 7 minutes of hemodynamic stabilization, hypotension and bradycardia developed. USG reassessment revealed akinesis of the left ventricle and absence of signs of pericardial effusion, pointing to severe myocardial infarction. Due to BP of 40/20 mmHg, high efficiency direct cardiac massage was applied through a previously created incision. During procedure, SBP over 130 mmHg was generated. Massage was performed for 45 minutes. Then sternotomy was done by cardiac surgeon, who revealed akinesis of the left ventricle and massive coronary thrombosis. After 2 hours, in the absence of treatment options, intensive resuscitation efforts were withheld.

Conclusions: The procedure described in this case is unique due to the applied methods of proceeding. Direct access created with modified surgical approach can provide us with highly efficient pericardial drainage and direct cardiac massage.

JUVENES PRO MEDICINA

How to band together without giving to someone your whole heart? - a Case report of banding in a newborn.

Julita Klag, Katarzyna Hajduk

Presenting author: Julita Klag

Work supervisors: MD PhD Joanna Śliwka, MD PhD Szymon Pawlak

Affiliations: Studenckie Koło Naukowe przy Katedrze i Klinice Kardiochirurgii, Transplantologii, Chirurgii Naczyniowej i Endowaskularnej SCCS, Śląski Uniwersytet Medyczny w Katowicach

Introduction: Dilated cardiomyopathy (DCM) is the most common primary myocardial disease. It is characterized by chamber dilation and impaired ventricular contractility. In more than 70% of cases, DCM is idiopathic. Other possible causes include myocarditis, neuromuscular disorders, connective tissue diseases, anthracycline toxicity and genetically determined forms. In advanced dilated cardiomyopathy qualifies patients for heart transplantation.

Case report: A 2-month old infant with severe circulatory failure, diagnosed with dilated cardiomyopathy, an atrial septal defect, and congestive heart failure, was admitted to the Pediatric Cardiac Surgery Unit as an emergency case for further treatment. Dilated cardiomyopathy was treated pharmacologically, but no improvement in left ventricular function (EF approximately 12%). An ultrasound was performed, which confirmed low LV function with features of non-compaction. The boy was qualified for orthotopic heart transplantation (OHT). It was decided to perform progressive MPA banding. After the procedure, the patient's condition was severe but stable. Intermittent hypotension was observed. On follow-up UKG, extreme LV hypokinesis persisted, with a pressure gradient on banding of up to 40 mmHg. An improvement in the patient's clinical condition was observed in the days following the procedure. The child's clinical condition was assessed as good. No symptoms of heart failure were observed. Only a slightly reduced LV systolic function - in the apical region, pressure gradient on banding MPA-max. 65 mmHg. Laboratory results remained normal. Due to the good general condition, it was decided to suspend the qualification for OHT. The boy was discharged home in good general condition.

Conclusion: The case presented highlights the complexity of treating dilated cardiomyopathy, which remains challenging by the inability to assess patient prognosis and multifactorial etiology. Progressive MPA banding may serve as an effective therapeutic strategy in patients with dilated cardiomyopathy to improve left ventricular function and avoid immediate heart transplantation.

JUVENES PRO MEDICINA

Multidisciplinary management of catheter-related thrombosis in a 74-years-old female patient – a care report

Zuzanna Czarnecka, Julia Bogacka, Natalia Bołtralik, Marek Misiak

Presenting author: Zuzanna Czarnecka

Work supervisor: prof. dr. hab. n. med. Krzysztow Bojakowski

Affiliations: Klinika Chirurgii Naczyniowej Państwowy Instytut Medyczny MSWiA

Introduction: Pulmonary embolism (PE) is a life-threatening condition caused by the obstruction of pulmonary arteries by a thrombus. It may result from two major types of right atrial (RA) thrombi—one originating from the peripheral veins and the other forming within a structurally abnormal RA. The second type is commonly associated with catheters (CRAT – catheter-related right atrial thrombus), with increased risk in hemodialysis patients. This study aims to present the case of a 74-year-old female on hemodialysis who developed pulmonary embolism due to catheter-related right atrial thrombosis (CRAT) and to emphasize the importance of early recognition and individualized treatment strategies.

Case report: A 74-year-old female on hemodialysis with multiple comorbidities, including diabetes mellitus, atrial fibrillation, hypothyroidism, and hypertension, was admitted with dyspnea and chest pain. The CT scan confirmed PE, and echocardiography revealed thrombotic formations around the dialysis catheter. Transesophageal echocardiography has shown one structure surrounding the catheter (measuring 60 x 3 mm) near the inferior vena cava and another structure attached to the interventricular septum (measuring 7 x 3 mm). Initially, the patient was treated with anticoagulation therapy. However, due to an inadequate response, she underwent surgical thrombectomy and catheter replacement. Her condition deteriorated postoperatively due to an ongoing infection of K. pneumoniae and P. aeruginosa origin, ultimately leading to multi-organ failure and death.

Conclusion: This case highlights the need for heightened vigilance and multidisciplinary management of catheter-related thrombosis, especially in complex cases. Although there is no established optimal management strategy for CRAT, treatment options should include catheter removal, anticoagulation, thrombolysis, and surgical thrombectomy, depending on the clinical circumstances.

JUVENES PRO MEDICINA

Beyond Lipomatous Hypertrophy: A Rare Case of Extensive Interatrial Septal Lipoma

Aleena Benny

Presenting author: Aleena Benny

Work supervisor: Dr. Andrzej Gniłka

Affiliations: Department of Cardiac Surgery Collegium Medicum in Bydgoszcz Nicolaus Copernicus University in Torun, Poland

Introduction:Primary cardiac tumours are rare, with an incidence rate of >0.2%; cardiac lipomas are benign neoplasms of the heart, accounting for 2.9-8% of these cases. Interatrial septal lipomas are uncommon and can be challenging to differentiate from lipomatous hypertrophy of the atrial septum (LHAS). Most cardiac lipomas are found incidentally due to many cases being clinically asymptomatic. However, this largely depends on the tumour size and location, as large lesions can cause mechanical obstruction, pericardial effusions, embolisms, or arrhythmias.

Case report:We present a case of a 71-year-old female patient with a long-standing history of Polymyalgia rheumatica treated with methylprednisolone who presented with worsening heart failure, NYHA class I to II, over the course of a month. Transthoracic echocardiography (TTE) revealed a large, heterogeneous mass occupying the interatrial septum and extending to the left atrium, initially suspected to be an LHAS. Given the extent of the lesion, surgical resection of the cardiac tumour was performed. Intraoperatively, a 7 x 4 x 4 cm encapsulated mass was identified and completely excised. The interatrial septum and free wall of the right atrium were reconstructed using a pericardial patch. Histopathology confirmed the diagnosis of interatrial septal lipoma.

Postoperative recovery was complicated by acute respiratory failure, septic shock, persistent cardiac arrhythmias requiring temporary pacing and a suspected subarachnoid haemorrhage. Despite the challenges, the patient's recovery was ultimately successful.

Conclusion: This case highlights the diagnostic challenges in differentiating interatrial septal lipomas from LHAS. Imaging can be inconclusive, making histopathology the definitive diagnostic method. Surgical resection is the primary method of treatment for extensive myocardial lipomas; this case outlines the surgical approach, postoperative complications, and multimodal diagnostic evaluation, including TTE, transesophageal echocardiography (TEE), Thoracic CT and histopathology.

JUVENES PRO MEDICINA

A Fight for Every Breath: Multistage Management of a Neonate with Total Anomalous Pulmonary Venous Connection – a Case report

Kacper Jaros, Maja Butrym, Tomasz Głowniak

Presenting author: Kacper Jaros

Work supervisors: Joanna Śliwka MD, PhD; Szymon Pawlak MD, PhD

Affiliations: Student Scientific Association at the Department and Clinic of Cardiac Surgery, Transplantology, Vascular and Endovascular Surgery of the Medical University of Silesia in Katowice, Silesian Center for Heart Diseases in Zabrze

Introduction: Total Anomalous Pulmonary Venous Connection (TAPVC) is a severe cyanotic congenital heart defect requiring urgent cardiac surgical intervention in the neonatal period. It involves an abnormal connection of the pulmonary veins to the systemic venous circulation, which disrupts normal blood flow. TAPVC is rare (1 in 15,000 live births), and without treatment, 50% of affected infants die within the first year of life.

Case report: A male infant born at 40+3 weeks of gestation, weighing 3.39 kg, was admitted in critical condition to the Cardiac Surgery Department with suspected cyanotic heart disease. Echocardiographic examination confirmed supracardiac-type TAPVC. The patient was qualified for urgent surgery, during which the pulmonary venous confluence was dissected and anastomosed to the left atrium, and the atrial septal defect was closed with a continuous suture. Postoperative complications occurred, but after 24 days of hospitalization, the child was discharged home in good condition. In the following weeks, the patient's condition deteriorated due to progressive pulmonary venous obstruction, which necessitated two cardiological interventions. The first balloon angioplasty reduced gradients in the pulmonary venous return. However, only a few days after discharge, the patient required rehospitalization due to circulatory failure. A second balloon angioplasty was performed, which partially reduced the gradient. The patient's hemodynamic status remained nearly unchanged compared to the pre-intervention state, leading to the decision for surgical reintervention to relieve the pulmonary vein stenosis. The postoperative pulmonary venous gradient was 10 mmHg, indicating a good surgical outcome. The patient was discharged home in good condition.

Conclusions: Total Anomalous Pulmonary Venous Connection is a critical defect that often requires surgery within the first day of life.

Rapid diagnosis and timely treatment significantly increase survival chances.

Recurrent pulmonary vein stenosis is a common complication; therefore, patients must remain under regular cardiology follow-up.

JUVENES PRO MEDICINA

STERCORAL PERITONITIS POST-COLECTOMY WITH ANASTOMOTIC STRICTURE AND ILEAL PERFORATION

Linda Sledkova-Andruškienė

Presenting author: Linda Sledkova-Andruškienė

Work supervisors: Laura Žundienė M.D; Sergej Trusov M.D; Med. Dr Andrius Karpavičius;

Affiliations: Faculty of Medicine, Medical Academy, Lithuanian University of Health Sciences, Kaunas, Lithuania

Introduction: Stercoral perforation an extremely rare but life-threatening condition that causes acute abdomen. Commonly affects elderly individuals with chronic constipation and occurs due to prolonged fecal pressure causing ischemia. Maurer C.A. and Renzulli P. study indicated that stercoral perforations might account for approximately 3.2% of all colonic perforations and were identified in 2.2% of randomly selected autopsy examinations. This suggests that many cases may go undiagnosed or are misclassified, especially in elderly populations.

Case report: A 74-year-old male arrived with acute abdominal pain. His medical history included right hemicolectomy for tubulovillous adenoma 7 month before arriving to the ER. Physical examination showed diffuse tenderness, and imaging confirmed pneumoperitoneum with free air under the diaphragm, consistent with gastrointestinal perforation. Laboratory tests show normal WBC (4,28 109/l), lymphocytopenia (9,6%), neutrophilia (83,6%), CRB 327 ml/l.

Laparoscopy revealed significant adhesions, necessitating conversion to open laparotomy. Approximately 400 mL of purulent fluid was drained from abdomen, and a strictured ileotransverse anastomosis with a nearby 7 mm ileal perforation was identified. The affected bowel was resected, and an ileostomy was formed.

Conclusion: This report underscores the critical need to consider stercoral perforation of the colon in the differential diagnosis of acute abdominal conditions, such as appendicitis or localized peritonitis, especially in elderly patients with chronic constipation. Though rare, it can be fatal if missed. Perforation often occurs at prior surgical sites, where adhesions from previous abdominal surgeries and anastomotic strictures complicate diagnosis and surgery, increasing operative time and the risk of intraoperative injury. Preoperative imaging, especially CT scans, is essential for evaluating disease extent and planning surgery. Immediate surgical intervention – often Hartmann's procedure or segmental colectomy with colostomy – is critical to control contamination. Intensive care monitoring is often needed due to the high risk of sepsis, alongside supportive therapies like antibiotics and fluid resuscitation.

Early suspicion, prompt imaging, and careful preoperative planning are essential for effective management. Long-term prevention focuses on managing constipation through diet, laxatives, and patient education.

JUVENES PRO MEDICINA

Late-Onset Carotid Pseudoaneurysm Following Endarterectomy: A Rare Vascular Complication

Maciej Dercz, Paulina Pawlak

Presenting author: Maciej Dercz

Work supervisor: Bartosz Migda MD, PhD

Affiliations: Medical University of Warsaw

Introduction: Carotid endarterectomy (CEA) is an effective surgical treatment for significant carotid artery stenosis, especially in patients with over 50% luminal narrowing or those diagnosed with transient ischemic attack (TIA) or ischemic stroke. While CEA reduces future cerebrovascular risk, it may lead to complications such as recurrent stroke in the perioperative period, cardiac events, cerebral hyperperfusion syndrome, and cranial nerve injury. A rare but potentially life-threatening complication is carotid pseudoaneurysm. It typically presents within the first week after the surgery and often involves Staphylococcus infection of the vascular patch created during the procedure. Pseudoaneurysm results from vessel wall tear with blood leakage into surrounding tissues forming a false wall, which may rupture causing a massive, potentially fatal internal bleeding.

Case report: A 66-year-old male patient presented to the emergency department with a painless, progressive swelling of the neck, which had been increasing in size over the past two days. The patient reported no additional systemic symptoms, and his vital signs were within normal limits. The patient's medical history included a left carotid endarterectomy performed in 2019 following an ischemic stroke in 2018. Ultrasound examination demonstrated a heterogeneous 44x33x50mm lesion localized within the left neurovascular sheath, displacing the vagus nerve and compressing the internal jugular vein. Color and Power Doppler imaging revealed active blood flow extravasation from the region of the left common carotid artery sinus and the origin of the left internal carotid artery, indicative of ongoing active bleeding. CT angiography further confirmed the presence of a thick-walled, multilocular mass with suspected thrombosis of the left jugular vein. Differential diagnoses included paraganglioma, angiosarcoma, or a late complication of carotid endarterectomy, such as an abscess or arteriovenous fistula. Following consultation with vascular surgeons, the diagnosis of a carotid pseudoaneurysm was established. No signs of graft infection were identified. The patient subsequently underwent successful endovascular treatment with the implantation of a Bentley stent graft in December 2024. The procedure and postoperative recovery were uneventful. Follow-up Doppler ultrasonography confirmed normal antegrade flow in the carotid arteries with no recurrence of symptoms.

Conclusion: Carotid pseudoaneurysm occurs in approximately 0.4% of patients following CEA. Its delayed onset, as demonstrated in this case, can pose a significant diagnostic challenge. Routine postoperative monitoring with Doppler ultrasonography is essential for effective patient screening, timely referral for further diagnostic evaluation, and prompt life-saving intervention in this rare but serious complication.

JUVENES PRO MEDICINA

Small surgery, big trouble – a Case report of a 65-year-old patient after angioplasty with stent implantation.

Natalia Wolak

Presenting author: Natalia Wolak

Work supervisor: Dr. med. Piotr Malinowski

Affiliations: Clinical Department of Vascular Surgery, Provincial Specialist Hospital in Olsztyn, Faculty of Medicine, Warmia and Mazury University

Introduction: Atherosclerosis is an arterial disease that leads to narrowing of the vessel lumen. The cause of this narrowing is atherosclerotic plaque, mainly composed of cholesterol, which develops from the artery wall and results in reduced blood flow. Atherosclerosis of the iliac artery may manifest as intermittent claudication, rest pain, and in some cases, ischemic necrosis. Currently, numerous surgical and endovascular treatment options are available. One of the endovascular treatment methods is percutaneous transluminal angioplasty (PTA).

Case report: A 65-year-old man was admitted to the Department of Vascular Surgery due to rest pain in the right foot, secondary to occlusion of the right external iliac artery, for endovascular treatment. His medical history included revascularization of the left internal carotid artery, hypertension, and a pacemaker implantation. On February 8, 2023, angioplasty of the right external iliac artery with stent implantation was performed. Control arteriography showed normal blood flow and no signs of bleeding.

Shortly after the procedure, the patient experienced abdominal pain in the right iliac fossa and hypotension. An urgent repeat procedure was scheduled. After contrast injection, rupture of the right external iliac artery with active bleeding was confirmed. A covered stent was introduced, successfully sealing the rupture site. The patient's general condition after the procedure was fair. However, on the second day, acute kidney injury developed. By the fourth day, the patient's condition worsened, with symptoms of respiratory failure due to pneumonia. The patient was intubated and transferred to the intensive care unit for further treatment. After 33 days, he was discharged for further outpatient treatment.

Conclusion: Despite the minimally invasive nature of iliac artery angioplasty, complications may occur and sometimes require reoperation. The presence of chronic diseases and occlusion of other vessels may predispose patients to such complications.

JUVENES PRO MEDICINA

Surgery II Case reports

17th of May 2025

Coordinators:

Maksymilian Rosiak

Julia Matysiak

Joanna Kolano

Jury:

prof. dr hab. n. med. Adam Durczyński

dr hab. n. med. Piotr Hogendorf

dr n. med. Wojciech Ciesielski

dr hab. n. med. Michał Mik

dr hab. n. med. Marcin Włodarczyk

prof. dr hab. n.med. Marek Dedecjus

JUVENES PRO MEDICINA

Using a Krause approach in a pineal cyst surgery in a 19-year-old patient – a Case report.

Agata Radke, Weronika Lusa, MD, Agnieszka Pawełczyk, PsyD, Maciej Wojdyn, MD, PhD, Professor Maciej Radek, MD, PhD

Presenting author: Agata Radke

Work supervisors: Weronika Lusa, MD, Agnieszka Pawełczyk, PsyD, Maciej Wojdyn, MD, PhD, Professor Maciej Radek, MD, PhD

Affiliations: Department of Neurosurgery, Spine and Peripheral Nerves Surgery; Department of Neurosurgery and Neuropsychology; Medical University of Lodz

Introduction: Pineal gland is a small organ, located in the epithalamus, that participates in the biological rhythm regulation. The pineal cyst is a benign lesion, often asymptomatic, but larger masses can lead to visual disturbance or ventricle enlargement and hydrocephalus. Pineal gland surgery may bring some difficulties caused by the unusual positioning of the patient in the semi-sitting position.

Case report: A 19- year-old male was admitted to the Department of Neurosurgery due to headaches, nausea, vertigo and malaise. Symptoms occurred one year ago, but lately, they got worse. In 2019 he was diagnosed with pineal cyst. After MR imaging with contrast, the pineal cyst was confirmed. The cyst measured 11x13x18 mm. The patient has undergone surgery in the semi-sitting position using neuronavigation. An incision was made in the occipital and suboccipital midline area. A suboccipital craniotomy and durotomy were performed. Then, following the midline, via a supracerebellar-infratentorial approach, Rosenthal's veins were dissected, exposing a soft and fluid-filled pineal cyst. After complete removal of the cyst, hemostasis and bone restoration were performed. Postoperative histopathological examination confirmed the primary diagnosis. The patient was discharged from the hospital in overall good condition. In the follow-up 4 months after the surgery, the patient reported complete withdrawal of preoperative complaints.

Conclusion: Cyst is one of the most common pathological lesions that may affect the pineal gland, they are often found postmortem or in the MRI by accident. They may lead to serious complications such as pineal apoplexy with acute hydrocephalus. That's why it is important to know the surgical treatment of pineal cysts, which outstands by unusual positioning of the patient in the semi-sitting position and using Krause approach. The pineal gland is a small structure, which requires great precision and knowledge of the anatomy of this region and possible anatomical variations.

JUVENES PRO MEDICINA

Diagnostic Challenges in Multifocal CNS Lesions: A Case of Small Cell B-Cell Lymphoma

Aleksandra Ławecka

Presenting author: Aleksandra Ławecka

Work supervisor: dr n. med. Karol Wiśniewski

Affiliations: Medical University of Łódź

Introduction: Small cell B-cell lymphoma is a rare and aggressive form of non-Hodgkin lymphoma, primarily affecting B lymphocytes. While it commonly involves lymph nodes and bone marrow, isolated central nervous system (CNS) involvement without evidence of systemic disease remains extremely rare and diagnostically challenging. CNS involvement can mimic metastases, abscesses, gliomas, cerebral infarctions, cysticercosis, demyelination, and post-radiation changes. Differentiating primary CNS lymphoma, confined exclusively to the CNS, from secondary CNS involvement by systemic lymphoma is crucial.

Case report: A 53-year-old female was first admitted to the Department of Neurosurgery in July 2023 due to progressive neurological symptoms. Imaging revealed a tumor near the fourth ventricle, raising suspicion of a neoplastic process. An open biopsy was performed; however, histopathological analysis was inconclusive. Close monitoring and follow-up imaging were recommended.

By October 2023, a new lesion was detected in the left frontal region, again raising concern for lymphoma. A navigated biopsy was performed, but histopathology remained inconclusive. Cerebrospinal fluid (CSF) analysis, cytology, and flow cytometry did not confirm malignancy, necessitating further molecular and immunohistochemical studies.

In January 2024, MRI showed lesion progression, now involving the hypothalamus and pituitary stalk. CSF analysis revealed elevated protein levels, mild pleocytosis, and oligoclonal bands, but no definitive markers of neoplasia. Extensive laboratory workups for autoimmune, infectious, and oncologic etiologies were negative. High-dose intravenous methylprednisolone led to some symptom relief but no radiological improvement.

By March 2024, MRI indicated continued lesion growth despite steroid therapy. Neurosurgery, oncology, and endocrinology teams concluded that another biopsy was necessary. However, the locations of the lesions posed significant surgical risks, prompting careful consideration before proceeding. Further tests remained inconclusive, delaying immediate intervention.

In April 2024, the patient's condition deteriorated, and MRI confirmed further enlargement of the hypothalamic lesion. Given the aggressive progression, another targeted biopsy was performed. Histopathological analysis ultimately confirmed the diagnosis of small cell B-cell lymphoma.

Conclusions: This case illustrates the diagnostic challenges of multifocal CNS lesions.

Primary small B-cell lymphoma in the CNS is rare and often mimics other conditions, leading to delays in diagnosis. Deep-seated lesions required multiple biopsies, highlighting the importance of persistence and advanced molecular diagnostics. A multidisciplinary approach was essential. Ultimately, accurate surgical sampling and cutting-edge testing enabled a definitive diagnosis and informed treatment. This case underscores the vital role of neurosurgery and collaboration in managing rare CNS malignancies.

"Clinical Features and Surgical Approach to a Sellar Region Meningioma: A Case report."

Michał Chwaściński, Bartosz Wierzbicki

Presenting author: Michał Chwaściński

Work supervisors: Weronika Lusa, MD, Agnieszka Pawełczyk, PsyD, Maciej Wojdyn, MD, PhD, Prof. Maciej Radek, MD, PhD

Affiliations: Department of Neurosurgery, Spine and Peripheral Nerves Surgery; Department of Neurosurgery and Neuropsychology; Medical University of Lodz

Introduction: Meningiomas are typically benign tumors of the central nervous system. However, when located in the region of the sella turcica and anterior cranial fossa, they pose a significant surgical challenge due to the close proximity of critical neurovascular structures. This necessitates a highly precise surgical approach to minimize the risk of complications, including deterioration of the patient's general and neurological condition. Among the clinical manifestations of neoplastic lesions in the anterior cranial base are symptoms caused by compression of cranial nerves passing through this region—such as the optic and olfactory nerves. Additionally, tumors located near the sella turcica warrant consideration of possible pituitary gland pathology. Accurate diagnostic evaluation and an individualized treatment strategy are crucial for the early detection and successful management of these patients.

Case report: A 60-year-old female patient was admitted to the Department of Neurosurgery due to visual disturbances in the right eye. Her oncological history included a resection of clear cell carcinoma of the abdominocutaneous soft tissues (presumably with a primary focus in the ovary) two years prior. A follow-up PET scan revealed an area of increased metabolic activity in the suprasellar region. Further imaging—MRI and CT angiography—demonstrated a lesion measuring 21×22×19 mm, exerting mass effect on the anterior cerebral arteries and the right middle cerebral artery. The patient was qualified for surgical resection of the lesion via a lateral supraorbital craniotomy. Gross total resection of the tumor was performed in accordance with Simpson Grade II criteria (complete resection with coagulation of the dural attachment). Intraoperatively, the integrity of critical structures, including the optic nerve and major vascular elements (such as the internal carotid artery), was preserved. Postoperatively, the patient reported neurological improvement, specifically resolution of the visual disturbances. Histopathological examination confirmed the diagnosis of a meningothelial meningioma. The patient was discharged in good general and neurological condition after one week of hospitalization.

Conclusions: This case highlights the importance of considering skull base lesions, including meningiomas, in the differential diagnosis of cranial nerve deficits. In patients presenting with visual disturbances suggestive of optic nerve compression, radiological evaluation of the sellar and suprasellar regions is warranted. It must be emphasized that even benign tumors such as meningiomas can pose significant surgical challenges when located in complex anatomical regions due to the proximity of critical vasculature—particularly the circle of Willis—and cranial nerves, as well as limited surgical access. Precise diagnosis and adherence to appropriate surgical protocols are key to minimizing the risk of perioperative complications.

JUVENES PRO MEDICINA

Leave well enough alone

Paulina Turko

Presenting author: Paulina Turko

Work supervisor: Prof. Marta Fijałkowska, M.D.

Affiliations: Department of Plastic, Reconstructive and Aesthetic Surgery, Medical University of Lodz

Introduction: Nowadays, more and more people desire to improve their appearance. Some of them are even willing to sacrifice their health to achieve “perfect” results. But is it truly necessary?

Cryolipolysis is a non-invasive procedure used to reduce excess fat tissue by freezing it. It gained popularity due to its long-lasting effects, minimal recovery time and its accessibility, but also because it is relatively safe. On the other hand, to fully benefit from those advantages, the patient must be properly qualified. Serious side effects are rare, but in some cases, patients may even experience frostbite.

This Case reportdescribes a female patient who suffered third-degree cold burns on her abdomen as a result of cryolipolysis. The goal of this report is to emphasize the importance of proper qualification process and the ability to recognize when to say “no” to a patients’ desires.

Case report: A 41-year old female patient underwent criolipolysis on her thighs and abdomen. She presented with severe redness and blisters on her stomach, that were painful to the touch, whereas her lower limbs show no significant signs of damage. The cold burn covered an area of 20x15 cm, with a third-degree burn in central part and first/second-degree burn in surrounding areas. The patient’s condition was stable, and all vitals were within the normal range.

The administered treatment consisted of both conservative and surgical methods. Initially, dressings with silver (UrgoTul) were applied and changed every few days, along with excessive lubrication. First week of this approach resulted in the healing of peripheral area, while central necrosis measuring 7x5 cm developed.

In the second and third week of treatment, the wound margins were gently cleaned and the necrosis started to demarcate. Once fully declared, the scab was removed until pinpoint bleeding. Inadine dressing and neomycin ointment were then applied.

After that, the VAC (Vacuum-Assisted Closure) dressing was used, then replaced every 4-7 days for a total of 6 changes within a month. In the meantime, wound healing through granulation and epithelialization was observed.

Eight weeks after cryolipolysis, hypergranulation tissue developed and was treated with silver nitrate cauterization, followed by the application of an UrgoTul dressing.

Three months after the cold burn, the wound was fully closed, and scar remodeling was observed. Patient was instructed on proper scare care, including lubrication and UV protection.

Conclusions: This case highlights the importance of proper patient qualification before a procedure, and necessity of knowing when to say “no” to patients’ desires to protect them from dangerous outcomes. Importantly, even procedures considered as safe and non-invasive can lead to serious consequences when done without proper assessment. Striving for perfection should never come at the cost of patient’s safety and well-being.

JUVENES PRO MEDICINA

Is complete excision and lymphadenectomy of metastatic melanoma a sufficient approach which should diminish our attention? - A rare case of melanoma recurrence

Alicja Komsta, Jan Kaczmarczyk

Presenting author: Jan Kaczmarczyk

Work supervisors: Katarzyna Kwas, Filip Prycel

Affiliations: Department of Surgical Oncology, Medical University of Łódź. Clinic of Surgical and Oncological Gynecology, Department of Obstetrics and Gynecology, Medical University of Lodz

Introduction: Malignant melanoma (MM) is a malignant neoplasm which derives from pigment-producing tissue. MM accounts for around 2% of all tumors being the fifth leading cancer for men and the sixth for women. MM accounts for 75% of all skin cancer deaths, thus its early detection is crucial for both short- and long-term morbidity and mortality reduction. Local recurrence is a poor prognostic factor and is associated withthe in-transit metastases occurrence.

Case report: Male patient aged 70-years old was admitted to the hospital for the diagnosis of a suspicious nodular lesion on his right thigh which occured in the spring of 2024. Prior to the diagnostic process the patient tried to treat the lesion by himself based on his knowledge using 5% iodine solution, silicone, vitamin C, B, K and amygdalin, without success. In

the summer of 2024 when the lesion had enlarged significantly, a resection was performed and the collected material was evaluated pathomorphologically, nodular melanoma of the skin was diagnosed. Spring of 2024, due to a palpable lump in the right inguinal region coarse-needle biopsy under ultrasound guidance as well as PET scan was performed. Both examinations confirmed MM metastasis to the right-sided inguinal lymph nodes. A lymphadenectomy was performed, with enlarging the margins of excision of the lesion on the right thigh. The lesion was excised completely and metastatic melanoma conglomerate with the lymphnodes were removed. A 6 mm metastasis was found in one of the resected lymph nodes. In addition, a genetic test revealed the presence of the BRAF V600E mutation. During the qualification for the systemic treatment, local recurrence was suspected throughout USG examination. In 2025 the patient underwent another procedure to excise the lesion which confirmed MM recurrence. Currently the patient is experiencing lymphorrhea and shows up regularly to the hospital in order to extract the lymph present in the right inguinal area.

Conclusions: In the case presented here, despite complete excision of the lesion, local recurrence of MM appeared. This study highlights the importance of time in undertaking the diagnostic and treatment process for lesions suspected of being malignant melanoma.

JUVENES PRO MEDICINA

A wolf in sheep's clothing: a rare case of pancreatic NET coexisting with endometrial cancer.

Aleksandra Zimny, Iryna Sosenko, Katarzyna Kwas, Magda Krzycka, Jacek Wilczyński

Presenting author: Aleksandra Zimny

Work supervisors: Katarzyna Kwas, Magda Krzycka, Jacek Wilczyński

Affiliations: Clinic of Surgical and Oncologic Gynecology, Department of Gynecology and Obstetrics, Medical University of Lodz

Introduction: Endometrial cancer is an increasing problem, being the most common gynecological malignancy in female population. The diagnostic process is based on endometrial biopsy and cervical canal curettage. Total hysterectomy with adnexal removal forms the foundation of treatment, which may be complemented by additional radiotherapy, chemotherapy, immunotherapy or hormonal therapy.

Distant metastases are uncommon, occurring mostly in advanced stages and present in around 6,6% of cases at the time of the diagnosis.

Case report: A 69-year-old female patient, with a history of hypertension and ischemic stroke was referred to the hospital due to recurrent incidents of vaginal spotting. Patient was qualified for an endometrial biopsy which indicated endometrioid carcinoma with squamous differentiation G2.

The diagnostic process was extended by chest X-ray, followed by abdominal and pelvic CT, which presented endometrium enlargement (21 mm in width) accompanied by enhancing lesion (12 mm in diameter) of the pancreatic tail.

Additional laboratory analysis and EUS revealed elevated CA 19-9 level [U/mL] and a solid, well-defined lesion (13x10 mm) at the body-tail junction of the pancreas, respectively.

The patient was qualified for the surgery and underwent panhysterectomy, bilateral lymphadenectomy, omentectomy and excision of pancreatic tail tumor.

Histopathology confirmed an endometrioid adenocarcinoma (G2) pT1bN0 exceeding half the thickness of the myometrium wall. The pancreatic tail tissue analysis confirmed the presence of the neuroendocrine tumor G1 NOS pT1Nx, R0.

Four months postoperatively, the patient is in a good condition. Three HDR brachytherapy sessions were administered, concluding her course of treatment. The patient attends routine follow-up visits with a gynecologist, a gastroenterologist and a radiation oncologist.

Conclusions: The presented case proves that despite coexisting tumors being a rare finding, it should be considered during the diagnostic process.

JUVENES PRO MEDICINA

Cesarean scar pregnancy as a rare but life-threatening form of ectopic pregnancy-a Case report.

Julia Obszyńska, Aleksandra Woźniak

Presenting author: Julia Obszyńska

Work supervisor: dr hab. n. med. Tomasz Szaflik

Affiliations: Clinic of Gynecology, Gynecological Oncology and Endometriosis Treatment of the Polish Mother's Health Center Institute in Lodz

Introduction: Cesarean Scar Pregnancy (CSP) constitutes a rare and potentially life-threatening subtype of ectopic pregnancy, in which the gestational sac implants are partially or completely within the fibrous tissue of a previous cesarean section (CS) scar. CSP frequently remains asymptomatic and is often diagnosed incidentally during routine first-trimester ultrasonographic evaluation. The most common clinical manifestation is mild, painless vaginal bleeding. The risk CSP increases with the number of prior CS. According to various sources the probability of experiencing CSP in a subsequent pregnancy is approximately 0.15%.

Case report: A 35-year-old gravida presented to the clinic at approximately 7 weeks of gestation with history of vaginal bleeding. The patient's obstetric history included three previous pregnancies: two cesarean sections and one abortion. On physical examination, the abdomen was soft and non-tender, with no peritoneal signs. Upon speculum examination a bloody mucous discharge was observed, whereas the cervix appeared with no abnormalities. On admission the beta-human chorionic gonadotropin level has been measured at 4586,3 mIU/ml, which was consistent with the expected range for early pregnancy at this stage and it was gradually increasing. The transvaginal ultrasound revealed enlarged uterus in anteflexion, with a heterogeneous endometrial echo pattern. Within the uterine cavity, at the level of the isthmus in the area of the CS scar, a single gestational sac (GS) has been identified, measuring 22.2 mm. Inside the GS, a single embryo has been visualized, with a crown-rump length of 7.6 mm, which is consistent with the expected size for 6 weeks and 5 days of gestation. The thickness of the myometrium over the CS scar measured 2.1 cm, which constituted a substantial risk factor for uterine rupture. A small amount of fluid was noted in the recto-uterine pouch. A follow-up ultrasound examination was performed four days later and successfully visualized the presence of a fetal heartbeat. The clinical and ultrasound findings strongly suggested the diagnosis of ectopic pregnancy in the CS scar. At 10 weeks of gestation, due to the increasing risk of life-threatening complications such as vaginal or intra-abdominal bleeding, uterine rupture, and shock, requiring lifesaving surgical procedures, considering patients preferences, the decision has been made to proceed with intervention. A puncture of the gestational sac followed by amniotic fluid aspiration has been performed, and a potassium chloride solution has been administered directly into the fetal heart. Subsequently, methotrexate has been administered intramuscularly, and the uterine cavity has been curetted.

Conclusions: Although pregnancy in a cesarean section scar is a rare phenomenon, a prior cesarean section should alert clinicians to the increased risk of ectopic pregnancy, necessitating heightened vigilance during subsequent pregnancies.

JUVENES PRO MEDICINA

Isolated Neurosarcoidosis Mimicking a Sellar Tumor: A Case report Highlighting Diagnostic Challenges of CNS tumor-like lesions

Anna Dębska, Wojciech Kręcisz

Presenting author: Anna Dębska

Work supervisor: dr n. med. Karol Wiśniewski

Affiliations: 1. Department of Neurosurgery and Neurooncology, Medical University of Łódź, Barlicki University Hospital, Łódź, Poland

Introduction: Isolated neurosarcoidosis (INS) is a rare form of sarcoidosis in which the inflammatory lesions are restricted to the central nervous system (CNS), with no evidence of systemic involvement. Due to its non-specific clinical and neuroimaging features, INS may mimic other conditions such as brain tumours, meningitis, demyelinating diseases or intracranial neoplasms. This often leads to delays in diagnosis and treatment.

If an intracranial mass shows extremely low signal intensity on T2-weighted MRI and mimics the appearance of a meningioma or optic nerve glioma, especially if the optic or facial nerve is involved, INS should be considered in the differential diagnosis. Intracranial sarcoidosis most commonly involves the meninges - particularly at the base of the brain - potentially affecting cranial nerves and disrupting the flow of cerebrospinal fluid.

Case report: We present the case of a 71-year-old woman with progressive visual impairment, including bitemporal amblyopia, but no other neurological symptoms. Imaging showed a nodular lesion in the region of the sella turcica extending into the optic nerve canals. Chest imaging showed no evidence of systemic sarcoidosis. Magnetic resonance imaging (MRI) suggested a sellar tumour; however, definitive diagnosis was made only by histopathological examination after surgical resection. Tissue analysis revealed granulomatous inflammation consistent with sarcoidosis.

Conclusion: This case highlights the importance of including INS in the differential diagnosis of CNS tumour-like lesions and the critical role of biopsy in establishing a definitive diagnosis. Early recognition of INS is essential as timely initiation of immunosuppressive therapy may help prevent irreversible neurological damage.

JUVENES PRO MEDICINA

Limb lengthening in a patient with achondroplasia.

Bartosz Starzyński, Dawid Bartosik

Presenting author: Bartosz Starzyński

Work supervisor: Piotr Morasiewicz

Affiliations: SKN Ortopedii i Traumatologii, Uniwersytet Opolski

Introduction: Achondroplasia is a genetic disorder with autosomal dominant inheritance, leading to abnormal endochondral ossification and growth disturbances. To improve the quality of life for individuals with achondroplasia, the Ilizarov method can be used for limb lengthening. The Ilizarov apparatus is a type of external fixator used for limb elongation and healing through the process of distraction osteogenesis.

Case report: A 12-year-old boy with achondroplasia presented to the local clinic for the purpose of lengthening both upper and lower limbs. He underwent five distraction corticotomy procedures using an Ilizarov external fixator. Initially, the procedure was performed on the distal metaphysis of the right femur and the proximal parts of the left fibula and tibia. The right humerus was lengthened first, followed by the left. Finally, the procedure was repeated on the distal metaphysis of the right femur and the proximal parts of the left tibia and fibula, and a similar operation was performed on the distal part of the left femur and the proximal parts of the right fibula and tibia. At each stage of treatment, the patient required rehabilitation.

Conclusion: The above case demonstrates that limb lengthening in a patient with achondroplasia is a highly complex and long-term process. Due to prolonged hospitalizations, numerous surgeries, and associated complications, the patient required the involvement of multiple specialists, including surgical and rehabilitation teams, highlighting the interdisciplinary approach necessary for such cases.

JUVENES PRO MEDICINA

The Incomplete Solution: A Rare Case of Ectopic Pregnancy in Post-Salpingectomy Tubal Remnant

Joanna Najbar

Presenting author: Joanna Najbar

Work supervisor: MD Ewa Butrymowicz-Brzeska

Affiliations: Studenckie Koło Perinatologii i Ginekologii Onkologicznej, University of Warmia and Mazury in Olsztyn

Introduction: Ectopic pregnancy is a potentially life-threatening condition that requires immediate medical intervention. It occurs in approximately 1.5% to 2% of all pregnancies. Although salpingectomy, the surgical removal of the affected fallopian tube, is commonly performed, some patients may still experience recurrent ectopic pregnancies. While the World Health Organization does not provide specific guidelines for recurrent ectopic pregnancy, it generally emphasizes the importance of early diagnosis and treatment to reduce the risk of complications. This report presents a rare case of a second ectopic pregnancy occurring in residual tubal tissue following previous surgical intervention.

Case report: A 28-year-old woman presented to the hospital with pelvic pain and vaginal bleeding. She had a prior history of a left-sided ectopic pregnancy, for which she had undergone a salpingectomy. On evaluation, ultrasound revealed free fluid in the abdomen and a suspicious mass in the remaining right fallopian tube. Elevated β-hCG levels supported the diagnosis of a recurrent ectopic pregnancy. During emergency laparoscopy, an unexpected intraoperative finding was noted: a 2–3 cm residual fragment of the left fallopian tube, previously presumed completely excised. This residual segment was actively bleeding and contained ectopic pregnancy tissue. Contrary to initial imaging, the right fallopian tube appeared normal. Surgical team removed the remnant tissue, managed the ectopic pregnancy, and evacuated intra-abdominal blood. The patient's postoperative course was uneventful, and she was discharged in good condition with scheduled outpatient follow-up.

Conclusion: Salpingectomy does not fully eliminate the risk of recurrent ectopic pregnancy, as incomplete excision may leave behind tubal remnants that pose ongoing danger. These residual fragments can lead to hemorrhage, adhesions, and potential impairment of future fertility. For patients desiring to preserve reproductive potential, it is essential to emphasize the increased likelihood of recurrence and the importance of vigilant follow-up care.

"Double Trouble: Confronting the Challenge of DHGTC and PDTC in One Patient"

Oskar Makuch, Joanna Najbar

Presenting author: Oskar Makuch

Work supervisor: Dr. Łukasz Klepacki

Affiliations: Studenckie Koło Anatomiczne, University of Warmia and Mazury in Olsztyn

Introduction: The latest WHO classification has introduced Differentiated High-Grade Thyroid Carcinoma (DHGTC) as a distinct entity, encompassing follicular cell-derived tumors with well-differentiated morphology but high-grade features, including elevated mitotic activity (≥5 mitoses/2 mm^2) and tumor necrosis. This category bridges the spectrum between well-differentiated thyroid carcinomas (DTCs) and Poorly Differentiated Thyroid Carcinoma (PDTC), which is defined by solid, trabecular, or insular growth patterns, nuclear convolutions, and aggressive behavior. Accurate differentiation between these subtypes is crucial, as they exhibit distinct clinical outcomes and require tailored therapeutic approaches.

Case report: A 70-year-old woman presented with symptoms of dyspnea, neck discomfort, and difficulty swallowing. On physical examination, a hard, fixed cervical mass was detected, prompting referral to the thoracic surgery unit for comprehensive assessment. Fine-needle aspiration biopsy identified bilateral thyroid tumors. The patient underwent total thyroidectomy, followed by adjuvant radiotherapy.

Histopathological analysis diagnosed DHGTC (cream-colored mass with vitreous areas, capsular infiltration) in right lobe and PDTC (solid growth pattern, necrosis, vascular emboli, 90% thyroid infiltration) in left lobe.

Conclusion: This case underscores the critical role of histopathological assessment in thyroid malignancies, particularly when multiple high-grade subtypes coexist. While DHGTC may respond well to early surgery, PDTC demands aggressive management due to its poor prognosis. A multidisciplinary approach—integrating pathology, surgery, and oncology—is essential to optimize outcomes in such complex cases.

JUVENES PRO MEDICINA

May-Thurner syndrome – unusual patient presentation

Katarzyna Krysińska, Weronika Niewiarowska, Julia Tarnowska

Presenting author: Katarzyna Krysińska

Work supervisor: Jerzy Leszczyński MD, PhD

Affiliations: Department of General, Vascular, Endocrine and Transplant Surgery of Medical University of Warsaw

Introduction: May-Thurner syndrome is a pathology of not entirely know prevalence, predisposing to occurrence of deep vein thrombosis (DVT). This case presents a young patient with sudden development of symptoms with subsequent complication of pulmonary embolism.

Case report: 18-year-old patient was transferred to the clinic due to sudden appearance of painful oedema of left lower limb with redness 3 days prior suggesting the diagnosis of venous thrombosis of the axis of left limb. Medical history revealed correction of patent foramen ovale in childhood and from predisposing factors – sporadic smoking and use of contraception (for 2 years, with change of the route of administration recently). Angio-CT of thorax revealed features of peripheral pulmonary embolism. Angio-CT showed proximal DVT, descending with complete occlusion of left axis – common, superficial and deep femoral veins and bifurcation of saphenous vein. In the right common iliac vein, there was also visible parietal thrombus. The patient was referred for thromboaspiration of left iliac axis and proximal parts of femoral veins with IVC filter guarding below renal veins. The procedure also involved implantation of VENMO stent to the left iliac vein. During the procedure it was also revealed that there are typical features of May-Thurner syndrome – the compression of the left common iliac vein by right iliac artery. After a month IVC filter was removed and the control phlebography and IVUS showed successful removal of thrombotic material. Due to unusual time of onset of symptoms, predisposing factors and age, the patient was referred for further haematological diagnostics.

Conclusion: This case enhances the need of inclusion of broader diagnostics in patient, which does not fit the description of typical patient having predisposition to occurrence of DVT, long treatment planning to prevent further complications and finding the root cause of the problem.

JUVENES PRO MEDICINA

When Bariatric Surgery Backfires: Iatrogenic Esophago-Pleural Fistula (EPF) Following MEGA Stent Insertion for Leakage After Laparoscopic Sleeve Gastrectomy (LSG)

Agata Grochowska

Presenting author: Agata Grochowska

Work supervisor: Tomasz Klimczak, MD, PhD

Affiliations: Students' Scientific Association at the Department of General and Transplant Surgery

Introduction: Laparoscopic sleeve gastrectomy (LSG) is a bariatric procedure that involves the resection of the stomach to reduce its volume. After the procedure, the patient cannot consume liquids and meals as much as before, resulting in weight loss. Postoperative complications are rare. One of the most serious complications is leakage at the site of resection of the stomach. Endoscopic procedures are the first choice treatment in such condition.

Case report: A 46-year-old female patient with a BMI of 45 was admitted to the Clinic for treatment of a complication after LSG, which is leakage from the staple line. An attempt was made to insert the MEGA endoscopic prosthesis. However, the prosthesis expanded excessively, causing a rupture of the esophagus and migration of the stent to the right pleural cavity, resulting in esophago-pleural fistula. The patient was transferred to the Department of Thoracic Surgery for removal of the prosthesis with management of ruptured esophagus and pneumothorax. Right thoracotomy was performed, the prosthesis was removed, and the mediastinum was revised and drained; the esophagus was sutured. In addition, an abdominal laparoscopy was performed with emptying of the abscess of the right subdiaphragmatic region. A lavage drainage of the abscess was also applied. After the surgery, the patient was admitted to the intensive care unit (ICU) due to the septic shock. Parenteral nutrition was administered. The patient's condition gradually improved. Gastroscopy revealed proper healing of the leakage site with no further need for additional interventions. Implantation of another prosthesis was abandoned. A percutaneous drain was left in place to flush the residual abscess cavity. The patient was discharged in good general condition, and the left drain was removed after a few days.

Conclusion: This case study shows a series of complications that began with LSG - leakage from the upper staple line with formation of an intra-abdominal abscess, through endoscopy with placement of a MEGA stent - esophageal rupture, ending with surgical removal of the prosthesis in the Department of Thoracic Surgery - septic shock, the need for parenteral nutrition and the drainage of subdiaphragmatic abscesses. Bariatric surgery procedures are generally safe and have minimal risk of complications. However, it is important to manage them successively.

JUVENES PRO MEDICINA

Impella 5.5 as a Bridge to HeartMate 3 in STEMI-Induced Cardiogenic Shock and End-Stage Heart Failure

Maria Konkol

Presenting author: Maria Konkol

Work supervisor: Radosław Wilimski MD, PhD

Affiliations: Klinika Chirurgii Serca, Klatki Piersiowej i Transplantologii Uniwersyteckie Centrum Kliniczne Warszawskiego Uniwersytetu Medycznego

Introduction: End-stage heart failure remains one of the most challenging and obstinate disease entities. Managing this condition often requires heart transplantation as the definitive treatment. However, with advancements in medicine, mechanical circulatory support devices (LVADs) have become widely used, significantly delaying the need for transplantation and improving survival rates. Despite their benefits, these devices come with several perioperative and postoperative complications.

Case report: A 60-year-old male with multiple comorbidities, including hypertension, type-2 diabetes, and a history of colorectal surgery, was admitted with severe cardiogenic shock due to extensive anterior STEMI, which led to end-stage heart failure. Despite initial treatment with percutaneous coronary intervention (PCI) on the left coronary artery, severe left ventricular dysfunction persisted, resulting in multiorgan failure. The patient underwent percutaneous implantation of an Impella 5.5 device as temporary circulatory support. It was crucial in stabilizing the patient's critical condition rapidly, serving as a bridge to HeartMate 3 implantation due to persistent left ventricular dysfunction.

Its velocity adjustments were made under echocardiographic guidance to optimize hemodynamic parameters and assess the function of the newly implanted device. Postoperative complications included pericardial hematoma at the implantation site near the HeartMate, pleural effusions requiring thoracentesis, recurrent C. difficile infection, and wound dehiscence. The wound dehiscence at the sternotomy site was managed with VAC therapy. Additionally, the patient developed a Klebsiella pneumonia infection, further complicating his postoperative course. Despite these challenges, with meticulous hemodynamic monitoring and infection control, the patient was gradually stabilized. He was enrolled in a rehabilitation program and discharged in satisfactory general condition, awaiting further decisions regarding heart transplantation.

Conclusion: LVAD therapy improves survival but also poses challenges such as right ventricular failure, infection, bleeding, and thrombosis. In this case, therapy with the use of Impella 5.5 played a pivotal role in stabilizing the patient's severe left ventricular heart failure and improving his hemodynamic condition, after which the HeartMate 3 was successfully implanted, serving either as a bridge to transplantation or as destination therapy, providing crucial circulatory support for an end-stage heart failure. This case highlights the importance of early intervention and vigilant monitoring to prevent irreversible organ damage. A multidisciplinary approach is essential for optimizing LVAD function and managing complications, ensuring comprehensive patient recovery. Moreover, less invasive devices like the Impella 5.5 can be utilized to effectively combat cardiogenic shock while bridging to more permanent solutions like the HeartMate 3, ultimately improving patient survival and quality of life.

JUVENES PRO MEDICINA

Pancreatic Cancer with Tumor Encasing an Accessory Right Hepatic Artery: Surgical and Anatomical Implications

Alexander Stolarczyk, Nazar Włodarczyk

Presenting author: Alexander Stolarczyk

Work supervisor: dr hab. n. med. prof. UM Michał Podgórski

Affiliations: Department of Imaging Diagnostics and Interventional Radiology of the University Clinical Hospital No. 2 of the Medical University of Lodz

Introduction: Pancreatic cancer is the fourth leading cause of cancer-related death in the United States and Europe, with over 100,000 deaths annually in Europe alone. The overall 5-year survival rate ranges from 2% to 7%, with minimal improvement observed over the past two decades. Approximately 15% of patients are diagnosed with presumed resectable disease, but only a subset are confirmed to have resectable tumors upon surgical exploration. Resectability is determined by several factors, including tumor size, invasion of adjacent structures such as the transverse mesocolon or lymph nodes, and involvement of critical vascular structures, notably the superior mesenteric artery and the common hepatic artery. The latter is considered the most significant predictor of survival.

Case report: A 67-year-old female patient was admitted to the hospital with skin jaundice, raising concern for possible cholangitis. Initial CT imaging revealed an atrophic pancreas, without evidence of neoplastic lesions. Due to difficulties performing ERCP and elevated tumor markers, the suspicion of pancreatic cancer remained. A follow-up CT scan performed one month later revealed a round, hyperdense mass measuring 17 mm in diameter, protruding into the duodenal lumen. No vascular infiltration was observed. The patient subsequently underwent a Whipple procedure. Intraoperatively, a multiform lesion was found in the region of the pancreatic head and uncinate process. A notable intraoperative finding was metastasis to a regional lymph node encasing an accessory right hepatic artery arising directly from the aorta. This artery was the sole source of blood supply to the right hepatic lobe. The surgical team meticulously excised the tumor while preserving this critical vessel, thereby ensuring hepatic perfusion and patient survival.

Conclusion: This case highlights the importance of identifying anatomical variations that are often underrepresented in pancreatic cancer resectability criteria, such as those established by the National Comprehensive Cancer Network (NCCN) and the Dutch Pancreatic Cancer Group (DPCG). Therefore, it is essential that radiologists and surgeons perform a thorough preoperative evaluation of vascular anatomy and potential anatomical variants in proximity to the tumor to ensure optimal surgical planning and patient outcomes.

JUVENES PRO MEDICINA

Pneumocephalus Induced by Self-Removal of Ventricular Drain: A Case of Severe Neurological Decline and Recovery

Nazar Włodarczyk, Alexander Stolarczyk

Presenting author: Nazar Włodarczyk

Work supervisor: Dr hab. n. med. prof. UM Michał Podgórski

Affiliations: Department of Imaging Diagnostics and Interventional Radiology of the University Clinical Hospital No. 2 of the Medical University in Lodz

Introduction: Pneumocephalus is a serious, life-threatening condition characterized by the presence of air within the cranial cavity. Up to 74% of such cases are trauma-related, however, there are many pathogenic mechanisms that can lead to the occurrence of pneumocephalus. Symptoms of this condition can vary depending on which structures are affected by it, thus in such cases patients require a wide variety of specialists to ensure the proper treatment. We present a case of a 50-year-old patient with a congenital hydrocephalus, who during his hospitalization suffered from this complication and developed a wide variety of symptoms, such as partial paresis, confusion, impaired speech and vision.

Case report: A 50-year-old patient was admitted to the hospital due to meningitis. The infection started at the site of the ventriculoperitoneal shunt, which was installed two months ago, due to the patient's congenital hydrocephalus. The patient presented with neck stiffness and impaired vision. At the time of his administration, aside from his congenital mental limitation, the patient was overall in good physical shape, hemodynamically stable with no disabilities of movement or speech. During the hospitalization, the ventriculoperitoneal shunt was removed and replaced by an external ventricular drain, which the patient subsequently removed forcibly. This resulted in significant cerebrospinal fluid loss and entry of air into the ventricular cavities and cerebral sulci. The resulting pneumocephalus persisted for approximately two weeks and severely impaired the patient's ability to speak and move voluntarily. As the condition gradually regressed, the patient's symptoms began to fade.

Conclusion: This case highlights the seriousness of pneumocephalus and its nonspecific clinical presentation, which may involve multiple neurological functions. Proper imaging techniques are required to ensure the proper diagnosis and management, which should be adjusted to the individual needs of each patient.

JUVENES PRO MEDICINA

Successful management of a giant ruptured dissecting AAA in condition after EVAR – a classical method in elderly patient

Weronika Niewiarowska, Jerzy Leszczyński, MD, PhD, Kamil Stępkowski, MD, PhD, Prof. Zbigniew Gałązka, MD, PhD

Presenting author: Weronika Niewiarowska

Work supervisor: Jerzy Leszczyński, MD, PhD

Affiliations: Department of General, Vascular, Endocrine and Transplant Surgery, Medical University of Warsaw, Poland

Introduction: When it comes to surgical supplies, recurrent development of an AAA following prior implementation of a bifurcated abdominal stent graft as a treatment for such an event presents an anatomical challenge. The application of the fenestrated or branched endovascular aneurysm repair (F/BEVAR) may be one of the potentially useful techniques in this situation; however, their use is contingent upon the extent of the aneurysm, which should not limit the possibility of receiving the appropriate proximal landing zone. Open surgery may turn out as the most secure course of treatment when the size of the aneurysm is more significant and does not maintain the previously stated criteria.

Case report: A 78-year-old male was admitted to the Department of General, Vascular, Endocrine and Transplant Surgery due to a suspected (based on the CT) rupture of a giant dissecting AAA located at the site of an aneurysm treated endovascularly (EVAR) 9 years prior. The patient had suffered from hypertension, diabetes mellitus, a right inguinal hernia, and Alzheimer's disease; had a history of a heart attack and had been remaining beyond medical care for 6 years. After admission, his condition had stabilized after an episode of fainting. Because of the anatomical circumstances and the size of the aneurysm, he was qualified for open intervention. The 13 cm in diameter aneurysm was resected in an expedited manner, using aortic balloon placement via left axillary access. The abdominal stent graft was resected, leaving its crown. An aortoiliac prosthesis bifurcated below the renal arteries was implanted with a distal anastomosis to both common iliac arteries. The suspicion of rupture (which was uncertain before, due to the maintenance of the shape of the aneurysm by the abdominal organs and its covering by the greater omentum, preventing massive hemorrhage to the peritoneum) was intraoperatively confirmed. The entire supply was finally sewn with an aneurysmal sac. In the perioperative period, the patient spent 2 days in the ICU. The postoperative course was uneventful. The patient was discharged with recommendations in good condition, that he still remains in after 3 months of observation.

Conclusions: Endotension, especially in symptomatic patients with large aneurysms, is an indication for treatment with the classical method, which, if successful, guarantees complete efficacy without the need for reintervention in the future.

JUVENES PRO MEDICINA

Scrotal lymphedema as a cause of chronic scrotal complaints – Case report

Milena Krupa

Presenting author: Milena Krupa

Work supervisors: prof. dr hab. n. med. Anna Drelich-Zbroja, dr n. med. Maryla Kuczyńska, lek. Eryk Mikos

Affiliations: 1.Students' Scientific Society at the Department Interventional Radiology and Neuroradiology of the Medical University of Lublin 2.Department of Interventional Radiology and Neuroradiology of the Medical University of Lublin

Introduction: Scrotal lymphedema, also known as scrotal elephantiasis, is a rare condition defined as an abnormal accumulation of protein-rich fluid in the soft tissues of the scrotum, which may be associated with significant genital deformity. The etiology of lymphedema can be primary (idiopathic), resulting from congenital lymphatic dysplasia, or secondary (acquired), following infection, abdominal or pelvic surgery, radiotherapy, or venous stasis. This condition leads to reduced mobility and difficulty urinating, and causes fatigue, pain, and recurrent skin and subcutaneous infections due to difficulties in maintaining hygiene. It also contributes to sexual dysfunction and social isolation, significantly affecting the patient's quality of life.

Case report: The patient, a 26-year-old man in overall good health, presented to the hospital with persistent scrotal discomfort. During the medical interview, swelling of the scrotum was noted, which had been present for approximately 1.5 years. The patient also reported pain and a general feeling of discomfort in the area. He denied trauma or infection at the time of symptom onset. Physical examination confirmed the presence of swelling and revealed chronic skin lesions in the area. No other abnormalities were found. Laboratory blood and STD tests were performed and showed no significant abnormalities.

Due to the clinical symptoms, it was decided to perform a pelvic MRI to better visualize the processes occurring in the soft tissues of the genital area. The scrotal sac was significantly enlarged to approximately 30 x 15 x 22 cm (cc x sp x lr), edematous with marked diffuse contrast enhancement. The amount of fluid in the tunica albuginea was markedly increased. The testes measured 40x25x22 mm on the right and 40x22x24 mm on the left, both without focal changes. Other structures including the epididymis, corpus cavernosum and spongiosum of the penis showed no pathological features. MRI scan was consistent with primary scrotal lymphedema.

Conclusion: Scrotal lymphedema, although rare, has a significant impact on the patient's quality of life, causing discomfort, limited mobility, and recurrent skin infections. In this case, MRI confirmed primary scrotal lymphedema with marked fluid collection and diffuse contrast enhancement. Despite the absence of focal changes in the testes or epididymis, the condition causes functional impairment and social isolation. A multidisciplinary approach is essential for symptom management and possible surgical intervention to improve the patient's quality of life.

JUVENES PRO MEDICINA

Efficacy of Embolisation in the Treatment of Low Flow Vascular Malformation of the Neck: A Case report

Natalia Bołtralik

Presenting author: Natalia Bołtralik

Work supervisor: prof. dr hab. n. med. Krzysztof Bojakowski

Affiliations: Klinika Chirurgii Ogólnej i Naczyniowej, Państwowy Instytut Medyczny MSWiA

Introduction: Effective management of neck vascular malformations necessitates appropriate diagnosis and treatment. This report presents the case of a patient with neck vascular malformation, its diagnosis, and treatment by embolisation.

Case report: The patient, a 38-year-old woman with a Introduction of pituitary microadenoma and chronic gastritis, was hospitalized due to a vascular malformation in her neck. MRI revealed a free-floating vascular malformation of the venous-lymphatic type in the left posterior paravertebral space measuring 61 x 34 x 89 mm, with no connection to the arterial system, but with a connection to the anterior internal venous plexus at the C1/C2 level. The patient qualified for endovascular intervention. Embolisation of the vascular malformation was carried out under fluoroscopic and ultrasound guidance. After puncture into the lesion, 15 ml of Etoxysklerol foam with 10 000 IU of bleomycin and human albumin was administered. The procedure proceeded without complications. The following day, an emergency head CT scan showed no signs of intracranial bleeding or other significant abnormalities. Following the procedure, the patient reported headaches and brief visual disturbances, which cleared up after consulting with neurological and ophthalmological specialists. CT and MRI scans performed showed no new deviations. The patient was discharged home in good general condition.

Conclusions: Vascular malformations in the neck pose significant challenges and may result in neurological issues. Embolisation is an effective treatment option, but may be associated with transitional neurological symptoms that require close monitoring. This case underscores the importance of comprehensive diagnostic imaging and a multidisciplinary approach to the treatment of patients with vascular malformations.

JUVENES PRO MEDICINA

Wieloogniskowe guzy płuca - diagnostyczne i kliniczne wyzwania na przykładzie przypadku z trzema odrębnymi rozpoznaniami histopatologicznymi

Joanna Gorajewska, Julia Lewtak, Dawid Staniak

Presenting author: Joanna Gorajewska

Work supervisor: Robert Chudzik M.D., Ph.D

Affiliations: Students' Scientific Society at the Department of Thoracic Surgery Medical University of Lublin and Department of Thoracic Surgery Medical University of Lublin

Introduction: Lung tumors are a major clinical and epidemiological challenge, contributing significantly to global morbidity and mortality. They are among the most frequently diagnosed cancers, often with a poor prognosis due to late detection and aggressive progression.

Lung tumors are classified as benign or malignant. Benign tumors, such as hamartomas and adenomas, are rare and usually not life-threatening. Malignant tumors, including lung cancer, require intensive treatment. Lung cancer is divided into two main types: small-cell lung cancer (SCLC) and non-small-cell lung cancer (NSCLC), with NSCLC accounting for about 85% of cases.

Case report: A 67-year-old man was admitted to the Thoracic Surgery Department at the University Clinical Hospital in Lublin for invasive diagnostics of multiple lung lesions, with a preliminary diagnosis of a left lung tumor. Biopsies were performed, and a wedge resection of three pulmonary nodules was conducted.

Gross examination revealed a white, ill-defined 2 cm tumor, involving the bronchial wall, adjacent vessels, and lymph nodes but not the pleura. A second, 2×1×1.5 cm tumor, 7 cm away, reached the pleura. Multiple emphysematous bullae were present in the upper lobe.

Histopathology confirmed three diagnoses: hamartoma, basaloid squamous cell carcinoma (SqCC), and adenocarcinoma (ADC). Molecular testing detected no EGFR mutations in exons 19 and 21, confirming wild-type status.

Conclusion: Lung tumors pose diagnostic and therapeutic challenges, especially in multifocal cases. This case underscores the importance of a comprehensive evaluation that considers histopathological diversity, the potential coexistence of different tumor types in a single patient, and the possibility of metastatic spread from other organs. Considering histopathological assessment and staging is crucial in selecting the best treatment strategy.

JUVENES PRO MEDICINA

Nail Clipper in the Trachea: Classical bronchoscopy - the reliable gold standard in the removal of foreign bodies

Maria Materek (1), Gabriela Zakrzewska (1), Dawid Staniak (1)

Presenting author: Maria Materek

Work supervisor: Robert Chudzik (2)

Affiliations: 1 – Students' Scientific Society at the Department of Thoracic Surgery 2 - Department of Thoracic Surgery

Introduction: Bronchoscopy is an endoscopic examination used to assess the airways, involving the insertion of a bronchoscope through the nose or mouth into the airways. This procedure allows not only visual assessment, but also the collection of materials for examination and the removal of foreign bodies present in the airways. It's one of the key diagnostic and therapeutic tools used in both emergency and elective interventions. This case illustrates the important role of classical bronchoscopy in airway interventions.

Case report: A 22-year-old patient was admitted to the ER due to pain in the sternal region and features of respiratory distress. Patient states that about a month earlier he had swallowed a nail clipper, which may have been aspirated into the bronchial tree during vomiting. Imaging studies revealed a foreign body in the lumen of the lower trachea and right main bronchus. The patient was qualified for urgent thoracic surgical intervention. The procedure was performed under general anaesthesia. After insertion of a rigid bronchoscope, no traumatic lesions were observed in the larynx or proximal trachea, while a nail shear was found in the distal section almost completely obturating the tracheal lumen. The tool was wedged with its narrower part in the right main bronchus, while the jaws of the tool were directed proximally and positioned in the frontal plane between the membranous and cartilaginous parts of the trachea. The foreign body was removed with a bronchoscopic forceps and placed in the oral cavity, from where it was then removed manually. The patient's general condition after the procedure was good, and after X-ray examinations and a recommendation to repeat them after three weeks, the patient was discharged from hospital.

Conclusions: Performing bronchoscopy as a matter of urgency enabled the foreign body to be successfully removed, preventing further complications. This case demonstrates that classical bronchoscopy remains the gold standard for foreign body evacuation, allowing both assessment of the airway and safe removal of the obstruction. Accurate endoscopic assessment is crucial because, despite the absence of traumatic lesions in the upper trachea, the foreign body was completely wedged into its distal portion and required precise manipulation for safe extraction. Classical interventional bronchoscopy is an effective and safe method of treating foreign body aspiration. History and proper qualification for the procedure are crucial for the prognosis of patients.

JUVENES PRO MEDICINA

Bridge to OHT or Destination Therapy? – Mechanical Circulatory Support with LVAD HeartMate 3 and RVAD Impella RP in a Patient with Biventricular Heart Failure: A Case report

Kacper Jaros, Maja Butrym, Tomasz Głowniak

Presenting author: Kacper Jaros

Work supervisor: dr hab. n. med. Andrzej Juraszek, MD, PhD

Affiliations: Student Research Group at Department of Cardiac Surgery, Transplantology, Vascular and Endovascular Surgery of Silesian Center for Heart Diseases, Faculty of Medical Sciences in Zabrze, Poland

Introduction: Heart failure (HF) is characterized by high morbidity and mortality. According to data from the European Society of Cardiology, nearly 65 million people worldwide are affected by HF, including 1.2 million in Poland. Orthotopic heart transplantation (OHT) remains the treatment of choice for severe HF. However, advances in mechanical circulatory support (MCS) technology, particularly continuous-flow centrifugal pumps supporting the left ventricle (LVAD), have enabled the achievement of long-term therapeutic outcomes comparable to OHT, even over a five-year period. Given the limited availability of donor organs and the strict indications for OHT, the distinction between MCS use as a bridge to transplantation (BTT) and as destination therapy (DT) is gradually diminishing. This underscores the increasing role of LVAD (e.g., HeartMate 3) and RVAD (e.g., Impella RP) as durable therapeutic alternatives in advanced HF.

Case report A 69-year-old patient with chronic ischemic HF, previously implanted with CRT-D and treated with OM angioplasty and DES stent implantation, required multiple hospitalizations due to progressive biventricular failure. Initially, the clinical condition remained stable; however, in subsequent months, a deterioration in exercise tolerance, increasing dyspnea, and elevated HF biomarkers were observed. Imaging studies revealed severe left ventricular systolic dysfunction and clinically significant valvular defects. The patient was qualified for a MitraClip procedure, which was successfully performed. Despite transient improvement in cardiac function and a reduction in mitral regurgitation, HF progression continued over the following years, leading to further LVEF decline and the development of right ventricular failure. Despite intensified pharmacological therapy, further deterioration necessitated LVAD (HM3) implantation. The postoperative course was complicated by right ventricular failure, requiring temporary RV support with Impella RP, as well as two surgical interventions due to cardiac tamponade. Additionally, infections, septic episodes, and renal failure requiring dialysis were noted. Despite intensive treatment, a gradual worsening of the clinical condition was observed. Due to progressive cachexia, the loss of logical communication, and the palliative nature of care, discharge for home-based palliative management was arranged in accordance with the family's wishes to ensure patient comfort in the final days.

Conclusions: OHT continues to be the preferred treatment for severe HF. However, in elderly patients with multiple comorbidities who are ranked low on the transplant list, LVAD or RVAD implantation may be the only available therapeutic option. Despite significant improvement in left ventricular function with mechanical support, right ventricular failure remains a common complication. Additionally, LVAD implantation carries a risk of perioperative complications, including bleeding, cardiac tamponade, and sepsis, which may significantly impact prognosis.

JUVENES PRO MEDICINA

The Role of Preventive Screening in Colorectal Cancer: A Case of Delayed Diagnosis and Severe Complications

Michalina Figiel

Presenting author: Michalina Figiel

Work supervisor: Piotr Malinowski, PhD in Medical Sciences

Affiliations: Vascular Surgery Department, Provincial Specialist Hospital in Olsztyn, , Faculty of Medicine, Warmia and Masuria University

Introduction: Colorectal cancer is a tumor originating from the epithelium of the mucous membrane of the large intestine. In the early stages, the tumor remains asymptomatic or presents few symptoms. Modifiable environmental factors such as tobacco smoking, obesity, excessive alcohol consumption, and lack of physical activity have a significant impact on carcinogenesis. These factors are also common to many vascular diseases. Colonoscopy is the primary diagnostic examination. It allows for the detection of the tumor and the collection of biopsy samples for histopathological analysis.

Case report: A 75-year-old homeless male was brought to the hospital due to suspected acute lower right limb ischemia. Upon admission to the Emergency Department (ED), the patient was in a state of extreme emaciation, malnourished, with signs of cachexia, and poor hygiene. Physical examination revealed necrosis of the foot and shin. The patient claimed that the limb pain had worsened over the past two months. He had a history of chronic conditions including atherosclerosis and hypertension. Abdominal CT scan performed in the ED revealed a tumor at the hepatic flexure with presence of fluid in the peritoneal cavity. Due to poor general condition, the patient was scheduled for urgent amputation of the right lower limb at the thigh level. On the day of the procedure, there was a deterioration in the patient's clinical condition with signs of acute abdomen and positive peritoneal signs. A decision was made to perform two surgeries in quick succession on the same day. First, the amputation of the right lower limb was performed, followed by an exploratory laparotomy. Due to the identified intestinal perforation, a right hemicolectomy with creation of a protective loop ileostomy was performed. Postoperatively, the patient was admitted to the Intensive Care Unit (ICU) in a state of acute respiratory failure, shock, with acute kidney and pancreatic injury. After stabilization of vital signs, the patient was transferred for further treatment to the General Surgery Department.

Conclusions: Neglect of the patient, poor socio-economic situation, and lack of preventive healthcare contributed to the delayed diagnosis of tumor. Colorectal cancer may have indirectly led to acute limb ischemia by causing a state of hypercoagulability. The complex clinical course highlights the importance of prompt and integrated surgical intervention. This case emphasizes the significance of screening, as oncological diseases may manifest with symptoms that are seemingly unrelated to cancer.

JUVENES PRO MEDICINA

CASE REPORT OF SIGMOID TUMOR WITH ABSCESS FORMATION AND RENAL CALCULI IN AN ELDERLY PATIENT

Linda Sledkova-Andruskiene

Presenting author: Linda Sledkova-Andruskiene

Work supervisors: Laura Žundienė M.D.; Antanas Eigminas M.D; Med. Dr Andrius Karpavičius

Affiliations: Lithuanian University of Health Science

Introduction: Sigmoid tumors, a subset of colorectal cancer, have become an increasing health concern in Lithuania since 2015. While specific data on sigmoid tumors are limited, colorectal cancer incidence rose from 35 to 51 cases per 100,000 people between 2001 and 2011, with trends suggesting continued growth. Diverticular disease, which can mimic or coexist with tumors, reached a prevalence of 314 per 100,000 in 2021. Colorectal cancer with retroperitoneal abscess is a relatively rare and easily misdiagnosed subtype of colon cancer. According to Junmin Zhou and Songlin Wan study, CT examination showed 33.9% of patients with adenocarcinoma had local abscesses.

Case report: An 86-year-old female presented to the emergency department with complaints suggestive of urolithiasis. A CT scan without contrast showed a 4 mm stone in the left kidney's lower pole and multiple parapelvic cysts. However, further imaging revealed a 38x55 mm abscess in the left iliac region associated with the sigmoid colon and abdominal wall, suggesting acute complicated diverticulitis.

The abscess was punctured and drained under ultrasound guidance, yielding purulent fluid. After drainage, the abscess cavity was observed with follow-up ultrasounds. Suggesting a tumor the colonoscopy with biopsy was performed. The results revealed a moderately differentiated (G2) adenocarcinoma of sigmoid colon.

Lower laparotomy was performed, extending to mobilize the left colon flexure. Intraoperatively, an 8x6 cm fixed, non-mobile sigmoid tumor adherent to the abdominal wall was identified along with an abscess formation. The sigmoid colon and regional lymph nodes were resected, and a colostomy was created. Abdominal irrigation and drainage were performed. Three days post-surgery, necrosis of the colostomy was observed, requiring reoperation. During reoperation, purulent adhesions were found between the abdominal wall and intestinal loops, necessitating resection of the necrotic segment and reformation of the stoma in the left hypochondrium. Postoperative care included abdominal irrigation with betadine solution, and necrotic tissues were excised to prevent further infection.

Conclusion: Clinical management typically requires a multidisciplinary team to address both the sigmoid tumor and the associated abscess. If the abscess is large, percutaneous drainage is often performed prior to definitive treatment of the tumor. Once the infection is under control, surgical resection is planned based on the patient's clinical status and tumor characteristics. Treatment should be tailored to each case, according to abscess severity, tumor stage, and any underlying health conditions. Additionally, it's crucial to consider differential diagnoses for acute abdominal pain, such as renal colic or peritonitis.

JUVENES PRO MEDICINA

Viral Hide-and-Seek: Why Acyclovir Makes All the Difference

Joanna Najbar

Presenting author: Joanna Najbar

Work supervisor: lek. Patrycja Kuklo

Affiliations: Studenckie Koło Naukowe Okulistyki Klinicznej, University of Warmia and Mazury in Olsztyn

Introduction: HSV (Herpes simplex virus) infection remains a leading cause of infectious corneal blindness, with 1.7 million new cases reported annually (WHO, 2023). Individuals over the age of 60 are at a 32% higher risk of recurrence compared to younger patients, making them particularly vulnerable to vision-threatening complications, including corneal scarring, perforation, and eventual need for surgical intervention. Without prophylaxis more than 50% of them develop stromal keratitis - a major risk factor for corneal transplantation. These findings underscore the importance of early intervention, long-term monitoring, and tailored therapy, particularly for high-risk groups.

Case report: A 66-year-old male presented with complaints of ocular pain and decreased vision in the right eye. The symptoms began during a hospitalization for COVID-19, when vesicular lesions appeared on the lower eyelid, followed by a foreign body sensation and visual blurring. Previously administered treatment (ofloxacin ointment and a corticosteroid) did not result in clinical improvement. Ophthalmologic examination revealed a best corrected visual acuity (BCVA) of 0.6 in the right eye and 1.0 in the left. Slit-lamp biomicroscopy showed dendritic lesions on the cornea, accompanied by peripheral corneal ulcerations and moderate conjunctival hyperemia. A diagnosis of epithelial keratitis of herpetic etiology was made, and treatment was initiated with oral acyclovir, topical antiviral ointment, and lubricating eye drops. Following several weeks of therapy, the patient reported significant improvement - BCVA was 1.0 in both eyes, and ophthalmologic evaluation revealed only minor post-inflammatory subepithelial opacities. To prevent recurrence, prophylactic oral acyclovir was prescribed twice daily for six months, in conjunction with topical administration of a mild corticosteroid and artificial tears.

Conclusion: The recurrent nature of herpetic keratitis necessitates prolonged antiviral prophylaxis. Due to the extended duration of treatment required, patients often neglect or discontinue their medication, either due to the perceived lack of immediate symptoms or difficulty in maintaining long-term adherence. Such non-compliance increases the risk of recurrence and can lead to serious complications, including corneal scarring. In HSV infection, acyclovir serves not only as a treatment but also as a protective measure against the need for surgical intervention.

JUVENES PRO MEDICINA

Scrotal lymphedema as a cause of chronic scrotal complaints – Case report

Milena Krupa

Presenting author: Milena Krupa

Work supervisor: Supervisors: prof. dr hab. n. med. Anna Drelich-Zbroja, dr n. med. Maryla Kuczyńska, lek. Eryk Mikos

Affiliations: 1. Students' Scientific Society at the Department Interventional Radiology and Neuroradiology of the Medical University of Lublin 2. Department of Interventional Radiology and Neuroradiology of the Medical University of Lublin

Introduction: Scrotal lymphedema, also known as scrotal elephantiasis, is a rare condition defined as an abnormal accumulation of protein-rich fluid in the soft tissues of the scrotum, which may be associated with significant genital deformity. The etiology of lymphedema can be primary (idiopathic), resulting from congenital lymphatic dysplasia, or secondary (acquired), following infection, abdominal or pelvic surgery, radiotherapy, or venous stasis. This condition leads to reduced mobility and difficulty urinating, and causes fatigue, pain, and recurrent skin and subcutaneous infections due to difficulties in maintaining hygiene. It also contributes to sexual dysfunction and social isolation, significantly affecting the patient's quality of life.

Case report: The patient, a 26-year-old man in overall good health, presented to the hospital with persistent scrotal discomfort. During the medical interview, swelling of the scrotum was noted, which had been present for approximately 1.5 years. The patient also reported pain and a general feeling of discomfort in the area. He denied trauma or infection at the time of symptom onset. Physical examination confirmed the presence of swelling and revealed chronic skin lesions in the area. No other abnormalities were found. Laboratory blood and STD tests were performed and showed no significant abnormalities.

Due to the clinical symptoms, it was decided to perform a pelvic MRI to better visualize the processes occurring in the soft tissues of the genital area. The scrotal sac was significantly enlarged to approximately 30 x 15 x 22 cm (cc x sp x lr), edematous with marked diffuse contrast enhancement. The amount of fluid in the tunica albuginea was markedly increased. The testes measured 40x25x22 mm on the right and 40x22x24 mm on the left, both without focal changes. Other structures including the epididymis, corpus cavernosum and spongiosum of the penis showed no pathological features. MRI scan was consistent with primary scrotal lymphedema.

Conclusion: Scrotal lymphedema, although rare, has a significant impact on the patient's quality of life, causing discomfort, limited mobility, and recurrent skin infections. In this case, MRI confirmed primary scrotal lymphedema with marked fluid collection and diffuse contrast enhancement. Despite the absence of focal changes in the testes or epididymis, the condition causes functional impairment and social isolation. A multidisciplinary approach is essential for symptom management and possible surgical intervention to improve the patient's quality of life.

JUVENES PRO MEDICINA

Pediatrics I Case reports

17th of May 2025

Coordinators:

Kimberly C Sebastian

Hui Wen Chong

Michelle Ana Mathew

Jury:

dr hab. n. med. Beata Mianowska

prof. dr hab. n. med. Jerzy Niedzielski

dr n. med. Justyna Maria Walenciak

dr hab. n. med. Joanna Smyczyńska

dr n. med. Renata Szmigielska

dr n. med. Dorota Czech

dr. n. med. Marcin Nowak

JUVENES PRO MEDICINA

Diagnostic and treatment challenges in pediatric immune thrombocytopenia-Case report

Julia Bednarek, Jakub Wilk

Presenting author: Julia Bednarek

Work supervisors: Magdalena Samborska MD, PhD, Katarzyna Adamczewska-Wawrzynowicz, MD, Miłosz Jazdon MD,PhD

Affiliations: Student Scientific Group of Pediatric Oncology, Hematology and Bone Marrow Transplantation, Poznan University of Medical Sciences, The Student Scientific Society of Poznan University of Medical Sciences

Introduction: Immune thrombocytopenia (ITP) in children is a complicated disorder that is primarily characterized by the isolated low platelet count and greater risk of bleeding. There is no exact diagnostic test for ITP. The attending physician needs to exclude other causes of thrombocytopenia to make the diagnosis of ITP.

Case report: The 15-month-old male patient was admitted to the pediatric ward due to very low platelet count (9000/uL). The boy presented symptoms of hemorrhagic diathesis in the setting of a measles,mumps, and rubella vaccination one day earlier. The patient started treatment with immunoglobulininfusions. The effect of the therapy was temporary, at first platelets increased to 51000/uL but then they declined to 9000/uL. The boy underwent bone marrow biopsy and the suspicion of themetastatic process was excluded. The next treatment option was based on prednisone (2mg/kg/24

hours) but there were not any therapeutic successes reported. The last line of treatment before the transfer to the Pediatric Oncology Clinic was methyloprednisolone. At arrival the platelets count was 2000/uL.The patient had no family history of thrombocytopenia or autoimmunity and was well appearing. The next lines of treatment included: romiplostim, exacyl, cycloamine and methylprednisolone therapy but without beneficial effect. During the therapy new petechiae were found on the body of the patient and the platelet count had never exceeded 10000/uL. The genetic and viral testings came back negative.

Conclusions: 80% of the newly diagnosed patients suffering from ITP undergo remission in the first weeks or months of the first line therapy treatment. The other 20% progresses to the chronic form of the disorder. In these cases there are many new treatments in view that will allow steroid-sparing approaches and will provide more individualized approach to immunomodulation.

JUVENES PRO MEDICINA

Hypervitaminosis D - The dangers of unsupervised supplementation

Igor Karolczak, Julia Kot, Klaudia Leszto

Presenting author: Igor Karolczak

Work supervisors: lek. Katarzyna Mikołajczyk, lek. Magdalena Żak

Affiliations: Medical University od Lodz

Introduction: Vitamin D is a crucial regulator of calcium homeostasis and plays an essential role in the development of the musculoskeletal system, as well as in the proper functioning of the nervous system. In pediatric care, the primary indication for vitamin D supplementation is the prevention of rickets. Vitamin D toxicity, most commonly caused by excessive supplementation, manifests with symptoms including hypercalcemia.

Case report: A 4.5-year-old male patient was admitted to the Immunology and Nephrology Pediatric Clinic due to a recent seizure episode lasting for 30 minutes, preceded by a headache. For the past month, the patient has been reporting nycturia and polydipsia. Other symptoms preceding the seizure included cephalgia, fatigue, and myoclonus. During the interview, it was found that the patient had been receiving a daily dose of 2,000IU of vitamin D supplements for 1.5 years, with no medical consultation nor vitamin D levels control. On admission, physical examination indicated elevated blood pressure and abdominal distention with tympany, consistent with coprostasis. Laboratory tests revealed elevated levels of calcium, creatinine, urea, vitamin D with hypokalemia and decreased levels of parathormone, magnesium and ALP. Imaging studies identified left ventricular hypertrophy and hyperechogenicity of the renal pyramids. Williams syndrome was excluded based on diagnostic evaluation. Due to hyperesthesia and drowsiness, meningitis was suspected. Treatment with 2nd generation cephalosporin was initiated, changed for 3rd generation the next day alongside steroids, antihypertensives and IV fluids therapy. Spinal tap results precluded previous diagnosis. Intensive fluid resuscitation led to the development of edema, which was subsequently managed with furosemide-induced diuresis. During the course of hospitalization, laboratory parameters normalized, except for calcium levels, which remained high. The clinical and laboratory findings were diagnostic of vitamin D intoxication.

Conclusion: While vitamin D supplementation is essential for pediatric health, chronic excessive intake may lead to severe, potentially life-threatening complications, including hypercalcemia, nephrocalcinosis, and cardiovascular dysfunction. This case highlights the dangers associated with prolonged vitamin D overdose and emphasizes the necessity of adhering to evidence-based dosing protocols. Regular biochemical monitoring of serum calcium and vitamin D levels is crucial for children receiving long-term supplementation, alongside the prompt recognition of signs of toxicity. Early therapeutic intervention is critical to prevent irreversible organ damage.

Hypercalcemia associated with vitamin D overdose in a five-year-old boy with Duchenne muscular dystrophy

Aleksandra Grelowska

Presenting author: Aleksandra Grelowska

Work supervisors: Bogumiła Górczewska MD PhD, Elżbieta Jakubowska-Pietkiewicz, MD PhD, Prof. UM

Affiliations: Medical University of Łódź

Introduction: Vitamin D is an important regulator of calcium-phosphate metabolism in the body. It also has an impact on bone mineralization, density and growth. Patients with Duchenne muscular dystrophy require supplementation of vitamin D3 with higher doses. Although deficiency of this compound is a common issue, it should be remembered that improper excessive supplementation can lead to an overdose of cholecalciferol. The condition may be accompanied by gastrointestinal, renal and cardiovascular symptoms, neurological disturbances, as well as muscle weakness and dehydration.

Case report: We present the case of a patient who ingested excessively high daily doses of vitamin D ("horse dose vitamin D preparation") without medical advice, which led to a serious deterioration in his health condition and necessary hospitalization. A five-year-old boy with Duchenne muscular dystrophy was admitted to hospital due to weakness, decreased appetite with normal thirst preserved, polyuria, and weight loss over the past two weeks. The patient was diagnosed with severe hypercalcemia (15.48 mg/dl), hypophosphatemia (1.13 mmol/L), and hypervitaminosis (268 ng/mL; reference range 30-50 ng/mL). A conversation with the child's mother revealed that the boy had been intentionally given a dietary vitamin D supplement intended for horses (dose of 50.000 IU/ml). The patient required hospitalization and intravenous administration of bisphosphonates along with intravenous fluid therapy. He responded well to the treatment.

Conclusion: This case highlights the free access to dietary supplements and the lack of control over their administration in children. Vitamin D is available in various doses and forms, including as an over-the-counter dietary supplement. Inappropriate dosing can result in hospitalization and lead to life-threatening consequences.

JUVENES PRO MEDICINA

Rare Cause of Lymphadenopathy in a 14-Year-Old Girl: A Case report

Weronika Gadomska, Monika Krasoń, Julia Polak

Presenting author: Weronika Gadomska, Monika Krasoń, Julia Polak

Work supervisors: lek. Magdalena Żak, lek. Katarzyna Mikołajczyk

Affiliations: SKN przy Klinice Pediatrii, Immunologii i Nefrologii ICZMP

Introduction: Cat Scratch Disease (CSD), also known as Bartonellosis, is an infection caused by the Bartonella henselae bacterium, typically transmitted through scratches, bites, or saliva exposure from an infected cat. The disease commonly presents with regional lymphadenopathy near the inoculation site, fever, fatigue, headache, and localized pain or redness. While most cases are self-limiting, atypical presentations can occur, including neurological complications such as encephalopathy, cranial nerve involvement, and neuroretinitis. These manifestations are rare and often require further diagnostic evaluation to rule out other infectious and inflammatory conditions.

Case report: A 14-year-old girl was admitted to Pediatrics, Immunology and Nephrology Department of Polish Mother's Memorial – Research Institute with painful unilateral neck swelling, headaches, and photophobia. Two weeks prior to admission, she was scratched by a cat near the clavicle, followed by purulent discharge from the wound. A few days later, swelling, warmth, and tenderness developed on the right side of her neck. Additionally, the girl had a fever (up to 38.5°C) and reported a sore throat, runny nose, cough, and nausea. Shortly afterwards, she developed neurological symptoms, including dizziness, photophobia, and double vision, particularly when changing position, raising concerns about potential central nervous system involvement. Initially, she was treated as an outpatient with amoxicillin and clavulanic acid, but without a satisfactory clinical response. Subjective examination showed enlarged cervical lymph nodes. Positive antibodies against EBV and HSV were detected, prompting acyclovir initiation for suspected HSV neuroinfection. However, CSF analysis excluded inflammation, leading to acyclovir discontinuation. Serological tests revealed positive titers of IgG and IgM antibodies against Bartonella henselae. The patient was administered ceftriaxone and azithromycin. The patient's condition improved with reduced swelling and smaller lymph nodes. Azithromycin treatment continued for 5 days outpatient.

Conclusions: Cat scratch disease (CSD), or bartonellosis, presents with a wide range of clinical manifestations, requiring thorough evaluation and serological testing. Neuroinfection symptoms overlap with those of various viral, bacterial, and fungal infections, but treatment should be based on CSF analysis before initiating CNS-targeted therapies. In this case, CSF analysis excluded neuroinfection, allowing for appropriate antibiotic therapy. Other causes of lymphadenopathy, such as toxoplasmosis, mononucleosis, and hematological malignancies, were also ruled out, confirming the diagnosis of CSD.

JUVENES PRO MEDICINA

Physical examination as the basis for the diagnosis of ovarian tumors in children

Olga Kowalczyk, Wiktoria Lisińska, Maria Pełka

Presenting author: Olga Kowalczyk

Work supervisors: Magdalena Żak MD, Katarzyna Mikołajczyk MD

Affiliations: Department of Pediatrics, Immunology, and Nephrology, Institute of the Polish Mother's Memorial Hospital, Medical University of Lodz

Introduction: Ovarian tumors in pediatric patients are characterized by a specificfrequency of occurrence of histological subtypes. Embryonal tumors are the most common, followed by epithelial tumors and hormonally active ones. Embryonal tumors include teratomas, which may contain elements from three germ layers. The presence of primitive, embryonal, or fully differentiated structures classifies teratomas into immature and mature subtypes. The most common hormonally active tumor in this patient group is the juvenile granulosa cell tumor. Symptoms accompanying ovarian tumors may be nonspecific or may not occur at all.

Case reports: A 13-year-old female was admitted to the hospital with a palpable abdominal mass, incidentally found during a routine physical examination at a rehabilitation center. She reported progressive abdominal distension without pain or systemic symptoms. Physical examination revealed a soft, non-tender abdomen with a palpable mass extending to the umbilicus. Abdominal ultrasound showed a large, well-defined lesion in the lower abdomen and pelvis minor. Tumor markers, including AFP and HE4, were mildly elevated, and the ROMA index suggested a high likelihood of an ovarian neoplasm. MRI revealed a 248 × 157 × 107 mm multiloculated cystic lesion with fat and septations, consistent with a mature ovarian teratoma. The patient underwent laparoscopic ovarian-sparing excision, and histopathology confirmed a mature teratoma with dermoid cyst features. The postoperative course was uneventful, and the patient was discharged in stable condition. The second patient, a 15-year-old female presented to the Emergency Department with symptoms of an ovarian tumor, including loose stools, diffuse abdominal pain, and progressive distension. Physical examination revealed a tense, distended abdomen with rigidity and a palpable mass. Laboratory tests showed elevated CA125 and decreased FSH. CT imaging showed a 190 × 90 × 175 mm cystic-solid mass, likely originating from the right ovary, with significant free peritoneal fluid. The patient underwent exploratory laparotomy with right oophorectomy. Intraoperatively, a multiloculated cystic mass was excised. Histopathology confirmed a juvenile granulosa cell tumor, confined to one ovary (FIGO IA).

Conclusion: Pediatric ovarian tumors present a significant diagnostic challenge.Early identification is essential, as demonstrated by the cases presented, which varied from asymptomatic masses to those associated with pronounced abdominal symptoms. Timely diagnosis allows for tumor size limitation, thereby increasing thelikelihood of performing ovarian-sparing surgery.

JUVENES PRO MEDICINA

Rare form of Osteogenesis Imperfecta - type VI

Dominika Chodorowska

Presenting author: Dominika Chodorowska

Work supervisors: PhD MD Agnieszka Byrwa-Sztaba, PhD MD Elżbieta Jakubowska-Pietkiewicz, prof UM

Affiliations: Department of Pediatrics, Neonatal Pathology and Metabolic Bone Diseases, Medical University of Lodz

Introduction: Osteogenesis imperfecta (OI) is a rare, genetically determined connective tissue disorder resulting from abnormal synthesis, modification, or processing of type I collagen, abnormal bone mineralization or osteoblast differentiation. OI is manifested by increased susceptibility to fracture, bone deformities, decreased bone mineral density, low stature, blue sclerae, hearing loss or dental defects. Type VI OI is associated with a mutation in the SERPINF1 gene, which leads to excessive bone resorption. The patient's mother was found to carry one of the mutations.

Case report: The Case reportpresents an 8-year-old boy, who was first suspected of OI after suffering two low-energy fractures of the femur at 7 and 12 months of age. Laboratory tests showed normal blood concentrations of calcium, phosphorus and magnesium, but periodic increased urinary excretion of these ions was observed. Hepatic vitamin D3 metabolite concentrations remained within reference values. Due to the negative test results for the most common mutations COL1A1 and COL1A2, an extended genetic diagnosis was performed using the NGS method, which revealed two pathogenic changes in the SERPINF1 gene. The boy has suffered about 45 long bone fractures up to date. He has undergone numerous corrective surgeries (including osteotomies and intramedullary stabilizations of the femurs. Pharmacological treatment with bisphosphonates (first sodium pamidronate, then sodium zoledronate) has led to a partial improvement in bone mineral density (Z-score in Spine projection currently -1.5), but has not completely inhibited bone fractures. The child has growth deficiency (<3 percentile for age and sex), ligamentous laxity, curvature of the spine and muscle weakness in the lower extremities, as a result of which he moves mainly in a wheelchair. The sclerae are normal in color, and no hearing loss was found.

Conclusion:Type VI OI poses a special therapeutic challenge, as excessive osteoid makes bisphosphonate binding difficult. A multidisciplinary approach - rehabilitation, corrective orthopedic treatments and tailored drug therapy - is crucial in the management. The goal is to reduce the incidence of fractures, improve quality of life and optimally maintain the child's mobility.

JUVENES PRO MEDICINA

he Role of CACNA1D Variant in Primary Aldosteronism Causing Resistant Hypertension

Rithwik Khandelwal, Yara Zakko, Wiktoria Napiórkowska.

Presenting author: Rithwik Khandelwal

Work supervisor: Małgorzata Stańczyk MD, PhD

Affiliations: Department of Paediatrics, Immunology and Nephrology, Polish Mother's Memorial Hospital Research Institute of Lodz.

Introduction: Resistant hypertension (HTN) in the pediatric population is a major challenge that can result in a lengthy and complex diagnostic process. Undertreated HTN can lead to dire health consequences and in rare cases it may have a genetic Introduction that can be easily misdiagnosed. Primary aldosteronism is the most common cause of secondary resistant HTN and must be differentiated in order to ensure that patients receive appropriate treatment. In the past few years CACNA1D gene variants have been reported to cause primary aldosteronism and therefore lead to HTN. Furthermore, In cases involving a genetic Introduction of the disease, the likelihood of the patient developing other pathologies is very high and the complicated nature of this disease requires early diagnosis and medical intervention to improve patient outcome.

Case report: A 12 year old male patient presented with refractory HTN accompanied by headaches and dizziness, which were particularly strong in the morning. His blood pressure (BP) readings would rise up to 200/100 mmHg and while the hypertensive emergency would resolve with captopril and hydroxyzine, standard hypotensive therapy was not effective for long term BP control.

Extensive investigations were done to assess the suspicion of neuroendocrine tumours that was not confirmed by scintigraphy with iobenguane (MIBG). An orthostatic test showed the patient experienced dizziness upon standing and an increase in heart rate by 20 beats/min, so he was given flunarizine for dizziness. The patient was also given ramipril and amlodipine in maximum doses for HTN, however no significant change was seen. Eventually, genetic counselling revealed a rare CACNA1D variant (heterozygous c.4529G>A, p.Arg1510Gln), which is associated with primary aldosteronism. A tilt test was done, in which the aldosterone levels were elevated after 2 hours of standing being at 475 pg/ml (28-376 pg/ml), and the renin level was 162 uIU/ml(4.2-45.6uIU/ml), through these the aldosterone-renin ratio (ARR) was calculated to be 2.93 (upper limit is 2.5) confirming aldosteronism. As a result the patient was started on a trial of eplerenone (25mg/day uptitrated to 50mg/day) as an additional hypotensive drug showing positive with a significant reduction in BP and recurrence of symptoms.

Conclusion: This case study highlights the importance of genetic testing in refractory hypertension of adolescents and further supports the CACNA1D variants causing primary aldosteronism in rare cases could be causative of HTN. Aldosterone blockade should be considered in selected cases as a measure supporting typical hypertension treatment in non-responsive patients.

JUVENES PRO MEDICINA

Anaphylaxis as an unusual presentation of Mycoplasma pneumoniae infection in a 16-year-old patient.

Maria Michalik

Presenting author: Maria Michalik

Work supervisor: MD, PhD Urszula Jedynak-Wąsowicz

Affiliations: Jagiellonian University Medical College, Children's University Hospital of Cracow, Department of Pediatrics

Introduction: Mycoplasma pneumoniae is a prokaryotic pathogen without a cell wall. It is most commonly associated with upper and lower respiratory symptoms. However, it can also present with extrapulmonary clinical manifestations that include other systems. M. pneumoniae acts through multiple mechanisms, one of which can possibly cause an allergic reaction in predisposed patients.

Case report: A 16-year-old male patient was admitted to the Allergology Department to expand the diagnostics for the cause of three anaphylactic reactions that took place within a 10-day period two months prior. The first reaction occurred without any obvious trigger and presented with dyspnea, generalized urticaria, emesis and hypotension. He required epinephrine administration and hospitalisation. After the next two days he developed similar symptoms, but without hypotension. The treatment included epinephrine administered by the guardian and glucocorticosteroids as well as a short-acting B2 agonist given by the Emergency Medical Team. The third one manifested with dyspnea and urticaria. The determined tryptase level taken during the second episode was in the normal range and chest X-ray was unremarkable. Also, anti-M. pneumoniae IgM was tested and came back positive. The treatment with clarithromycin was introduced. The patient remains under the care of an allergologist due to asthma and allergic rhinitis and regularly uses an inhaler with budesonide and formoterol. He denies consuming new foods, medications and partaking in physical exercise prior to the onset of symptoms. Diagnostics were expanded to include IgM and IgG tests for Mycoplasma pneumoniae, allergy tests (ALEX2 test), base serum tryptase levels and basic blood tests. After excluding other possible causes of the anaphylactic reactions, the Mycoplasma pneumoniae infection was considered to be the most probable reason for the patient's symptoms.

Conclusions: In the absence of a clear elicitor of an anaphylactic reaction and recurrent course of symptoms within a few days period an infectious cause should be considered even if no obvious signs of infection are present. The exclusion of other possible and known causes of anaphylaxis as well as confirmed Mycoplasma pneumoniae infection in this case supports the role of this atypical bacteria in allergic reactions in predisposed patients.

JUVENES PRO MEDICINA

Drug-induced dystonia after aripiprazole

Anna Zięba, Julia Suchota

Presenting author: Julia Suchota

Work supervisors: lek. Magdalena Żak, lek. Katarzyna Mikołajczyk

Affiliations: Klinika Pediatrii, Immunologii i Nefrologii ICZMP w Łodzi

Introduction: Acute dystonia is a movement disorder induced by imbalance between dopaminergic and cholinergic systems within the basal ganglia circuits. The clinical presentation of symptoms may vary, but prolonged muscle contractions leading to distorted postures, twisting movements, and involuntary spasms are the most common manifestations. It is associated with the use of antipsychotics, particularly first-generation (typical). Acute dystonia is a relatively rare side effect after commencing treatment with high-affinity dopamine D2 partial agonist second-generation antipsychotics. Nevertheless, children and patients under the age of 20 treated with aripiprazole are more likely than older patients to gain weight and experience EPS. We report a complex case of a patient with conduct and adjustment disorder prescribed with aripiprazole off-label.

Case report: A 14-year-old boy presented to the emergency department with involuntary lateral neck extension and rotation of his head to the right side, which was described as “head constantly falling down, no matter what”, even though the patient's head had been constantly held upright to relieve discomfort. Three days prior, the patient had started taking aripiprazole. During neurological examination, other extrapyramidal symptoms were observed, such as cogwheel rigidity and mild muscle tremor. No additional symptoms were noted. Upon evaluation the patient was diagnosed with acute drug-induced dystonia, most accurately related to aripiprazole administration. Initially intravenous fluid resuscitation has been administered, followed by a 10 mg of intravenous diazepam due to lack of improvement. Afterwards, the patient was informed about the necessity of discontinuing the treatment with aripiprazole and advised to contact their psychiatrist for drug modification.

Conclusion: The number of children treated with atypical antipsychotics, especially aripiprazole, increases due to the assumed favorable side-effect profile and its efficiency. It is crucial to clinically differentiate the symptoms of acute dystonia with EPS from other movement disorders on the neurological Introduction. Although aripiprazole is commonly prescribed for the pediatric population, the clinical safety profile, tolerability, and efficacy for children and adolescents remain unknown and require more study.

JUVENES PRO MEDICINA

Caffey- Silverman disase. A Case report

Magdalena Gąsior

Presenting author: Magdalena Gąsior

Work supervisors: Agnieszka Byrwa-Sztaba, Elżbieta Jakubowska-Pietkiewicz

Affiliations: the Department of Pediatrics, Neonatal Pathology and Metabolic Bone Diseases of the Medical University of Lodz

Introduction: Caffey's disease, also known as infantile cortical hyperostosis (ICH), is a rare childhood disease involving the skeletal system (periosteal build-up and reactions) and surrounding soft tissues. Characteristic symptoms is the asymmetry of the lesions involved bones, most often affecting the mandible, clavicle, ribs, scapula, skull bone, hip bone and long bones. Moreover, fever or pallor, swollen joints, pain and irritability may occur during the course of the disease. ICH is inherited autosomal dominantly and associated with a mutation in the COL1A1 gene. Less than 100 cases of the disease have been described.

Case report: A three-month-old male infant in good general condition was admitted to the Department of Pediatrics, Neonatal Pathology and Metabolic Bone Diseases of the Medical University of Lodz for diagnosis of abnormal shape and thickening in the left lower extremity. The boy is born from the second pregnancy,first delivery at 37 hbd by cesarean section due to abnormal KTG recording. On physical examination, attention was drawn to the abnormal shape of the left tibia: hard thickening, without inflammatory reaction. Laboratory tests revealed an elevated alkaline phosphatase level, 2.5 times the upper limit of normal for age (837[U/L]). Extensive diagnostic imaging was performed: a babygram X-ray described significant periosteal build-ups on the outlines of the mandible, on both clavicles and along the outline of the shafts of both femurs and tibias, and less abundant lesions along the peripheral portions of the humerus. In addition, ultrasound and X-ray examinations of the lower extremities showed superstructures of the tibia and femurs. The results of the child's additional examinations made it possible to make a clear diagnosis of Caffey-Silverman disease. The disease does not require pharmacological treatment except for the use of analgesics and antipyretics to relieve inflammation and pain.

Conclusion: Caffey-Silverman disease, is a rare and usually self-limiting disorder with a good prognosis. As our case shows, clinical-radiological correlation is extremely important in making the diagnosis. Although the disease usually resolves by age 2, it can recur in childhood or adolescence and carry an increased risk of fractures or bone deformities. Long-term monitoring of the disease can protect the patient from late sequelae of the disease.

JUVENES PRO MEDICINA

Hemolytic disease of the newborn: a song of the past or an indication for prenatal intrauterine treatment?

Amelia Sztangierska - 1, Zuzanna Brzóska - 1, Natalia Mazur-Ejankowska - 2, 3, 4*

Presenting author: Amelia Sztangierska

Work supervisor: Natalia Mazur-Ejankowska

Affiliations: 1. Student Scientific Circle of Gynecology and Obstetrics, Department of Gynecology, Obstetrics and Neonatology, Medical University of Gdansk, Marii Sklodowskiej-Curie 3a, 80-210, Gdansk, Poland. 2. Clinic of Obstetrics and Gynecology, Gynecological Oncol

Introduction: Hemolytic disease of the newborn occurs when there is an incompatibility between blood types of the mother and the fetus, most commonly in the rhesus factor (Rh-factor). It might lead to a life-threatening condition of the fetus due to maternal antibodies crossing the placental barrier and causing hemolysis of fetal erythrocytes leading to fetal anemia.

Case report: A 32-year-old patient in her second pregnancy was admitted to a tertiary hospital due to suspicion of serological conflict and severe fetal anemia. In the 25th week of gestation, Doppler ultrasonography of middle cerebral artery revealed increased peak systolic velocity, confirming fetal anemia. The fetus was qualified for intrauterine blood transfusions which were conducted multiple times enabling fetal intrauterine survival. Upon 34 weeks of gestation a cesarean section was preformed due to suspicion of fetal asphyxia delivering a male neonate scoring 3/6/6/8 in the Apgar scale. The neonate was transferred to the intensive care unit and underwent numerous blood transfusions leading to a global improvement of his general condition.

Hemolytic disease of the newborn was one of the most common reasons of fetal morbidity and mortality in the past decades, however, currently, due to prenatal treatment of anti-RhD immunoglobulin administration to Rh negative women, its incidence has rapidly decreased. The case demonstrates that even with correctly administered anti-Rh immunoglobulin, the disease may occur in the future pregnancies and it might lead to adverse fetal outcomes.

Conclusion: Hemolytic disease of the newborn is a current medical issue and should be included in differential diagnosis of fetal anemia. Ongoing education of medical practitioners and pregnant patients rises awareness of the disease and prenatal treatment methods.

JUVENES PRO MEDICINA

A common visit – an uncommon diagnosis. A Case of Duchenne muscular dystrophy

Gabriela Zwarycz, Zuzanna Kwiatkowska

Presenting author: Gabriela Zwarycz

Work supervisors: Katarzyna Mikołajczyk, MD; Monika Krasowska-Wieczorkiewicz, MD

Affiliations: Medical University of Lodz

Introduction: Duchenne muscular dystrophy (DMD) is a rare, X-linked genetic disease caused by a mutation in the dystrophin gene. The loss of this protein may lead to myofiber damage, chronic inflammation, and fibrosis. All of these factors contribute to muscle stem cell dysfunction and, as a consequence, abnormal functioning of skeletal muscles and the myocardium. The disease should be suspected in patients presenting with progressive muscle weakness, characterized by a positive Gowers' sign, a waddling gait, pseudohypertrophy of the calves, toe walking, and age-inappropriate difficulty with stair climbing. Currently, there is no curative treatment for DMD. However, corticosteroids are utilized to delay the loss of ambulation, enhance muscle strength, and mitigate the progression of cardiomyopathy.

Case report:A 4-year-old boy was admitted to the Department of Pediatrics, Immunology and Nephrology due to recurrent upper respiratory tract infections. Since the medical history indicated that the number of infections per year was within the normal range for the patient's age and their course was not atypical, a primary immunodeficiency was not suspected. Upon admission, the boy was in good general condition, however concerns were raised regarding growth deficiency, dysmorphic features, and signs of hyperactivity. In addition, the patient presented hypertrophy of the muscles of the calves, shoulder girdle, forearms, weakened muscle reflexes and excessive lordosis. Additionally, the patient demonstrated a positive Gowers' sign, a waddling gait, as well as delays in both psychomotor and speech development. Laboratory investigations revealed hypercreatine kinaseemia (hyper-CK-emia), elevated aspartate aminotransferase (AST) and alanine aminotransferase (ALT) levels, as well as elevated troponin levels. Imaging studies showed reduced myocardial contractility and bone age disharmony (based on wrist X-ray). These findings, along with the clinical presentation, raised the suspicion of myopathy. Consequently, the patient was referred for comprehensive consultations in cardiology, neurology, endocrinology, otolaryngology, and genetics. Genetic testing revealed a hemizygous deletion of exons 48-50 in the dystrophin gene, leading to the diagnosis of Duchenne muscular dystrophy (DMD). The patient was started on glucocorticoid therapy, enalapril, esomeprazole and vitamin D3 supplementation and was referred for continued multidisciplinary care.

Conclusion: Duchenne muscular dystrophy (DMD) is a condition rarely encountered in pediatric practice; however, it carries serious implications. Therefore, a comprehensive approach to the patient from the very first visit is crucial to facilitate the diagnosis of such rare diseases and enable the earliest possible initiation of treatment.

JUVENES PRO MEDICINA

The Scrotal Distraction: A Lesson in Diagnostic Flexibility from Pediatric Nephrotic Syndrome

Wiktoria Napiórkowska, Natalia Pluta

Presenting author: Wiktoria Napiórkowska

Work supervisor: Katarzyna Mikołajczyk MD

Affiliations: Department of Pediatrics, Immunology and Nephrology, Polish Mother's Memorial Research Institute, Łódź, Poland

Introduction: Nephrotic syndrome (NS) is one of the most common kidney diseases in the pediatric population. It is characterized by significant proteinuria, hypoalbuminemia, hyperlipidemia, and edema, with a typically favorable response to corticosteroid therapy. While its clinical presentation is well-defined and generally straightforward for experienced pediatricians, it is crucial for healthcare providers across various specialties to recognize the characteristic signs and symptoms to ensure timely and accurate diagnosis. The diagnosis of NS may be delayed in certain cases, as its initial clinical manifestations may overlap with those of other conditions.

Case report: 2-year-old male presenting with generalized edema, pronounced scrotal edema, and significant proteinuria was admitted to the Emergency Department. His parents reported a recent fever, upper respiratory tract infection symptoms, and a prior outpatient urine test confirming proteinuria (>2000 mg/dL). Laboratory tests revealed marked proteinuria (1200 mg/dL), hypoalbuminemia (1.5 mg/dL), hypercholesterolemia (363 mg/dL), and elevated triglycerides (282 mg/dL), with a normal blood count and coagulation profile. Due to the prominent scrotal edema, acute scrotum syndrome was suspected. On ultrasonography, the right appendix testis appeared swollen, which could indicate torsion. For this reason, the patient underwent a scrotal revision with exploration and excision of the appendage. However, two days after the surgery, persistent facial and peripheral edema raised concerns for an alternative diagnosis. Pediatric nephrology consultation led to the diagnosis of NS. The patient was initiated on intravenous corticosteroids, albumin infusions, and diuretics, resulting in a complete resolution of proteinuria within seven days and a 3 kg reduction in body weight. The patient was discharged in stable condition with a referral for ongoing pediatric nephrology follow-up.

Conclusion:This case underscores the necessity of considering NS in pediatric patients presenting with unexplained edema, even when initial symptoms suggest an alternative diagnosis, such as acute scrotum syndrome. Although NS typically manifests with a characteristic clinical profile, its presentation may overlap with conditions such as testicular appendix torsion, leading to diagnostic uncertainty. This highlights the importance of comprehensive laboratory assessment and heightened clinical awareness to ensure accurate diagnosis. Early identification and timely intervention are essential to mitigate complications and optimize patient outcomes. Furthermore, this case emphasizes the critical role of interdisciplinary collaboration in the diagnostic evaluation and management of complex pediatric conditions.

JUVENES PRO MEDICINA

Aseptic meningitis- rare, but significant adverse reaction of intravenous immunoglobulin therapy. A series of four Case reports

Blanka Bugajewska, Agata Wińska, Nicolas Agnello

Presenting author: Blanka Bugajewska

Work supervisors: lek. Anna Krętowska- Grunwald, dr n.med. Małgorzata Sawicka-Żukowska

Affiliations: Department of Pediatrics, Oncology and Hematology

Introduction: One of the first-line treatments for ITP is the intravenous administration of high-dose immunoglobulins (IVIG). Although this therapy effectively increases platelet count, in scarce amount of infusions, an adverse reaction such as aseptic meningitis (AM) may occur. It usually develops within 48 hours, more frequently after the administration of high doses (1–2 g/kg).

Case report: We present cases of four patients hospitalized in the Department of Pediatrics, Oncology, and Hematology due to primary immune thrombocytopenia (ITP), who were treated with immunoglobulins. All patients exhibited severe thrombocytopenia, manifesting as hemorrhagic diathesis, bruising, and petechiae.

Following immunoglobulin administration, platelet counts increased in all patients. However, three of them developed symptoms suggestive of aseptic meningitis, including severe headaches, neck stiffness, fever, and photophobia. Cerebrospinal fluid (CSF) analysis revealed elevated pleocytosis without signs of infection. Symptoms resolved after anti-inflammatory treatment and steroid therapy.

Aseptic meningitis was also diagnosed in the fourth patient, but without classical meningeal symptoms. During the immunoglobulin infusion, the boy experienced hearing deterioration, prompting an extended neurological evaluation, including CSF evaluation, which revealed elevated cytosis. Interestingly, the three patients who exhibited meningeal signs secondary to IVIG infusion have not returned with more thrombocytopenic episodes.

Conclusion: Aseptic meningitis is a rare but significant adverse reaction of IVIG therapy that should be considered in the differential diagnosis. Due to its nonspecific symptoms, it may lead to misdiagnosis and unnecessary treatment, making early detection through cerebrospinal fluid analysis essential. A thorough risk assessment enables the implementation of effective preventive measures, such as premedication.

JUVENES PRO MEDICINA

Diagnostic difficulties of coexisting pseudohypoaldosteronism type 1 autosomal dominant with subcutaneous fat necrosis of the newborn as electrolyte imbalances observed in newborn: a case report

Marcin Kusiński, Martyna Sienicka, Hanna Domagalska-Nalewajek, Arkadiusz Zygmunt, Renata Stawerska

Presenting author: Marcin Kusiński

Work supervisor: Renata Stawerska

Affiliations: Klinika Endokrynologii Wieku Rozwojowego Uniwersytetu Medycznego w Łodzi

Introduction: Electrolyte imbalances are often overlooked conditions, with heightened potential of mortality in infants. Pseudohypoaldosteronism type 1 (PHA1) is a heterogenous group of rare diseases causing resistance to mineralocorticoids, leading to dehydration, hyponatremia, and hyperkalemia. PHA1A, autosomal dominant subtype, is caused by loss-of-function mutations in NR3C2 gene encoding mineralocorticoid receptor (MCR) protein; typically resulting in salt-wasting and failure to thrive manifesting from the first week of life. In the PHA1A subtype symptoms often spontaneously improve with age. Compared to other subtypes of pseudohypoaldosteronism, PHA1A is typically milder than other forms of pseudohypoaldosteronism as disfunction is restricted to distal convoluted tubules. Patients respond well to natrium chloride supplementation and with proper management become nearly or completely asymptomatic.

Case report: We present a case of male patient, currently 3.5 years old, with PHA1A, who additionally developed subcutaneous fat necrosis of the newborn. The boy was born in 40th week of pregnancy, via cesarean section, with birth weight 3600 g, APGAR 7-8-8, from unrelated parents. The newborn was in moderate overall condition with mild birth asphyxia, hyponatremia (127-132 mmol/l), heightened serum potassium, lactate, triglycerides, IL-6, and CRP (with no observed infection); hypercalcemia (3.03 mmol/l) and hypercalciuria (calcium/creatinine ratio 2.37), with low parathyroid hormone (4.3 pg/ml) despite normal 25(OH)D concentration (41.2 ng/ml) and normoglycemia. Screening tests ruled out congenital adrenal hyperplasia. Measured hormone levels - cortisol and ACTH within reference ranges, with significantly elevated renin (914 uIU/ml) and aldosterone (>2000 pg/ml), suggested PHA1.A 24-hour urine collection for steroid profile confirmed this diagnosis, but did not explain hypercalcemia and hypercalciuria. During hospitalization, the patient developed small nodular changes in subcutaneous tissue, first in the upper half of body, later also in the lower limbs. Ultrasonography revealed heterogenous subcutaneous tissue with areas of increased echogenicity and reduced perfusion. Thus, subcutaneous fat necrosis of the newborn was diagnosed. During next days gradual reduction in nodes size was observed. Due to the coexistence of these two diseases, treatment, involving oral administration of 8 ml/day of 10% NaCl and discontinuation of vitamin D supplementation, was introduced. On day 63 the boy was discharged home. In the first year of life, PHA1A was confirmed through genetic testing. NaCl supplementation is continued, the boy is developing properly and currently shows no signs of electrolyte imbalances.

Conclusion: Despite being a rare genetic disorder, PHA1A, given proper diagnostic, is relatively simple in management. This case highlights the importance of thorough differential diagnosis as a crucial step in holistic treatment of pediatric patient.

JUVENES PRO MEDICINA

Eosinophilic gastritis in a 15-year-old girl: a Case report

Joanna Rapiejko

Presenting author: Joanna Rapiejko

Work supervisor: dr n. med. i n. o zdr. Jan Bukowski

Affiliations: Department of Paediatric Gastroenterology and Nutrition, Medical University of Warsaw

Introduction: Currently, an increased incidence of eosinophilic gastrointestinal diseases is observed. Eosinophilic gastritis is characterised by eosinophilic inflammation of the stomach wall. Its prevalence in the paediatric population is estimated at 1.5-6.4/100,000. The diagnosis is based on histopathological findings of endoscopic mucosal biopsies in patients with chronic or recurrent gastrointestinal symptoms.

Case report: A 15-year-old girl was admitted to the hospital due to a two-week history of daily epigastric pain and nausea, worsening after meals and awakening her at night. On admission, the patient was in good general condition, with no significant abnormalities on physical examination. Laboratory tests revealed eosinophilia in a blood count - 4.85 G/L (38.3%) and in a manual blood smear - 30%. Parasitological investigations, including faecal examinations and serological tests, were negative. Also, skin prick tests, patch tests, and coeliac serology were negative. Chest X-ray and abdominal ultrasound findings were correct. The gastroscopy revealed features of gastropathy, and histopathological examination confirmed eosinophilic gastritis, with over 100 eosinophils per high-power field. The patient was diagnosed with eosinophilic gastritis and began treatment with a proton pump inhibitor (esomeprazole 40 mg/day). During the next 2 years of treatment, at regular follow-ups with gastroscopy, every 6 months, no macro- and microscopic abnormalities were found, and the eosinophilia level normalised. The girl remains asymptomatic to date.

Conclusion: Due to the observed increased incidence of eosinophilic inflammation of the gastrointestinal tract, the differential diagnosis of recurrent or chronic gastrointestinal symptoms should include eosinophilic gastritis.

JUVENES PRO MEDICINA

Novel homozygous variants in METTL23 gene identified in 6-year old girl- the Case report

Gabriela Adamiak, Maria Bardziak

Presenting author: Maria Bardziak

Work supervisor: dr. n. med. i n. o zdr. Ilona Jaszczuk

Affiliations: Student Scientific Association at the Independent Genetic Diagnostic Laboratory, Department of Pediatrics, Medical University of Lublin

Introduction: The intellectual developmental disorder, autosomal recessive 44 (MRT44, OMIM # 615942) is a rare genetic developmental disorder, firstly described in 2014. MRT44 is characterized by delayed psychomotor and speech development, intellectual disability and characteristic dysmorphic facial features. The cause of this syndrome are constitutive homozygous variants of the METTL23 gene (17q25.1). The METTL23 gene encodes a transcription factor regulator, METTL23 protein. METTL23 belongs to the family of protein lysine methyltransferases that methylate non-histone proteins.

Case report: We present a 6-year old girl with global developmental disorder, overgrowth and dysmorphic features. The examination revealed macrocephaly, deep-set eyes, strabismus and joint laxity with gait disturbance, requiring the use of orthoses. The patient has periodically experienced behavioral problems in the form of tantrums and sleep disorders.

In the diagnostic process multiplex ligation-dependent probe amplification (MLPA, P245), methylation-specific MLPA (MS-MLPA, ME028), microarray SNP 750K (aCGH) and whole-exome sequencing (WES) were performed.

In the case of the patient, molecular analysis using MLPA and microarray method did not reveal any genomic imbalances in the examined regions. Additionally, MS-MLPA did not reveal any methylation abnormalities. WES analysis allowed the identification of a new homozygous variant c.303T>A in the METTL23 gene. This variant has not been previously reported in the ClinVar database. The patients' parents were confirmed to be carriers of the c.303T>A variant of the METTL23 gene.

Conclusion: In the case of patients with intellectual disability and characteristic dysmorphic features, tests using the WES technique facilitate diagnosis and enable the detection of new pathogenic variants in genes. Patients with mutations in the METTL23 gene require multidirectional therapy with individualized education.

JUVENES PRO MEDICINA

Multimorbidity and health assessment of a child with extremely low birth weight - a Case report

Wiktoria Łazienka, Angelika Dyszy

Presenting author: Wiktoria Łazienka

Work supervisor: dr. n. med. Alina Kowalczykiewicz-Kuta

Affiliations: University of Opole, Faculty of Medicine, Neonatology Students' Association Neonatus, Poland

Introduction: Advances in perinatal and neonatal care have contributed to an increase in the number of newborns born prematurely.

In 2023, preterm birth accounted for almost 7% of all births in Poland, and among these there were 855 cases of extremely low birth weight (ELBW). Premature births are associated with an increased risk of death and the occurrence of numerous complications.

Consequently, multi-specialist, long-term care is required, such as Paediatric Coordinated Care. The aim of this study is to describe the complications of prematurity and to evaluate the psychomotor development of a newborn with ELBW.

Case report: A female neonate from pregnancy II and delivery II, was born at 26 weeks of fetal age by caesarean section with a birth weight of 550g. He was scored 2 points on the Apgar scale in the first minute of life and 5 points in the 3rd, 5th and 10th minutes. The baby's condition was very severe, with slow heart rate, flaccidity and lack of respiratory drive observed, requiring expansion breaths, ventilation breaths and cardiac massage.

The newborn required intratracheal surfactant supply, prolonged invasive ventilation and then non-invasive ventilation. In the course of hospitalisation, bronchopulmonary dysplasia (BPD) was diagnosed. A cardiology consultation revealed the presence of a persistent patent foramen ovale (PFO). In the 2nd day of life, there was an episode of quadriplegia and ultrasound (USG) examination of the brain showed immaturity of the central nervous system with asymmetry of the ventricular system. On day 10, the child's condition deteriorated and signs of acquired infection were observed - a methicillin-resistant strain of Staphylococcus epidermidis (MRSE) was isolated in a blood culture.

During hospitalisation, anaemia requiring multiple transfusions, hyperglycaemia with the need for insulin, calcium-phosphate disorders and stage II retinopathy of prematurity (ROP) were also observed. The described disorders gradually improved and the child was discharged from hospital on day 100 in good condition. Until the age of 3 years, the patient remained under the care of the Paediatric Coordinated Care where she received regular neonatology, paediatric and psychological consultations, speech therapy and medical rehabilitation. The complications of prematurity described above were regularly monitored by an ophthalmologist, a neurologist and an endocrinologist. At 3 years of age, apart from the need for speech therapy and further follow-up at the Psychological-Pedagogical Clinic, no deficits in the child's functioning were found.

Conclusions: The case presented here illustrates the multi-morbidity and clinical complexity of a neonate with ELBW who presented with respiratory, circulatory, infectious, neurological and metabolic disorders. Despite the health problems caused by the extremely low birth weight, intensive interdisciplinary care and long-term monitoring allowed the risk of complications to be reduced and the child to function without significant deficits in the long term.

JUVENES PRO MEDICINA

Cerebral herniation- the neonatal Case report

Aleksandra Barabasz

Presenting author: Aleksandra Barabasz

Work supervisor: Beata- Borek Dzięcioł

Affiliations: Department of Neonatology and Rare Disease, Medical University of Warsaw

Introduction: Cerebral herniation- encephalocele is a rare congenital neural tube defect characterised by protrusion of brain tissue through the cranial opening. There is occipital, frontoethmnoidal, cranial vault and basal type. Genetic and environmental factors contribute to the development of encephalocele. Possible explanation is failure of separation of the surface ectoderm from the neuroectoderm during neural fold closure and abnormal gene signalling from the neural tube. However, the exact aetiopathogenesis is still unknow.

Case report: The aim of this study was to present the diagnostic and therapeutic management and its outcome in a male infant prenatally diagnosed with encephalocele at 15 Hbd. MR examination at 28 Hbd revealed a protrusion of the frontal and parietal lobes through a frontal bone defect. The neonate of pregnancy V, delivery II, was born by caesarean section at 36 weeks' gestation in good condition- 10 points in Apgar scale , with body mass 2600g (33 percentile), circumfernce of head 29 cm (0 percentile),length 51 cm (92 percentile). Congenital infections, metabolic diseases were excluded. Genetic material was preserved- study in progress. USG, MR and CT scans showed extensive anterior meningocerebral hernia (72mmx56mmx70mm) extending through the frontal bone defect, wide orbital bones, ventricular system dilatation and asymmetry and temporal lobe flexion at 90 degrees. A neurosurgical procedure was performed on day 16 of life. USG and MR imaging on days 3rd and 10th post-surgery, showed dysplasia and abnormalities of cerebral system, distortion of the ventricles and basal nuclei. Initially, palliative care was suggested; however, the baby's condition began to improve. Two weeks after the operation, the newborn was extubated, began to breathe independently, took food and responded to light and sound. Post-operative wounds were healing properly. No dysmorphic features, anomalies of other body parts or none of the genetic syndromes manifesting with encephalocele were observed. Currently, the newborn remains in good condition under multispecialist care, awaiting the next stages of nose plastic surgery.

Conclusions: The aetiopathogenesis of congenital malformations is difficult to define. A multidisciplinary approach and proceeding in accordance with the latest medical knowledge is crucial. In this case, the decision to operate to remove the cerebral hernia was made despite the risk and inauspicious prognosis, allowing the restoration of an almost normal anatomy, a good cosmetic outcome and the avoidance of complications.

JUVENES PRO MEDICINA

Case report- Suspected Neuroblastoma in a Newborn with Diabetic Fetopathy, Elevated Inflammatory Markers, and Comorbid Pathologies – An Interdisciplinary Diagnostic and Therapeutic Challenge

Anna Skiba

Presenting author: Anna Skiba

Work supervisors: lek. Małgorzata Chudzyńska

Affiliations: Student Scientific Society of Neonatology, Medical University of Łódź

Introduction: Diabetic fetopathy is a syndrome of symptoms occurring in newborns of mothers with gestational diabetes, which can lead to numerous metabolic and structural complications. Due to its multifactorial etiology and the coexistence of additional pathologies, the diagnosis and treatment of these cases pose a challenge for neonatologists. Elevated levels of inflammatory markers (such as C-reactive protein) in newborns can be transient or indicate an ongoing inflammatory process or other serious disorders that require thorough differential diagnostics. This paper presents a complex case of a newborn with diabetic fetopathy and persistently elevated C-reactive protein levels. Imaging studies revealed an unknown structure infiltrating the left adrenal gland, requiring further interdisciplinary diagnostic investigation.

Case report: A male newborn was delivered at 37 weeks of gestation (Gravida 4, Para 3) weighing 3890 grams, with an Apgar score of 8/9. The prenatal history revealed that the mother was diagnosed with gestational diabetes requiring dietary treatment (GDM-G1). Clinically, the infant showed signs of diabetic fetopathy. Due to hypoglycemia, the newborn required a glucose infusion. Additionally, during hospitalization, elevated C-reactive protein (CRP) levels were observed, which persisted despite antibiotic therapy. An abdominal ultrasound revealed changes suggesting a history of bleeding into the left adrenal gland. Moreover, the infant exhibited low cortisol levels and elevated levels of neuro-specific enolase, suggesting a possible presence of neuroblastoma or adrenal embryonal tumor.

Conclusions: The abnormalities presented in laboratory and imaging studies represent a rare but clinically significant combination. The persistent elevation of CRP required special attention in the context of a potential inflammatory or oncological process. The complexity of the case emphasizes the necessity of a multidisciplinary approach to diagnosis and treatment.

JUVENES PRO MEDICINA

Chemotherapy complication or rare anatomical variant? An unusual case of a patient with ALL

MICHAŁ ŻABICKI, KINGA WÓJCIK, JULIA ZIEMIŃSKA, KAROLINA SŁOWIK, DR N. MED. MAŁGORZATA MITURA-LESIUK

Presenting author: MICHAŁ ŻABICKI

Work supervisor: DR N. MED. MAŁGORZATA MITURA-LESIUK

Affiliations: STUDENT SCIENTIFIC CIRCLE AT THE DEPARTAMENT OF PEDIATRIC HEMATOLOGY, ONCOLOGY AND TRANSPLANTION, MEDICAL UNIVERSITY OD LUBLIN

Introduction: The crista terminalis is a normal anatomical structure present in the upper part of the right atrium.[1,2] It is usually invisible on echocardiography. In rare cases, it may manifest as a nodular lesion with myocardium-like echogenicity, located on the posterolateral wall of the right atrium. [3] The visualisation of such a lesion may pose a diagnostic problem and suggest a neoplastic or thromboembolic aetiology of the lesion. [1,2]

Case report: A 13-year-old patient was admitted to the Department of Haematology, Oncology and Bone Marrow Transplantation of the University Children's Hospital in Lublin for a diagnosis of acute lymphoblastic leukaemia (T-ALL). The boy was treated in accordance with the current therapeutic protocol.. Chemotherapy included cardiotoxic drugs such as daunorubicin, and the patient required regular cardiac monitoring. An electrocardiogram performed on day 26 of treatment showed sinus bradycardia, resulting in 24-hour Holter heart rate monitoring.

A subsequent ECG examination showed no abnormalities. In addition, an echocardiogram was performed, which showed only trace mitral and aortic regurgitation, with thickening of the aortic valve leaflets, as well as a trace of fluid behind the left ventricle. Control ECHO tests also did not show any other abnormalities.

Subsequent echocardiography performed as planned before continuing the treatment revealed a 2x1cm hyperechoic structure in the right atrial lumen, unrelated to the presence of the central catheter. Due to the need for a more thorough evaluation, it was decided to perform a CT of the heart with contrast as an emergency procedure. The CT scan did not show abnormal structures within the right atrium or other heart cavities. However, the presence of a prominent upper part of the right atrial terminal crest measuring 15x7mm, a developmental lesion, was described. The examination allowed us to exclude the presence of complications of chemotherapeutic treatment, as well as new tumour infiltration or tumour disease unrelated to the primary disease.

Conclusions: The crista terminalis, although a physiologically occurring structure, may raise oncological concerns or suggest adverse effects of cardiotoxic drugs. Echocardiographic findings should always be compared with previous studies and, in case of doubt or absence of such studies, the diagnosis should be extended with CT or MRI scanning.

[1] Lakhani, Dhairya A et al. “Prominent crista terminalis mimicking a right atrial mass: A Case reportand brief review of the literature.” Radiology Case reports vol. 17,3 434-438. 9 Dec. 2021, doi:10.1016/j.radcr.2021.11.028

[2] Shoji, Yoshikuni et al. “Prominent Crista Terminalis Mimicking a Right Atrial Mass.” Internal medicine (Tokyo, Japan) vol. 63,23 (2024): 3259-3260. doi:10.2169/internalmedicine.3551-24

[3] Kim, Mi-Jeong, and Hae Ok Jung. “Anatomic variants mimicking pathology on echocardiography: differential diagnosis.” Journal of cardiovascular ultrasound vol. 21,3 (2013): 103-12. doi:10.4250/jcu.2013.21.3.103

JUVENES PRO MEDICINA

Diagnostic challenges in recognizing Transient Neonatal Diabetes Mellitus (TNDM) in an 11-year-old boy

Aleksandra Oto, Adrian Ołubiec, Katarzyna Piekarska

Presenting author: Aleksandra Oto

Work supervisors: Prof. Agnieszka Zmysłowska, MD, PhD; Michał Pietrusiński, PhD

Affiliations: Department of Clinical Genetics, Medical University of Lodz

Introduction: Monogenic diabetes results from a defect in a single gene and constitutes a group of rare diseases with a diverse phenotype. Among the elements of the clinical picture, the following features are relevant: the age of onset of hyperglycaemia/diabetes, positive family history, presence of kidney diseases, hearing disorders or vision problems. Among monogenic types of diabetes, neonatal diabetes is distinguished, which includes persistent neonatal diabetes mellitus (PNDM) and transient neonatal diabetes mellitus (TNDM). The condition is most often isolated, but it may be accompanied by macroglossia, umbilical hernia, or neurodevelopmental disorders. Confirmation of the disease requires genetic testing. The aim of the study was to highlight the diagnostic difficulties associated with identifying TNDM in an 11-year-old boy referred to the Clinic for Rare Diseases in Children and Adolescents and Diabetogenetics at the Central Clinical Hospital of the Medical University of Lodz.

Case report: The patient was referred with a suspicion of neonatal diabetes. The child was born from the first pregnancy and a 10-point Apgar score. At the 2nd week of life, the patient was diagnosed with hyperglycaemia and lack of expected weight gain. It was ordered to measure the level of autoantibodies characteristic of type 1 diabetes (T1D) and C-peptide levels to assess insulin secretion. The results excluded T1D. The patient was treated with insulin until the age of 5 months. Currently, blood glucose levels are normal, but they rise above 200 mg/dl during infections and stressful situations. Moreover, the patient's paternal grandfather has type 2 diabetes, and his mother has hyperglycaemia. Molecular analysis was performed using Next Generation Sequencing (NGS) for a neonatal diabetes panel and the mitochondrial genome, which did not identify any pathogenic variants. Ultimately, an MS-MLPA (Methylation-Specific Multiplex Ligation-dependent Probe Amplification) analysis and aCGH (array Comparative Genome Hybridization) testing confirmed the presence of a duplication at 6q24.1q24.2. The patient showed paternal allele overexpression at the imprinting locus on chromosome 6q24, which contains the PLAGL1 and HYMAI genes. This confirmed the diagnosis of TNDM. Currently, the boy is being treated with diet management and requires regular blood glucose monitoring and ongoing care at the Diabetes Clinic.

Conclusion: Diagnosing TNDM is challenging due to the need to select the appropriate molecular method to confirm the initial clinical diagnosis. TNDM is typically diagnosed in the first weeks of life and then undergoes remission. Diabetes may recur in adolescents and adults, and the unclear duration of clinical remission of TNDM presents a diagnostic challenge for doctors and a burden for the patient's family. Treatment elements for neonatal diabetes include diet, physical activity, and the use of oral antihyperglycemic drugs from the sulfonylurea group.

B-ALL under the SKY: Advanced Cytogenetic Profiling of B-cell Acute Lymphoblastic Leukaemia

Filip Kocoł, Maria Suchcicka, Aleksandra Ożygała M.sc

Presenting author: Filip Kocoł

Work supervisors: Prof. Monika Lejman MD, PhD, DSc

Affiliations: Student Scientific Society of Independent Laboratory of Genetic Diagnostics, Medical University of Lublin, Independent Laboratory of Genetic Diagnostics, Medical University of Lublin

Introduction: B-cell acute lymphoblastic leukemia (B-ALL) is an aggressive haematological malignancy often associated with specific genetic abnormalities. One of the most common is the *ETV6*::*RUNX1* rearrangement, typically linked to a favourable prognosis. However, the presence of a complex karyotype can alter disease progression and treatment response, necessitating detailed cytogenetic analysis. Advanced techniques such as spectral karyotyping fluorescence in situ hybridisation (SKY-FISH) allow for a comprehensive evaluation of chromosomal abnormalities, aiding in the identification of additional chromosomal abnormalities.

Case report: We present a case of a 3-year-old patient diagnosed with B-cell acute lymphoblastic leukemia (B-ALL) harboring the *ETV6*::*RUNX1* rearrangement and a complex karyotype. Chromosome analysis and SKY-FISH revealed 46,XX,der(1)t(1;2)(q21;?),der(7)t(7;?)(q32;?),der(9)t(9;13)(p21;q22),der(11)t(1;11)(q31;p13), der(12)t(7;12)(q32:p13),t(12;21)(p13;q22)[30]/46,XX[2] karytype. These techniques allowed for the detection of cryptic rearrangements that conventional cytogenetics might have missed, providing a more detailed genetic profile. FISH confirmed the *ETV6*::*RUNX1* rearrangement, while *BCR*::*ABL1*, *KMT2A*, and *TCF3* rearrangements were not detected.

Conclusion: The findings highlight the importance of advanced cytogenetic techniques in diagnosing B-ALL cases with complex karyotypes. SKY-FISH facilitates the precise identification of chromosomal alterations, which can have significant prognostic and therapeutic implications. The detection of additional abnormalities may influence disease progression and treatment efficacy, emphasising the need for further research to refine therapeutic strategies for patients with genetically complex forms of B-ALL.

JUVENES PRO MEDICINA

Pediatrics II Case reports

17th of May 2025

Coordinators:

Zuzanna Olczyk

Raja Bou Ghannam

Aleksandra Lasota

Jury:

dr hab. n. med. Anna Hogendorf

dr n. med. Lewek Paweł

dr. n. med. Jagoda Grzejszczak

lek. Justyna Kukulska

dr n.med. Magdalena Lewandowska

dr. n. med. Katarzyna Kapten

JUVENES PRO MEDICINA

Tocilizumab as a Potential Therapeutic Option for Paraneoplastic Pemphigus Associated with Castleman Disease: A Case report

Gabriela Ragan

Presenting author: Gabriela Ragan

Work supervisor: prof. Aleksandra Lesiak MD, PhD [2, 3]

Affiliations: 1 - Student Scientific Research Club of Experimental, Clinical and Procedural Dermatology, Medical University of Lodz, Poland, Department of Dermatology, Paediatric Dermatology and Oncology 2 - Department of Dermatology, Pediatric Dermatology and Dermatol

Introduction: Paraneoplastic pemphigus (PNP) is a rare autoimmune, mucocutaneous blistering disorder typically associated with underlying neoplasms, particularly lymphoproliferative disorders, and is often seen in patients with Castleman disease (CD). While PNP is more commonly observed in adults, it is exceptionally rare in children. In addition to its characteristic skin manifestations, PNP can involve internal organs, presenting significant therapeutic challenges. Treatment typically involves tumor-directed therapies, along with corticosteroids, rituximab, intravenous immunoglobulin (IVIG), or other immunosuppressive agents. Tocilizumab (TCZ), an anti-interleukin-6 receptor (IL-6R) monoclonal antibody, has emerged as a novel therapeutic option for PNP. IL-6 plays a pivotal role in the pathogenesis of CD, making tocilizumab a promising treatment for this patient population.

Case report: An 8-year-old girl presented in June 2018 with manifestations of pemphigus vulgaris, affecting the mucous membranes and nail folds. Despite initial treatment with IVIG, corticosteroids, and dapsone, the patient's symptoms persisted. MRI imaging revealed extraperitoneal Castleman disease, prompting her referral to the Department of Pediatrics, Oncology, and Hematology. In June 2019, the tumor was partially resected. Concurrently, the patient developed pneumomediastinum and two episodes of bronchial obstruction, with segmental bronchiostenosis observed on high-resolution computed tomography (HRCT). The treatment regimen was adjusted to include rituximab, antileukotriene agents, antihistamines, long-acting beta-2 agonists, and higher doses of corticosteroids. However, after four doses of rituximab, there was no improvement in her pulmonary condition.

Following parental consent, the clinical team decided to initiate tocilizumab therapy, replacing IVIG with rituximab. The treatment regimen consisted of TCZ 12 mg/kg every three weeks, along with IVIG 1 g/kg. After four doses of this combined therapy, there was significant improvement in both the mucocutaneous lesions and dyspnea. The patient continued treatment from September 2019 to January 2024, with MRI control showing regression of the tumor. Due to clinical improvement, the therapy was switched to siltuximab (an anti-IL-6 monoclonal antibody used in CD treatment). However, this led to exacerbation of both mucocutaneous lesions and pulmonary symptoms. Since July 2024, the patient has resumed tocilizumab therapy with continued positive effects.

Conclusions: PNP is a rare condition in children that requires early diagnosis and treatment of the underlying neoplasm. Due to its complexity and potential complications, a multidisciplinary approach is essential. This case demonstrates the efficacy of tocilizumab in improving mucocutaneous lesions, pulmonary symptoms, and tumor regression, highlighting its potential as a promising treatment for pediatric PNP.

JUVENES PRO MEDICINA

Early Recognition of Juvenile Systemic Lupus Erythematosus

Wiktoria Suszek

Presenting author: Wiktoria Suszek

Work supervisor: MD PhD Agnieszka Szmigielska

Affiliations: Student Scientific Association at the Department of Paediatrics and Nephrology, Warsaw Medical University, Poland

Introduction: Systemic lupus erythematosus (SLE) is a complex and multifaceted autoimmune disease characterized by the production of autoantibodies and the involvement of multiple organ systems. The incidence of SLE in Europe ranges from 1.5 to 7.4 per 100,000 person-years, while childhood-onset SLE (cSLE) has an incidence of 0.3 to 0.9 per 100,000 children. Although lupus is often associated with adults, its onset during adolescence presents unique challenges and considerations for diagnosis and treatment.

Case report: An 11-year-old girl, previously healthy, was admitted to the Nephrology Department with skin changes, facial erythema, and arthritis. The physical examination revealed a butterfly rash on her face, palpable submandibular lymph nodes, generalized edema, and arthritis. She had episodes of freezing and was found to have hypertension. The complete blood count revealed hemoglobin-12.8g/dL, platelet count-463 000/mm3, white blood cells-15.3×109/L. Laboratory tests showed hypoalbuminemia (2.2g/dL), acute kidney injury (urea-2mg/dL, creatinine-1mg/dL), hypertriglyceridemia (268mg/dL), hypercholesterolemia (295mg/dL), INR-0.92, APTT-22.59 s, fibrinogen-2.7 g/L, D-dimers-1536.25µg/L, and abnormal urinalysis (proteinuria 860mg/dL, hematuria, and leukocyturia). Immunological tests revealed decreased levels of C3 and C4, with antinuclear antibodies (ANA) at 1:2580. Renal biopsy showed lupus nephritis type III/IV.

The patient also experienced a neurological episode characterized by a lack of logical contact, but there were no abnormalities in head computed tomography. The girl was treated with intravenous methylprednisolone (6 pulses) and intravenous cyclophosphamide (6 pulses). Furthermore, she was managed for hypertension with metoprolol and losartan. Later, the patient received treatment with hydroxychloroquine, azathioprine, mycophenolate mofetil and cyclosporine for the subsequent years. At the age of 18, ultrasound revealed a suspicious lesion in the left breast and biopsy was performed. The lesion was found to be benign.

Conclusions: 1. The onset of juvenile SLE can present as lupus nephritis.

2. Continuous oncological monitoring is essential in patients undergoing immunosuppressive therapy due to the increased risk of malignancies.

3. In the case of acute kidney injury, systemic diseases should be taken into account, even in children.

A young patient facing the unknown - when "rarity" lengthens the therapeutic process of children tumours

Michalina Boruch, Aleksandra Osińska, Marta Druszcz

Presenting author: Michalina Boruch

Work supervisors: lek. Andrzej Materniak , prof. dr hab. n. med i n. o zdr. Magdalena Woźniak

Affiliations: 1. Student Scientific Association at the Department of Pediatric Radiology of the Medical University of Lublin 2. Department of Pediatric Radiology

Introduction : Malignant ectomesenchymoma (MEM) is an uncommon and rapidly progressing malignant tumor affecting the nervous system or soft tissues, composed of both mesenchymal and neuroectodermal components. It is mostly found in the pelvic region, retroperitoneal area, and genitourinary system of pediatric patients. According to the literature, there have been about 70 cases described.

Case report: A 22-month-old child was hospitalized for an ultrasound and lab tests due to a painless nodular mass on the right forearm. The ultrasound showed a well-defined intramuscular lesion measuring 57x20x27mm with a chaotic blood flow pattern, raising suspicion of a neoplastic condition. A biopsy confirmed ectomesenchymoma. The patient was scheduled for chemotherapy based on the CWS - VAIA III protocol and categorized as HRG group; IRS III, N1.

Conclusion : Diagnosis of MEM is challenging due to its rarity and variability, leading to prolonged treatment timelines. In the case analyzed, ultrasound showed malignant features, such as a subfascial position and a lesion over 5 cm, with irregular vascular patterns suggesting necrosis. Surgical intervention is the primary treatment, while chemotherapy and radiotherapy are generally avoided in children due to neurodevelopmental risks. Understanding MEM tumorigenesis may help identify better systemic treatments in the future.

JUVENES PRO MEDICINA

A Rare Presentation of Third-Degree Atrioventricular Block in an 11-Year-Old boy A Comprehensive Case Study

Amirhossein Sheikhi, Abdullah Alzubaydi

Presenting author: Amirhossein Sheikhi

Work supervisor: Marta Gruca

Affiliations: Medical University of Lodz

Introduction: Third-degree atrioventricular (AV) block, also known as complete heart block, is defined by complete dissociation of atrial and ventricular activity. Congenital complete AV block usually develops early in life, but cases without congenital abnormalities in the pediatric population are relatively rare and most frequently associated with infection, autoimmune disease, or inherited predisposition. Regular monitoring after an early diagnosis is significant, in order to lower the risk of complications.

Case report: We report an 11-year-old boy with third-degree AV block discovered at a routine early post-infectious evaluation in an otherwise asymptomatic child. Despite a full workup that included serial electrocardiograms, prolonged Holter monitoring, exercise stress tests, echocardiography, electrophysiological studies, and genetic testing, we found no structural cardiac abnormalities, infectious aetiologies, autoimmune disorders, or relevant genetic mutations. The block was localised proximal to the His bundle with His bundle conduction itself normal. Pharmacological treatment with salbutamol was successful and his heart rate was maintained at an acceptable level and with a good exercise capacity. The patient's regular admission to the Pediatric Cardiology department for the assessment of his condition confirmed stable conduction parameters without developing any symptomatic bradycardia or hemodynamic instability. Therefore, pacemaker implantation is not required immediately, based on the symptoms and age of the patient.

Conclusion: This case signifies the importance of comprehensive diagnostic evaluation and close follow-up in pediatric population presenting with an unclear cause of third-degree atrioventricular (AV) block. For select asymptomatic individuals with stable hemodynamics, careful pharmacological manipulation and close observation may preclude invasive measures, highlighting the importance of a patient-centered, stepwise approach to intervention.

JUVENES PRO MEDICINA

Can Dermatological Changes Reveal a Deeper Cause? Hodgkin's lymphoma- Case report.

Wiktoria Lisińska

Presenting author: Wiktoria Lisińska

Work supervisors: Joanna Trelińska, MD, PhD Prof. Wojciech Młynarski, MD, PhD;

Affiliations: Clinic of Pediatrics, Oncology, and Hematology; Medical University of Lodz

Introduction: Hodgkin lymphoma (HL), previously referred to as malignant granuloma, is a malignant neoplasm of the lymphatic system characterized by the presence of a small proportion (1–2%) of abnormal Hodgkin cells and Reed-Sternberg (HRS) cells, which arise from the B-cell lymphoid lineage. HL represents approximately 5–7% of pediatric cancers. The condition can be classified into two main types: Classical Hodgkin Lymphoma (cHL), which includes the Nodular Sclerosis subtype (NSHL), and Nodular Lymphocyte-Predominant Hodgkin Lymphoma (NLPHL). Individuals with a history of Epstein-Barr virus (EBV) infection are at an elevated risk for developing HL compared to the general population.

Case report: A 12-year-old boy was referred to the clinic for further evaluation of a mediastinal enlargement in X-ray. He had a history of persistent cough following a flu infection. Additionally, skin lesions resembling crusts with itching appeared. The boy was consulted at the dermatology department, where nodular scabies were suspected, and he was treated with topical medications (mGKS, mIK) and cyclosporine.On admission, he reported severe nocturnal itching and occasional fever up to 39°C. Physical examination revealed respiratory distress with accessory muscle use, bilateral wheezing, mediastinal shift on inspiration, and hepatosplenomegaly. The cervical and supraclavicular lymph nodes were enlarged, with the largest right supraclavicular node measuring 3 cm, firm, and immobile. Severe ulcerative skin lesions were present on the lower limbs. Laboratory tests showed leukocytosis (18,000/µL) and elevated LDH (426 U/L). A chest CT confirmed a large mediastinal mass (136mm × 105mm × 117 mm) compressing and shifting the mediastinum leftward. Due to life-threatening tracheal narrowing, an urgent lymph node biopsy was planned, but only local anesthesia was possible. Bone marrow and skin biopsies were performed, but a lymph node sample could not be obtained due to the patient's distress and lack of cooperation. Emergency steroid therapy was initiated, leading to a slight tumor reduction, though airway compression persisted. A second biopsy attempt successfully retrieved a right supraclavicular lymph node. Histopathological examination confirmed Hodgkin's lymphoma, Nodular Sclerosis subtype. Skin lesions were identified as an inflammatory infiltrate with an intraepidermal abscess. PET imaging revealed stage IIIB disease with involvement of supraclavicular, mediastinal, splenic hilum, liver, and inguinal lymph nodes. The patient was started on chemotherapy according to the EURONET PHL C2 protocol, therapeutic group TL-3.

Conclusion:The presence of a mediastinal mass, unusual skin lesions, and systemic symptoms in this patient posed a significant diagnostic challenge, necessitating a multidisciplinary approach for prompt diagnosis and effective treatment.

JUVENES PRO MEDICINA

Diagnostic challenges in a girl with abdominal pain – A Case of OHVIRA Syndrome

Michalina Figiel

Presenting author: Michalina Figiel

Work supervisor: dr n. med. Michał Puliński

Affiliations: Department of Children's Surgery and Urology with Vascular Changes Treatment Centre of the Provincial Specialist Children's Hospital in Olsztyn, Faculty of Medicine, University of Warmia and Mazury

Introduction: OHVIRA syndrome, also known as Herlyn-Werner-Wunderlich triad, is a complex congenital anomaly of the urogenital tract involving uterine duplication, double vagina with hematocolpos, and ipsilateral renal dysplasia or agenesis. The anomaly is thought to result from abnormal embryological development of the Müllerian and Wolffian ducts. Its estimated prevalence is 1 in 1,000,000. Clinical symptoms usually begin after menarche and the most common include irregular menstruation, abdominal pain, and urinary disorders.

Case report: A 14-year-old girl was admitted to the hospital due to abdominal pain and urinary difficulties of unclear etiology. She had previously received antibiotic treatment for a suspected urinary tract infection. Her medical history revealed recurrent, paroxysmal abdominal pain lasting for about 6 months, occurring every 2–3 weeks. The girl had been menstruating for one year. Physical examination showed normal secondary sexual characteristics. During hospitalization, an abdominal ultrasound was performed. The examination revealed a status post right-sided nephrectomy. A collection of dense fluid was visualized in the lesser pelvis, along with leftward displacement of the uterus, without detectable focal lesions. The left ovary was not visible. A simple abdominal cyst, likely originating from the left ovary, was diagnosed and the patient was scheduled for elective laparoscopic cyst resection. Before the planned surgery, a follow-up ultrasound was performed, which revealed features of a bicornuate uterus. The patient was referred for MRI to evaluate the reproductive organs. MRI showed a duplicated uterus and a vagina filled with fluid, communicating with the right uterine horn. Both ovaries, visualized during the examination, showed no focal lesions. Gynecological consultation confirmed uterine and vaginal duplication with right-sided hematocolpos. The patient was qualified for endoscopic drainage of the obstructed hemivagina and evacuation of hematocolpos. The procedure was performed without complications. At follow-up, a reduction in the size of the right vaginal canal was noted, and the patient's paroxysmal abdominal pain and urinary disturbances had resolved.

Conclusions: A broad diagnostic approach should be applied to abdominal pain in adolescent girls, focusing not only on the most common causes such as dysmenorrhea or urinary tract infections, but also considering anatomical abnormalities of the urogenital system. In particular, OHVIRA syndrome should be taken into account in patients with renal agenesis. Such cases pose significant diagnostic challenges due to nonspecific clinical symptoms and difficulties in interpreting ultrasound findings. In such situations, MRI should be considered in diagnosis, as it provides a detailed anatomical assessment and helps guide appropriate treatment planning.

JUVENES PRO MEDICINA

A case of a teenage patient with a rare genetic skin disease

Patryk Cegiełka

Presenting author: Patryk Cegiełka

Work supervisors: Natalia Bień MD; Aleksandra Lesiak MD, PhD; Joanna Narbutt MD, PhD

Affiliations: Student Scientific Research Club of Experimental, Clinical and Procedural Dermatology, Medical University of Lodz

Introduction: CARD14-associated papulosquamous eruption (CAPE) is a rare syndrome that presents with features of various types of psoriasis, as well as pityriasis rubra pilaris (PRP). It is dependent on mutations in the CARD-14 gene.

Case report: A 16-year-old female patient reported to the Dermatology Department due to the presence of erythematous-papular lesions covering almost the entire body, accompanied by exfoliation and the occurrence of psoriatic plaques on the lower limbs. The first erythematous-exfoliative lesions appeared about 9 years earlier on the scalp, completely resolving after local treatment, but they returned as a manifestation on the skin of the abdomen after an infection, eventually covering the entire body. In the past, the patient had been treated for psoriasis - topically, with acitretin and a series of UVB-NB irradiations without satisfactory improvement. The collected family history revealed pityriasis rubra pilaris in the patient's mother. Histopathological examination, after double evaluation, yielded the result - differentiation of PRP from CARD-14 associated papulosquamous eruption. Blood samples were taken from the patient and her mother in order to perform genetic testing for the presence of mutations in the CARD-14 gene.

Conclusion: The case described above shows the complexity of correlation of dermatological diseases. It happens that seemingly separate disease entities make up the image of one genetic syndrome. The patient's history should encourage in-depth diagnostics and taking into account rare diseases in the diagnostic process.

JUVENES PRO MEDICINA

How to Prevent Sudden Cardiac Death (SCD) in a Pediatric Patient with Hypertrophic Cardiomyopathy

Zofia Lewandowska, Julia Ryniecka

Presenting author: Zofia Lewandowska

Work supervisors: dr n. med. Piotr Kędziora, dr n.med. Aleksandra Stasiak

Affiliations: Medical University of Lodz

Introduction: Hypertrophic cardiomyopathy is a disease of the myocardium, which is most often genetically determined - associated with mutations in genes encoding cardiac sarcomere proteins. In the course of the disease, hypertrophy, fibrosis and thickening of the walls of the heart muscle, mainly the left ventricle and the interventricular septum, occur. In infants, it is often detected together with other genetic disorders. Due to the co-occurrence of other risk factors, it can lead to heart failure and sudden cardiac death. As part of prevention, treatment includes the implantation of a cardioverter-defibrillator.

Case report: A 15-year-old boy remaining under cardiological care since 2017 was admitted in August 2024 to the Department of Pediatric Cardiology and Rheumatology for check-up due to progressive symptoms of hypertrophic cardiomyopathy. The resting ECG recording revealed features of left ventricular hypertrophy and numerous repolarization disorders. Echocardiography revealed a thickened interventricular septum along its entire length (z-score >4) and traces of mitral and aortic valve insufficiency. In December 2024, the patient was treated with Claritomicin due to pneumonia. He was permanently taking metoprolol 50 mg twice a day. During the next admission in January 2025, ECG recording showed signs of LV hypertrophy and repolarization disorders in the form of ST-T depression in lead I, aVL, V4-V6 and ST-T segment elevation in aVR and aVF, V1 and V2. In addition, negative T waves were recorded in lead II and from V3-V6. The 24-hour ECG recording did not show any significant arrhythmia. ECHO revealed thickening of the interventricular septum (22.9 mm) with visible protrusion of the upper part of the septum towards the left ventricle with visible turbulence (LVOTO). Additionally, obesity was found - BMI 29 kg/m2 - 98th percentile. Patient had a burdened family history, the boy's grandmother and father had hypertrophic cardiomyopathy (SCD in the family). Based on the HCM Risk-Kids calculator, which determines a chance of SCD in children with HCM, a high estimated risk of SCD within 5 years (7.5%) was found. After summarizing the results of additional test and the HCM Risk – Kids Score, ICD implantation was considered for primary prevention of SCD. It was decided to implant the ICD on 11.02.2025. The S-ICD implantation surgery was completed without complications and patient stays under further cardiological care

. **Conclusions**: Hypertrophic cardiomyopathy diagnosed at a young age can lead to a significant shortening of life and deterioration of its quality. The presented case shows how early prevention and implantation of a cardioverter-defibrillator can improve the prognosis of such a young patient.

JUVENES PRO MEDICINA

Clinical Application of the Ketogenic Diet in Nonketotic Hyperglycinemia: Two Pediatric Case reports

Małgorzata Walczak

Presenting author: Małgorzata Walczak

Work supervisor: dr n. med. Łukasz Przysło

Affiliations: Medical University in Lodz

Introduction: Non-ketotic hyperglycinemia (NKH) is a rare, autosomal recessive metabolic encephalopathy caused by a deficiency in the glycine cleavage system (GCS), leading to the accumulation of glycine in the central nervous system (CNS). The estimated incidence of NKH ranges from 1 in 12,000 to 1 in 63,000 live births. The condition is most commonly associated with mutations in the GLDC and AMT genes. Clinical manifestations typically present in the neonatal period and include epilepsy, profound hypotonia, apneic episodes, and severe developmental delay.

Case reports: Patient A: A 1-month-old boy presented with seizures starting on the 6th day of life. During hospitalization, hypotonia, impaired responsiveness, and epileptic seizures were observed. Amino acid profiling revealed markedly elevated glycine concentrations in both cerebrospinal fluid and serum. Treatment was initiated with ketamine, levetiracetam, sodium benzoate, folic acid, and a ketogenic diet (fat to carbohydrate/protein ratio of 3:1), resulting in an initial reduction in seizure frequency. At 5 months, due to seizure exacerbation (up to 20 episodes per day), the sodium benzoate dose was increased and vigabatrin was added. Seizures subsided, but the sodium benzoate was discontinued in the second year of life due to increased irritability. At age 3, brain MRI revealed diffuse white matter volume loss and significantly delayed myelination, corresponding to a neonatal pattern inconsistent with chronological age.

Patient B: A 7-month-old boy with a diagnosis of NKH was admitted due to increased seizure activity. He was receiving vigabatrin, levetiracetam, phenobarbital, clobazam, and sodium benzoate, along with a ketogenic diet (4:1), which was discontinued due to clinical deterioration. Neurological examination revealed apathy, spastic tetraparesis, and hypotonia. EEG showed slowing of **Introduction** activity with focal abnormalities. The ketogenic diet was reintroduced with a 2:1 ratio, leading to clinical improvement. At 15 months, the patient experienced cluster seizures with oxygen desaturation. Levetiracetam and clobazam doses were adjusted, and topiramate was added. Final therapy included vigabatrin, levetiracetam, topiramate, clobazam, and a ketogenic diet (3:1).

Conclusion: Therapeutic strategies targeting glycine reduction and its neurotoxic effects in NKH remain limited in efficacy and do not prevent the development of severe intellectual disability and spasticity. However, the inclusion of a ketogenic diet as part of standard management may contribute to glycine stabilization in the CNS, reduction in seizure frequency, improved awareness, neuropsychological development, and decreased need for antiepileptic drugs.

JUVENES PRO MEDICINA

Bullous Pemphigoid in an 18-Month-Old: A Rare and Challenging Pediatric Case report

Agnieszka Rodak, Aleksandra Przybylak, Julia Hofmann

Presenting author: Agnieszka Rodak

Work supervisors: prof. Aleksandra Lesiak MD, PhD, Paulina Barasińska MD

Affiliations: 1 - Student Scientific Research Club of Experimental, Clinical and Procedural Dermatology, Medical University of Lodz, Poland, Department of Dermatology, Paediatric Dermatology and Oncology 2 - Department of Dermatology, Pediatric Dermatology and Dermato

Introduction: Bullous Pemphigoid (BP) is the most common autoimmune blistering disorder, typically affecting elderly individuals, although it can also occur in younger patients. Clinically, BP is characterized by the development of fluid-filled blisters accompanied by pruritus and pain. Diagnosis is confirmed through biopsy, followed by direct immunofluorescence (DIF) microscopy, which reveals antibodies along the basement membrane. The biopsy also identifies the presence of a subepidermal split. If BP is suspected, blood tests for BP-180 and BP-230 antibodies are recommended, with indirect immunofluorescence (IIF) microscopy used for detection.

Case report: An 18-month-old male patient was admitted to the hospital after several days of developing skin lesions in the inguinal crease. The lesions consisted of blisters and erosions. The patient had no history of chronic illness and was not on any long-term medication. However, his sister had been diagnosed with spinal muscular atrophy type 1.

Laboratory tests, chest X-ray, and abdominal ultrasound did not reveal any abnormalities. However, DIF testing identified antibodies along the basement membrane, and IIF microscopy detected BP-230 antibodies. A subepidermal split was also observed. The patient was initially treated with 5 mg of prednisone daily (0.5 mg/kg) and 7 mg of dapsone daily. Due to insufficient control, the prednisone dose was increased to an alternating regimen of 5 mg and 7.5 mg every other day, while dapsone was adjusted to 12.5 mg every other day. Once disease control was achieved, the prednisone dose was gradually reduced by 2.5 mg every two weeks.

One and a half months after initiating treatment, IIF microscopy results were negative. The patient is currently being treated with 12.5 mg of dapsone every other day. No new lesions have developed since the discontinuation of prednisone.

Conclusions: This case highlights that BP can occur in patients who are not typically considered high-risk, such as young children without chronic diseases or ongoing medication use. Blistering disorders should be considered in the differential diagnosis whenever a patient presents with atypical blisters. In addition to clinical evaluation, it is essential to perform laboratory tests, medical imaging, and specialized procedures such as DIF and IIF microscopy to establish an accurate diagnosis.

JUVENES PRO MEDICINA

Recurrent Erosive Glossitis in a 2-year-and-7-month-old girl: Immune-Mediated or Still Unknown?

Julia Ryniecka, Zofia Lewandowska

Presenting author: Julia Ryniecka

Work supervisors: Piotr Kędziora MD, PhD; Aleksandra Stasiak MD, PhD

Affiliations: Medical University of Lodz

Introduction: Oral ulcerations in children may present with a broad spectrum of etiologies, ranging from benign self-limiting conditions to serious systemic disorders. In cases of isolated erosive glossitis accompanied by systemic symptoms, it is essential to exclude potentially life-threatening conditions such as multisystem inflammatory syndrome in children (PIMS) or myocarditis. The differential diagnosis should also include autoimmune and parainfectious processes, including blistering diseases such as pemphigus. This case requires extensive multidisciplinary evaluation.

Case report: A 2-year-and-7-month-old girl was first admitted with a three-day history of painful tongue swelling, fever, and bilateral upper airway rales. Chest X-ray revealed perihilar infiltrates. Laboratory tests revealed elevated markers of inflammation and myocardial damage: CRP, WBC, ESR, D-dimers, NT-proBN, troponin I. ECG revealed sinus rhythm (135/min), and echocardiography showed correct contractility of myocardium and physiological cardiac anatomy. Antinuclear antibodies (ANA) were positive (1:320 speckled; 1:160 nuclear dots); anti-DFS70 was isolated (160.71 U/mL). Infections and PIMS were excluded. Biopsy of the tongue showed fibromuscular tissue with bacterial colonies; cultures were negative. A laryngological exam described soft fibrin plaques on the tongue, which bled during removal. After local treatment, antibiotics, and symptom-based therapy, the patient improved and was discharged after 15 days.

A few months later, she was re-admitted with recurrent glossitis, conjunctival hyperemia, and mild inflammatory response. Laboratory tests showed further elevated ANA (1:640), while troponin, procalcitonin, and calprotectin levels remained within normal range. tTG-IgA, pANCA, cANCA, and anti-DSG1/3 were negative. A second biopsy revealed IgM deposits at the dermoepidermal junction. PAS and Grocott staining suggested fungal elements, but cultures remained negative. Despite empirical antibiotics, antivirals, and local therapy, lesions progressed. Systemic corticosteroids (1.5 mg/kg) induced rapid improvement. Hydroxychloroquine was introduced. She was discharged in good condition. Mild anemia, vitamin D3 and zinc deficiency were identified and supplemented.

Conclusion: This case illustrates the diagnostic complexity of recurrent erosive glossitis in a young child, initially presenting with elevated cardiac markers and pulmonary changes, which raised suspicion for systemic inflammatory syndromes such as PIMS. Despite broad infectious, autoimmune, and histopathological work-up, no definitive diagnosis was established. The presence of isolated anti-DFS70 antibodies, mucosal IgM deposits, and favorable response to corticosteroids and hydroxychloroquine suggest a possible immune-mediated etiology. Recurrent mucosal lesions without systemic progression may reflect a rare, early-onset, organ-limited autoimmune process.

JUVENES PRO MEDICINA

Vascular access in pediatric patient with acute respiratory failure – how rare complications may influence patient's condition?

Krzysztof Badura

Presenting author: Krzysztof Badura

Work supervisor:

Affiliations: Department of Pediatric Intensive Care and Anesthesiology, Medical University of Lodz, Poland

Introduction: Central venous catheterization is a widely used, invasive procedure to secure stable venous access for continuous drug administration. Major mechanical complications are rare and account 0.3-0.5% of all central venous catheters (CVC). We present a case of rare CVC-related complication in pediatric patient which highlights the need for regular patient's reassessment composed of clinical and radiological evaluation.

Case report: 13-months-old girl with the history of achondroplasia was admitted to the emergency department of rural hospital due to worsening of bronchitis for one week. Parents reported increased respiratory effort and difficulty with sputum aspiration. On admission tachypnoea, low blood saturation of 70-80%, respiratory acidosis with hypercapnia were observed. Due to acute respiratory failure, the patient underwent endotracheal intubation followed by aspiration of excessive volume of mucous. Chest X-ray revealed inflammatory opacities localized mostly within right lung. The patient has been transported to the intensive care unit (ICU) of tertiary center.

On admission to ICU respiratory syncytial virus infection has been confirmed and CVC was inserted as a standard procedure in critical condition.

After clinical improvement patient was extubated and noninvasive ventilation was implemented. Elective replacement of CVC from right to left internal jugular vein (IJV) has been done under real-time ultrasound guidance. Simultaneous retrograde flow from all ports has been observed and CVC's correct position has been confirmed in chest X-ray. Within next few hours exacerbation of respiratory failure occurred, and patient required intubation again. Within next days multiple viral and bacterial infections were observed whereas patient's condition was stable, without significant improvement

On day 32 critical deterioration of clinical condition with respiratory distress occurred and hydrothorax with right-sided pleural fluid of 11 mm was observed. Due to bilateral increase of pleural fluid volume, right and left-sided thoracocenteses have been performed, which allowed to drain 310 and 120 ml of opaque fluid, respectively. Surprisingly, fluid composition was comparable to infused fluids through CVC, which led to CVC displacement suspicion. Intra-pleural displacement was confirmed by contrast X-ray. Interestingly, to the last, retrograde venous flow from CVC was present indicating its proper function. After removing jugular CVC, within next days patient's condition improved markedly and no further vascular complications were observed.

Conclusion: Complications of ultrasound-guided IJV puncture and CVC placement are rare and include arterial puncture (0.3-1.1%), hematoma (0.2-1.2%) and pneumothorax (0-1.2%). Prevalence of intra-pleural CVC dislocation remains undefined. It should be emphasized that patients with CVC require careful clinical and radiological reassessment including catheter position to identify associated complications.

JUVENES PRO MEDICINA

Anemia as a Clue to the Diagnosis of a Rheumatic Disease

Kacper Pawlak

Presenting author: Kacper Pawlak

Work supervisor: dr hab. n. med. Joanna Lipińska

Affiliations:

Introduction: Mixed connective tissue disease (MCTD) is a rare multisystem disorder characterized by clinical features typical of other rheumatic diseases and the presence of anti-RNP antibodies.

Case report: A 14-year-old female patient was admitted to the hospital due to cough, shortness of breath, and palpitations. She was diagnosed with pneumonia and treated with azithromycin. During the diagnostic process, anemia was noted (HGB: 7.7 g/dL, HCT: 22.8%). Additionally, an elevated ESR with normal CRP, hematuria, leukocyturia, and proteinuria were observed. Suspecting autoimmune hemolytic anemia, the girl was transferred to a referral center, where lymphadenopathy was identified, and a bone marrow biopsy excluded malignancy. Coagulation and lipid profile abnormalities were also observed. Positive IgG antibodies for EBV and Mycoplasma pneumoniae were detected. The patient required a red blood cell transfusion and was treated with Solu-Medrol pulse therapy. History revealed facial rashes after sun exposure, finger and ankle joint pain, and Raynaud's phenomenon. She had previously experienced sartorius muscle inflammation, ankle joint inflammation, and patellar ligament inflammation in the knee joints. Family history was significant for autoimmune diseases (mother – Hashimoto's thyroiditis).

To determine the cause of the aforementioned symptoms, high-titer ANA antibodies (1:1280) and decreased complement components (C3, C4, and CH50) were detected. Systemic lupus erythematosus (SLE) with renal involvement was initially suspected. However, in the ANA-3 panel, in addition to anti-dsDNA antibodies, anti-RNP antibodies were identified. Ultimately, a diagnosis of MCTD with dominant SLE-like symptoms was made. The patient received standard treatment: systemic glucocorticoids, mycophenolate mofetil, hydroxychloroquine, and enalapril.

Conclusions: Progressive anemia may be an alarming symptom indicating the need to rule out a rheumatic disease. Mixed connective tissue disease presents with features of various rheumatic disorders but generally carries a better prognosis than, for example, systemic lupus erythematosus.

JUVENES PRO MEDICINA

A Rare Case of Ischemic Stroke in a 7-Month-Old: Diagnostic and Therapeutic Insights.

Anna Halot, Jakub Jakubiec, Filip Gajewski, Izabela Hołod, Zuzanna Czeczelewska

Presenting author: Anna Halot

Work supervisors: Marek Lew MD, prof. Magdalena Woźniak

Affiliations: SKN Radiologii Dziecięcej - Uniwersytet Medyczny w Lublinie

Introduction: Ischemic stroke in infants, though rare, represents a profound clinical challenge, often presenting with subtle and complex manifestations that require astute clinical judgment for early detection. Prompt recognition, advanced imaging and swift therapeutic intervention are crucial for improving neurological outcomes.

Case report: We present the case of a 7-month-old male infant who was admitted to the Pediatric Pathology and Neonatal Unit following a suspected ischemic stroke. The child's mother reported that he fell onto his right side at home but did not lose consciousness or exhibit vomiting. Upon awakening after a nap, the child displayed weakness on the left side of his body, with partial recovery of his lower limb function, but persistent weakness in his left upper limb.

Upon admission, the infant underwent a thorough neurological and orthopedic assessment. Physical examination revealed left-sided hemiparesis and facial asymmetry. The right side displayed normal active movement, whereas the left side, particularly the left arm, showed marked reduction in mobility, along with decreased muscle tone. There were no clinical signs of infection, and routine blood tests were unremarkable.

Initial CT scan of the brain revealed no traumatic lesions, while MRI with angiography showed restricted diffusion in the right lentiform nucleus and periventricular region, characteristic of ischemic stroke. These findings suggested occlusion of small branches of the posterior circulation, though cerebral edema was not evident. Echocardiography revealed a possible patent foramen ovale (PFO) with left-to-right shunting, prompting further hematological and autoimmune testing to assess potential underlying etiologies, such as thrombophilia or other clotting disorders.

The infant was promptly started on anticoagulation therapy with enoxaparin and closely monitored in the pediatric unit. Over the following days, he demonstrated considerable clinical improvement, including partial recovery of motor function in both the left arm and leg, and a near-complete resolution of facial asymmetry. The child remained hemodynamically stable and free from infection, with no deterioration in his neurological condition.

Conclusions: This case emphasizes the importance of considering ischemic stroke in the differential diagnosis of infants with acute neurological deficits, particularly following trauma. It underscores the value of advanced imaging, such as MRI, in the timely identification of ischemic changes, and the necessity of a comprehensive diagnostic approach, including hematological and autoimmune assessments, to determine potential underlying causes. Early diagnosis and intervention remain crucial in the management of pediatric ischemic stroke, significantly influencing recovery and long-term neurological outcomes.

JUVENES PRO MEDICINA

Congenital Hyperthyroidism – Diagnostic and Therapeutic Challenges

Aleksandra Zacny

Presenting author: Aleksandra Zacny

Work supervisor: Edyta Bielska

Affiliations: Student Scientific Association of Neonatology and Intensive Therapy of a Newborn, Medical University of Warsaw

Introduction: The autoantibodies against the TSH receptor (TRAb) present in patients with Graves' disease (GD) can cross the placenta. A mother's positive TRAb level during pregnancy increases the risk of congenital hyperthyroidism, which may be associated with complications such as heart failure and neurological or metabolic disorders.

Case report: Our patient's mother was treated with antithyroid drugs for GD and had a total thyroidectomy in 2023. During pregnancy, high TRAb level (>40 IU/L) and symptomatic fetal hyperthyroidism (enlarged thyroid, tachycardia, cardiomegaly) were observed. Consequently, the mother received thiamazole for the baby while being treated with levothyroxine.

The female patient form 2nd pregnancy, 2nd birth was born at 32+0/7 weeks of gestation in good condition, weighing 1980 grams. After birth, she required non-invasive respiratory support. Physical examination revealed an enlarged neck circumference, thyroid goiter, exophthalmos, and a heart murmur. She had recurrent tachycardia and periodic fevers.

On the first day of life, the newborn's laboratory tests showed TSH <0.008 μIU/mL, fT4 10.26 pmol/L, and TRAb >40 IU/L. Thiamazole was initiated at a dose of 0.1 mg/kg/day, gradually increasing to 0.44 mg/kg/day. Due to hepatotoxicity, the treatment was switched to propylthiouracil (3.3 mg/kg/day) on the 12th day of life. Propranolol (1.5 mg/kg/day) was also introduced due to tachycardia. At 25 days of life hypothyroidism was induced, so the dose of propylthiouracil was reduced to 1.25 mg/kg/day and levothyroxine was added to the treatment (4μg/kg/day). All of the changes were made on the basis of laboratory test results and consulted with an endocrinologist.

A thyroid ultrasound showed enlarged lobes and increased blood flow. The total volume of the thyroid was 8 ml. A cranial ultrasound showed ventricular system enlargement with hyperechogenic changes, which were confirmed by MRI showing cavitating periventricular leukomalacia. Echocardiography confirmed cardiomegaly. The TORCH panel was negative.

Conclusions: Modern imaging techniques, particularly ultrasonography, play a vital role in detecting risks and supporting congenital hyperthyroidism treatment. A multidisciplinary approach optimizes care, while individualized therapy enhances treatment safety, ensuring the best outcomes during pregnancy and after birth.

JUVENES PRO MEDICINA

Internal Jugular Vein Thrombosis as a Rare Complication of Mycoplasma Pneumoniae Infection in a 6-Year-Old Boy

Filip Gajewski, Agata Dusza, Aleksandra Osińska, Jakub Jakubiec, Anna Halot

Presenting author: Filip Gajewski

Work supervisors: Marek Lew MD, Andrzej Materniak MD, prof. Magdalena Woźniak

Affiliations: SKN Radiologii Dziecięcej Uniwersytetu Medycznego w Lublinie

Introduction: Mycoplasma pneumoniae is a common bacterial pathogen which is responsible for respiratory tract infections in both pediatric and adult populations. While primarily affecting the lungs, this bacterium can also lead to a variety of systemic complications, including renal, cardiac, dermatological and neurological disorders. One of the rarer and more serious complications is Internal jugular vein thrombosis (IJVT), a condition that poses significant risk in pediatric patients. The infection can induce a hypercoagulable state, increasing the risk of thrombosis.

Case report: A 6 year-old male patient was admitted to the Emergency department due to 40°C fever onset the night before, abdominal pain, lower limb pain, general weakness and loss of appetite. Laboratory investigations revealed only slightly elevated CRP and procalcitonin levels, with an enlarged liver observed during abdominal ultrasound. Chest X-ray showed no other abnormalities. On physical examination the boy showed decreased muscle strength along with difficulty walking, positive meningeal symptoms, mydriasis and anisocoria. The general condition was assessed as moderate, drowsiness and confusion were noted as well as poor verbal contact with no recognition of family members. MRI with contrast revealed a thrombus in the jugular vein, which allowed for IJVT diagnosis as a complication of Mycoplasma pneumoniae infection.

The patient was treated with both antibiotics targeting the Mycoplasma pneumoniae infection and anticoagulation therapy to address the IJVT. The thrombosis was likely induced by the inflammatory and hypercoagulable state caused by the infection.The patient's state slowly normalised, with regression of inflammatory lesions in the brain as well as a decrease in the size of the thrombus.

Conclusion: This case emphasizes the importance of considering IJVT in the differential diagnosis of pediatric patients presenting with atypical neurological and infectious symptoms, especially in the context of Mycoplasma pneumoniae infection. The management of IJVT in children requires a tailored approach, balancing antibiotic therapy and anticoagulation, while closely monitoring for potential complications. It also underscores the need for further research into the optimal treatment strategies for this rare yet potentially life-threatening vascular complication, particularly in the pediatric population.

JUVENES PRO MEDICINA

Surfactant Therapy as an Alternative to ECMO in Pediatric ARDS Following COVID-19 Infection

Ksenia Jakubiak, Hanna Drewek

Presenting author: Ksenia Jakubiak

Work supervisor: Renata Szmigielska MD PhD

Affiliations: Medical Univercity of Lodz

Introduction: Acute Respiratory Distress Syndrome (ARDS) is a clinical syndrome of acute hypoxemic respiratory failure caused by lung inflammation, not resulting from cardiogenic pulmonary edema.

ARDS involves significant surfactant destruction, leading to frequent gas exchange abnormalities, arterial hypoxemia, and reduced lung compliance.

Case report: An 11-month-old girl was admitted to the Emergency Department due to fever, widespread rash, and vomiting. The child was transferred from the Emergency Department to the Intensive Care Unit due to sepsis and DIC. Upon admission to the ICU, PCR tests did not confirm any infection. The patient was in a critical condition, conscious, anxious and hemodynamically stable. She was maintained on spontaneous breathing with passive oxygen therapy. Follow-up tests revealed elevated inflammatory markers. A CT scan showed swelling of the posterior cranial fossa, at the borderline of herniation. The girl was intubated and mechanical ventilation with low parameters was initiated. After this procedure clinical improvement was observed. On the 5th day of hospitalization the patient was extubated and PCR testing confirmed SARS-CoV-2 infection. A few days later, she developed signs of respiratory failure requiring re-intubation. A chest CT revealed massive right-sided pleural effusion, mediastinal emphysema, and multiple areas of atelectasis in both lungs. A right-sided pleural drain was inserted. On the 13th day, the patient was in a critically severe condition and was disqualified from medical transport to another facility to begin ECMO therapy. A chest X-ray additionally showed a large left-sided pleural effusion at the apex of the lung and worsening lung aeration. The left pleural cavity was drained. After insertion of a drain in the second intercostal space, progressive subcutaneous emphysema developed. A second drain was placed on the left side with good effect. Clinically, there was no improvement. After reviewing the literature and considering the lack of further progress, it was decided to administer surfactant via the trachea and initiate a 3-day course of ibuprofen. In the following days, there was significant improvement in oxygenation parameters and gradual reduction in ventilation settings. Next chest X-ray showed improved lung aeration and regression of inflammatory changes. The patient was extubated on the 17th day and remained on non-invasive respiratory support with RAM for the next 14 days. From day 41, the patient was on spontaneous breathing. On day 44, in relatively good general condition, the patient was discharged home.

Conclusions: ARDS can be one of the most severe complications following COVID-19 infection. It is increasingly becoming an indication for ECMO therapy when non-invasive oxygen therapy fails. The treatment of ARDS in children can be considered with tracheal surfactant administration as a significantly less invasive alternative to ECMO.

JUVENES PRO MEDICINA

Avoiding Tracheostomy in Ondine's Curse: The Success of Non-Invasive Ventilation

Hanna Drewek, Ksenia Jakubiak

Presenting author: Hanna Drewek

Work supervisor: PhD Renata Szmigielska

Affiliations: Medical University of Lodz

Introduction: Congenital central hypoventilation syndrome(CCHS), or Ondine's Curse, is a severe autonomic nervous system disorder causing hypoventilation with shallow or slow breathing during sleep or both while asleep and awake. CCHS is typically caused by de novo mutations in the PHOX2B gene. The treatment aims to secure the airway and provide chronic artificial ventilation, often via tracheostomy. However, the case shows that non-invasive ventilation can effectively replace invasive procedures.

Case report: A male infant was admitted to the ICU from a hospital in Kraków with suspected Ondine's curse(CCHS). The patient was born at 39 weeks of gestation via spontaneous vaginal delivery. Immediately after birth, he was cyanotic, scored 5/6/6 on the Apgar scale, and showed signs of respiratory insufficiency and severe perinatal asphyxia. Despite initial nCPAP support, intubation and mechanical ventilation were required. Therapeutic hypothermia was initiated, followed by failed extubation attempt due to ineffective spontaneous breathing, requiring reintubation. Corticosteroid therapy was introduced, but a second extubation attempt also failed. Genetic testing confirmed a diagnosis of CCHS. The patient was qualified for a tracheostomy; however, the parents declined the procedure. The infant was transferred to a hospital in Łódź for further treatment and evaluation for non-invasive ventilation. SIMV(PC) + PS ventilation was continued with an FiO_2 of 0.3 and SpO_2 of 95-99%, followed by sedation withdrawal and gradual reduction of ventilation parameters with periods of PS/CPAP support via endotracheal tube. Intensive respiratory and general rehabilitation was initiated. On day 8 an accidental extubation occurred. The patient was transitioned to full-time NIV/PC support, initially requiring high ventilatory settings, which were gradually reduced. On day 21, the patient was switched to home ventilatory support(Trilogy Evo), a device available in the ICU. Spontaneous breathing periods were progressively extended during activity. By day 120, he was successfully transitioned to his target home ventilator. The patient was discharged in stable condition, respiratory-sufficient during activity, under home hospice care.

Conclusions: Patients with Ondine's Curse suffer from hypoventilation and impaired or absent autonomic responses to hypoxemia and hypercapnia. Management requires long-term ventilatory support and continuous respiratory monitoring, both in hospital and home settings. However, chronic mechanical ventilation does not necessarily mandate tracheostomy. Non-invasive ventilation methods can effectively improve respiratory parameters, extend spontaneous breathing periods, and significantly enhance patient quality of life.

JUVENES PRO MEDICINA

Labyrinthitis as a complication of asymptomatic chronic otitis media with cholesteatoma

Aleksandra Śladewska

Presenting author: Aleksandra Śladewska

Work supervisor: Justyna Rutkowska

Affiliations: Medical University of Bialystok

Introduction: Cholesteatoma is a pathological growth in the middle ear, typically composed of keratinizing stratified squamous epithelium. This cystic formation is filled with keratin and surrounded by inflamed connective tissue, and as it expands, it can cause progressive damage to the surrounding bony structures. Cholesteatomas are generally classified into congenital and acquired types, with acquired cases being more common in children. The incidence of cholesteatomas in pediatric populations ranges from 3 to 15 cases per 100,000 children. Chronic middle ear infections, as well as impaired ventilation of the middle ear, are key predisposing factors in their development. Cholesteatomas are often asymptomatic in their early stages, making early diagnosis challenging. However, if left untreated, they can lead to severe complications, including labyrinthitis, which is one of the most dangerous and debilitating outcomes. This case highlights the significance of early detection and the potential for favorable outcomes with appropriate intervention.

Case report: A 14-year-old female patient was transferred to the Department of Pediatric Otolaryngology from the Department of Pediatrics, Rheumatology, Immunology, and Metabolic Bone Diseases due to sudden and severe vertigo, accompanied by nausea, vomiting, and rapidly progressive hearing loss during an episode of right-sided acute otitis media with granulation tissue. A few days earlier, the patient had been diagnosed with acute otitis media in an outpatient setting and had been treated with Augmentin. However, due to the worsening symptoms, she was admitted to the hospital and initially hospitalized for conservative treatment. During an ENT consultation, inflammatory granulation tissue was found in the right ear, significantly obscuring the tympanic membrane. No nystagmus was observed, and pure-tone audiometry revealed conductive hearing loss in the right ear. Intravenous antibiotic therapy with Ceftriaxone was initiated. The following day, the patient's condition worsened dramatically, with intense vertigo, grade III nystagmus to the right, balance disturbances, and rapidly progressing hearing loss in the right ear, leading to profound sensorineural hearing loss. Additionally, a positive Romberg test with right-sided swaying was noted. After the removal of granulation tissue from the epitympanic region behind the tympanic membrane, cholesteatoma masses were visualized. An urgent high-resolution CT scan of the temporal bone revealed soft tissue masses completely filling the tympanic cavity and total opacification of the right mastoid process, suggesting a cholesteatoma. The following day, during a follow-up hearing test, residual hearing was observed in the right ear, and the direction of nystagmus shifted to the left. Intravenous steroid therapy was initiated, and urgent right-sided middle ear surgery with cholesteatoma removal was performed. The surgery and postoperative course proceeded without complications. Intensive antibiotic therapy and symptomatic treatment were administered. In the following days, the patient's general condition gradually improved, and there was an unexpected recovery of hearing, which is rarely observed after complications such as labyrinthitis. A follow-up audiometric test, conducted several weeks later, showed that hearing in the right ear had returned to normal levels, which is a rare and highly favorable outcome.

Conclusion: Cholesteatoma in children can develop insidiously, often not presenting with pain or significant hearing loss for an extended period. In some cases, the first symptom of the disease is serious complications such as labyrinthitis, leading to sudden vertigo, nystagmus, and deafness. Because symptoms may be less specific than in adults, early diagnosis and appropriate treatment - surgical removal and intravenous steroid therapy are crucial. Hearing recovery after labyrinthitis in the course of cholesteatoma is rarely observed.

JUVENES PRO MEDICINA

High-Risk, High-Cost: CNS Aspergillosis as a Complication of T-ALL Treatment in an Adolescent Patient

Olga Kowalczyk, Magdalena Wojdalska (MD, PhD), Joanna Trelińska (MD, PhD)

Presenting author: Olga Kowalczyk

Work supervisors: Magdalena Wojdalska (MD, PhD), Joanna Trelińska (MD, PhD)

Affiliations: Clinic of Pediatrics, Oncology and Hematology, Medical University of Łódź

Introduction: T-cell acute lymphoblastic leukemia (T-ALL) is an aggressive hematologic malignancy characterized by aberrant proliferation of immature thymocytes. T-ALL represents approximately 12% of all newly diagnosed ALL cases in pediatric patients and is noteworthy for its unique clinical and biological features. Complications may occur with the therapy used, notably as a result of immunosuppression.

Case report: Central nervous system (CNS) aspergillosis is relatively uncommon but tends to occur in immunocompromised patients, arising most commonly from hematogenous dissemination of pulmonary aspergillosis or infection spread of the paranasal sinus aspergillosis. The symptoms of CNS aspergillosis are atypical, often resulting in confusion with cerebral abscesses or space-occupying lesions. Treating fungal infections can be long-lasting and very difficult especially during the treatment of leukemia. We present adolescent male patient with the underlying condition of T-ALL and complications in the form of invasive mycosis. The patient was admitted in May 2024 due to symptoms of hemorrhagic diathesis and malaise, during hospitalization diagnosed as T-ALL. The patient was put on treatment according to the protocol, during steroid therapy tumor lysis syndrome occurred. During chemotherapy in November 2024, the patient presented with sepsis and left-sided hemiparesis. Lesions were observed in the central nervous system, skin, lungs and liver, later diagnosed as mycosis, after the biopsy classified as aspergillosis, Antifungal treatment has been implemented, including high-dose amphotericin B and voriconazole. Antifungal treatment has been maintained since November, amphotericin doses variable from 5/mg/kg/dose to 10mg/kg/dose. Due to the spread of lesions, a decision was made to discontinue T-ALL maintance treatment, the patient remained in remission. Treatment of aspergillosis was possible thanks to funding from the Emergency Access to Drug Technologies, cost of treatment from December to January amounts to 500.000PLN. The patient's clinical course highlights critical challenges, including the balancing act between aggressive anti-leukemic therapy and the life-threatening risks associated with immunosuppression-induced opportunistic infections. Treatment of aspergillosis, particularly in the CNS and disseminated form, is difficult, requiring prolonged administration of high-dose antifungal agents. These therapies come with their own risks and significant financial burden.

Conclusion: In Conclusion, this case emphasizes the importance of early recognition and aggressive management of fungal infections in immunocompromised patients. It also reflects the broader challenges in hematology-oncology: achieving a delicate equilibrium between curative-intent cancer therapy and the management of life-threatening complications. Multidisciplinary coordination, timely diagnostics, and financial support mechanisms remain pivotal to the successful management of such complex clinical scenarios.

JUVENES PRO MEDICINA

Multidisciplinary Management of a 16-Year-Old Patient with Polytrauma following a Vehicular Accident

Jakub Jakubiec, Anna Halot, Filip Gajewski, Agata Dusza, Aleksandra Osińska

Presenting author: Jakub Jakubiec

Work supervisors: Marek Lew MD, prof. Magdalena Woźniak

Affiliations: SKN radiologii dziecięcej - Uniwersytet Medyczny w Lublinie

Introduction: Aortic anomalies, though rare, present significant challenges in the management of pediatric polytrauma patients, especially when complicated by multi-organ injuries. This case study presents a 16-year-old female patient who sustained severe polytrauma following a vehicular accident, including fractures, lung contusion, and significant neurological injuries. Among the complications, a suspected aortic anomaly was identified and further investigated through advanced imaging techniques, including angio-CT.

Case report: The patient, initially presenting with a rotational subluxation of the C1/C2 vertebrae and right femoral shaft fracture, underwent urgent intramedullary osteosynthesis. Given the potential risk posed by the aortic anomaly, comprehensive monitoring was initiated to assess vascular integrity, alongside pain management and prophylactic antibiotic therapy. Subsequent imaging assessments revealed an anomaly in the aortic anatomy, necessitating careful management to mitigate the risks of potential rupture or further complications.

With a multidisciplinary approach involving vascular surgery, trauma, and radiology, the patient's condition gradually stabilized. Ongoing evaluations ensured the safe progression of recovery, and careful attention to the aortic anomaly was maintained throughout the hospital stay. The patient was ultimately discharged in stable condition with follow-up imaging scheduled to monitor the aortic condition.

Conclusion: This case highlights the importance of early detection and multidisciplinary management in the care of pediatric patients with vascular anomalies. It underscores the need for advanced imaging techniques, like angio-CT, to identify critical vascular conditions, ensuring optimal outcomes in cases involving multiple traumatic injuries.

JUVENES PRO MEDICINA

A child with hypereosinophilia - a diagnostic challenge.

Liliana Klim

Presenting author: Liliana Klim

Work supervisors: Urszula Jedynak-Wąsowicz, MD, PhD

Affiliations: Jagiellonian University Medical College, Cracow, Poland

Introduction: Increased blood eosinophilia (>500/ul) can be a sign of various disorders, including helminth parasite infections, allergies, intestinal lung diseases, autoimmunity, and even neoplasm. Hypereosinophilia is frequently associated with pulmonary symptoms, which is why pulmonary diagnostics are a vital part of dealing with such cases. Rapid diagnosis is crucial, as untreated hypereosinophilia leads to destruction of body tissues.

Case report: A 13-year old boy was admitted to the Department of Pediatric Pulmonology, due to increasing weakness and stubborn dry cough for a month. Other symptoms included abdominal pain, emesis, diarrhea, weight loss. The boy had been in good health before, lived in a rural area, in his surroundings there was a pigeon, peacock and parrot breeding setup. At the admission he presented signs of asphyxia, tachypnoea, tachycardia and muffled breath sounds. Peripherial lymphadenopathy was not present. Blood tests revealed leukocytosis (21 900/ul) and severe hypereosinophilia (14 235/ul). Antibody serology tests, as well as stool ova and parasite tests were negative. Serum precipitins against pigeon's protein were slightly positive. Imaging diagnostics (chest radiograph, HRCT chest scan) and bronchoscopy showed pulmonary consolidation and signs of diffuse alveolar hemorrhage. As a part of differential diagnostics bone marrow biopsy was performed without any signs of abnormality. Therefore, the patient was diagnosed with hypersensitivity pneumonitis and hypereosinophilic syndrome. He was treated with systemic glucocorticosteroids. Pulmonary changes resolved, but hypereosinophilia (24 726/ul) with leukocytosis persisted. Three months later, due to relapse of symptoms the patient was hospitalized again. Bone marrow trephine biopsy was performed, and led to the diagnosis of myeloproliferative syndrome with eosinophilia and PDGFRB gene rearrangement. The final diagnosis was acute myeloid leukemia.

Conclusion: Although mild blood eosinophilia is a common sign of various benign diseases, if it is severe can be a sign of myeloid malignancies. Such cases require thorough management, especially in children in whom AML is a more important problem than in adults, with a variety of clinical manifestations, which are often atypical and may primarily suggest other diagnosis.

JUVENES PRO MEDICINA

Complicated pneumonia - the case of two-year-old boy

Zuzanna Ignatowska, Barbara Kuśmierczyk, Joanna Zalega

Presenting author: Zuzanna Ignatowska

Work supervisors: Magdalena Żak, Katarzyna Mikołajczyk

Affiliations: Medical University of Lodz

Introduction: Pneumonia is a common cause of hospitalization in pediatric patients. In children up to 3 months of age and those older than 5 years, pneumonia is most frequently of bacterial etiology, whereas in other age groups, viral infections predominate. However, mixed infections are also frequently observed. Severe pneumonia can lead to complications, including lung abscess formation. This study presents a Case reportof a pediatric patient with pneumonia complicated by a lung abscess.

Case report: A 2-year-old patient was admitted to the Department of Pediatrics, Immunology, and Nephrology, due to pneumonia unresponsive to prior antibiotic therapy, presenting with persistent fever, abdominal pain, diarrhea, and respiratory distress. On admission, oxygen saturation was 78%, with leukocytosis, neutrophilia, thrombocytosis and elevated inflammatory markers. Chest X-ray showed left lung opacities and perihilar infiltrates. Despite broad-spectrum antibiotic therapy, clinical deterioration prompted a contrast-enhanced CT, revealing a pulmonary abscess with necrotic changes. PCR confirmed a mixed infection (S. pneumoniae, M. pneumoniae, Rhinovirus, Coronavirus, Parainfluenza virus). Treatment was escalated and low-molecular-weight heparin was initiated for thrombocytosis. Gradual improvement led to discharge after one month with continued oral antibiotics. Follow-up CT after 29 days showed resolution of inflammatory changes, with normalization of laboratory parameters.

Conclusions: Treatment of pneumonia complicated by a lung abscess is primarily based on prolonged broad-spectrum antibiotic therapy. Surgical interventions are indicated for patients with severe clinical deterioration, a high risk of systemic dissemination and refractory infection despite prolonged broad-spectrum antimicrobial therapy. Fortunately, the majority of patients recover without long-term complications.

JUVENES PRO MEDICINA

Oncology Case reports

17th of May 2025

Coordinators:

Maciej Ciesielski

Bartłomiej Lewandowski

Konrad Błachnio

Jury:

prof. dr hab. n.med. Hanna Romańska-Knight

prof. dr hab. n.med. Radzisław Kordek

dr n.med. Dominik Sygut

prof. dr hab. n.med. Beata Sikorska

AN UNUSUAL FIRST SYMPTOM OF BREAST CANCER

Karolina Potemska

Presenting author: Karolina Potemska

Work supervisor: dr n.med. Sylwia Dębska-Szmich

Affiliations: Medical University of Lodz

Introduction: Breast cancer is the most common malignancy in women. In 2022 there were over 21,000 new cases in Poland. Breast cancer is frequently diagnosed by screening mammography and the first symptom is usually a palpable, painless tumor in breast or enlargement of the axillary lymph nodes. Less than 10% of patients have distant metastases at the time of diagnosis. Mostly, metastases are localized in bones (which may cause pain) or in internal organs (lungs or liver). The treatment of metastatic disease depends mainly on the phenotype of the cancer and includes chemotherapy, hormonal therapy, molecularly targeted therapy and immunotherapy.

We present the Case reportof a woman with an unusual first symptom of breast cancer.

Case report: In May 2024, a 59-year old woman noticed the enlargement of the abdominal circumference. Initially, she was treated for gastrointestinal tract illness, with no improvement. In August she was hospitalized in the Gynecological Department. Breast ultrasound was done 3 years earlier, and it was normal, she never had a mammography. Her mother had breast cancer at the age of 65. Ascites was diagnosed and paracentesis was done. Cytology examination showed a few possibly malignant cells. The breast ultrasound revealed two lesions in the right breast (14 mm and 29 mm). CT examination also showed the slight enlargement of the right axillary lymph nodes (up to 10 mm) and metastases in bones (asymptomatic) and peritoneum (presence of fluid and adipose tissue densifications). A biopsy of breast was done and invasive lobular carcinoma G1, ER 8/8, PgR 8/8, HER2 0, Ki-67 up to 10% was diagnosed.

In October the patient was admitted to the Department of Clinical Oncology for systemic treatment of stage IV breast cancer. She reported weight loss (14 kg since May), but denied presence of any other new symptoms. Physical examination showed massive ascites, as well as palpable masses in the right breast: in the lower-outer quadrant (diameter 5 cm) and in the upper-outer quadrant and the tail of Spence (6 cm).

The patient started the treatment with ribociclib and letrozole.

During the scheduled appointment in January 2025 the patient presented with no symptoms and tolerated the treatment well. There was only a mild ascites (last paracentesis was done in the beginning of December 2024). In the right breast there was a single palpable mass of 3 cm in diameter, much softer and more movable than before. CT scan showed no new metastases. The treatment was continued. A follow up visit including bone scan is intended in the beginning of April 2025.

Conclusion: Breast cancer, especially of lobular type, can course in an unusual way imitating cancer originating from the digestive system or reproductive organs. In case of unclear clinical picture suggesting malignancy in a woman, the possibility of breast cancer should always be taken into consideration.

JUVENES PRO MEDICINA

Unusual Phenomenon of the Spontaneous Regression of Lung Metastases from Clear Cell Renal Carcinoma

Amelia Bień, Maksymilian Skwirut, Alicja Smoleńska

Presenting author: Amelia Bień

Work supervisor: Katarzyna Szklener, MD

Affiliations: SKN przy Klinice Onkologii Klinicznej i Chemioterapii

Introduction: Renal clear cell carcinoma (RCC) is the most common primary renal malignancy, accounting for approximately 85% of all cases. The disease is associated with the highest clinical stage at diagnosis and a significant risk of distant metastases. Although spontaneous regression of metastatic lesions has been described in the literature, it remains a rare and insufficiently understood phenomenon, particularly in RCC.

Case report: The present study describes a case of a female patient diagnosed with RCC of the left kidney (G2, pT3). Due to the advanced stage of the disease, a left radical nephrectomy was performed. Postoperative imaging revealed nodular lesions in the right lung, raising suspicion of metastatic spread. Bronchofibroscopy with histopathological analysis confirmed their metastatic nature. Given the extent of disease, systemic treatment was initially considered.

Subsequent imaging studies, including CT and PET/CT, revealed a progressive spontaneous regression of the metastatic lung lesions, accompanied by a marked reduction in residual tissue at the nephrectomy site. Notably, this regression occurred in the absence of systemic therapy or radiotherapy. Follow-up assessments over an extended period have shown no evidence of disease progression, with serial imaging confirming continued lesion regression.

The patient remains under constant oncological surveillance, with a significant improvement of clinical status and no signs of recurrence.

Conclusion: This case underscores the phenomenon of spontaneous regression in metastatic RCC and raises questions about the potential mechanisms involved. Possible explanations include immune system activation, alterations in the tumor microenvironment, or systemic regulatory factors. Further research into the underlying biological processes could contribute to a deeper understanding of RCC pathophysiology and potentially inform future therapeutic strategies.

Mysterious mass in pericardial sac of an adult patient: Unmasking an extrarenal rhabdoid tumor.

Jakub Czerwiński (1)

Presenting author: Jakub Czerwiński

Work supervisors: dr n. med. Aleksandra Hincz (1), mgr Karolina Miarka (2), mgr Zuzanna Urbańska (2), dr n. med. Anna Marcinkiewicz (3), dr n. med. Rafał Czyżykowski (4), dr hab. n. med. prof. UM Agata Pastorczak (2), dr n. med. Marcin Braun (1)

Affiliations: 1-Department of Pathology, Chair of Oncology, Medical University of Lodz, Lodz, Poland; 2-Department of Genetic Predisposition to Cancer, Medical University of Lodz, Lodz, Poland; 3-Department of Cardiac Surgery, Central Clinical Hospital, Medical Univers

Introduction: Malignant rhabdoid tumor (MRT) is an exceedingly rare neoplasm accounting for <1% of all pediatric malignancies that most commonly arises in the kidney but can also develop in other organs, referred to as extrarenal rhabdoid tumors. It predominantly occurs in infants and children, with only sporadic cases reported in older individuals. This report presents one of the few documented cases in the literature of a primary cardiac rhabdoid tumor in an adult patient. The diagnosis was particularly challenging and was achieved through close collaboration between pathologists and geneticists.

Case report: A 32-year-old woman with no history of chronic diseases was admitted to the hospital due to progressive dyspnea and cardiac tamponade. After initial evaluations failed to identify the etiology, a computed tomography scan revealed an 8 × 6 cm contrast-enhancing mass within the pericardial sac. The patient underwent surgical resection of the tumor, and histopathological examination identified a poorly differentiated malignant neoplasm. Despite extensive immunohistochemical studies, including markers such as CD99 (positive), synaptophysin (positive), EMA (positive), vimentin (positive), and S-100 (negative), a definitive diagnosis remained elusive. A pivotal finding emerged when immunohistochemistry demonstrated complete loss of nuclear INI1 protein expression in tumor cells. Given that SMARCB1 - the gene encoding INI1 is a tumor suppressor, whose inactivation is highly characteristic of malignant rhabdoid tumors, genetic testing was pursued. RNA sequencing and high-resolution microarray analysis confirmed a biallelic deletion in chromosome 22q encompassing the SMARCB1 gene, excluding other tumors with rhabdoid features and confirming the diagnosis of extrarenal rhabdoid tumor. Thorough additional imaging studies did not reveal any other probable source of the malignant proliferative process. The patient was further referred to the clinical oncology department for adjuvant systemic treatment.

Conclusion: We describe one of the few documented cases of an extrarenal rhabdoid tumor localized in the pericardium of an adult. Our findings emphasize that diagnosis of cardiac malignant rhabdoid tumor in an adult patient requires integration of histopathological features, immunohistochemical profiling (notably loss of INI1 expression), and molecular-genetic studies. This case highlights the indispensable role of interdisciplinary collaboration and the critical role of molecular-genetic studies in contemporary pathology.

JUVENES PRO MEDICINA

Extranodal Reed-Sternberg-Like Cells in the Oral Cavity: A Diagnostic Challenge

Agata Bartczak-1, Wiktoria Borowiecka-1,

Presenting author: Agata Bartczak

Work supervisors: Marcin Majchrzak-2 MD, Marcin Braun-3 MD, PhD

Affiliations: 1-Student Scientific Society of General and Oncological Pathology “OgOn” Medical University of Lodz; Lodz, Poland 2-Maxillofacial Surgery Clinic, University Hospital No 2., Medical University of Lodz, Lodz, Poland; 3-Department of Pathology, Chair of On

Introduction: Classic Hodgkin lymphoma (cHL) is a rare malignant neoplasm originating from B-cells of the lymphatic system, primarily affecting lymph nodes. Extranodal involvement is highly uncommon, accounting for less than 1% of cHL cases, and is usually observed in the setting of immunodeficiency. Diagnosing extranodal Hodgkin lymphoma is particularly challenging, as it can mimic various inflammatory, infectious, and neoplastic conditions, including Epstein-Barr virus (EBV)-associated lymphoproliferative disorders (LPDs), pyogenic granuloma, or EBV-positive mucocutaneous ulcer (EBV-MCU).

Case report: A 52-year-old immunocompetent man was admitted to the Maxillofacial Surgery Clinic due to a persistent ulcerative lesion on the floor of the oral cavity. No lymphadenopathy was detected on clinical examination. A biopsy of the lesion was performed, and histopathological evaluation revealed a stratified squamous epithelium without dysplasia (CKAE1/AE3+, Ki67 normal), while beneath the ulceration, extensive granulation tissue and suppurative inflammation were present, along with numerous large, atypical Reed-Sternberg (RS)-like cells. Immuno-histochemical analysis confirmed the classic RS-H phenotype: CD15+, CD30+, BSAP-PAX5+, MUM1+, p53+, but negative for CD45 (LCA), CD20, CD3, and ALK (CD246). Importantly, strong positivity for EBV LMP1 was detected, while CMV and HHV8 staining were negative. The presence of RS-like cells in an extranodal site raised the need for differential diagnosis. While the immunophenotype was consistent with cHL, the atypical location necessitated consideration of EBV-positive mucocutaneous ulcer (EBV-MCU), a reactive yet lymphoma-mimicking proliferation. Pyogenic granuloma was also considered due to prominent granulation tissue. WHO guidelines emphasize that primary extranodal cHL is rare and should prompt further evaluation for potential immunodeficiency, especially HIV/AIDS.

Conclusions: This case illustrates the diagnostic complexity of extranodal lymphoproliferative disorders presenting with RS-H-like cells, emphasizing the importance of thorough histopathological and immunophenotypic assessment. In atypical presentations, differentiating between cHL and EBV-associated proliferations is crucial to avoid misdiagnosis and guide appropriate clinical management. Further hematological and infectious disease evaluation was recommended to exclude underlying immunodeficiency and confirm the final diagnosis.

JUVENES PRO MEDICINA

Not every neoplasm in HIV-infected patient is AIDS: A case of Hodgkin's lymphoma in an HIV-positive patient

Aleksandra Zmieniecka, Beata Huszcza

Presenting author: Aleksandra Zmieniecka

Work supervisor: Jakub Wielgat

Affiliations: SKN Chorób Zakaźnych UM w Łodzi

Introduction: On September 9, 2024, the patient (41y.o. male) was admitted to Wl Bieganski Hospital in Lodz to the Infectious Diseases Department. The reasons for admission were increasing weakness for about 3 months, with significant worsening in the last 3 days before hospitalization, deterioration of appetite, loss of about 20 kg of body weight in the last months. The patient reported the presence of a left lower leg ulcer that had been healing for about 5 years, and diarrhea with the need for constant use of loperamide.

Case report: On the day of admission, laboratory tests showed pancytopenia, hypoalbuminemia and elevated CRP. An abdominal CT scan revealed multiple enlarged lymph nodes within various groups and an enlarged spleen. The patient was referred for a bone marrow biopsy, which detected a high percentage of plasmocytes. Surgical removal of a lymph node from the left groin for histopathological examination was ordered.

During hospitalization, pneumonia was diagnosed, and empirical antibiotic therapy was instituted. On October 8, a positive confirmation test for HIV infection was obtained with an HIV viral load of 2,260,000 copies/mL. Therapy was started on a regimen of emtricitabine/tenofovir alafenamide/bictegravir with good virological outcome (after one month of therapy, viral load of 270 copies/mL). On November 12, the histopathological result was obtained - it met the criteria for classical Hodgkin's lymphoma. The patient was transferred to the Department of Hematology for further treatment.

Conclusion: Hodgkin's lymphoma is a neoplasm of the lymphatic system that frequently occurs in HIV-infected patients. The risk of HL in HIV+ patients is 5-25 times higher than in the general population. The Introduction of HAART has significantly improved their prognosis, but has not reduced the incidence of HL in HIV+ patients. Hodgkin's lymphoma, which is a granulomatous lymphoma, is not an AIDS indicator disease, unlike non-Hodgkin's lymphomas, hence its occurrence in a patient does not allow for an AIDS diagnosis.

This case highlights the importance of performing tests to detect HIV infection in sexually active patients and shows the significant increase in the risk of malignant neoplasms in HIV+ patients, including those not indicative of AIDS.

JUVENES PRO MEDICINA

Biphenotypic sinonasal sarcoma- rare, malignant tumor

Wiktoria Borowiecka(1), Agata Bartczak(1)

Presenting author: Wiktoria Borowiecka (1)

Work supervisors: Dr hab. n. med. Jarosław Miłoński(3), lek. Aleksandra Zielińska(2), Dr n. med. Marcin Braun(2)

Affiliations: (1)Student Scientific Society of General and Oncological Pathology “OgOn”, Medical University of Lodz; (2)Department of Pathology, Chair of Oncology, Medical University of Lodz, (3)Department of Otolaryngology, Laryngological Oncology, Audiology and Phoni

Introduction: Biphenotypic sinonasal sarcoma (BPNS) represents a rare and aggressive neoplasm originating within the sinonasal tract. Distinguished by its biphenotypic nature, BPNS demonstrates dual differentiation, encompassing both mesenchymal and epithelial cell lineages. The insidious onset of nonspecific clinical manifestations, including nasal obstruction, epistaxis, and facial pain, often leads to delayed diagnosis. Given the rarity of this entity and its morphologic diversity, accurate identification remains a formidable challenge for clinicians and pathologists alike. Recent advancements in molecular diagnostics, particularly the identification of the PAX3::MAML3 fusion gene, have proven invaluable in confirming the diagnosis and distinguishing BPNS from other sinonasal malignancies.

Case report: A 38-year-old female patient was referred for evaluation following a prolonged history of left-sided nasal obstruction and facial discomfort. She had been previously diagnosed with a mass-like change in the left frontal and ethmoid sinuses. Histopathological examination of the left ethmoid sinus biopsy showed mucosal swelling with a dense chronic inflammatory infiltrate. The left frontal sinus exhibited polypoid fragments containing a spindle-shaped, non-epithelial neoplasm with moderate cytologic atypia and an absence of mitotic activity. Immunohistochemical analysis was negative for Beta-Catenin, CD34, CKAE1/AE3, Desmin, EMA, ER, GFAP, and SSTR2, with focal positivity for SMA and S100, and absence of SOX10 and STAT6. These findings were strongly suggestive of BPNS. To conclusively confirm the diagnosis, RNA sequencing (RNA-seq) was conducted at CSK UMED's Oncolab laboratory PAX3::MAML3 genes fusion was identified, thereby corroborating the diagnosis of BPNS.

Conclusions: Biphenotypic sinonasal sarcoma (BPNS) is a rare tumor requiring precise histopathological evaluation and molecular testing for accurate diagnosis. Detection of the PAX3::MAML3 fusion gene is crucial in differentiating BPNS from other sinonasal malignancies. This case emphasizes the role of genetic testing in resolving challenging diagnoses and highlights the need for further research to refine classification and improve diagnostic accuracy.

JUVENES PRO MEDICINA

Glioblastoma metastasis to the pleura: a Case report

Zuzanna Biegała, Oliwia Kowalczyk, Julia Sołek, Jakub Jankowski, Maciej Radek, Witold Skierkowski, Marcin Braun

Presenting author: Zuzanna Biegała

Work supervisor:

Affiliations: Department of Pathology, Chair of Oncology, Medical University of Lodz, Lodz, Poland; Clinic of Neurosurgery, Spine Surgery and Peripheral Nerve Surgery, Medical University of Lodz, Lodz, Poland

Introduction: Extracranial metastasis of glioblastoma is an extremely rare phenomenon and is related to a poor prognosis. Here we present one of those infrequent occurrences, supported with diagnostic imaging and histopathological analysis. Furthermore, there exists a possibility of glioblastoma into gliosarcoma transformation. Radiation-induced secondary gliosarcoma, which additionally presented our patient, appears after treatment of initial GBM, and only 54 cases in the literature report that phenomenon

Case report: We would like to present the case of a 55-year-old woman who developed pleural metastasis of GBM, manifesting non-specific breathing difficulties during the administration. The symptoms suggested pleural mesothelioma but, based on histopathological and immunohistological findings from pleural specimens and in conjunction with past medical history, a hypothesis of glioblastoma metastasis was confirmed. The patient was also found to have an extensive heterogeneous lesion in the place of the resected GBM, which turned out to be inoperable gliosarcoma G4.

Conclusion: This Case reporthighlights the significance of combining all diagnostic pathways because only comparison of the histopathological examination's result and past medical history, containing right temporal lobe glioblastoma, allowed to make a final diagnosis of glioblastoma metastasis. The transformation of glioblastoma into secondary gliosarcoma is a truly rare event, which additionally emphasises the uniqueness of our case.

JUVENES PRO MEDICINA

Breast Cancer? Not This Time – The Story of a Life-Changing Diagnosis

Paula Jasińska1, Jakub Sztajer1

Presenting author: Jakub Sztajer1

Work supervisors: Katarzyna Kwas2, Bartosz Fryń1, Filip Prycel1

Affiliations: 1Department of Surgical Oncology, Medical Univesity of Lodz, Poland 2Department of Surgical and Oncological Gynecology, Medical University of Lodz, Poland

Introduction: The breast carcinoma is the most common tumour among females worldwide. Its mortality accounts for 15% of all cancer-related deaths. Females usually present palpable lumps and breast-related skin aberrations. Breast cancer is most often detected incidentally therefore, breast self-examination and preventive examinations are crucial in early diagnosis.

Case report: A 74-year-old female patient with hypertension and diabetes presented with palpable and painful tumour located at the left breast was admitted to the clinic. The patient had family history of breast carcinoma – the patient's mother died from breast carcinoma. The results of core-needle biopsy demonstrated metaplastic triple negative breast carcinoma with expression GATA3 (+), p63 (+), CK5/6 (+), Ki-67 around 30%. The patient was qualified for the breast conserving therapy surgery. The surgery was performed, the lesion was excised including healthy tissue margin, the sentinel lymph node and the accompanying node dissection was performed. The excised tumour was sent for further histopathological examination. The histopathological results demonstrated that the totally excised tumour indicated breast infiltration of the squamous cell carcinoma (SCC) with the ulceration of the epidermis rather than metaplastic breast carcinoma. The patient, after a surgery, is feeling well and does not report any complaints or concerning symptoms. Patient does not experience pain, swelling, skin changes, or limitations in arm mobility. Patient did not notice any new lumps or changes in the appearance of texture of the breast. Due to the fact of patient's family history patient had been concerned about the breast cancer. Although patient is satisfied due to the fact of other final diagnosis. Moreover, patient is satisfied with the instituted treatment and the final cosmetic outcome. Patient did not experience anxiety or depression related to the disease. Patient does not use SPF creams and was not exposed to any other risk factors for SCC.

Conclusion: The SCC occasionally might have unexpected clinical presentation which could initially misrepresent for other types of tumours, thereupon differentiating between the SCC and metaplastic breast carcinoma requires careful analysis of the clinical presentation, imaging studies and histopathological outcomes.

JUVENES PRO MEDICINA

Urachal cancer as a diagnostic and therapeutical challenge, Case report and literature review

Wiktoria Oczkowska, Zuzanna Pelc, Tomasz Ciszewski

Presenting author: Wiktoria Oczkowska

Work supervisor: dr n. med. Tomasz Ciszewski

Affiliations: Student Science Club at the Department of Metabolic Diseases and Immuno oncology

Introduction: The urachus is an embryonic remnant of the allantois that connects the umbilicus to the anterior wall of the urinary bladder. Obliteration and involution of the urachus occurs at the end of gestation or the first few days of birth - it gradually closes and in the process of embryonic evolution, it transforms into the median umbilical ligament. Persistent urachus is a relatively rare phenomenon, occurring in 1 to 2.5 per 1.000.000 of cases, and urachal cancer accounts for only 0.2% of all bladder cancers occurring in the adult population. In many patients, the disease is diagnosed in advanced stage as first symptoms develop very late and are unspecific. Urachal cancer is a major diagnostic and therapeutic challenge due to its rarity and lack of specific treatment guidelines.

Case report: In order to raise awareness of urachal cancer, we present the case of a 42-year-old female patient who displayed characteristic symptoms of hematuria. We look at her long and complicated diagnostic journey that ends with the correct and rare diagnosis of urachal cancer. Due to suspicion of ovarian cancer, the patient underwent laparoscopy (2.01.2024) with conversion to laparotomy with total abdominal hysterectomy with bilateral salpingo-oophorectomy and pelvic peritoneum resection, removal of a fragment of the urinary bladder, greater omentum, and peritoneum of the right dome of the diaphragm. Unfortunately, computed tomography scans performed after the procedure (6.03.2024) revealed the spread of the cancer to the lymph nodes in the abdominal and chest cavity. According to literature reports on the effectiveness of anti-EGFR monoclonal antibody therapy, it was decided to perform genetic predictive tests that excluded mutations in the KRAS, NRAS and BRAF genes, and confirmed the absence of microsatellite instability. The patient was qualified for FOLFOX-4 chemotherapy in combination with Panitumumab and started treatment 27.03.2024. Systemic therapy resulted in partial and then complete response confirmed by CT scans performed accordingly 14.06.24 and 6.09.2024. Patient is stable on treatment and complete response sustained and confirmed by imaging assessment 4.03.2025.

Conclusion: In Conclusion, we observe a case of metastatic urachal cancer treated with combination chemotherapy and targeted therapy resulting in long term complete response. Although the role of surgical treatment in the management of urachal cancer is significant, we want to emphasize the crucial impact of properly selected systemic treatment including targeted therapy which, despite the disseminated neoplastic disease, brought our patient into temporary remission. Genomic profiling of urachal cancers may allow for more precise selection of targeted therapies and improve patient prognosis. We also want to highlight that diagnosis is a significant challenge due to the rarity of the disease which makes it more difficult to identify.

JUVENES PRO MEDICINA

Isolated cerebral relapse of acute lymphoblastic leukemia after 9 years and new possibilities with CAR-T therapy

Julia Konopko

Presenting author: Julia Konopko

Work supervisor: Dr. hab. n. med. Katarzyna Pawelec

Affiliations: SKN Sferocyt, Department and Clinic of Oncology, Pediatric Hematology, Clinical Transplantology, and Pediatrics, Medical University of Warsaw

Introduction: Acute lymphoblastic leukemia (ALL) is the most common pediatric neoplasm. ALL is a clonal disease of the progenitor cell from B or T lymphocyte line. Its development occurs due to genomic mutations. Currently, in Poland, more than 90% of children with ALL achieve complete remission. However, with each subsequent relapse, the chances of a complete cure decrease. Such situations often require hematopoietic stem cell transplantation (HSCT), but they also prompt consideration of CAR-T therapy. It contains genetically modified T lymphocytes from the patient, which identify leukemia cells and lead to their elimination.

Case report: A 2-year-old patient was referred to the Oncology Department due to suspected proliferative disease. The medical history revealed frequent respiratory infections and petechiae. Laboratory results showed anemia, hyperleukocytosis ($221x10^3$/µl), and thrombocytopenia. Peripheral blood smear revealed 99% blasts. Physical examination revealed cervical lymphadenopathy and hepatosplenomegaly. ALL was diagnosed, the treatment was started, and remission was achieved by day 33. Prior to discontinuing maintenance treatment, the blood test showed slightly lowered platelets count but other than that was normal. However, based on the peripheral blood smear (71% blasts) and bone marrow biopsy (90% blasts), an early isolated marrow relapse was diagnosed. Treatment was started again, and remission achieved. The patient was qualified for HSCT from a family donor. Two years after the transplant, the patient was subfebrile for two weeks. There were blasts in blood smear and bone marrow biopsy, so a late isolated marrow relapse was diagnosed. Treatment was resumed and the patient was again qualified for HSCT. Currently, 9 years after the second transplant, the patient was hospitalized due to headaches and transient visual disturbances. MRI of the CNS showed infiltration by the proliferative process of falx, meninges, and cerebellum. The blood tests, bone marrow biopsy and physical examination were normal, but the CSF showed cytosis of 190 cells/ µl (38% blasts). Late isolated cerebral relapse of ALL was diagnosed. Thanks to the availability of CAR-T therapy bridging therapy was started. Initially, despite the intrathecal administration of drugs, 57% blasts remained in the CSF After one month, blast count decreased to 3%. Currently the patient has received CAR-T therapy and is in good general condition.

Conclusion: Relapse of leukemia most often occurs within the first 5 years after achieving remission. A relapse after 9 years is extremely rare, but it highlights the importance of considering patient's medical history. In cases of hematological diseases, increased vigilance is required.

Despite the decreasing chances of achieving remission with each relapse, the availability of new drugs, transplantation, and CAR-T therapy obers hope for remission for patients who, just a few years ago, had no further treatment options.

JUVENES PRO MEDICINA

Malignant Carcinoid Transformation in Ovarian Teratoma

Agata Zięba

Presenting author: Agata Zięba

Work supervisor: Piotr Bernaczyk MD, PhD

Affiliations: Uniwersytet Medyczny w Białymstoku

Introduction: Mature teratomas are the most common benign germ cell tumors of the ovary, primarily affecting women of reproductive age. Malignant transformation occurs in only 1–3% of cases, predominantly in postmenopausal patients. The most frequently observed transformation results in squamous cell carcinoma, while adenocarcinoma and carcinoid tumors—neuroendocrine neoplasms with low proliferative potential—are rarer. Ovarian carcinoid tumors are a particularly rare occurrence.

Case report: A 71-year-old female was admitted with left lower abdominal pain, constipation, and abnormal vaginal bleeding. Physical examination revealed a palpable abdominal mass, and ultrasonographic imaging confirmed the presence of an ovarian tumor. The patient underwent a left-sided salpingo-oophorectomy. Macroscopic assessment of the excised ovary (12×12×6 cm) revealed dermoid structures, including hair, sebaceous material, and epidermal components. Solid, beige-colored areas were identified within the tumor wall. Histopathological examination confirmed a mature teratoma with a carcinoid tumor component. Immunohistochemical staining demonstrated strong synaptophysin expression, verifying the neuroendocrine nature of the tumor. The patient remained asymptomatic for carcinoid syndrome.

Conclusion: Ovarian carcinoid tumors account for only 0.1% of all ovarian neoplasms and may arise from neuroendocrine cells of the gastrointestinal or respiratory tract. They predominantly occur in perimenopausal and postmenopausal women. The clinical presentation is often nonspecific, with symptoms including abdominal pain, constipation, and urinary disturbances. Although generally considered low-grade malignancies, the risk of progression correlates with tumor size and duration.

The primary treatment approach remains unilateral oophorectomy. Preoperative diagnosis of mature teratomas is typically straightforward; however, the presence of a carcinoid component is usually confirmed postoperatively via histopathological analysis. Comprehensive tissue sampling, particularly from solid regions of the tumor, is essential for accurate diagnosis. In this case, complete tumor excision was achieved, with no evidence of recurrence.

JUVENES PRO MEDICINA

Triple Synchronous Primary Cancers: hypopharyngeal, breast and colorectal cancer. A Rare Case report

Stella zając, Klaudyna Zając, Antonina Wędrychowska

Presenting author: Klaudyna Zając

Work supervisor: Prof. dr. hab. n. med. Tadeusz Pieńkowski

Affiliations: SKN Diagnostyki i Leczenia Nowotworów Kobiecych

Introduction: The occurrence of multiple synchronous primary cancers is rare. This case describes a 38-year-old woman diagnosed with three independent malignancies: hypopharyngeal cancer, cT4N2bM0, breast cancer cT1N1M0 and an ascending colon cancer cT2N0M0. A germline mutation in the BRCA1 gene was also found. We present this case due to therapeutic problems resulting from the diagnosis of three coexisting malignant tumors.

Case report: In April 2024 a 38-year-old female was admitted to the Radom Oncology Center. During the final stages of pregnancy, she experienced persistent throat pain, hoarseness, enlarged left cervical lymph nodes, and cough with hemoptysis. In February 2024, she gave birth to a healthy infant. The patient was diagnosed with three different cancers

- lower throat cancer with significant local advancement

- low-advanced subclinical breast cancer

- low-advanced asymptomatic colorectal cancer.

The patient underwent clinical evaluation, fiberoptic endoscopy, USG, CT, PET-CT. Biopsies included fine-needle aspiration of cervical lymph nodes, core-needle biopsy of the breast lesion, and endoscopic biopsy of the ascending colon tumor. PET scan revealed pathological findings in the left breast and ascending colon, in addition to the pharyngeal tumor. Histopathology confirmed invasive breast cancer NOS, G3 (ER-, PR-, high Ki67, HER2-), with metastasis in a left axillary lymph node. The ascending colon tumor was diagnosed as G2 adenocarcinoma.

Due to the cancer's advancement, radiochemotherapy was initiated for throat cancer, later modified due to pleural empyema. Bilateral mastectomy with sentinel lymph node biopsy on the left side was performed.

Almost complete remission of lesions in the throat and cervical lymph nodes was achieved. Complete remission of the primary tumor was achieved in the left breast. Metastases were found in two axillary lymph nodes. It is planned to perform hemicolectomy, adjuvant treatment of breast cancer and bilateral ovariectomy.

Conclusion: This rare case of a woman with triple primary malignancies–hypopharyngeal cancer, left breast cancer, and ascending colon cancer–illustrates the complexities of diagnosing and managing synchronous tumors. The case underscores the need for multidisciplinary coordination and personalized treatment in patients with multiple malignancies, with particular consideration for the cancer with the most severe prognosis.

JUVENES PRO MEDICINA

Ovarian Carcinoma in Pregnancy - Diagnostic and Therapeutic Challenge: **Case report** of Oncologic Management with Fetal Preservation

Marta Szymczak

Presenting author: Marta Szymczak

Work supervisor: lek. Maria Suchocka

Affiliations: SKN Medycyny Matczyno-płodowej Warszawskiego Uniwersytetu Medycznego

Introduction: Ovarian malignancy complicates approximately 1 in 15,000 to 32,000 pregnancies and constitutes the second most prevalent gynecologic neoplasm diagnosed during gestation. The therapeutic management in such scenarios lacks established standardization and mandates a multidisciplinary, case-specific approach. Balancing maternal oncologic outcomes with fetal viability presents a complex clinical dilemma, necessitating close collaboration between perinatologists, gynecologic oncologists, and medical oncologists.

Case report: A 42-year-old gravida 3 para 2 Vietnamese patient, at 20 weeks of gestation following assisted reproductive technology (in vitro fertilization), was referred to a tertiary-level perinatal center due to the identification of a right adnexal mass. Sonographic evaluation demonstrated a complex, multiloculated, heteroechoic ovarian cyst with marked peripheral and septal vascularity. Concurrently, two intramural leiomyomas were visualized in the anterior uterine wall. Given the lesion's substantial size, the patient was triaged for emergent surgical intervention.

An exploratory laparotomy was performed, revealing a right ovarian tumor measuring 12×8×7 cm. No gross peritoneal carcinomatosis or serosal metastatic implants were observed intraoperatively. Right salpingo-oophorectomy was undertaken. Final histopathological analysis identified an endometrioid adenocarcinoma of the ovary with microscopic involvement of the tubal mucosa, consistent with a FIGO stage IC2 neoplasm. The immediate postoperative status of both the patient and fetus was stable.

Following interdisciplinary tumor board deliberation, systemic chemotherapy was initiated. The initial regimen comprised paclitaxel and carboplatin (PCL + CBDCA), commenced at 26 weeks' gestation, following surgical recovery. Due to an acute hypersensitivity reaction, the protocol was revised to carboplatin monotherapy. A total of three cycles were administered during pregnancy without evidence of fetal compromise.

At 35 weeks and 6 days of gestation, elective cesarean section was performed, followed by definitive cytoreductive surgery during the same operative session. It included total abdominal hysterectomy, bilateral adnexectomy, infragastric omentectomy, and systematic pelvic and para-aortic lymphadenectomy. A viable male neonate was delivered in satisfactory general condition. The maternal postoperative course was uncomplicated. The patient remains under active oncologic surveillance and is currently receiving maintenance carboplatin-based chemotherapy.

Conclusion: This case exemplifies the feasibility of integrating definitive oncologic management for epithelial ovarian carcinoma during pregnancy, with favorable maternal and neonatal outcomes. It underscores the paramount importance of early diagnostic imaging, histologic confirmation, and individualized, multidisciplinary therapeutic planning in optimizing perinatal and oncologic prognoses.

JUVENES PRO MEDICINA

When the Ovary Becomes a Target – Prophylactic Adnexectomy in a Patient with Autoimmune Encephalitis

Barbara Krupska, Patrycja Wójcikiewicz

Presenting author: Barbara Krupska

Work supervisors: dr n. med. Kułak Krzysztof, prof. dr hab. n. med. Tarkowski Rafał

Affiliations: 1st Chair and Department of Oncological Gynecology and Gynecology, Students' Scientific Association, Medical University of Lublin, Staszica 16 St., 20-081 Lublin, Poland

Introduction: Anti-NMDA encephalitis (AE) is a rare condition caused by abnormal autoimmune response. It primarily affects children and young adults, with a higher incidence in women. The pathogenesis of the disease is not yet fully understood, but it has been determined that factors such as tumours and infections are involved [1]. Ovarian teratoma is the most common tumor associated with anti-NMDA encephalitis, found in more than 50% of patients with AE. It is believed that teratoma containing neuronal tissue could trigger an immune response leading to the overproduction of antibodies against NMDAR. [3] NMDA receptors have a key role in synaptic transmission and neuronal plasticity. Anti-NMDA-receptor encephalitis is associated with the presence of IgG antibodies directed against the NR1–NR2 heteromers, leading to characteristic neuropsychiatrist symptoms. The main symptoms include anxiety, agitation, bizarre behaviour, delusional or paranoid thoughts, visual or auditory hallucinations. Patients may also experience short-term memory loss or seizures alone or associated with psychiatric manifestations. [2] Diagnostic methods rely on cerebrospinal fluid (CSF) testing for the presence of IgG antibodies against NMDAR. [3]

Case report: A 69-year-old female patient was admitted to the Gynecologic Oncology Department for bilateral adnexectomy due to suspected ovarian teratoma. Her medical history included anti-NMDA receptor encephalitis confirmed by the presence of specific antibodies, focal epilepsy, Lyme disease, and a CNS meningioma, which was treated with stereotactic radiotherapy in 2024. According to family reports, the woman periodically experiences delusional episodes. During laparoscopy, adhesions between the omentum and the parietal peritoneum of the abdominal wall were observed, along with nodules on the left ovary (approximately 5 mm) and a uterine fibroid (4 cm). The adhesions were lysed,and the uterine fibroid was surgically removed. Histopathological examinations show fragments of a leiomyoma measuring 6 cm in diameter and lack of pathology in the adnexa. The surgical procedure was performed without complications and the patient was transferred to the Department of Anesthesiology and Intensive Care due to her neurological conditions.

Conclusions: Uncertain neuropsychiatric symptoms should encourage testing for antibodies against NMDAR, particularly in younger individuals, as early detection can significantly impact diagnosis and treatment outcomes. Furthermore patients with anti-NMDA encephalitis (AE) should undergo screening for tumors, particularly ovarian teratomas.[4]

JUVENES PRO MEDICINA

Cervical cancer and pregnancy - the case of a 27-year-old female patient.

Gabriela Zakrzewska, Maria Materek, Patrycja Wójcikiewicz

Presenting author: Gabriela Zakrzewska

Work supervisors: Anna Kułak, Krzysztof Kułak

Affiliations: Student's Scientific Association at the I Chair and Department of Gynaecological Oncology and Gynaecology, Medical University of Lublin

Introduction: Invasive cervical cancer is the neoplasm most frequently disrupting pregnancy, with an incidence of 1.8 to 4/100 000 pregnancies. Malignant lesions develop mainly on the basis of CIN, and cervical dysplasia affects 3-10% of pregnant women. A biopsy is performed if lining invasion is suspected. Pregnancy does not affect the course of cancer at the invasive stage, and caesarean section is only recommended in certain cases. Anticancer treatment depends on the duration of pregnancy and the stage of the disease.

Case report: The patient described is a 27-year-old woman in the 23rd week of her third pregnancy, following two caesarean sections. She suffers from gestational diabetes mellitus and hypertension. During a routine cytological examination at the 11th week of pregnancy, adenocarcinoma cells were found. Histopathological examination revealed low-differentiated cervical carcinoma with features of neuroendocrine differentiation. MRI confirmed a lesion with a diameter of 18 mm, without infiltration of the parametrium or vagina and without enlarged lymph nodes. Lymphadenectomy was abandoned due to the stage of pregnancy. The multispeciality consultation decided to resect the tumour via trachelectomy with McDonald suture placement. Histopathology showed a 17 mm carcinoma with 1.5 cm infiltration depth and neoplastic tissue in the peripheral cut line (R1).

The patient received chemotherapy (cisplatin + paclitaxel). After two cycles, no progression was observed on clinical examination, ultrasound, or MRI. Chromogranin A testing was planned to monitor the neuroendocrine component, and somatostatin receptor scintigraphy was considered in case of progression.

Conclusions: Cervical neuroendocrine tumours during pregnancy are rare but increasingly reported, requiring a multidisciplinary approach. Treatment is individualized due to the lack of standardized protocols. Limited data exist on the influence of pregnancy-related hormones on tumour progression. Improved coordination and data sharing from reference centres could enhance scientific evidence, but randomized clinical trials are needed to establish high-quality treatment recommendations.

JUVENES PRO MEDICINA

RARE CHOROID PLEXUS PAPILLOMA IN 7 YEAR OLD CHILD: A CASE REPORT

Agata Dusza, Filip Gajewski, Anna Halot, Jakub Jakubiec, Wiktor Wierdak

Presenting author: Agata Dusza

Work supervisors: Marek Lew MD, prof. Magdalena Woźniak

Affiliations: SKN Radiologii Dziecięcej Uniwersytetu Medycznego w Lublinie

Introduction: Choroid plexus papilloma is a rare brain tumor of the central nervous system, accounting for 1% of all intracranial neoplasms. They belong to the group of neuroepithelial choroid plexus neoplasms, and are classified at Grade I on the WHO classification of CNS tumours. They are most common in children, with 85% of cases originating in patients under 5-years old.

Like its malignant counterpart –carcinomas, they originate in the ventricles. The most common location in children is the trigone of the lateral ventricle, while in adults–the fourth ventricle. A tumour originating in the third ventricle is extremely rare, and few cases have been described in literature. The most common symptom upon presentation is hydrocephalus in more than 80% of cases.

Case report: A 7 year and 4 month old boy was transferred to the Neurology Department of Children's Hospital in Lublin from a local hospital after suffering a head injury to the left occipital region with no loss of consciousness or vomiting. A CT scan performed there showed no bleeding or focal lesions, but a mass originating in the third ventricle perforating to the left ventricular horn was observed. Hence the decision was made to transfer the patient.

Upon admission the child's condition was good, in coherent verbal contact, aside from head pain in the region of injury he posed no complaints. The neurological examination revealed no pyramidal, cerebellar or meningeal signs.

An MRI was performed. It revealed well-defined, irregular focal lesion measuring 36x20x12 mm. Located in the lumen of the third ventricle, the left foramen of Monro and the left ventricular horn adjacent to it, the lesion showed uniform contrast enhancement, with no signs of subependymal infiltration of oedema. No signs of haemorrhagic, calcified, or cystic changes were found within it. Despite the location corresponding with an especially high incidence of severe hydrocephalus, the ventricular system was only moderately enlarged, mainly in the area of the left lateral ventricle and third ventricle.

Taking into consideration the patient's age and the typical radiological presentation he was given a diagnosis of choroid plexus papilloma of the third ventricle.

A decision was made to not perform a neurosurgical resection, as the patient didn't have any symptoms associated with the tumour along with high risk of bleeding and difficult location.

Conclusions: Incidental findings with today's advanced imagining are common. Despite the usual route of dissection of the tumour that is recommended, all decisions made should take into account the patient's best interest. In some cases like this one, the rare and sometimes dangerous tumour poses no significant impact on a patient. A conservative approach is to be considered, especially if the treatment poses more risks than the tumour itself.

Headache as a Red Flag: Late-Onset Brain Metastases in a Melanoma Survivor

Ewa Brogowska, Jakub Kot, Agata Zarajczyk, Natalia Fidut

Presenting author: Ewa Brogowska

Work supervisors: MD PhD Maryla Kuczyńska - Department of Interventional Radiology and Neuroradiology, Medical University of Lublin, Poland; MD Monika Zbroja-Putowska, MD Katarzyna Drelich - Department of Pediatric Radiology, Medical University of Lublin, Poland

Affiliations: Students' Scientific Society at the Department of Interventional Radiology and Neuroradiology, Medical University of Lublin, Poland

Introduction: Cutaneous melanoma is a malignant neoplasm arising from melanocytes in the skin. It is the fifth most common cancer in men and the sixth in women. The primary etiological factor is excessive exposure to ultraviolet radiation from sunlight or artificial sources. Due to non-specific symptoms that vary by lesion location, diagnosis relies on clinical assessment and pathomorphological confirmation. Early radical excision of suspicious lesions can prevent progression and distant metastasis. The most frequent metastatic sites include lymph nodes, lungs, brain, bones, and live

Case report: A 73-year-old woman presented with gradually worsening headaches that increasingly impaired her daily functioning. Her medical history revealed treatment for cutaneous melanoma five years earlier. Contrast-enhanced magnetic resonance imaging (MRI) of the brain showed multiple, well-circumscribed, high-signal lesions on T1-weighted images and low-signal areas on T2-weighted sequences, with no diffusion restriction or contrast enhancement. The largest lesion, measuring 15 mm, was located in the left frontal region. Surrounding edema was minimal. The imaging findings were consistent with multiple cortical, subcortical, and periventricular metastatic lesions. No significant abnormalities were noted in other brain structures.

Conclusion: Cutaneous melanoma may metastasize to the central nervous system even several years after initial treatment. This case highlights the need for long-term follow-up and heightened clinical vigilance, especially in the presence of new neurological symptoms.

JUVENES PRO MEDICINA

Multimodal Management of Triple-Negative Breast Cancer: A Case Study of a Young Patient with Advanced Disease

Mohamed Mahmoud, Mohamed Mudar alsomm

Presenting author: Mohamed Mahmoud

Work supervisors: Dr. Sylwia Dębska-Szmich

Affiliations: Oncology

Introduction: Triple-negative breast cancer (TNBC) is an aggressive subtype of breast cancer with limited treatment options due to the absence of estrogen, progesterone, and HER2 receptors. This case study presents a 28-year-old female patient diagnosed with advanced TNBC (cT4N2) involving the right breast and axillary lymph nodes, highlighting diagnostic findings and treatment strategies.

Case report: The patient presented with a large hypoechoic tumor in the right breast (75x55x70 mm) and metastatic axillary lymph nodes. Histopathology revealed grade 3 invasive carcinoma of no special type (NST) with a high proliferation index (Ki-67: 80%) and triple-negative receptor status. Imaging confirmed no distant metastases. The patient was treated with preoperative systemic therapy, including carboplatin, paclitaxel, pembrolizumab (immune checkpoint inhibitor), and planned sequential doxorubicin-cyclophosphamide chemotherapy, followed by surgery and radiotherapy. The treatment was conducted under a Ministry of Health drug program, integrating novel immunotherapy into the regimen.

Novel Therapeutic Approaches:

Pembrolizumab has demonstrated efficacy in TNBC as part of neoadjuvant chemotherapy regimens, improving pathological complete response rates and event-free survival. The KEYNOTE-522 trial supports its use in high-risk early TNBC patients. Other emerging therapies include PARP inhibitors for BRCA-mutated cases and antibody-drug conjugates like sacituzumab govitecan.

Conclusion: This case underscores the importance of a multimodal approach in managing advanced TNBC, combining systemic therapies with surgery and radiotherapy. Incorporating immunotherapy into neoadjuvant regimens offers promising outcomes in young patients with aggressive disease.

JUVENES PRO MEDICINA

Adenomatoid Tumor of the Fallopian tube: A potential trigger of unnecessary surgical radicalism.

prof. dr hab. n. med. Marcin Jóźwik; Katarzyna Bednarczuk; Zofia Osierda; prof. dr hab. n. med. Joanna Wojtkiewicz; dr hab. n. med. Janusz Kocik, prof. CMKP; prof. dr hab. n. med. Maciej Jóźwik

Presenting author: Zofia Osierda

Work supervisors: prof. dr hab. n. med. Marcin Jóźwik; prof. dr hab. n. med. Joanna Wojtkiewicz; dr hab. n. med. Janusz Kocik, prof. CMKP; prof. dr hab. n. med. Maciej Jóźwik

Affiliations: Collegium Medicum, University of Warmia and Mazury

Introduction: Adenomatoid tumor (AT) is a rare benign neoplasm of mesothelial origin, which mainly occurs in the male and female genital tracts. The most common site for AT occurrence in women is the uterus, which makes the presentation in the fallopian tube(s) a rarity with an incidence of approximately 0.5%. The reported extragenital sites include serosal surfaces, adrenal glands, and visceral organs, are even less common. Macroscopically, ATs present as white-grayish or yellowish irregular yet circumscribed firm nodules, often containing cystic components. Owing to a vast array of histomorphological growth patterns, ATs tend to mimic malignancy and trigger overresection. Such clinical situations have been described by several studies for the ovaries, uterus, and fallopian tubes, underlining the importance of differential diagnosis in order to avoid superfluous treatment.

Case report: The patient was a 67-year-old Caucasian woman with familial ovarian cancer aggregation syndrome who presented to the gynecologic outpatient department shortly after she tested positive for a BRCA1 mutation. She opted for prophylactic and minimally invasive surgery. Therefore, a laparoscopic approach was chosen. The patient was normosthenic, in good general health and her preoperative laboratory workup, bimanual pelvic exam, and transvaginal ultrasound exam were all unremarkable.

At surgery a somewhat atrophied uterus relevant to the patient's age was confirmed, and the ovaries and Fallopian tubes seemed unsuspicious. Following the uncomplicated removal of both adnexa, the specimens were preserved in a fixative (10% neutral buffered formalin) and subjected to anatomopathological examination.

At gross dissection, a 0.5 cm cream-colored, not so well-circumscribed solid tumor was found in the distal part of the right fallopian tube. Microscopically, under hematoxylin and eosin (H&E) staining, it was found to be composed mostly of pseudoglandular formations.

Further, tissue sections were stained for a wide array of specific antibodies to identify the immunohistochemical profile of the lesion. Immunohistochemistry is a crucial tool in distinguishing between similar-appearing lesions by identifying specific protein markers expressed in the tissue. For this study, the selection of calretinin, WT-1, cytokeratin 7, PAX8, and CD34 was based on their established roles in differential diagnosis of adenomatoid tumors and other potential mimics.

Conclusion: Immunohistochemical staining revealed a positive expression for calretinin, WT1, and cytokeratin 7, and negative expression for both PAX8 and CD34, thus confirming the diagnosis of AT and excluding tubal malignancies – primarily malignant mesothelioma and oviductal adenocarcinoma. This report brings attention to the solitary and asymptomatic nature of the tumor. With a clear diagnosis, no surgical radicality is necessary.

JUVENES PRO MEDICINA

Diagnostic Challenges in Peritoneal Carcinomatosis: A Case of Suspected Ovarian Cancer with an Uncertain Primary Origin

Mohamed Mudar Alsomm , Mohamed Mahmoud

Presenting author: Mohamed Mudar Alsomm

Work supervisor: Sylwia Dębska-Szmich

Affiliations: oncology department ckd

Introduction: Peritoneal carcinomatosis is a common presentation of advanced-stage ovarian cancer, but in some cases, identifying the primary tumor can be challenging. This case highlights a diagnostic dilemma where a young female initially suspected of having ovarian cancer was later found to have adenocarcinoma of uncertain origin.

Case report: A 33-year-old woman presented with progressive abdominal pain, nausea, and unintentional weight loss of 20 kg over four months. Imaging studies revealed a left ovarian mass, widespread peritoneal involvement, and ascites. An initial cytological analysis of peritoneal fluid showed no malignant cells. Laparoscopic examination confirmed extensive peritoneal disease, and biopsies from the omentum identified adenocarcinoma (FIGO IIIB, 12 points on the Fagotti score).

Immunohistochemical staining (CK7+, CK20-, CDX2-/+, PAX8-, WT1-, p53-, Ki-67 ~30%) suggested a non-ovarian primary, more consistent with an upper gastrointestinal or pancreatobiliary malignancy. Despite an extensive workup, the exact origin remained unclear. The patient was started on palliative chemotherapy with the mFOLFOX6 regimen.

Conclusion: This case highlights the complexity of diagnosing peritoneal carcinomatosis when the primary tumor is uncertain. While ovarian cancer was initially suspected, histopathology and immunohistochemistry pointed toward a gastrointestinal origin. The case emphasizes the importance of early biopsy, detailed molecular profiling, and a multidisciplinary approach in determining the most appropriate treatment strategy. Identifying the primary tumor is crucial for selecting targeted therapies and improving patient outcomes.

JUVENES PRO MEDICINA

Abdominal Pain and Weight Loss in Celiac Disease — Flare-Up or Malignancy?

Hubert Jedynasty

Presenting author: Hubert Jedynasty

Work supervisor: Dr. Natalia Hawryluk, MD

Affiliations: Geriatric Student Scientific Association

Introduction: The coexistence of autoimmune diseases increases the risk not only of developing additional autoimmune conditions but also certain types of cancer. Celiac disease, as a chronic autoimmune disorder related to gluten intolerance, may be associated with an increased risk of gastrointestinal malignancies, particularly in cases of long-standing disease and poor adherence to a gluten-free diet. Another risk factor is the presence of additional autoimmune conditions, such as Hashimoto's thyroiditis. The presented case illustrates the diagnostic challenges resulting from the overlapping symptoms of autoimmune diseases and cancer.

Case report: A 65-year-old female patient with a history of long-standing celiac disease (diagnosed 8 years prior), Hashimoto's thyroiditis, and a past cholecystectomy due to gallstone disease was admitted to the hospital due to progressively worsening epigastric pain, loss of appetite, and weight loss of approximately 6 kg over the past three weeks. No signs of gastrointestinal bleeding were observed.

Physical examination revealed tenderness in the epigastric and mid-abdominal regions. Laboratory tests showed microcytic anemia, elevated pancreatic enzymes (amylase, lipase), and increased tumor markers (CEA, CA 19-9). Abdominal ultrasound revealed a heterogeneous appearance of the pancreas and enlarged lymph nodes. Abdominal computed tomography (CT) demonstrated features of acute edematous pancreatitis with peritoneal fluid accumulation and enlarged lymph nodes in the mesenteric and preaortic regions.

Upper gastrointestinal endoscopy revealed a two-site cauliflower-like gastric tumor, with contact bleeding, located in the body and at the border of the body and antrum of the stomach. Helicobacter pylori infection was also confirmed.

Treatment of acute pancreatitis included intensive fluid therapy, analgesics, and iron supplementation. Due to the diagnosis of a malignant tumor, the patient was referred for further oncological treatment. She was discharged with recommendations for continued therapy and additional diagnostic evaluation. Ultimately, histopathological examination confirmed gastric adenocarcinoma.

Conclusions: This case highlights the importance of oncological vigilance in patients with autoimmune diseases, particularly celiac disease. Clinical symptoms such as abdominal pain, weight loss, and anemia may suggest an exacerbation of celiac disease; however, in this case, the underlying causes were concomitant acute pancreatitis and gastric cancer. The presence of autoimmune diseases may mask cancer symptoms or delay its diagnosis, which requires special diagnostic attention. Multimorbidity and the coexistence of inflammatory, autoimmune, and neoplastic processes present a clinical challenge that demands an interdisciplinary approach and comprehensive diagnostics.

JUVENES PRO MEDICINA

PRESsing problem in the Context of Hypertensive Emergency – A Multidisciplinary Case Approach

Marta Gałęzowska

Presenting author: Marta Gałęzowska

Work supervisors: Prof. Ilona Kurnatowska, MD, PhD; Monika Kolejwa-Fajkowska MD, MRCP (UK)

Affiliations: Medical University of Lodz, SKN Transplant Nephrology Medical University of Lodz, SKN Transplant Nephrology

Introduction: A rare disorder, Posterior Reversible Encephalopathy Syndrome (PRES) presents with acute neurological symptoms such as seizures, headache, visual disturbances and altered mental status. It occurs together with hypertensive crisis, renal failure, cytotoxic therapy and systemic inflammation. Early recognition and management are crucial to prevent irreversible damage.

Case report: A woman in her 60s presented with acute onset headache, confusion and visual disturbances. Her medical history included pancreatic cancer, treated with a Whipple's procedure and subsequent palliative chemotherapy (gemcitabine), along with type 3c diabetes and hypothyroidism. Moreover, she just recovered from COVID-19 infection. Initial assessment at the emergency department demonstrated a hypertensive crisis (BP: 215/107 mmHg), hypoxia and bradycardia.

Investigations revealed acute kidney injury (sCr 2,6 mg/dl, urea 140 mg/dl, K+ 6,1mmol/l, Na 135 mmol/l), metabolic acidosis (pH 7.26, HCO_3^- 14 mmol/L, pCO_2 30 mmHg), and elevated NT-proBNP (2492 pg/ml) indicative of heart failure. Chest X-ray findings were consistent with pulmonary edema. Brain MRI showed characteristic changes of PRES – vasogenic edema in the parieto-occipital regions without evidence of stroke, hemorrhage or metastases. Infectious and autoimmune encephalitis were considered unlikely given the absence of fever and low CRP (<4mg/L).

An opinion was sought from various departments, including nephrology, neurology, cardiology and radiology, leading to the diagnosis of PRES. Gemcitabine was identified as a likely precipitant, triggering a hypertensive crisis. Initiation of aggressive blood pressure management with a combination of antihypertensive drugs including amlodipine, bisoprolol, doxazosin and furosemide prevented further renal function decline. Later on, supportive care, including intravenous hydration and correction of electrolytes was provided. Close monitoring of renal parameters and neurological status was crucial for the successful treatment and patient's recovery.

Conclusion: It is vital to consider a rare diagnosis, such as PRES in patients with hypertensive crisis and neurological symptoms, particularly in the context of potential trigger. Early recognition based on multidisciplinary knowledge with targeted intervention led to symptom resolution, emphasizing the importance of prompt diagnosis and management. Accurate interpretation of this rare but reversible condition is essential for optimal patient's outcome.

JUVENES PRO MEDICINA

Late onset of autoimmune enteropathy caused by nivolumab in a patient with metastatic melanoma

Jan Semeradt

Presenting author: Jan Semeradt

Work supervisor:

Affiliations: Clinic of Clinical Oncology

Introduction: Nivolumab is an antibody that blocks the programmed death-1 (PD1) receptors and is widely used in the treatment of metastatic melanoma. While not as toxic as standard chemotherapy, it has several associated immunotherapy-related adverse events. Although there are many cases of lower gastrointestinal inflammation, duodenitis is rarely reported. This Case reportwill present late-onset nivolumab-induced duodenitis and enteropathy in a patient with metastatic melanoma.

Case report: A 52-year-old woman with metastatic melanoma, treated for 5 years with nivolumab with no prior severe adverse effects related to the treatment, was hospitalized with a 2-month history of diarrhea, eructation, and upper abdominal pain. During the diagnosis, the CT scan showed moderately thickened stomach walls, primarily in the antrum, along with massive inflammation of the duodenum infiltrating the head of the pancreas and the walls of the cecum and small intestine. Additionally, the duodenum was in danger of a perforation. After gastroduodenoscopy and colonoscopy with biopsies, the diagnosis of autoimmune enteropathy was established.

Conclusion: Immunotherapy has many adverse effects, with diarrhea being one of the most common. However, while many clinicians often ignore it, it is important to stay vigilant as adverse effects induced by immunotherapy can vary in time of onset and severity. In that case, an imminent immunosuppression treatment is needed.

JUVENES PRO MEDICINA

Prenatal cardiology case

16th of May 2025

Coordinators:

Julia Kwiatkowska

Anita Pawlaczyk

Maryline A. Chedid

Martyna Kopania

Jury:

prof. dr hab. n. med. Maciej Słodki

dr n. med. Łukasz Sokołowski

dr n. med. Oskar Sylwestrzak

JUVENES PRO MEDICINA

Spinnaker-Type Foramen Ovale and Prenatal-Onset Arrhythmia: Neonatal HRV and ECG Analysis – A Case Study

1) Angelika Doroszewska, 2) Karolina Romanek, 2) Martyna Kutkowska (1-PhD Candidate Doctoral School at Medical University of Lublin, Poland 2-Student Scientific Club of Midwifery Enthusiasts Faculty of Health Sciences, Medical University of Lublin, Poland

Presenting author: Angelika Doroszewska

Work supervisors: 1) Monika Wójtowicz-Marzec MD, PhD; 2) Anna B. Pilewska-Kozak RM, RN, MSc, PhD, associate professor (1-Department of Pediatrics and Pediatric Nursing and Chair of Integrated Nursing Care Faculty of Health Sciences Medical University of Lublin, Poland; 2-C

Affiliations: Doctoral School at Medical University of Lublin, Poland

Introduction: Fetal and neonatal cardiology plays a crucial role in the early detection and management of congenital heart defects and arrhythmias. This case study presents a newborn with a spinnaker-type foramen ovale valve and supraventricular arrhythmia, diagnosed prenatally at 35 weeks of gestation, highlighting the significance of fetal and neonatal heart rate monitoring. Methods Fetal echocardiography at 35 weeks of gestation revealed blocked atrial ectopic beats and a spinnaker-type foramen ovale valve.

Case Report: After birth, a full-term female neonate (39 weeks GA) underwent electrocardiographic (ECG), Holter monitoring, and echocardiographic assessments due to persistent rhythm irregularities. Neonatal Period: Postnatal ECG and Holter monitoring confirmed sinus arrhythmia with occasional supraventricular ectopic beats, including blocked atrial beats. No significant repolarization abnormalities were detected. Echocardiography revealed a large atrial septal defect (ASD) with a spinnaker-type foramen ovale valve, which was associated with arrhythmic events. Heart rate variability (HRV) analysis showed time-domain parameters within normal limits (SDNN 40 ms, RMSSD 64 ms, pNN50 13%) and frequency-domain indices (VLF 3991 ms^2, LF 2855 ms^2, HF 2640 ms^2) indicating balanced autonomic regulation (LF/HF ratio 1.08). Poincaré plot analysis demonstrated normal short- and long-term heart rate dynamics (SD1 45 ms, SD2 34 ms). Shannon entropy (0.22) was slightly reduced, consistent with limited heart rate complexity typical for neonates. Follow-up at 2 Months: At the 2-month follow-up, Holter ECG no longer revealed arrhythmias. Spontaneous closure of the foramen ovale coincided with the resolution of rhythm disturbances. The infant's neurological and cardiovascular development was normal.

Conclusions: This case highlights the role of fetal and neonatal ECG and HRV monitoring in detecting and tracking arrhythmias associated with congenital heart anomalies. With the closure of the foramen ovale, the arrhythmia resolved completely, and the infant exhibited normal development. Early detection of fetal rhythm disturbancescan improve perinatal cardiac surveillance and guide postnatal management.

JUVENES PRO MEDICINA

Severe Cardiac and Multisystem Anomalies in a Newborn with CHARGE Syndrome – A Case report

1.) Karolina Romanek, 1.) Martyna Kutkowska, 2.) Angelika Doroszewska (Affiliation: 1.) Student Scientific Club of Midwifery Enthusiasts Faculty of Health Sciences, Medical University of Lublin, Poland 2.) PhD Candidate Doctoral School at Medical Unive

Presenting author: Karolina Romanek

Work supervisors: 1.) Monika Wójtowicz-Marzec MD, PhD 2.) Anna B. Pilewska-Kozak RM, RN, MSc, PhD, associate professor (Affiliation: 1.) Department of Pediatrics and Pediatric Nursing and Chair of Integrated Nursing Care Faculty of Health Sciences Medical Universit

Affiliations: Student Scientific Club of Midwifery Enthusiasts Faculty of Health Sciences, Medical University of Lublin, Poland

Introduction: CHARGE syndrome is a rare genetic disorder associated with multiple congenital anomalies, including complex cardiac defects, craniofacial malformations and neurological abnormalities. Neonates with atrioventricular septal defect (AVSD) and hypoplastic aortic arch face significant hemodynamic challenges, often requiring early surgical intervention. However, factors such as hemodynamic instability and severe multiorgan involvement can complicate surgical eligibility and prognosis.

Case report: A female newborn was delivered via cesarean section at 39 weeks of gestation due to polyhydramnios. Birth weight was 3680 g, with Apgar scores of 7, 8, 9, 9. Prenatal ultrasound had revealed unbalanced AVSD, hypoplastic aortic arch, cerebellar vermis agenesis, unilateral renal agenesis, and cleft lip and palate.

Shortly after birth, the newborn developed severe respiratory distress, requiring intubation and mechanical ventilation. Echocardiography confirmed a hypoplastic left ventricle (LVEDD Z-score: -4.25), bidirectional atrial and ductal shunting, and significant atrioventricular valve regurgitation, leading to persistent hemodynamic instability. Continuous prostaglandin E1 (Prostin) infusion (0.01 mcg/kg/min) was initiated to maintain ductal patency.

Electrocardiogram (ECG) showed prolonged QTc (458 ms), widened QRS (85 ms), left axis deviation (-159°), and supraventricular tachycardia (SVT) episodes (256 bpm), requiring adenosine administration for rhythm conversion.

Heart rate variability (HRV) analysis revealed extremely low SDNN (18.18 ms) and RMSSD (18.94 ms), severely reduced HF power, and an abnormal LF/HF ratio (4.28), indicating high autonomic dysfunction and an increased risk of cardiovascular collapse. Literature suggests that SDNN < 20 ms and low HF power correlate with a 5-10 times higher risk of neonatal mortality in congenital heart disease.

Due to refractory hypotension and persistent lactic acidosis, the patient was disqualified from surgical intervention. On day 7 of life, the newborn died from progressive cardiopulmonary failure despite maximal supportive care.

Conclusion: Neonates with CHARGE syndrome and severe cardiac anomalies face high perioperative mortality, particularly when hemodynamic instability precludes surgical repair. HRV parameters, particularly SDNN and HF power, may serve as prognostic markers for early risk stratification, guiding intensive care strategies and surgical decision-making in critically ill neonates.

JUVENES PRO MEDICINA

"Two Tracks, One Station – A Heart at a Crossroad. A Clinical Case of Complete Transposition of the Great Arteries: Is Reaching the Destination Possible?"

Wiktoria Lisińska

Presenting author: Wiktoria Lisińska

Work supervisors: Prof. Iwona Strzelecka PhD, Prof. Maria Respondek-Liberska MD, PhD

Affiliations: [2]Department of Prenatal Cardiology, ICZMP, Student Scientific Club of Prenatal Cardiology, Medical University of Łódź.

Introduction: Complete transposition of the great arteries (dextro-transposition, d-TGA) is a congenital heart disease, characterized by atrioventricular concordance (regular atrial and ventricular connections) and ventriculo-arterial discordance (the aorta arises from the right ventricle, while the pulmonary artery originates from the left ventricle). This anatomical abnormality disrupts normal blood flow, leading to life-threatening hypoxemia if untreated.

Case report: A pregnant 29-year-old patient was referred at 22 + 6 days of gestation to a Prenatal Cardiology Clinic following a second-trimester ultrasound that raised suspicion of a congenital heart defect. Her obstetric history included an early pregnancy complication at 6+2 weeks when she was admitted for vaginal bleeding and diagnosed with a 3 cm subchorionic hematoma. A fetal echocardiogram confirmed the diagnosis of complete d-TGA with ventricular septal defect (VSD) and outflow congenital heart disease (CHD), along with good atrial communication (FO index = 33%) and preserved pulmonary circulation. Prenatal monitoring evaluations at 25, 28, 30, and 34 weeks of gestation confirmed stable fetal hemodynamics and expected growth. It was concluded that there was no immediate need for a Rashkind procedure (a balloon septostomy) postnatally, as the fetal heart had good atrial communication (FO index=27%). Delivery was performed via cesarean section, and the neonate was born with a birth weight of 3700 g with Apgar scores were 5/7/ 7. At two weeks of age, the neonate underwent planned corrective cardiac surgery, which involved connecting the proximal aorta to the pulmonary artery outlet, simultaneously reimplanting the coronary arteries into the "neo-aorta," and connecting the proximal pulmonary artery to the aortic outlet. Postoperatively, the infant required intensive care with mechanical ventilation and catecholamine infusion, wound infection was managed with teicoplanin and ceftazidime. Follow-up echocardiography confirmed good myocardial contractility and no pericardial effusion.

Conclusion: The connections between the systemic and pulmonary circulations of blood in atrial septal defect, patent ductus arteriosus, or ventricular septal defect allow the neonate with TGA to survive until the arterial switch surgery. Early prenatal diagnosis of congenital heart defects, such as complete d-TGA, is crucial for optimizing outcomes.

JUVENES PRO MEDICINA

Hypoplastic Left Heart Syndrome: The Impact of Early Prenatal Diagnosis on Postnatal Management – A Case Study

Marta Podlasińska

Presenting author: Marta Podlasińska

Work supervisors: dr hab. prof. uczelni Iwona Strzelecka, prof. dr hab. n. med. Maria Respondek Liberska,

Affiliations: Ogólnopolskie Studenckie Forum Naukowe Kardiologii Prenatalnej, Akademia Mazowiecka w Płocku

Introduction: Hypoplastic Left Heart Syndrome (HLHS) is one of the most severe and commonly diagnosed congenital heart defects (CHD), which accounts for 4–8% of CHD's in prenatally diagnosed fetuses. Advances in prenatal diagnostics have improved patient outcomes by enabling early detection of this defect, which allows to plan postnatal care.

Case report: A fetus diagnosed with HLHS at 21 weeks of gestation. The patient had been referred to a tertiary care center for an echocardiographic assessment following the detection of an abnormal cardiac image at 20 hbd. In addition to the classic features of the defect, such as left ventricular hypoplasia, mitral valve insufficiency, stenotic aortic valve and aortic arch hypoplasia, also functional abnormalities were detected : a ductus arteriosus constriction, a restrictive foramen ovale (FO) and a reversed pulmonary venous blood flow. The recorded FO Vmax values [cm/s] were 120, 100, 120 and 160 at 25, 32, 35 and 36 hbd respectively. A comparative genomic hybridization test was performed at 24 hbd, ruling out genomic imbalances. The fetal cardiovascular stability was monitored through echocardiography, followed by the 2D, 3D and 4D Doppler examinations, genetic ultrasound and fetal biometrics, which took place at 21, 25, 27, 32, 35, 36 and 38 hbd. A maternal hyperoxygenation test was performed at 35 and 36 hbd. Due to its positive impact, the patient underwent oxygen therapy until the end of the pregnancy. The delivery was planned in a tertiary center to ensure immediate and appropriate postnatal management.

At 39 hbd, the newborn was delivered physiologically with a birth weight of 3290 g. The Apgar score was 9 at both 1 and 5 minutes after birth. Immediately after, the newborn was intubated, and prostaglandin infusion was initiated to maintain ductal patency. A Norwood procedure was performed on the 6th day of life to ensure adequate systemic circulation. The postoperative period was challenging, requiring prolonged mechanical ventilation and inotropic support. The patient also experienced episodes of arrhythmia, which were effectively managed with amiodarone. Additionally, pleural drainage was necessary due to transient pulmonary fluid accumulation.

After achieving stability, the infant was discharged home at day 49 in good condition, under strict cardiological supervision. Follow-up echocardiographic assessments demonstrated good right ventricular function and effective conduit performance. Subsequent surgical stages were planned according to the three-stage HLHS palliation protocol.

Conclusion: This case highlights the crucial role of early prenatal cardiac diagnosis and interdisciplinary collaboration in HLHS management. Comprehensive care by a prenatal cardiologist, prenatal monitoring and treatment, as well as neonatal and cardiology care, allow for early anticipation of severe neonatal complications and the implementation of appropriate treatment strategies.

JUVENES PRO MEDICINA

Early detection of pulmonary valve stenosis is a crucial factor in safeguarding the health of the newborn child - Case study

Kacper Ostrowski

Presenting author: Kacper Ostrowski

Work supervisors: Dr hab. Iwona Strzelecka, prof. Maria Respondek-Liberska

Affiliations: National Forum of Prenatal Cardiology, Mazovian Academy in Płock

Introduction: Pulmonary valve stenosis is a congenital heart defect that can be detected prenatally, - narrowing of the outflow tract between the right ventricle and the pulmonary artery.

Case report: A 23-year old patient was admitted for specialist consultation. At 19hbd a continuous-wave Doppler ultrasound showed blood flow through the pulmonary valve with a maximal velocity (Vmax) of 140 cm/s. At this stage, this result was considered within normal limits. However at 23 hbd a follow-up test was conducted, which registered a Vmax of 200 cm/s indicating mild pulmonary valve stenosis. A holosystolic regurgitation was identified. An echocardiogram was recommended at the tertiary care center. Further evaluation of fetal growth and anatomy was scheduled between weeks 29 and 34. At 26 hbd, a fetal echocardiogram was performed, which showed pulmonary valve (PV) narrowing to about 3 mm (z-score -4) and retrograde blood flow from the pulmonary trunk into the right ventricle (RV) during diastole. Pulmonary arterial flow was measured at 207 cm/s and verified using three different ultrasound machines. RV systolic and diastolic function was deteriorating. In the meantime the patient was admitted, due to suspected FGR, to the ICZMP Perinatology Department, where full laboratory and imaging tests were performed. Conservative management was continued, the patient was discharged in good condition. The next fetal ECHO was performed at 29 hbd, which showed improvement in right ventricular contractility, post-stenotic dilation of the pulmonary trunk (MPA) — 9 mm (z-score -2), PV narrowing to 6 mm (z-score –3), indicating significant stenosis, and turbulent bidirectional flow through the valve at 320 cm/s, indicating moderate-to-severe pulmonary stenosis.

At 32hbd conducted tests showed: Increased Vmax across the PV to 380 cm/s, indicating severe PV stenosis, Turbulent right ventricular–pulmonary trunk flow, ~1 m/s, with significant regurgitation Increased aortic flow, likely compensatory due to pulmonary circulation changes.

Subsequent ECHO registered pulmonary trunk dilation plateaued at 12 mm. The PV Vmax decreased to 270 cm/s. Fetal biometric development was within normal range. Pulmonary valve size measured at 6.5 mm (z-score -3).

At 40hbd the girl was delivered via cesarean section with birth-weight of 3410 g. APGAR score was 10 at the 1st minute. The newborn was in stable condition and underwent the cardiological evaluation. The child was qualified for balloon pulmonary valvuloplasty, which was performed on the 7th day of life without complications. The patient remained under the care of the paediatric ward. On the 14th day of life the newborn was discharged home in good condition.

Conclusion: Thanks to prenatal diagnosis of pulmonary valve stenosis and its continuous monitoring it was possible to plan the therapy, maintain the pregnancy to term, and prepare for early surgical intervention, leading to the successful discharge of the newborn from the hospital.

JUVENES PRO MEDICINA

„Prenatal diagnosis of TGA in the fetus – a clinical case in the context of the division of heart defects from the point of view of prenatal cardiology’’

Ludwika Mucha

Presenting author: Ludwika Mucha

Work supervisors: dr hab. prof. uczelni Iwona Strzelecka, prof. dr hab. n. med. Maria Respondek Liberska

Affiliations: dr hab. prof. uczelni Iwona Strzelecka, prof. dr hab. n. med. Maria Respondek Liberska - Prenatal Cardiology

Introduction: Heart defects are the most common defects in fetuses and newborns. One of the most common heart defects, and at the same time the most difficult to detect, is transposition of the great arteries. Despite advances in prenatal ultrasound, it remains difficult to detect. Although the anatomy of the heart is not objectionable the problem is a vascular malformation consisting of the replacement of vessels normally originating from each ventricle of the heart. It is formed as a result of embryological incompatibility of the aorta and the pulmonary trunk in a critical phase of organogenesis. The structure that provides communication between the right and left parts of the heart in fetal life and appropriate oxygenation of the blood is the patent foramen ovale. This structure if patent after birth, allows fetuses with d-TGA to survive. That is why prenatal cardiological diagnostics are so important.

Case report: Pregnant woman with high risk pregnancy due to maternal history (diabetes, thyroid disease) – first trimester of pregnancy with a fetal heart defect detected in the 19th week of pregnancy – dTGA by the attending physician. Confirmation of the fetal heart defect in the 29th week by another obstetrician. Referred for further diagnostics to a reference center. The stability of the fetal cardiovascular system was monitored using echocardiography, 2D, 3D and 4D Doppler examinations genetic ultrasound and fetal biometry from 31+6 weeks of pregnancy in the reference center for fetal defects of the CZMP Institute in Łódź. Delivery occurred one day after the last examination in the tertiary center to ensure appropriate postnatal management taking into account the organizational division of fetal heart defects from the point of view of prenatal cardiology. A newborn born at term naturally, with Apgar score 9/9 with a prenatally confirmed heart defect (concordance between prenatal and postnatal diagnosis). On day 1 the newborn underwent a Rashind procedure on day 9 a cardiac surgery. In good condition he was discharged home on day 30 of life.

Conclusion: This case highlights the key role of prenatal cardiology diagnostics and interdisciplinary cooperation in the treatment of TGA. Comprehensive neonatological, cardiological and cardiosurgical care, as well as prenatal monitoring and treatment, allow for planning and implementation of appropriate treatment. Comprehensive care by a prenatal cardiologist, prenatal monitoring as well as neonatological cardiological and cardiosurgical care allow for avoiding severe neonatal complications. The above Case report confirms the practical application of the division of heart defects from the perspective of prenatal cardiology for the benefit of the youngest patients – fetuses.

JUVENES PRO MEDICINA

Dentistry and Maxillofacial surgery Case reports

17th of May 2025

Coordinators:

Weronika Musiał

Michał Kostrz

Nina Morawska

Jury:

dr n. med. Klara Saczuk

dr n. med. Andrea Kowalska-Kuczyńska

dr n. med. Piotr Szymor

prof. dr hab. n. med. Marcin Kozakiewicz

JUVENES PRO MEDICINA

Mandibular Coronoid Process Hypertrophy - a rare cause of trismus successfully treated with intraoral coronoidectomy

Julia Miaśkiewicz, Anna Lato

Presenting author: Julia Miaśkiewicz

Work supervisors: Michał Gontarz , Krzysztof Gąsiorowski, Tomasz Marecik, Grażyna Wyszyńska- Pawelec and Jakub Bargiel

Affiliations: Students' Scientific Group of the Department of Cranio-Maxillofacial Surgery Jagiellonian University Medical College, Cracow, Poland

Introduction: Mandibular coronoid process hypertrophy (MCPH) is an uncommon condition leading to a reduced range of mouth opening and lateral movement. This results from abnormal enlargement of the mandibular coronoid process, which may interfere with the zygomatic bone during mouth opening causing functional limitations. Proper diagnosis is essential to distinguish MCPH from other causes of trismus and to ensure effective treatment.

Case Report: A 20-year-old male patient presented with progressive difficulty in mouth opening over the past two years. Clinical examination revealed a significant limitation in maximal interincisal distance (MID), and computed tomography confirmed bilateral coronoid process hyperplasia. The patient underwent an intraoral coronoidectomy to remove the hypertrophic coronoid process. Postoperatively, a physiotherapy regimen, including mechanotherapy with the spatula method and screw apparatus, was initiated to improve recovery. The patient demonstrated significant improvement in mouth opening, with a steady increase in MID over follow-up visits. No complications were observed.

Conclusion: Intraoral coronoidectomy proved to be an effective treatment for MCPH, restoring functional mouth opening. Accurate diagnosis is crucial to avoid ineffective non-invasive therapies. Additionally, postoperative improvements may continue over time, highlighting the importance of long-term follow-up and physiotherapy for optimal outcomes.

JUVENES PRO MEDICINA

Biodentine and the principle of cautious trust – the key to successfully preserving vital pulp

Norbert Soboń

Presenting author: Norbert Soboń

Work supervisor: Katarzyna Olczak PhD

Affiliations: Department of Endodontics

Introduction: Direct and indirect pulp capping are essential methods for preserving tooth vitality, aimed at treating reversible and, in some cases, irreversible pulpitis. Novel materials, such as Biodentine—a tricalcium silicate cement—enable more successful and predictable biological treatment of inflamed pulp.

Case report: A 14-year-old patient was referred to the Endodontics Department for root canal treatment (RCT) of tooth 16. The patient reported pain while eating and occasional spontaneous discomfort. Clinical examination revealed a temporary filling on the mesial half of the tooth, along with Class I carious lesions on the occlusal and palatal surfaces. The tooth was vital, responding positively to cold and electric tests; however, the progression of pulpitis could not be determined with complete certainty.

A periapical radiograph was taken, and radiographic evaluation showed no pathological findings. Due to diagnostic uncertainty, an intraoperative assessment was performed, requiring the removal of the temporary filling. Under microscopic evaluation, a minor pulp exposure (<1 mm^2) was observed. The surrounding dentin was hard and caries-free. Despite the proximity of the former carious lesion to the pulp chamber, direct pulp capping (DPC) was chosen to preserve the tooth and avoid pulp extirpation.

Biodentine was selected as the material of choice, following European Society of Endodontology (ESE) guidelines. It was initially used as a temporary filling, while the remaining carious lesions were prepared and restored with composite. The patient was scheduled for a follow-up visit after one month. During this visit, the Biodentine was partially replaced with a permanent composite filling. Symptoms had resolved, and repeated vitality tests yielded positive results, confirming pulp vitality.

A follow-up visit was scheduled for three months, during which a periapical radiograph was taken. The radiograph showed no significant differences compared to the preoperative image, and the tooth remained vital. The patient is scheduled for another evaluation in three months. As of now, the treatment is considered successful, and the pulpitis has resolved.

Conclusion: The use of Biodentine for direct pulp capping, even in uncertain cases, proves beneficial by promoting pulpal regeneration and reducing the need for more invasive endodontic procedures. Biodentine exhibits anti-inflammatory properties and stimulates odontoblast differentiation, leading to the formation of reactionary dentin (dentinal bridge). Despite the risk of pulpal infection due to the deep carious lesion, the authors opted to follow ESE guidelines for managing reversible pulpitis, considering the patient's young age, enhanced regenerative potential, the advantages of biomaterials, and careful follow-up examinations.

JUVENES PRO MEDICINA

Beyond the Fractures: Managing Complex Facial Trauma and Alcohol Withdrawl with a Multidisciplinary Team

Andrew Nowak, Olesya Marushko, Olena Marushko, Aya Kraiz

Presenting author: Andrew Nowak

Work supervisor: Dr. Aleksy Nowak

Affiliations: Poznan university of medical sciences' Department Of Oral and Maxilofacil sugery

Background: Severe facial trauma is among the most demanding challenges in oral and maxillofacial surgery. Complex injuries with extensive soft tissue damage, multiple bone fractures, and ocular disruption require immediate stabilization and coordinated intervention. Complicating factors like intoxication further blur clinical assessment, making advanced imaging and precise preoperative planning vital. A multidisciplinary approach is crucial to restore function and aesthetics, ensuring optimal outcomes for high-risk patients.

Case Report: This case report details the management of a 40-year-old male admitted to the Emergency Department following severe facial trauma. The patient sustained the injury while working with wood when a saw-propelled wooden fragment struck his face. He presented conscious, with a Glasgow Coma Scale score of 15, but was under the influence of alcohol (blood alcohol concentration: 0.25%). Clinical examination revealed extensive facial trauma, including a large wound with scalping of the left cheek, extrusion of the left eyeball, and complete vision loss of the left eye. Computed tomography (CT) imaging identified multiple facial fractures, intracerebral hematomas, and a left fibular fracture. The patient was referred for maxillofacial surgical intervention, and ophthalmologic evaluation determined the necessity of enucleation. A neurosurgical consultation indicated no immediate surgical intervention. Preoperative management included tetanus prophylaxis, antibiotic therapy, and transfusion of two units of packed red blood cells due to morphological parameters. A follow-up CT scan demonstrated stable intracranial findings. Surgical intervention involved osteosynthesis of facial fractures and enucleation. Postoperatively, the patient developed severe alcohol withdrawal syndrome, necessitating intensive care unit admission. A subsequent CT scan on postoperative day three confirmed proper bone alignment and regression of intracranial pathology. By postoperative day eight, the patient was transferred to a regional hospital, with uneventful wound healing.

Conclusion: This incident illustrates severe facial trauma management complexities, emphasizing the need for a multidisciplinary approach, . Despite the multifaceted trauma and care challenges, the outcome was favourable, showcasing the importance of early intervention, advanced imaging, precise surgical planning and comprehensive post-surgical care in maxillofacial trauma.

JUVENES PRO MEDICINA

Primary Canine Impaction Caused by a Rare Complex Odontoma: A Case Report with Diagnostic and Therapeutic Insights

Andrew Nowak, Olena Marushko, Olesya Marushko, Aya Kraiz

Presenting author: Andrew Nowak

Work supervisor: Dr. Katarzyna Błochowiak

Affiliations: Department Of Dental Surgery

Background: Odontomas, the most common odontogenic tumors assessed at twenty-two percent of cases, cease growth at maturity. They develop during the first two decades of life; however, formation in primary teeth is rare, comprising of (>5%) of cases. Compound odontomas around 70% are well-defined radiopaque clusters of rudimentary, tooth-like structures within a fibrous capsule, most often in the anterior maxilla. Complex odontomas about 30% are irregular, amorphous radiopaque masses with a radiolucent border, typically in the posterior mandible. The etiology involves developmental disturbances such as trauma, infection, or genetics, with most cases being idiopathic. Timely intervention is critical to prevent complications such as tooth impaction, delayed eruption, or malocclusion, ensuring proper dental development and function.

Case Report: A 5-year-old female patient presented to a dentist with a chief complaint of non-eruption of the primary right lower canine. Her medical and family history were unremarkable, with no history of trauma, syndromic conditions, or familial odontoma occurrence. A panoramic radiograph revealed an impacted primary canine with an associated radiopaque asymptomatic lesion, identified as a 0.5 cm complex odontoma. No displacement of adjacent teeth was observed. A CBCT was taken to plan surgical approach and assess the depth of primary canine impaction. Surgical removal of the complex odontoma was planned and carried out two months after the initial diagnosis. Microscopic examination of tissue specimen obtained during surgical procedure confirmed a complex odontoma. Due to the patient's young age and the deep impaction of the primary canine, extraction was postponed. The patient is currently under orthodontic supervision with a space maintainer in place to preserve arch integrity. Follow-up visits every six months have been scheduled to monitor occlusal development.

Conclusion: Prompt diagnosis and clinical management of odontoma are warranted to avoid preventable complications such as impaction or delayed eruption and preserve the integrity of the developing dentition. This case is exemplary in demonstrating the proper protocol for complex odontoma identification and surgical removal. Given the patient's young age, a conservative approach was adopted to monitor the eruption of the primary canine while maintaining space. Long-term follow-up is essential to assess occlusal development, highlighting the importance of regular dental evaluations in pediatric patients.

JUVENES PRO MEDICINA

Dental Management of Patients Taking New Oral Anticoagulants (NOACs/ DOACs)

Bernadine Abassah, Dr Swati Sapra

Presenting author: Bernadine Abassah

Work supervisors: Dr Swati Sapra, Dr Katarzyna Anna Dąbrowska

Affiliations:

Introduction: A 78 year old male was referred for the endodontic treatment of the lower left second premolar which was the lone standing posterior tooth in that quadrant.

Case Report: There was a deep buccal carious lesion with subgingival extension and calcification of the coronal third of the pulp chamber. The remaining coronal tooth structure was weak and the patient preferred extraction. The referring clinician wanted to avoid extraction due to previous two episodes of the patient having TIA's after extraction requiring overnight hospital admission. Medically, patient suffered from a stroke in 2000, has a history of frequent TIA's, Hypertension and was taking Apixaban as prescribed by consultant haematologist.

Patients' wishes and treatment considerations were taken into account and extraction was planned after discussing with the referring clinician and consultant haematologist.

During the previous two extractions, the patient was advised to stop his anticoagulant medication three to five days prior to extraction. This time, no alteration in patients existing medication was done. Patient was advised to take his morning Apixaban as usual. Informed consent was obtained and the tooth was elevated and extracted uneventfully. Local haemostatic measures were applied including Surgicel and sutures. Haemostasis was achieved. Post operative instructions were given including the advice of taking evening Apixaban if no postoperative bleeding was noted. In the event of postoperative bleeding, patient was advised to contact the clinic and delay taking the evening dose of anticoagulant medication.

Conclusion: Anticoagulants are a class of drugs which are used to prevent and treat thromboembolic disorders including but not limited to the following: deep vein thrombosis, stroke, pulmonary embolism, myocardial infarction and venous embolism. Novel anticoagulants are a new class of drugs which could be a source of confusion among dental professionals while planning the treatment of patients on these drugs. Careful planning and communication could be a key to a successful management of such clinical situations.

References:

https://www.sdcep.org.uk/media/imrflqss/sdcep-anticoagulants-quick-reference-guide-2nd-edition.pdf

https://www.sdcep.org.uk/published-guidance/anticoagulants-and-antiplatelets/

JUVENES PRO MEDICINA

A Rare Case of Recurrent Orbital DFSP: Navigating the Challenges of an Elusive Tumor

Olesya Marushko, Olena Marushko, Antonia Virginia Ioannou, Halina De Wit, Danai Peskia

Presenting author: Danai Peskia

Work supervisors: Aleksy Nowak MD, Łukasz Słowik DDS

Affiliations: Department of Maxillofacial Surgery Poznan University of Medical Sciences

Introduction: Dermatofibrosarcoma protuberans (DFSP) is a rare, slow-growing soft tissue malignancy with a high recurrence rate despite its low metastatic potential. Complete excision with negative margins is crucial to prevent regrowth. Orbital DFSP is exceptionally uncommon and presents unique challenges due to its proximity to critical structures. This report presents a case of recurrent orbital DFSP in a patient with a prior history of incomplete excision.

Case Report: Herein we present a 55-year-old male with a progressively enlarging left orbital mass that had persisted for several years. He had undergone an incomplete excision in 2020, with histopathology confirming DFSP. The patient was advised to undergo further definitive surgical treatment at a specialized center but failed to follow up. His medical history was otherwise unremarkable. He appeared in out-patient clinic 4-years later. Examination revealed facial asymmetry due to a firm, immobile, non-tender mass in the left orbit. Ophthalmic assessment showed significant proptosis, restricted eye movement, and diminished direct light reflex, though light perception was intact. No mucosal abnormalities or signs of acute infection were noted. A contrast-enhanced CT scan revealed a large, heterogeneously enhancing orbital mass occupying both intra- and extraconal spaces. The tumour displaced the eyeball anteriorly, compressed or infiltrated the superior and lateral rectus muscles, and closely adhered to the optic nerve without invading the optic canal. The lateral orbital wall showed structural thinning, indicative of chronic tumour progression. The mass measured 63 × 37 × 56 mm, extending 63 mm beyond the orbital rim. No metastases or lymphadenopathy were detected. A biopsy confirmed recurrent DFSP. Given the tumour's aggressive local behaviour and prior incomplete excision, the patient was recommended for targeted therapy with Imatinib, followed by adjuvant radiotherapy.

Conclusions: This case highlights the importance of complete surgical resection in DFSP management and follow up. Orbital involvement presents unique therapeutic challenges, requiring a multidisciplinary approach that integrates surgery, targeted therapy, and radiotherapy to optimize outcomes. Continuous monitoring and early intervention remain critical in optimizing patient outcomes and reducing the chances of further recurrence.

JUVENES PRO MEDICINA

Uncommon Yet Impactful: Peripheral Giant Cell Granuloma in a Pediatric Patient – A Rare Case of Gingival Overgrowth

Michael Bubienczyk, Olena Marushko, Olesya Marushko, Olivia Nassef, Aya Kraiz, Katarzyna Błochowiak

Presenting author: Michael Bubienczyk

Work supervisor: Prof. Marzena Wyganowska

Affiliations:

Introduction: Peripheral giant cell granuloma (PGCG) is a nonneoplastic reactive lesion of the oral cavity, primarily affecting the gingiva or alveolar mucosa. Clinically, it presents as a reddish-purple, polypoid, or nodular mass. While its precise etiology remains unclear, PGCG is often attributed to local irritants such as plaque, calculus, trauma, dental restorations, or extractions. Differential diagnoses include pyogenic granuloma, peripheral ossifying fibroma, and central giant cell granuloma, necessitating histopathological examination for definitive diagnosis. PGCG predominantly affects females in the fifth and sixth decades, with pediatric cases being exceedingly rare. This case underscores the importance of considering PGCG in differential diagnoses, even in atypical age groups, to ensure timely intervention.

Case Report: A 9-year-old male patient presented to the dental surgery department with his mother, complaining of an overgrowth of tissue on the right lower side of the oral cavity. The lesion was not painful, prone to bleeding upon mouth closure and during eating. Medical and dental history were within normal limits. Clinical examination revealed a soft tissue overgrowth resembling a granuloma, located distal to tooth 42, buccal to 43, with 43 positioned lingually and mesial to a partially erupted 44. Radiographic evaluation showed a permanent dentition stage with a partially erupted 44, a retained 85, and a non-erupted 45. Excisional biopsy was performed the same day, and a single tissue fragment measuring 1.3 cm in diameter was excised in its entirety. Surgical removal of the overgrowth was completed, and sutures were placed. Histopathological examination confirmed the diagnosis of giant cell granuloma. OPG excluded any bone lesions in this area, further classifying it into peripheral giant cell granuloma. The patient returned for suture removal after seven days, with satisfactory healing observed.

Conclusions: Histopathological analysis is essential in the definitive diagnosis of oral soft tissue overgrowths, helping to distinguish reactive lesions like giant cell granuloma from neoplastic or malignant pathologies. While OPG is of a high importance when further differentiating between peripheral and central giant cell granuloma. Complete surgical excision, combined with patient post-operative monitoring, ensures proper healing and minimizes the risk of recurrence in pediatric patients.

JUVENES PRO MEDICINA

Challenges in the Diagnosis and Management of External Tooth Resorption: Case Reports

Sylwia Dąbrowska

Presenting author: Sylwia Dąbrowska

Work supervisor: Katarzyna Dąbrowska

Affiliations: Medical University of Lodz

Introduction: Tooth resorption is an exceptional condition in endodontic treatment, requiring an individualized therapeutic approach. The type and advancement of resorption determines the long term prognosis of the tooth. In many cases, the treatment and tooth maintenance is not possible due to excessive resorption extent. However, with patient's informed consent and appropriate willingness - it is often worth attempting tooth preservation, even in cases that might seem particularly complex or unfavorable at first glance. There are several types of this phenomenon. The following case reports present two patients diagnosed with external tooth resorption.

Case report 1:

A 65-year-old female patient presented with small prominence on the gingiva in the region of tooth 33. A leaking composite restoration was detected in the cervical area. The X-ray with gutta-percha point inserted into the fistula revealed a radiolucency in the neck area of the tooth with an irregular outline, which could suggest invasive cervical resorption class 3. This diagnosis was confirmed by clinical examination. To broaden the diagnostics the CBCT was performed. The scans 5x5cm enabled precise assessment of the size of the resorption and demonstrated perforation of the canal. Surgical treatment was planned, consisting of creating a mucoperiosteal flap and curettage of the granulation tissue. Following root canal chemo-mechnical preparation, a gutta-percha point was placed into the canal to prevent impaction of the filling material into the canal space. Subsequently, the resorptive defect was filled with biocompatible restorative material. Three weeks later, appropriate root canal treatment was completed.

Case report 2:

A 54-year-old male patient was admitted to the clinic for a routine dental examination. In radiological examination a small radiolucent lesion was observed around the roots of the tooth 46. CBCT scan revealed a resorptive lesion in the periapical area of the mesial root and a well-defined periapical lesion adjacent to the distal root of the tooth 46. After establishing a treatment plan with the patient the procedure was initiated. The pulp was diagnosed as non vital. In the mesial canals canal patency was not achieved. Working lengths have been established to the resorptive tissue, initial canals preparation was carried out. During subsequent visits the final preparation using rotary instruments in a step-back technique and irrigation were performed. The mesial canals were obturated using the hybrid technique: the "apical" part was filled with Biodentine and the rest using warm gutta percha vertical compaction technique. The tooth was restored and the patient was referred for follow-up visit in 3 months.

Conclusion: Tooth resorption results in loss of dentine, cementum or even surrounding bone. The onset of the disease may be asymptomatic, which frequently leads to delayed diagnosis. However, early detection, appropriate classification and finally proper treatment are crucial for successful management - maintaining the tooth functional and asymptomatic as long as possible.

JUVENES PRO MEDICINA

A Rare Case of Mandibular Osteomyelitis Due to an Untreated Mandibular Fracture

Ghazal Mirhashemi, Olena Marushko (RDH), Olesya Marushko (HBSc), Katarzyna Błochowiak (DDS)

Presenting author: Ghazal Mirhashemi

Work supervisor: Aleksy Nowak MD

Affiliations: Dental Surgery Research Group, Department of Oral Surgery, Periodontal Diseases and Oral Mucosal Diseases in Poznan University of Medical Sciences, Poland. Poznan University of Medical Sciences Department of Maxillofacial Surgery, Poland. Doctoral School

Introduction: While mandibular fractures are a common outcome of facial trauma, it is rare to encounter cases of old, untreated fractures that progress to severe complications such as osteomyelitis. This case presents a highly unique scenario of mandibular osteomyelitis due to an untreated mandibular fracture, where a patient sought care weeks after trauma, driven solely by intraoral pain and ill-fitting dentures. Despite the accessibility of modern healthcare, many patients, particularly the elderly with multiple comorbidities, delay treatment until their condition becomes critical. This case not only highlights the consequences of neglected trauma but also serves as a compelling reminder of the importance of early intervention, patient education, and a critical learning opportunity for dental professionals to identify and manage such underrecognized conditions.

Case report: A 67-year-old female presented with weeks of intraoral pain and ill-fitting dentures following facial trauma. She had a complex medical history, including adrenal insufficiency, hypothyroidism, gastritis, anxiety, insomnia, and was undergoing further examinations for a psychotic disorder. Her medications included Euthyrox, Lafachin, Zolax, and Immorane. Extraoral examination revealed a 5mm-7mm fistula below the left mandible with slight pain. Intraorally, she had edentulous arches with full acrylic dentures, slight ridge resorption, and inflamed, ulcerated mucosa with bone exposure on the left mandibular ridge. An OPG confirmed a mandibular fracture with sequestrum, consistent with osteomyelitis. She was prescribed Augmentin and Enterol and referred to Maxillofacial Surgery. Under general anesthesia, the fistula and sequestrum were removed, and a reconstructive plate was placed to stabilize the fracture. Two weeks post-surgery, the wound healed, but marginal mandibular nerve paralysis persisted.

Conclusion: This case underscores the significant consequences of delayed medical care, as untreated mandibular fractures can lead to severe complications such as osteomyelitis, fistulas, and denture dysfunction. It highlights the critical need for patient education and a multidisciplinary approach to achieve optimal outcomes. Early diagnosis and intervention are essential to prevent such avoidable complications and improve patient quality of life.

JUVENES PRO MEDICINA

PhD Clinical

15th of May 2025

Coordinators:

Wojciech Timler

Krzysztof Badura

Katarzyna Płoszka

Jury:

dr inż. n. tech. Urszula Smyczyńska

dr hab. n. med. Michał Karbownik

prof. dr hab. n. med. Maciej Sałaga

prof. dr hab. n. med. Michał Nowicki

dr hab. n. med. Szymon Janczar

JUVENES PRO MEDICINA

Depressive symptoms and sleep quality in women with polycystic ovary syndrome

Katarzyna Stańczyk, Katarzyna Wielemborek-Musiał, Anna Lipert

Presenting author: Katarzyna Stańczyk

Work supervisors: Katarzyna Wielemborek-Musiał, PhD, Anna Lipert, PhD, Assoc. Prof.

Affiliations: Medical University of Lodz

Introduction: Polycystic ovary syndrome (PCOS) is the most commonly diagnosed endocrine disorder in women of reproductive age, with an estimated prevalence of 4-20%. Patients with PCOS are 3 to 8 times more likely to develop depressive disorders than the general population, and have an increased risk of experiencing sleep disorders. Furthermore, an association has been shown between the development of depressive disorders and hypothyroidism, which is one of the diseases most commonly co-occurring with PCOS.

Aim of the study: The aim of this study was to assess the association between the prevalence of depressive symptoms and sleep quality in PCOS patients compared to women without diagnosed PCOS.

Material and methods: The study involved data from 40 women aged 20-45 years. A questionnaire survey was conducted by using the Beck Depression Scale (BDI) and the Pittsburgh Sleep Quality Questionnaire (PSQI), which were made available online in 3 groups among women with PCOS and 4 groups comprising women of reproductive age.

Results: PCOS was diagnosed on average 3.96±3.09 years before participation in the study. Normal body weight was observed in ¼ of the women with PCOS and ¾ of the women in the control group. Patients in the study group, compared to women without diagnosed PCOS, were characterised by a higher prevalence of hypothyroidism and an associated need for levothyroxine-containing medication (f=0.30 vs. f=0.10). A BDI score indicating depressive symptoms was obtained by more than ¾ of the patients in the study group and half of the women in the control group – mild (f=0.45 vs. f=0.25), moderate (f=0.25 vs. f=0.15) or severe (f=0.10 vs. f=0.10). Based on the PSQI, among more than ¾ of the women with PCOS, sleep quality was defined as poor (f=0.85), while less than half of the patients subjectively graded it this way (f=0.40). Among women without diagnosed PCOS, poor sleep quality affected less than ⅓ of the participants (f=0.30), which was in line with the score obtained in the subjective assessment. The mean scores obtained on the BDI and PSQI in the study and control groups were 16.35±8.37 vs. 14.90±13.05 and 10.10±4.99 vs. 8.40±8.00 points, respectively. There was a positive and moderate association between mental status and sleep quality (r_S=0.54; $p<0.05$).

Conclusions: The correlation between psychological state and sleep quality was observed. There are indications for the implementing of interdisciplinary care among patients with PCOS, including psychological support and adequate pharmacotherapy on a case-by-case basis.

JUVENES PRO MEDICINA

Development and evaluation of resin-based composites modified with didodecyldimethylammonium bromide

mgr tech. dent. Maja Zalega, dr hab. n. med. Kinga Bociong, prof. uczelni

Presenting author: mgr tech. dent. Maja Zalega

Work supervisors: dr hab. n. med. Kinga Bociong, prof. uczelni

Affiliations: International Doctoral School of Medical University of Lodz , General Dentistry Department

Introduction: The development of modern resin-based dental composites focuses on improving their properties. It is important to obtain increasing mechanical properties, improving aesthetics. Research is also aimed at modifying RBCs to obtain biocidal properties that can promote oral health. Biofilm formation on the surface of composite restorations is one of the causes of secondary caries, which leads to chemical and mechanical degradation of the material.

Aim of the study: The Introduction of didodecyldimethylammonium bromide (DDAB) as RBCs compound may prove to be a strategy to reduce the problem of secondary caries while maintaining the material's adequate strength properties.

Materials and Methods: A matrix consisting of bis-GMA/UDMA/TEGDMA/HEMA = 40/40/10/10 wt% was used to produce experimental composites. The material was enriched with DDAB in amounts of 0.25, 0.5, 1.0, 2.0, and 3.0 wt%. Following the matrix was filled with silanized silica in the amount of 45 wt%. Tests were carried out for composites hardness (HV), three-point bending strength of the material (FS) with flexural modulus (Ef), and diametral tensile strength (DTS).

Results: The composite with 0.5 wt% DDAB achieves the highest HV (31.5±1.8), while the lowest is observed for the experimental composite with 3.0 wt% DDAB (27.2±1.5). The highest Ef value was achieved by the composite with 1.0 wt% DDAB (4030.0±219.0 MPa), and the lowest by the control material (3701.7±398.3 MPa). The material enriched with 1.0 wt% DDAB achieved the highest FS (79.2±14.5 MPa) and the lowest control material (67.0±16.1 MPa). In the case of DTS, the composite with 0.5 wt% DDAB achieved the highest values (36.4±4.3 MPa) and the control material the lowest (29.3±5.1 MPa).

Conclusion: The manufactured experimental composites enriched with DDAB showed satisfying mechanical properties. The most optimal DTS, HV, FS, and Ef values were obtained at 0.5 and 1.0 wt% concentrations. The use of higher concentrations of DDAB leads to a decrease in some mechanical properties. It should be noted that the modification may lead to a slight reduction in strength values, but there are no significant statistical differences between them. Moreover, the material gains biocidal properties, which is an additional advantage. The above results provide opportunities for the development of advanced composite materials that maintain adequate mechanical properties while improving the quality of treatment and offer a chance to reduce the problem of secondary caries. Studies focusing on biocidal, cytotoxicity, and stability of properties of experimental, enriched with DDAB composites are ongoing.

JUVENES PRO MEDICINA

Assessment of the gamma-aminobutyric acid levels among obstructive sleep apnea patients with depressive symptoms.

Piotr Kaczmarski ,Agata Gabryelska, Piotr Białasiewicz, Marcin Sochal

Presenting author: Piotr Kaczmarski

Work supervisors: Agata Gabryelska, Piotr Białasiewicz, Marcin Sochal

Affiliations: Department of Sleep Medicine and Metabolic Disorders

Introduction: Obstructive sleep apnea (OSA) is the most common sleep respiratory disorder and is characterized by repetitive collapse of the upper airway resulting in intermittent hypoxia and sleep fragmentation. OSA is correlated with the development of numerous comorbidities. In recent years there is emerging evidence on psychiatric complications of OSA with the focus on depression. γ-aminobutyric acid (GABA) is crucial neurotransmitter in human brain involved in the regulation of sleep and mood. Recent literature reports suggest the role of disrupted GABA signalling in OSA patient in the development of depressive symptoms. Hypoxia inducible factor 1 alpha (HIF-1α) is a common oxygen related transcription factor that is upregulated in OSA patients.

Aim of the study: Aim of this study is to evaluate potential changes of GABA levels among OSA patients and its correlations with sleep parameters, depressive symptoms and oxygen sensitive subunit HIF-1α

Material and methods: The study included 80 participants who underwent polysomnography (PSG) and were divided into two groups: a control group (n=35) and an OSA group (n=45). Depressive symptoms were assessed using the Montgomery-Åsberg Depression Rating Scale (MADRS). Peripheral blood samples were collected from participants in the morning after PSG. Serum levels of GABA and HIF-1α were measured using ELISA.

Results: No significant differences in GABA levels were observed between the OSA and control groups (391.29 vs. 383.55 ng/ml, respectively; p=0.583). In the control group, a correlation between depressive symptom severity (MADRS score) and GABA levels was detected (R=-0.405, p=0.040), while this relationship was absent in the OSA group (R=0.139, p=0.450).

Regarding PSG parameters, in the control group, GABA levels were associated with total sleep time (R=-0.375, p=0.027) and non-REM (nREM) sleep duration (R=-0.362, p=0.033). In the OSA group, GABA levels correlated only with sleep onset latency (R=-0.379, p=0.012). Interestingly, a significant correlation between HIF-1α and GABA levels was observed in the OSA group (R=-0.423, p=0.020) but not in the control group (R=-0.303, p=0.117).

Moreover, individuals with moderate to severe depressive symptoms had lower GABA levels compared to those with absent or mild depressive symptoms in the control group (344.12 vs. 405.82 ng/ml; p=0.047), but not in the OSA group (369.72 vs. 389.57 ng/ml; p=0.531).

Conclusions: In Conclusion, our data show that in OSA patients group, GABA levels are not dysregulated, moreover GABA concentration is not correlated with the severity of depressive symptoms. Although patients without OSA with severe depressive symptoms seems to have lower concentration of GABA compared to non-depressed patients. These findings suggest that the relationship between GABA and depressive symptoms in OSA patients is disrupted, potentially due to the involvement of oxygen-dependent HIF-1 signalling pathways. Further research is needed to more accurately study the influence of OSA on GABA neurotransmission.

JUVENES PRO MEDICINA

Exploring manual therapy in the management of irritable bowel syndrome in adults: A scoping review

Natalia Płóciennik-Korycka, Sara Maria Pani, Bogumiła Bruc, Paolo Contu, Magdalena Wrzesińska

Presenting author: Natalia Płóciennik-Korycka

Work supervisor: Magdalena Wrzesińska

Affiliations: Medical University of Lodz

Introduction: IBS is a prevalent gut-brain interaction disorder characterized by abdominal pain and altered bowel habits, significantly affecting quality of life (QoL). IBS contributes to substantial work absenteeism and economic burdens and often coexists with other somatic and psychiatric conditions, with psychological well-being being a critical determinant of QoL. IBS sufferers often turn to MT due to dissatisfaction with conventional treatments. However, no comprehensive review has assessed the evidence for MT in treating IBS.

Aim of the study: The objective of this review is to identify and map the available evidence on the effects of various manual therapy (MT) techniques on the biopsychosocial functioning, well-being, and QoL of individuals with irritable bowel syndrome (IBS).

Material and methods: A comprehensive search was conducted in PubMed, Embase, and Scopus. Studies involving adults with IBS and investigating the effects of MT on biological, psychological, and social outcomes, well-being, or QoL were included. A scoping review was conducted following PRISMA-ScR guidelines. Study quality was assessed using The National Heart, Lung and Blood Institute (NHLBI) Study Quality Assessment Tools. The protocol for this review was registered with the Open Science Framework and is available at https://doi.org/10.17605/OSF.IO/QN4WU.

Results: Of 730 records identified, 30 studies met the inclusion criteria (9 trials, 21 reviews). The interventions reviewed included osteopathic manipulative treatment (OMT), acupuncture, acupressure, reflexology, traditional Chinese spinal orthopaedic manipulation, and Tuina. The most frequently assessed outcomes were biological and psychological variables, as well as QoL, with well-being being the least commonly examined.

Conclusions: Although the Results suggest potential benefits of MT in IBS treatment, they should be interpreted with caution due to the lack of robust trials, inconsistent findings, and occasional adverse events. High-quality randomized controlled trials and standardized outcome measures are necessary to validate these therapies and improve IBS management.

JUVENES PRO MEDICINA

The role of biomarkers of inflammatory and congestive heart failure processes in assessing the prognosis of patients with heart failure.

Presenting author: Maria Sawościan

Work supervisor: prof. Małgorzata Lelonek, MD, PhD

Affiliations: Department of Noninvasive Cardiology

Introduction: Heart failure (HF) is one of the most common diseases in developed countries. The number of patients diagnosed with HF continues to grow, and the incidence also increases with age. Considering diverse pathophysiology of HF, it is essential to select an appropriate set of biomarkers for risk stratification and modification of treatment. However, the search for suitable biomarkers for monitoring and treatment of HF patients is still ongoing.

Aim of the study: The Aim of the study was to analyse the usefulness of the chosen biomarkers set for inflammatory and congestive processes in assessing the patients' prognosis, especially those hospitalised with exacerbation of HF.

Material and methods: Our research involves a single-site observational prospective study, with the observation time of 12 months. The study was based on the analysis of 83 women and 71 men with HF hospitalized between November 2021 and December 2023. The analysis was performed in the groups of exacerbation of HF vs stable HF. Another analysis was performed in the groups with an adverse event (AE) defined as the occurrence of any of the following: death, hospitalization for cardiovascular disease (CVD), or rehospitalization for HF vs without any AE. Statistical analysis was performed using Statistica 13.3 PL (StatSoft, Tulsa, USA).

Results: Significant differences between HF patients with and without exacerbation were observed in high-sensitivity troponin (hsTnT) (20.0; IQR: 13.00-32.50 vs 12.0; IQR: 10.00– 21.00; p=0.0002); N-terminal pro B-type natriuretic peptide (NT-proBNP) 1 249.00; IQR: 412.50 - 2 371.00 vs 344.0; IQR: 192.00 - 775.00; p<0.0001 as well as in echocardiography parameters such as left atrium volume (LAV) 99.00; IQR 70.00 - 139.00 vs 73.00; IQR 57.00 - 107.00; p=0.0042 and 6-minute-walking test (6MWT) 219.00; IQR 158.00 - 280.00 vs 283.50; IQR 227.00-350.00; p=0.0010. However, there was no statistically significant difference in carbohydrate antigen 125 (CA-125) levels (14.85; IQR 9.20 - 32.55 vs 12.95; IQR 9.90 - 20.40; p= 0.1577). The prevalence of iron deficiency (ID) (60.87 % vs 37.10 %; p=0.0066) or chronic kidney disease (CKD) (43.48% vs 12.90%; p<0.0001) was also higher in HF exacerbation population. Spearman's rank correlation analysis revealed positive correlation between CA-125 levels and high-sensitivity C-reactive protein (hs-CRP) (r = 0.25; p = 0.0016), hsTnT (r=0.25; p=0.0022), NT-proBNP (r=0.42; p=<0.0001) and LAV (r =0.27; p = 0.0012). Regression analysis showed that the higher CA-125 [odds ratio (OR)1.018 (95% confidence interval (CI)) 1.00-1.03; p=0.0232] and NT-proBNP levels [OR 1.001 (95% CI 1.00-1.00; p=0.0001) increase the risk of HF worsening. The multivariate regression model showed that lower Results in left ventricle ejection fraction (LVEF) [OR 0.94 (95% CI 0.89-0.99; p=0.012) and 6MWT [OR 0.99 (95% CI 0.99 - 0.99; p=0.0115) increase the risk of HF worsening. In a follow-up analysis there was a statistically significant association between HF worsening and the occurrence of any AE (35.87% vs 17.74%; p= 0.0238). There were also significant associations between the occurrence of any AE and the high levels of biomarkes (CA-125 > 35 U/ml; NT-proBNP > median and RDW (red cell distribution width) > median), but in multivariable model only NT-proBNP>median remained significantly associated with an increased risk of adverse events over time [HR (hazard ratio) 3.55 (95% CI 1.57-8.06; p= 0.0024)

Conclusions: Our Results indicate multi-morbidity of hospitalised HF patients and the need for a holistic approach to the patient, as well as a diverse set of biomarkers. The outcomes emphasized the significant role of hsTnT, NT-proBNP, CA-125 and RDW as a set of HF biomarkers that may altogether assess the patients' prognosis. The importance of NT-proBNP in risk stratification was also confirmed. Both, inflammation and congestion play a role in HF worsening.

JUVENES PRO MEDICINA

Assessment of the nutrition knowledge and dietary habits of amateur football players

M.Sc. Anna Nowak/ Assoc. Professor Anna Lipert, PhD Habil.

Presenting author: M.Sc. Anna Nowak

Work supervisor: Assoc. Professor Anna Lipert, PhD Habil.

Affiliations: Cardiovascular and Metabolic Diseases Laboratory, Department of Preventive Medicine, Medical University of Lodz

Introduction: Nutrition plays a crucial role in enhancing athletic performance, recovery, and overall health. For athletes, whose sport is a combination of strength, endurance, and agility, proper dietary habits and nutrition knowledge are essential to meet the physical and metabolic demands of training and competition. This knowledge is also crucial in the use of supplements and understanding their effects on the human body. However, despite the growing awareness of sports nutrition, many athletes still lack the necessary knowledge to make correct dietary choices.

Aim of the study: The aim of the questionnaire-based study was to analyze dietary habits, the use of dietary supplements, and the level of nutritional knowledge among amateur football players.

Materials and methods: This preliminary study was conducted using an online questionnaire with questions based on three standardized surveys: The Nutrition for Sport Knowledge Questionnaire (NSKQ), QEB and Sports Nutrition Questionnaire. The study targeted athletes recruited from amateur football clubs from all 16 voivodeships in Poland. The study included 49 participants, the majority of whom were men (47 individuals), with an average age of 20–21 years.

Results: More than 46% of participants reported regularly consuming supplements and energy products, with 39% using them daily. The primary motivations for their use were matches and training sessions (26%), fatigue (19%), and drowsiness (17%). Participants reported both positive (stimulation, improved concentration) and negative effects (e.g., stomach problems). Players' diets are dominated by products such as rice and pasta (41% each) and poultry (48%). The most commonly used fats for frying are vegetable oils (49%), while butter (53%) is most often used as a spread. Over half (55%) of the participants drink at least six glasses of water per day. An analysis of consumption frequency indicates fairly regular intake of dairy products, meat, vegetables, and fruits, but also frequent consumption of fast food, sweets, and sugary drinks. Nearly 86% of participants eat fast food at least once a week, and 43% consume sweets several times a week. In terms of nutritional knowledge, participants demonstrated high awareness in areas such as protein sources, fat content in products (e.g., margarine – 98%, peanuts – 79.6%), and the importance of carbohydrates in the athlete's diet (76% answered correctly). However, there were noticeable gaps in knowledge regarding the role of supplements, the effectiveness of vitamins, and the physiology of physical exertion.

Conclusions: Amateur athletes exhibit moderately good dietary habits, but there are also noticeable risky practices (frequent supplement use, high intake of fast food and sweets) and gaps in knowledge related to sports nutrition and supplementation. The findings point to the need for nutritional education, particularly regarding the practical application of dietary knowledge in both sports and daily life.

JUVENES PRO MEDICINA

PhD Molecular

15th of May 2025

Coordinators:

Jędrzej Chrzanowski

Poła Pałka

Agata Grochowska

Jury:

dr hab. n. med. Anna Wiktorowska-Owczarek

dr n. med. Monika Golińska

dr hab. n. med. Agata Sakowicz

dr hab. n. med. Karolina Czarnecka-Chrebelska, Prof. UM

dr n. med. Aleksandra Tarasiuk-Zawadzka

Impact of ALK kinase on Anaplastic Large Cell Lymphoma development

Wojciech Wiese, MD; Natalia Siwecka, MD; Grzegorz Galita, PhD, Wioletta Rozpędek-Kamińska, PhD, Artur Slupianek, PhD, Professor Ireneusz Majsterek, PhD

Presenting author: Wojciech Wiese, MD

Work supervisor: Professor Ireneusz Majsterek, PhD

Affiliations: Department of Clinical Chemistry and Biochemistry

Introduction: Anaplastic Large Cell Lymphoma (ALCL) is a rare and aggressive type of non-Hodgkin lymphoma that arises from T-cells. The ALK fusion protein plays a key role in the development and progression of ALCL ALK+. Comprehensive understanding of the role of ALK in ALCL is crucial for elucidating the pathogenesis and developing novel therapeutic strategies.

Aim of the study: This study aimed to investigate the role of ALK kinase in ALCL and assess the impact of its pharmacological inhibition.

Materials and methods: The study was conducted on ALCL SUP-M2, SR-786 cells.

Inhibition of NPM-ALK kinase occurred by treating the cells for 24 hours with selected concentrations of the commercially available inhibitor Crizotinib. The cell viability was measured by XTT assay. The measurement of cytokine levels was examined using the LEGENDplex™ Human Inflammation Panel 1 and analyzed via flow cytometry.

Results: Inhibition of ALK kinase with crizotinib induced apoptosis of ALCL cells. In a study assessing cytokine levels, significant alterations were observed following treatment with the ALK inhibitor. These changes were dependent on the inhibitor's concentration.

Conclusions: ALCL is still a challenging blood malignancy to manage. These Results indicate a cytotoxic effect of pharmacological inhibition of ALK kinase. Which indicates the dependence of ALCL cells on ALK kinase. Additionally, the observed cytokine modulation suggests that ALK inhibitors may influence the inflammatory response and regulatory signaling networks in ALCL cells.

This work was supported by the Medical University of Lodz, Poland (grant no. 503/1-156-07/503-11-001)

JUVENES PRO MEDICINA

Vaginal microbiota-derived postbiotics as adjunctive agents in prophylaxis and treatment of cervical cancer – a preliminary study on in vitro model

Joanna Wasiak, Pola Głowacka, Agnieszka Pudlarz

Presenting author: Joanna Wasiak

Work supervisors: Monika Witusik-Perkowska, Janusz Szemraj

Affiliations: Department of Medical Biochemistry, Medical University of Lodz, 6/8 Mazowiecka Str., 92-215 Lodz, Poland

Introduction: The vaginal microbiota plays a crucial role in maintaining gynecological health, with dominant Lactobacillus species acting as natural barriers against infection and inflammation. Disruptions in this microbial ecosystem have been increasingly linked to the development and progression of gynecologic malignancies, including cancer. This study focuses on postbiotics derived from L. jensenii, L. crispatus, and L. gasseri, dominant members of the healthy vaginal microbiota, and their influence on cervical cancer cells.

Aim of the study: To evaluate the antineoplastic potential of postbiotics derived from lactic acid bacteria (LAB) typical of the healthy vagina as potential adjunctive agents in cancer prevention and treatment using an in vitro cancer model.

Material and methods: The cervical cancer cell line (Caski) was treated with postbiotics applied as LAB-derived supernatant, doxorubicin and their combinations. Post-treatment assessments included analysis of cell viability and death (microplate cytotoxicity assays and flow cytometric analysis based on Annexin V/PI staining) and detection of cellular senescence (β-galactosidase assay).

Results: Postbiotic treatment caused a slight reduction in the viability of neoplastic cells; however, analysis of the FC Results confirmed that bacterial metabolites can induce apoptosis in cancer cells, with pro-apoptotic effects detected mainly in cells treated with L. crispatus and L. gasseri. Despite the modest impact of postbiotics on cancer cell viability, their combination with doxorubicin further reduced the percentage of viable cancer cells compared to cells treated with a single chemotherapeutic agent. In addition, the β-galactosidase assay revealed the influence of LAB-derived postbiotics on the senescence process induced by doxorubicin treatment.

Conclusion: The preliminary findings of this study suggest the therapeutic potential of postbiotics as adjunctive agents in gynecological oncology. Subsequent studies will aim to elucidate the underlying molecular mechanisms and cell death pathways responsible for the observed anticancer effects.

The study was supported by NCN grant, PRELUDIUM BIS nr 2022/47/O/NZ7/01089

JUVENES PRO MEDICINA

Immune-Metabolic Profiling in Psoriatic Arthritis: A CyTof-Based approach to Assess Treatment response

Alaa Sherri, Mohammad Mahdi Mortada, Nino Stoker, Joanna Sarnik, Joanna Makowska, Milena Sokolowska, Anna Lewandowska-Polak

Presenting author: Alaa Sherri

Work supervisors: Anna Lewandowska-Polak, Milena Sokolowska

Affiliations: 1- medical University of lodz/ International Doctoral school 2-Swiss Institute of allergy and Asthma research

Introduction:Psoriatic Arthritis (PsA) is a chronic inflammatory disease with heterogeneous immune cell involvement. Understanding immune profile differences between healthy controls & PsA patients, in addition to immune profile changes after treatment, is crucial for a better understanding of pathogenesis. High-dimensional single-cell analysis using CyTof identifies distinct cellular subsets associated with disease progression and treatment respons.

Material and methods peripheral blood samples were collected from 16 PsA patients and six healthy controls. In addition, blood from 6/16 PsA undergoing anti-IL-17 biological therapy was collected before and after one and 3 months. samples were processed using CyTof and the panel consisted of the Maxpar Direct ImmuneProfiling assay markers, 7 immune metabolism markers, 2 interleukins, and lipoxin receptors ALX.

Results: Baseline Immune profiles in PsA patients showed a significant increase in different subsets like CD8 and CD4 Tcell subsets and among B cells ($p<0.05$). Post-treatment analysis reveled a reduction in these subsets at both 1 months and 3 months timepoints whithout showinng statistical significance.these findins were consistant with different metabolic reporograming trends.

Conclusion : Our findings highlight alternations in psoriatic arthritis and suggests that biological therapy reshapes the immune profile.

Impact of a pro-inflammatory cocktail stimulating COVID-19-like molecular pathways on Gastrointestinal Motility in a Preclinical Model in Aged Rats

Blanca Silván-Ros1,2,3, David Benítez-Álvarez1,2,4,5, Felipe Barragán del Caz1,2, Sara Pascual-Marina1, Maria Díez-Clemente1, José Luis Rojo-Álvarez6,7, Sergio Muñoz-Romero6,7, Raquel Abalo1,2,8,9,10

Presenting author: Blanca Silván-Ros

Work supervisor: Raquel Abalo

Affiliations: 1Department of Basic Health Sciences, Faculty of Health Sciences, University Rey Juan Carlos (URJC), 28922 Alcorcón, Spain. 2High Performance Research Group in Physiopathology and Pharmacology of the Digestive System (NeuGut-URJC), University Rey Juan Car

Introduction: The infection by SARS-CoV-2 causes severe COVID-19, especially in elderly patients, due to a complex cytokine storm that determines the severity of both acute symptoms and sequelae. Using a pro-inflammatory cocktail, based on the main molecular pathways that trigger the severe cytokine storm associated with COVID-19 (lipopolysaccharide, LPS, to internalize ACE-2 receptors; imiquimod to activate TLR-7; ATP to cause tissue damage) in young male rats, we have observed acute gastrointestinal transit alterations, but no sequelae. When applied to aged animals, the same protocol led to increased mortality (closely mirroring the increased vulnerability observed in elderly human patients), but a 50% reduction in LPS concentration increased survival, allowing us to investigate the effects of the cocktail on gastrointestinal transit. Therefore, the objective of the present study was to evaluate the acute impact of the cytokine storm induced by this pro-inflammatory cocktail on gastrointestinal transit and the possible sequelae in aged rats.

Materials and methods: Male Wistar rats (N=9-12/group) aged 20-24 months and weighing 450-700 g were used. They received an intraperitoneal injection of: LPS (1.5 mg/kg) at T-2, followed by imiquimod (0.1 mg/kg) 30 minutes later, and finally, ATP (5 mg/kg) one and a half hours after imiquimod, completing the cocktail at T0. The control group received the corresponding vehicles. Before the cocktail (T-2), contrast (barium) was gavaged and serial X-rays were taken from T-2 to T24 to analyze transit in the stomach, small intestine, cecum, and colon. Three weeks after, another radiographic session was performed at the same time points to observe possible sequelae.

Results: Compared to the control group, immediately after the proinflammatory cocktail, statistically significant acute alterations were observed in gastrointestinal transit suggesting gastroparesis and paralytic ileus, without clear changes in the maximum size of the stomach, cecum and fecal boluses or in the maximum density of barium within them. After three weeks, the animals showed complete recovery, with normalized gastrointestinal transit.

Conclusions: The pro-inflammatory cocktail used, based on the main molecular pathways that trigger the severe cytokine storm associated with COVID-19, acutely delayed gastrointestinal transit in aged rats, without sequelaeThese findings closely mirror those previously observed in young animals treated with higher doses of the same cocktail, supporting the model's consistency across age groups. The developed preclinical model is simple, economical, and rapid, and will facilitate the search for new strategies to prevent/treat the severe effects of the cytokine storm and sepsis associated with SARS-CoV-2 and other infections.

JUVENES PRO MEDICINA

Differences in antiviral response to HRV-16 in primary human microvascular endothelial cells of the lung

Wojciech Karpik, Mateusz Gawrysiak PhD, Prof. Maciej Chałubiński

Presenting author: Wojciech Karpik

Work supervisors: Mateusz Gawrysiak PhD, Prof. Maciej Chałubiński

Affiliations: Medical University of Lodz

Introduction: Up to 85% of infectious cases of asthma exacerbations are caused by rhinoviruses. Vascular endothelium plays an important role in the immunopathology of chronic inflammatory diseases of the respiratory system. Due to the presence of pattern-recognising receptors, like TLR and RLR receptors, endothelium can recognise components of viral pathogens and secrete pro-inflammatory cytokines and interferons in response. There are reports of impaired interferon response in asthma patients.

Aim of the study: Comparison of the antiviral response (IFN-β; OAS1; PKR; TLR3; RIG-I) of human primary microvascular endothelial cells of the lung (HMVEC-L) from healthy individual and asthma patient.

Materials and methods: Primary HMVEC-L cells were infected with HRV-16 virus at a MOI 3.0 for 3h, after which the virus was washed out (T0h). The cells were collected at time points T0h, T5h, T24h, T72h. We measured the relative expression of mRNA for IFN-β, interferon-stimulated genes – OAS1 and PKR, as well as TLR3 and RIG-I – dsRNA recognizing receptors. The results are presented as mean ± SEM, N=2-3.

Results: HRV-16 infection resulted in a 32-fold (31,96 ± 16,45) increase in mRNA encoding IFN-β at T5h, in healthy patient's endothelium, while in the endothelium of an asthmatic patient we have observed only a 2-fold increase (2,033 ± 0,619). At T24h the expression of OAS1 and PKR's mRNA rose in healthy patient's endothelial cells (consecutively 5,560 ± 2,771 and 2,967 ± 1,302), as well as in the endothelium of an asthmatic patient (consecutively 7,313 ± 1,885 and 4,510 ± 0,849). The expression of mRNA encoding TLR3 and RIG-I receptors increased at T24h in case of both cell lines, consecutively (5,073 ± 1,744 and 4,917 ± 1,788) for healthy patient and (15,163 ± 0,969 and 7,783 ± 1,740) for asthmatic patient.

Conclusion: The Results support the latest literature reports about the reduced and delayed interferon response of epithelial cells of the lung in asthmatic patients.

JUVENES PRO MEDICINA

Impact of adipose-derived and amnion-derived mesenchymal stem cells on massive rotator cuff tears in an animal model.

K.Kwas, A. Rybicka, P.Komola, H.Moczulska, M.Szubert, M.Grzesiak, I.Dróżdż, A.Borowski

Presenting author: Katarzyna Kwas

Work supervisors: Radzisław Kordek, Adam Kwapisz

Affiliations: Department of Orthopedics and Pediatric Orthopedics, Medical University of Lodz, Poland

Introduction: Massive rotator cuff tears are a common cause of shoulder dysfunction and remain challenging to treat due to poor healing potential. Mesenchymal stem cells (MSCs) have shown promise in enhancing tendon repair, but their effectiveness may vary based on cell source

Aim of the study: The study aims to demonstrate the impact of amnion-derived mesenchymal stem cells (anMSCs) and adipose-derived mesenchymal stem cells (adMSCs) on fatty infiltration (FI) in massive rotator cuff tears in an animal model.

Materials and methods: The research comprised of the preliminary and main studies. A preliminary study aimed at estimation of FI (>=3 on the Goutallier scale) and included an analysis of 10 New Zealand, White Rabbits. The main study was performed on 52 species with rotator cuff tear >=3; supraspinatus (SS) and infraspinatus (IS) muscles were randomly injected with 2ml of anMSCs (n=14), adMSCs (n=13), and 0,9% NaCl (n=25). After 4 weeks, both muscles of 52 animals were resected. Histopathological analysis was performed with a Goutallier scale assessment by two independent researchers. Bioethics committee consent was obtained. Statistical analysis with power analysis was performed.

Results: Preliminary study indicated mean FI in 8 th week 1.89(SD=0.80) in 10 th 3.14 (SD=1.1), statistically significant difference was stated between the 4 th , 6 th , 8 th and 10 th weeks (p<0.00). In main study, mean FI in anMSCs group equaled: for IS= 2.69(SD=1.38), SS=0.55(SD=0.52), in adMSCs group IS= 3.38(SD=0.96), SS=1.00(SD=1), for control group IS=3.24(SD=0.66), SS=0.72(SD=0.74). The statistically significant difference between SS and IS in both anMSCs(p<0.004) and adMSCs(p<0.0001) groups was stated. A lack of statistical significance was stated between the control group and study groups for SS(p=0.3238) and IS(p=0.3090) muscles. No statistical difference was stated between adMSCs vs control(SS p=0.42, IS p=0.38), anMSCs vs control(SS p=0.56, IS p=0.39).

Conclusions: Neither anMSCs nor adMSCs influence the fatty infiltration in both IS and SS muscles. However there is difference between SS and IS muscles in FI stage.