25th International Congress of Young Medical Scientists

ABSTRACT BOOK

16-18th May 2025

ISBN 978-83-7597-486-7

Congress Internet Service:

25th International Congress of Young Medical Scientists ICYMS)

@stn.ump

Contact:

Students' Scientific Society
at Poznan University of Medical Sciences
ul. Rokietnicka 5, room 2.15
60-806 Poznań
stn.ump@gmail.com

PUMS Students' Scientific Society is not responsible for the content of abstracts avaliable in this abstract book.

Scientific Committee members, listed on session title pages, took part in the evaluation process, but their roles may not directly correspond to being jury members during sessions. Some served only as reviewers, others only as on-site jury.

Due to challenges in accurately translating certain academic degrees into English, we have chosen to present all degrees in their original language, as obtained by their holders.

If you notice any errors or necessary changes in your abstract, please contact us at: poznan.congress@gmail.com

Honorary Patronages

Minister Zdrowia

Patronat Honorowy

WIELKOPOLSKA

SAMORZĄD WOJEWÓDZTWA WIELKOPOLSKIEGO

POZnań

Honorary Patronage
of the Mayor of Poznań

JM prof. dr hab. Zbigniew Krasiński
President of Poznan University of Medical Sciences

Uniwersytecki Szpital Kliniczny w Poznaniu

WIELKOPOLSKA IZBA LEKARSKA

GINEKOLOGICZNO-POŁOŻNICZY SZPITAL KLINICZNY
IM. HELIODORA ŚWIĘCICKIEGO
UNIWERSYTETU MEDYCZNEGO
IM. KAROLA MARCINKOWSKIEGO W POZNANIU

Konsultant Krajowa w dziedzinie Ginekologii i Położnictwa
Prof. dr hab. n. med. Ewa Wender-Ożegowska

Partners and Sponsors

BIMs PLUS

M

MŁYŃSKA12

KRAJOWI PRODUCENCI LEKÓW

avantor™

VIA MEDICA

więcej niż LEK

EgzaminLEK.pl

SYLVECO

egzaminLDEK.pl

AMBOSS

medica91

Pearson

corpus mind

NFZ
Narodowy Fundusz Zdrowia
Wielkopolski Oddział Wojewódzki w Poznaniu

edra
URBAN & PARTNER

medycyna praktyczna

więcej

MEDYCYNA EFEKTYWNIEJ

SIMEDU

DOZ S.A.
dbam o zdrowie

Organizing Committee

Main Coordinator

Agata Walczak

STN Board

Adrian Kostrzewa
Sebastian Czabański
Filip Baszkowski
Aleksandra Długosz
Julia Gierszewska
Julia Bernaciak
Adrianna Klimczak
Nadia Godlewska
Zofia Płóciennniczak
Maksymilian Łukaszewicz
Monika Śledzińska
Zuzanna Jaworska

Organizing Committee

Volunteers

Alice Wadyajena
Martyna Frąckowiak
Aleksandra Styperek
Olga Nicikowska
Hnin Yadana Pyae Sone
Alicja Główka
Katarzyna Popek
Kinga Zwara
Agata Puszcz
Wiktoria Dzwonkowska

Session Coordinators

Kacper Maciejczak
Julia Gwadera
Chih Han Yang
Maja Korytowska
Zuzanna Tyburska
Zuzanna Dąbek
Kinga Kubiak
Natalia Strawa
Karolina Robak
Kanwara Karnchanakas
Eliza Kortus
Jakub Waliszewski
Aye Mon Myint
Hanna Krawczuk
Zuzanna Paryzek
Piraya Chaiyo

Basic Life Sciences, Oncology, Hematology & Radiotherapy

Scientific Committee

prof. dr hab. Paweł Jagodziński
dr hab. Joanna Rupa-Matysek
dr hab. Dominik Dytfeld
dr n. med. Bartosz Słowikowski
dr n. med. Bartosz Urbański

Coordinator

Zuzanna Tyburska

An elephant in a room? Researching possible connection between colorectal cancer and COMP expression

Authors: Wiktor Wagner[1], Piotr Limanówka[1], Anna Kot[1], Dominika Koszewska[1], Błażej Ochman[1]
Affiliation: [1]Student Scientific Association at the Department and Division of Medical and Molecular Biology, Faculty of Medical Sciences in Zabrze, Medical University of Silesia
Tutor: dr hab. n. med. Elżbieta Świętochowska

Introduction: Cartilage oligomeric matrix protein (COMP) is a glycoprotein located in extracellular matrix. As some of the COMP roles in human body remain unclear, it can prevent apoptosis by affecting the expression of apoptosis inhibitors. What is more, conducted studies have established that COMP could be a potential biomarker of colon cancer development, due to its role in activating Akt pathway, leading to cell proliferation.

The aim of the study: The aim of the study was to evaluate the concentration of COMP in CRC tissues compared to the expression in surgical margin tissue and to examine the associations between COMP expression and mutations in the KRAS, NRAS, BRAF, PIK3CA genes, the expression of selected cytokines, and TNM staging parameters.

Material and Methods: COMP concentrations were determined using the ELISA in homogenates of colorectal cancer tissue and surgical margins obtained from 91 patients. The concentration of 48 cytokines, chemokines and growth factors has been evaluated by cytokine screening bio-plex panel in group of 42 colorectal cancer tissue samples. RT-PCR was used to analyze mutations of the investigated genes in a subset of 86 patients.

Results: The concentrations of COMP protein were significantly higher in CRC tissues compared to the margins ($p<0.01$). Additionally, increased expression of COMP correlated with factor N from TNM scale ($p<0.05$). COMP expression correlated with expression of cytokines, including IL4, IL2Ra and MIF ($p<0.05$). We did not observe any significant associations between COMP expression and mutations in the KRAS, NRAS, BRAF, and PIK3CA genes.

Conclusions: COMP expression appears to be regulated independently of mutations in the KRAS, NRAS, BRAF, and PIK3CA genes. It is suggested to explore mutations in other genes that may regulate COMP expression. COMP elevated levels correlate with N factor in TNM scale, which could be connected with unfavourable prognosis.

ADAR1 silencing increases the sensitivity of tumor cells to methotrexate

Authors: Anna Małkiewicz[1], Dominika Adamczak[1], Michał Fornalik[1]
Affiliation: [1]Poznan University of Medical Sciences; Department and Division of Biochemistry and Molecular Biology.
Tutor: dr n. med. Bartosz Słowikowski

Introduction: ADAR proteins play an important part in the neoplastic process because their actions can influence expression of genes involved in the regulation of the cell cycle and chemoresistance. High ADAR1 expression is associated with a poor clinical outcome and is found in a wide range of malignancies. ADAR1's adenosine-to-inosine RNA editing enhances dihydrofolate reductase expression, the key enzyme in nucleotide synthesis and the main target of methotrexate. Additionally, ADAR1 influences miRNAs linked to methotrexate resistance.

The aim of the study: The research intended to determine the role of ADAR1 in tumor resistance to methotrexate. Furthermore, we sought to study the effect of ADAR1 inhibition on cancer cell proliferation.

Material and Methods: We utilized four cancer cell lines: breast, cervical, lung, and colorectal tumor. The cultures were cultivated under normal conditions. In order to silence ADAR1 we used validated small interfering RNA. Transfection was performed by the use of lipofectamine. In our investigation, six control groups were implemented. The MTT test was used to measure the rate of cell proliferation 24 and 48 hours after the administration of methotrexate. Additionally, we analyzed the effects of ADAR1 silencing in breast cancer cells lines in the bulk-RNA sequencing derived from publicly available data (GSE286185).

Results: ADAR1 knockdown significantly reduces the cell lines' ability to proliferate. Furthermore, ADAR1 inhibition increases the vulnerability of cancer cells to methotrexate. The RNA sequencing datasets analysis revealed that ADAR1 silencing induces large transcriptomic changes. Ingenuity Pathway Analysis revealed that commonly affected pathways included molecular mechanisms of cancer and inflammatory response pathways.

Conclusions: Cell growth is attenuated by ADAR1 knockdown, independently of methotrexate's effects. However, with methotrexate, the impact of ADAR1 silencing on cell growth is more pronounced. These results demonstrate that ADAR1 may be a target of novel therapeutic agents that raise the efficacy of standard cancer therapy.

Targeted Cancer Immunotherapy: Silk Nanospheres as Carriers for Oligonucleotide Activation of cGAS-STING and RIG-I/MAVS Pathways

Authors: Marta Kropacz[1], Julia Piotrowska[1], Urszula Golebiewska[1], Roma Filipiak[1], Amelia Koska[1]
Affiliation: [1]Department of Cancer Immunology, Poznan University of Medical Sciences, Poznan, Poland; Department of Diagnostics and Cancer Immunology, Greater Poland Cancer Centre, Poznan, Poland; The Student Scientific Society of Poznan University of Medical Sciences, SKN Medical Biotechnology
Tutor: prof. dr hab. n. med. Hanna Dams-Kozłowska

Introduction: The cGAS-STING and RIG-I/MAVS pathways are critical components of innate immunity, playing a fundamental role in antiviral defense and tumor immunosurveillance. Oligonucleotide agonists such as 2'3'cGAMP and M8 can induce apoptosis in cancer cells and stimulate interferon production, thereby enhancing antitumor immune responses. However, their inherent instability and lack of cellular specificity necessitate the development of an efficient, targeted delivery system to maximize therapeutic efficacy.

The aim of the study: To engineer a silk nanosphere-based delivery platform for selective activation of the cGAS-STING and RIG-I/MAVS pathways for cancer immunotherapy.

Material and Methods: The biological activity of 2'3'cGAMP (cGAS-STING agonist) and M8 (RIG-I/MAVS agonist) was evaluated in HER2-positive SKOV3 ovarian cancer cells cultured in both 2D monolayers and 3D spheroids. Functionalized silk was synthesized via bacterial expression and purified using concentrated propionic acid. Oligonucleotide therapeutics were administered via either lipofectamine or HER2-targeted silk nanospheres. Pathway activation was assessed using quantitative real-time PCR (qRT-PCR) and Western blot analysis, while apoptosis was quantified via a caspase-mediated assay.

Results: In 2D cultures, lipofectamine-mediated delivery of 2'3'cGAMP and M8 significantly upregulated IFN-β expression, whereas in 3D spheroid cultures, only M8 was effective. Additionally, functionalized silk was successfully assembled into nanoparticles. In 2D conditions, the M8 molecule showed greater potential for IFN-beta induction compared to 2'3 cGAMP. Western blot analysis confirmed the presence of pathway-associated proteins. Furthermore, cGAS-STING activation by 2'3'cGAMP led to apoptosis of SKOV3 cells.

Conclusions: Oligonucleotide agonists 2'3'cGAMP and M8 effectively activated the cGAS-STING and RIG-I/MAVS pathways, increasing IFN-β expression. Moreover, silk nanospheres improved 2'3'cGAMP delivery, enhancing its pro-apoptotic and immunostimulatory effects. This strategy holds significant promise for advancing cancer immunotherapy.

Acknowledgments: The project was co-financed by the following grants: Student Society Grant UMP 133/2022, WCO Internal Grant 26012023/ZIN/WCO/003, and MNiSzW Grant SKN/SP/602220/2024.

The Chiraiya project: a retrospective analysis of breast cancer detection gaps addressed via mobile mammography in Jammu Province, India

Authors: Raghav Gupta[1], Neetu Jamwal[2]
Affiliations: [1]Poznań University of Medical Sciences, Poznań, Poland; [2]Department of General Surgery, Government Medical College Jammu, Jammu and Kashmir, India;
Tutor: Geetanjali Gupta, MBBS, MBA

Introduction: Breast cancer remains a major global threat, necessitating effective screening. Mammography is the primary tool for mass detection. This retrospective study, part of the Chiraiya Project, evaluated breast lesion patients identified during opportunistic mammography screening camps in Jammu Province, India.

The aim of the study: This retrospective study, part of the Chiraiya Project, evaluated breast lesion patients identified during opportunistic mammography screening camps in Jammu Province, India.

Material and Methods: A total of 1505 women aged 40+ were screened using a mobile mammographic unit over five years, excluding 2020–2021 due to COVID-19. Women with open breast wounds, prior breast cancer, or surgery history were excluded. Data collection involved a detailed Proforma, mammographic assessments, and BI-RADS interpretations. Patients were recruited via NGOs, army camps, village panchayats, and urban cooperatives. Each camp accommodated up to 90 patients.

Results: Most patients were aged 45–50. Screenings peaked at 441 in 2022. BI-RADS II (48.77%) was the most common finding, while BI-RADS 0 (32.96%) required further evaluation. Higher-risk categories (BI-RADS III, IV, V) were less frequent, with BI-RADS V being rarest. Follow-up adherence was highest in BI-RADS III–V, with BI-RADS V achieving 100%. However, only 320 of 496 BI-RADS 0 patients were followed up, highlighting a gap in continuity of care. The overall follow-up rate was 66.89%. Rural areas had higher screening uptake but lower follow-up rates, underscoring the need for improved access to follow-up care.

Conclusions: The mobile mammographic unit enhanced screening in underserved areas, but follow-up care remains a challenge. Targeted interventions are needed to improve patient retention and awareness, emphasizing the importance of sustainable mobile screening programs in bridging healthcare accessibility gaps.

.

The effect of natural form of Mumio on bladder cancer cells

Authors: Filip Chmarzyński[1], Julia Sieracka[1], Marcelina Sztramowska[1], Marta Pokrywczyńska[1]
Affiliation: [1]Chair of Urology and Andrology, Department of Regenerative Medicine, Collegium Medicum, Nicolaus Copernicus University, Bydgoszcz, Poland
Tutor: prof. UMK, dr hab. n. med. Tomasz Kłoskowski

Introduction: Despite the availability of treatment options for cancer, including bladder cancer, these diseases continue to be the leading causes of mortality worldwide. Consequently, researchers are actively exploring innovative treatment methods for anticancer therapies. Mumio, a natural substance derived from plant oils that seep through mountain crevices, has been recognized for its medicinal properties in folk medicine for centuries. Before transitioning to in vivo studies, it is essential to investigate the effects of such substances in in vitro cell cultures.

The aim of the study: This study aimed to assess the cytotoxic effects of a natural form of Mumio from Altai and Afghan region on human bladder cancer cells (T24 and HTB-9 lines) and normal human urothelial cells (SV-HUC-1 line).

Material and Methods: Cell cultures were performed in culture flasks with a surface area of 75 cm2 filled with dedicated culture media and placed in an incubator (37°C, 5% CO2). Next, three tested cell lines (HTB-9, T24, SV-HUC-1) were seeded into 96-well plates at an appropriate density. After 24 hours of growth, Mumio solutions diluted in the medium were added at six different concentrations (1000 µL/mL, 800 µL/mL, 500 µL/mL, 200 µL/mL, 100 µL/mL, and 25 µL/mL). The cells were incubated with tested solutions for 24, 48, and 72 hours. The control group consisted of cells cultured solely in the medium without Mumio. MTT assays were conducted to evaluate cell viability in cell cultures. Cell mortality was assessed based on the concentration of Mumio and the duration of incubation.

Results: Mumio exhibits cytotoxic effects against the tested cell lines in a dose- and time-dependent manner. Cell number reduction and morphological changes were observed with increasing Mumio concentration. Mumio exhibited the weakest cytotoxic effect against the normal uroepithelial cell line (SV-HUC-1) and the strongest against the cancer T24 cell line.

Conclusions: The obtained results suggest that Mumio may have potential in the supportive treatment of bladder cancer.

The expression and function of SMARCA1 in colorectal cancer.

Authors: Urszula Korolczuk[1], Julia Lipowicz[2], Wiktoria Malak[1]
Affiliations: [1]Poznan University of Medical Sciences, Department of Histology and Embryology, Święcickiego 6 street, 60-781 Poznań, Poland; [2]Poznan University of Medical Sciences, Doctoral School, Department of Histology and Embryology, Święcickiego 6 street, 60-781 Poznań, Poland
Tutor: dr hab. n. med. Agnieszka Rawłuszko-Wieczorek

Introduction: Colorectal cancer (CRC) is the third most commonly diagnosed and second most lethal cancer in the world. Recent studies have shown the importance of epigenetic changes in cancer, therefore we analyzed SNF2 related chromatin remodeling ATPase 1 (SMARCA1) significance in CRC. SMARCA1 is a member of the SWI/SNF family that regulates nucleosome position and thus gene expression. Recent studies have shown its potential as a significant biomarker in lung and cervical cancer, yet not much is known regarding its role in CRC.

The aim of the study: The aim of the study was to evaluate SMARCA1 mRNA expression patterns and its association with clinical data and molecular pathways in colorectal cancer patients.

Material and Methods: All transcriptomic and clinical data are available online, and the access is neither restricted nor requires patients' consent. Transcriptomic and clinical data were downloaded from cBioPortal and GEPIA2. Gene Set Enrichment Analysis (GSEA) 4.3.2 software was used to analyze differentially expressed genes and molecular pathways. For Kaplan-Meier analysis patients were divided into two groups based on SMARCA1 expression (cut-off point based on "EvaluateCutpoints" R algorithm). Statistical analyses were carried out using PQStat v.1.8.4 software.

Results: Low SMARCA1 expression level correlated with longer overall-survival in male and disease-free survival in female patients. Associations between SMARCA1 expression and clinical features including age of diagnosis and tumor stage likewise were statistically significant. GSEA results displayed importance of SMARCA1 expression in pathways related to epithelial-mesenchymal transition, cell cycle and oxidative phosphorylation.

Conclusions: TSMARCA1 might be a significant factor in colorectal cancer research. Its associations with clinical features of CRC patients suggest its importance in survival and metastasis. Further research is necessary to fully evaluate its diagnostic potential in CRC.

Role of splicing regulators ESRP1 and ESRP2 in epithelial-mesenchymal transition in bladder cancer cells

Authors: Karolina Jankowska[1], Weronika Wójtowicz[1]
Affiliation: [1]Students Scientific Association at the Department of Clinical Genetics, Silesian Medical University in Katowice, Poland
Tutors: dr. n. biol. Karolina Bajdak-Rusinek, dr. n. med. Karolina Stępień

Introduction: ESRPs (Epithelial Splicing Regulatory Proteins) play a key role in the regulation of alternative pre-mRNA splicing, which is important in pathological processes such as cancer metastasis. The epithelial-mesenchymal transition (EMT) promotes cell migration and invasion, driven by TGF-β, which reduces epithelial markers like E-cadherin and increases mesenchymal markers like vimentin.

The aim of the study: To date, the role that ESRP1 and ESRP2 play in the EMT process has been studied mainly in the context of breast, lung and pancreatic cancer. However, with regard to bladder cancer, there is a lack of detailed research on their involvement in this process, which is a key objective of this project.

Material and Methods: In this study, we analyzed four commercially available bladder cancer cell lines: two from invasive cancer (T-24 and UM-UC-3) and two from non-invasive (RT-4 and 5637). We investigated the expression profile of EMT-related genes using RT-qPCR. At the same time, we examined the expression of ESRP1 and ESRP2 in these cell lines. We confirmed the results at the protein level by performing Western Blot analysis. We then performed siRNA transfection to silence the expression of ESRP1 and ESRP2.

Results: Preliminary results indicate that cell lines from invasive bladder cancer (T-24 and UM-UC-3) have a gene expression profile characteristic of the EMT process, in which ZEB1 plays a key role. In contrast, cell lines from non-invasive cancer (RT-4 and 5637) show an expression profile typical of the epithelial phenotype, with high expression of E-cadherin. Moreover, we also observed elevated expression levels of ESRP1 and ESRP2 in these lines.

Conclusions: In turn, silencing the expression of ESRP1 and ESRP2 down-regulates the expression of E-cad, while up-regulating the expression of VIM and Zeb1, suggesting their potential role in regulating the EMT process.

Internal Medicine, Cardiology & Hypertension

Scientific Committee

prof. dr hab. Dorota Zozulińska-Ziółkiewicz
prof. dr hab. Nadia Sawicka-Gutaj
dr hab. n. med. Marta Kałużna-Oleksy
dr n. med. Rafał Dankowski

Coordinators

Natalia Strawa
Chih Han Yang

From deficiency to balance: investigating the metabolic effects of Growth Hormone Therapy

Authors: Nikola Pempera[1], Miłosz Miedziaszczyk[2], Aleksandra Derwich-Rudowicz[1], Paweł Wilk[1]
Affiliations: [1]Department of Endocrinology, Metabolism and Internal Medicine, Poznan University of Medical Sciences, Poznan, Poland; [2]Department of Clinical Pharmacy and Biopharmacy, Poznan University of Medical Sciences, Poznan, Poland
Tutors: prof. dr hab. Nadia Sawicka-Gutaj, dr hab. Małgorzata Kałużna, prof. dr hab. Marek Ruchała

Introduction: Growth hormone deficiency (GHD) can be congenital or acquired, often due to pituitary tumors, hemorrhage, or craniopharyngiomas. Genetic and autoimmune factors may also increase the risk of GHD.

The aim of the study: This study aimed to assess the effects of growth hormone treatment on metabolic, biochemical, and psychological changes in adult individuals with GHD.

Material and Methods: The study involved 58 participants (29 women and 29 men), analyzing their biochemical, metabolic, and psychological parameters at baseline, after both 6 and 12 months of growth hormone treatment. Statistical analysis was performed using MedCalc software.

Results: We observed a significant decrease in total cholesterol levels in the female group after 6 months of growth hormone treatment ($p=0.021$). LDL levels showed a significant improvement in the females after both 6 ($p=0.044$) and 12 months ($p=0.044$). Additionally, a statistically significant increase in triglycerides was observed in the female group after both 6 ($p=0.003$) and 12 months ($p=0.005$). Furthermore, a statistically significant improvement in psychological well-being, as assessed using the standardized Qql questionnaire, was observed, particularly in the females after 12 months of treatment ($p=0.019$). As expected, the most significant finding ($p<0.0001$) was the improvement in IGF-1 levels across the entire study population after both 6 and 12 months. No other significant changes were observed in males. In the overall study population, total cholesterol decreased significantly after 6 months ($p=0.013$), while LDL levels dropped at both 6 ($p=0.020$) and 12 months ($p=0.044$). Triglycerides increased at 6 ($p=0.026$) and 12 months ($p=0.014$), while fT4 decreased after 6 months ($p=0.043$). The waist-to-hip ratio rose significantly ($p=0.03$). Notable improvements were observed in the Qql questionnaire ($p=0.004$). No significant changes were found in HDL, TSH, HbA1C, 25(OH)D, weight, BMI, or waist and hip circumference.

Conclusions: Growth hormone significantly affects the biochemical and metabolic outcomes in females, highlighting the need for continuous monitoring throughout the whole treatment period.

NLPR, a novel marker for mortality assessment in patients with Heart Failure with Preserved Ejection Fraction

Authors: Omar Rahal[1], Abdullah Hourani[1]
Affiliation: [1]Medical University Of Warsaw, Poland
Tutor: Abdelrahman Abdelsalam, MD

Introduction: Heart failure is a condition in which the heart fails to pump sufficient volume of blood. Current research is showing that inflammation plays a role in the pathogenesis and progression of HFpEF. Therefore, novel bookmakers are needed to monitor.

The aim of the study: Assess the effectiveness of the neutrophil:lymphocytes: platelets ratio in predicting HFpEF mortality.

Material and Methods: This study utilized data from the Medical Information Mart for Intensive Care IV (MIMIC-IV) database, a publicly available electronic health record (EHR). MIMIC-IV contains de-identified, high-quality clinical data, including patient demographics, laboratory results, medication administration, procedures, and mortality outcomes for hospital and intensive care unit (ICU) admissions between 2008 and 2022.

Results: After performing univariate logistic regression, the NLPR marker to predict mortality at 28,90,180,365 days. NLPR during 28 days of mortality had an odds ratio of 1.076, and AUC of 0.729 indicating a moderately good predictive power of NLPR with a sensitivity of 82.2% and specificity of 62.8%. The predictability of NLPR, illustrated by AUC, progressively decreases with predicting future mortality with values of 0.678,0.670, and 0.644 for 90, 180, 365 days mortality respectively. NLPR remained an independent predictor in HFpEF mortality after performing a multivariate regression analysis which included demographic, clinical, and biochemical covariates. Numerical and binomial analysis were conducted. The binomial analysis has an odd ratio of 0.352 (p-value=0.0108) which means high NLPR has a mortality rate of 35.2%, and numerical analysis has an odd ratio of NLPR 1.04 (p-value=0.0313). In conclusion, the multivariate regression analysis included NLPR predictability is still significant and is deemed to have high predictability.

Conclusions: This study found that NLPR demonstrated its highest predictive ability when predicting 28 days mortality. The value of NLPR was confirmed with other studies which concluded that combining neutrophil-to-lymphocyte ratio and platelets:lymphocytes ratio had higher sensitivity and specificity when combined together, and both had lower sensitivity and specificity when used alone. We recommend future research to further validate the NLPR predictor of mortality.

Analysis of knowledge and beliefs regarding pharmacological treatment among patients suffering from obesity

Author: Julia Cebula[1]
Affiliation: [1]Department of Obesity Treatment, Metabolic Disorders, and Clinical Dietetics, Poznan University of Medical Sciences, Poland
Tutor: dr n. med. Małgorzata Moszak

Introduction: Obesity is a chronic disease requiring a multidisciplinary approach, including lifestyle changes and pharmacotherapy. Despite new medications, patient awareness and acceptance remain limited.

The aim of the study: This study aimed to assess knowledge and beliefs regarding pharmacotherapy among patients with obesity, including an assessment of satisfaction with current or previous pharmacological treatment, identification of factors influencing the pharmacotherapy acceptance and adherence, and patient's preferences concerning obesity treatment.

Material and Methods: 55 adult patients with obesity participated in this pilot online survey. The study was conducted between December 2023 and May 2024 using the Computer-Assisted Web Interviewing method. The research toll was a self-designed questionnaire that focused on knowledge, preferences, and experiences with pharmacotherapy, including perceived effectiveness, side effects, and reasons for discontinuation.

Results: 90% of patients were aware of pharmacological obesity treatment, and over half had used it. The most commonly used medications were semaglutide (20%), liraglutide (17%), orlistat (9%), and naltrexone/bupropion (5%). Only 22% considered pharmacotherapy the most effective weight-loss method, while 60% preferred lifestyle modifications. Expected effects included appetite suppression (59%) and reduced cravings for high-calorie foods (44%). The most common side effects were nausea (42.6%), heartburn (29.8%), and dry mouth (27.7%), but they rarely led to treatment discontinuation. The main reason for stopping pharmacotherapy was cost (45%). Additionally, 40% of patients planning treatment did not intend to change their lifestyle, which may reduce its effectiveness.

Conclusions: Pharmacotherapy is an important tool in obesity treatment, but acceptance depends on cost, effectiveness, and side effects. Many patients have high expectations but may underestimate the need for lifestyle changes. Comprehensive education and a holistic approach may improve long-term outcomes.

Changes in the short-chain fatty acids concentration profile in feces under the influence of a vegetarian diet

Authors: Dawid Rosiejka[1], Agnieszka Wesołek-Leszczyńska[2,3]
Affiliations: [1]Katedra i Zakład Bromatologii, Collegium Pharmaceuticum Uniwersytet Medyczny im. Karola Marcinkowskiego w Poznaniu; [2]Katedra i Zakład Leczenia Otyłości, Zaburzeń Metabolicznych oraz Dietetyki Klinicznej, Uniwersytet Medyczny im. Karola Marcinkowskiego w Poznaniu; [3]Szkoła Doktorska, Collegium Stomatologicum Poznań, Uniwersytet Medyczny im. Karola Marcinkowskiego w Poznaniu
Tutor: prof. UMP, dr hab. n. med. Sławomira Drzymała-Czyż

Introduction: The difference in the intestinal microbiota composition between vegetarian and people on a traditional diet is well documented. High dietary fiber intake promotes the growth of bacterial species that ferment dietary fiber into short-chain fatty acid (SCFA) metabolites. SCFAs exert positive health benefits, including resistance to pathogens, improving the integrity of the blood-brain barrier, providing energy substrates for the intestines, and regulating their critical functions.

The aim of the study: The study aimed to analyze changes in the SCFA concentration profile in feces collected from study participants who changed their diet, containing meat products, to a lacto-ovo-vegetarian diet for one month.

Material and Methods: Participants were women and men aged 18-53. The study comprised 19 healthy subjects who changed their current diet, containing meat products, to a lacto-ovo-vegetarian diet for one month. The study was conducted in 2023-2024 in Poznań at the Department of Bromatology, University of Medical Sciences in Poznań. There are statistically significant changes in the study group when $p<0.05$.

Results: There were no significant differences observed in faecal baseline concentrations of propionic ($p=0.150$), acetic ($p=0.143$), and butyric acid ($p=0.331$). The levels of individual SCFA were highest in the first collected sample. At the final stage of the study, only an increasing trend in the concentration of butyric and propionic acid in people following a lacto-ovo-vegetarian diet was reported returning to pre-intervention levels to the levels before the intervention.

Conclusions: A one-month lacto-ovo-vegetarian diet does not significantly affect SCFA concentration changes. The absence of increased dietary fiber intake, despite the dietary shift in the study group, may explain the lack of significant differences in the concentrations of the analyzed acids. Since dietary fiber serves as intestinal bacteria's primary substrate for SCFA production, its unchanged consumption likely contributed to the stable SCFA concentrations in stool samples.

Polypharmacy and risk of falls in hospitalized older adults

Authors: Seham Mohamed Saif[1], Shanila Akhtar Ali[1]
Affiliation: [1]Department of Geriatrics, Healthy Ageing Research Centre (HARC), Medical University of Lodz, Poland
Tutors: dr n. med. Bartłomiej Sołtysik, lek. Ganna Kravchenko

Introduction: Polypharmacy is a common issue in hospitalized older adults, increasing the risk of adverse health outcomes, including falls. The Timed Up and Go (TUG) test is a widely used measure of mobility and fall risk. Understanding the relationship between polypharmacy and TUG performance could aid in fall prevention strategies.

The aim of the study: This study aimed to evaluate the association between polypharmacy and fall risk, as assessed by TUG, in hospitalized older adults.

Material and Methods: A total of 1218 hospitalized older adults (839 women, 379 men) admitted to the Geriatric Department in Lodz, Poland from 2017 to 2023 were included in the study. Inclusion criteria were admission to the department, age 60 and above, and available data on taken medications and TUG. For further analysis, participants were stratified by sex and mean age (80.4±8.0 years). Variables were compared using the Mann–Whitney U-test. Correlation was employed to calculate the relationship between the number of drugs and TUG scores. Statistical significance was set at $p \leq 0.05$. Statistical analysis was performed in Statistica 13.1 software.

Results: Women had significantly longer TUG time 14 seconds (IQR: 10-21) compared to men 13 sec (IQR: 9-18) ($p<0.001$). Also, they were significantly older (80.6±7.7 versus 79.5±8.5 years, $p=0.02$). However, number of drugs taken did not significantly differ between sexes ($p=0.15$). Significant positive correlation was found between TUG and the number of drugs ($r=0.14$, $p<0.001$). Subgroup analysis revealed a stronger correlation in women ($r=0.16$, $p<0.001$) than in men ($r=0.11$, $p=0.04$). Patients aged ≥80 years had a higher correlation coefficient ($r=0.15$, $p<0.001$) compared to those <80 years ($r=0.1$, $p=0.01$).\

Conclusions: Polypharmacy may be associated with impaired mobility, as indicated by longer TUG times in hospitalized older adults. The relationship is more pronounced in women and subjects aged ≥80 years. These findings highlight the need for careful medication management / deprescribing to reduce fall risk in this population.

Changes in the pulmonary perfusion and the right heart dimensions after pneumonectomy

Authors: Jacek Szulc[1], Michał Stępkowski[1]
Affiliation: [1]Students Research Club of the Department of Thoracic Surgery and Transplantation, Pomeranian Medical University in Szczecin
Tutors: dr n. med. Małgorzata Wojtyś, prof. dr hab. n. med. Janusz Wójcik

Introduction: Pneumonectomy leads to significant anatomical changes in the pulmonary circulation and the right heart. These changes are frequently associated with the development of the pulmonary hypertension. The anatomical changes in the first five years after operation have been described in numerous studies, however there is a lack of studies about the condition of patients over five years after complete lung resection.

The aim of the study: Assessment of the pulmonary flow and the dimensions of the right heart and pulmonary artery after pneumonectomy. The study also sought to evaluate the influence of time since operation on the value of the aforementioned parameters.

Material and Methods: 34 patients after pneumonectomy were qualified for the study. Pulmonary flow was assessed with the use of ventilation/perfusion scintigraphy, whereas the dimensions of the right heart and pulmonary artery were measured using computed tomography with the contrast. 29,4% of (n=10) patients were assessed within the first year after lung resection, 47,1% (n=16) of patients within 1-5 years, 11,8% (n=4) of patients within 5-10 years and 11,8% (n=4) of patients over 10 years after surgery.

Results: Dilated pulmonary artery was found in 23,5%-26,5% (n= 8-9) of patients. Widened longitudinal and transverse dimension of the right ventricle was found in 44,1% (n=15) and 67,6% (n=23) of patients, respectively, whereas widened longitudinal and transverse dimension of the right atrium was found in 32,3% (n=11) and 17,6% (n=6) of patients, respectively. Flow reserves were fully or nearly fully utilized in 38.2% of patients. At least five radiological features of pulmonary hypertension were found in 23,5% (n=8) of patients.

Conclusions: Pneumonectomy results in an increase in perfusion of the upper lobe and dilatation of the pulmonary artery and right heart. Features of pulmonary hypertension develop at a different pace, however they were present in all patients assessed over 10 years after pneumonectomy.

Quality of Life in Hemodialysis Patients: The Role of Pain, Treatment Burden, Dialysis Vintage and Dialysis Dose

Authors: Weronika Caban[1], Stanisław Rączewski[1], Natalia Lemiszewska[1], Mikołaj Kuncewicz[1]
Affiliation: [1]Warszawski Uniwersytet Medyczny, SKN Kłębuszek przy Wojskowym Instytucie Medycznym Państwowym Instytucie Badawczym
Tutor: lek. Ewa Kotwica-Strzałek

Introduction: Chronic kidney disease patients undergoing hemodialysis often experience a diminished health-related quality of life (HRQoL).Validated tools like the KDQOL questionnaire assess HRQoL comprehensively, but key contributors to lower HRQoL remain an area of active investigation. Identifying these factors can be essential in developing care strategies aimed at improving the quality of life for hemodialysis patients.

The aim of the study: This study aims to examine the relation between quality of life of HD patients and dialysis dose, as well as clinical and sociodemographic factors.

Material and Methods: A cross-sectional study was conducted with 70 participants (mean age = 68.24 years, 61.4% male). The participants filled the Kidney Disease Quality of Life (KDQOL) questionnaire, with additional questions during their hemodialysis visit in the clinic. The data was supplemented with clinical records (e.g., Kt/V values). Statistical analyses included Pearson's and Spearman's rho correlations along with multiple linear regression.

Results: The average KDQOL score was 60.91 (SD = 17.33). Longer commute time to the hemodialysis site was significantly associated with lower scores on the 'Effects of Kidney Disease' subscale ($R = -0.258$, $p = 0.047$) and the overall KDQOL score ($R = -0.238$, $p = 0.031$). HD vintage was negatively correlated with the Physical Component Summary ($R = -0.254$, $p = 0.034$). No significant correlations were observed between HRQoL and age, education, dialysis duration, dialysis dose (Kt/V), or other variables. Multiple linear regression analysis identified pain and additional dialysis sessions as the only significant predictors of HRQoL, explaining 28.3% of the variance (adjusted $R2 = 0.283$, $p < 0.001$).

Conclusions: These findings suggest that targeted pain management and reducing patient burden related to transportation may significantly improve HRQoL in dialysis patients. Additionally, longer HD vintage was associated with poorer physical quality of life. The results do not support a significant relationship between Kt/V and HRQoL.

Neurology, Neurosurgery & Psychiatry

Scientific Committee

prof. dr hab. Janusz Rybakowski
prof. dr hab. Przemysław Mikołajczak
dr hab. n. med. Bartosz Sokół

Coordinator

Julia Gwadera

Stent-related complications following endovascular treatment of the Internal Carotid Artery aneurysm: relations with arterial tortuosity.

Authors: Antoni Cierniak[1], Aleksandra Midro[1]
Affiliation: [1]Student Scientific Group at the Department of Neurosurgery and Neurotraumatology, Faculty of Medicine, Jagiellonian University Medical College
Tutors: dr n. med. inż. Roger Krzyżewski, dr n. med. Borys Kwinta, prof. dr hab. n. med. Tadeusz Popiela, dr n. med. Paweł Brzegowy, dr n. med. inż. Kornelia Kliś

Introduction: Flow diverters (FD) are widely used endovascular devices in the treatment of intracranial aneurysms (IA). Most common complications of the flow diversion are thromboembolic events and stent-related technical issues, which eventually might lead to major complications in 3.5% -6.8% of cases. However, the impact of arterial tortuosity on the complications related to FD implantation remains inconclusive.

The aim of the study: The objective of the study was to evaluate the impact of the ICA geometry on the risk of the stent-related complications during FD implantation.

Material and Methods: Adult patients with confirmed ICA intracranial aneurysm were retrospectively included. Patients with recanalized IA or those previously treated endovascularly were excluded. Three-dimensional models of each patient's ICA were segmented using 3DSlicer5.6. Centerlines of ICAs were then extracted, and based on that, ICA geometry descriptors were calculated. Stent-related complications were defined as FD migration, incomplete deployment or incomplete aneurysm neck coverage with necessity of additional FD implantation. Statistical analysis was performed to compare patients' with and without stent-related complications. To test for equivalence between two groups "two one-sided tests" (TOST) procedure was used.

Results: 93 patients' (79.17% female) aged 56.95±13.63 years were included in the study. 12 patients' (12.9%) had any stent-related complication. Those patients were more commonly tobacco smokers (25% vs. 6.41%; p=0.03). Also, difference in beta blocker intake was found between groups (no-complication group: 25% vs. 0% in the complication group; p=0.04). In terms of tortuosity analysis, ICA total curvature (114.27±40.22 vs. 117.6±25.48; p=0.02) and radius (2.03±0.18 vs. 2.04±0.24; p=0.049) were significantly equivalent between groups. We also found no differences in curvature and torsion values normalized to length and radius in both groups.

Conclusions: Stent-related complications during FD implantation were not related to the ICA tortuosity descriptors. Possible explanations for that are operator experience and modern stent delivery systems, which can be helpful in overcoming challenges caused by tortuous cerebrovascular anatomy.

The comprehension of literary metaphors during the acute phase of ischemic stroke evaluated using a FaceReader software

Authors: Dawid Dzido[1], Julita Peplińska[1], Magda Wantowska[1], Daria Lipska[1]
Affiliation: [1]The Student Scientific Society of Poznan University of Medical Sciences, SKN Neurorehabilitacji, Institute of Neurological Disorders, Poznań University of Medical Sciences, Poland
Tutors: prof. dr hab. n. med. Sławomir Michalak; mgr Ewa Kozielewska-Zwierska

Introduction: Stroke often results in language disorders such as aphasia, leading to communication difficulties. Assessing these impairments is essential for patient rehabilitation. However, traditional assessment methods can be time-consuming and subjective. This study uses an innovative tool, FaceReader by Noldus, to objectively assess patients' emotional responses to literary metaphors.

The aim of the study: The aim of the study was to evaluate the feasibility of using the FaceReader Noldus software as a tool to help diagnose communication disabilities in acute stroke patients by analyzing their emotional reactions to literary metaphors found in poems.

Material and Methods: The study included patients hospitalized in Department of Neurology during the acute phase of a stroke and diagnosed with aphasia. Participants listened to recordings of poems interspersed with white noise. Their reactions were captured on camera and subsequently analyzed using software that detects emotional expressions.

Results: The patients exhibited varying emotional responses based on the type of stimulus. Facial expression analysis revealed that emotional responses were more pronounced to the literary works than to the white noise, indicating that patients can process linguistic content on an emotional level despite verbal limitations.

Conclusions: Software that analyzes patient responses can serve as a valuable tool to assist in the diagnosing comprehension abilities. This can enhance diagnosis and treatment planning in post-stroke patients with impaired verbal communication.

Regulatory microRNAs and peripheral expression of Brain-Derived Neurotrophic Factor (BDNF). Correlation with defense mechanisms and stress coping strategies in healthy young adults

Author: Zuzanna Jaworska[1], Przemysław Zakowicz[2]
Affiliation: [1]The Student Scientific Society of Poznan University of Medical Sciences, Student Research Group of Biological Psychiatry, Department of Psychiatric Genetics, Poznan University of Medical Sciences, Poznan, Poland; [2]Collegium Medicum, University of Zielona Gora, Zielona Gora, Poland.
Tutor: prof. UMP, dr hab. n. med. Maria Skibińska

Introduction: Brain-derived neurotrophic factor (BDNF) is an important protein that regulates brain development and neuroplasticity. A decrease in BDNF concentration is closely related to a significantly lowered mood, depression or suicidal behavior.

The aim of the study: The study was conducted to analyze BDNF expression on mRNA and protein level along with selected regulatory microRNAs, and their correlations with psychological defense mechanisms and coping with stress strategies.

Material and methods: The study group consisted of 47 healthy young adults, mainly students of the Poznan University of Medical Sciences (n=23 women, mean age 23.7; and n=24 men mean age 25.1). Defense Style questionnaire (DSQ-40) and Coping Orientation to Problems Experienced Inventory (COPE) were applied. RNA was isolated from peripheral blood mononuclear cells (PBMC). Quantitative PCR was used to measure expression levels of: BDNF mRNA, miR-1-3p, miR-15a-5p, miR-195-5p, miR-26a, miR-26b. Plasma BDNF and proBDNF levels were quantified using ELISA method.

Results: Comparing differences in questionnaire scores between females and males, higher scores in the DSQ-40 “humor” sub-dimension in men and COPE “focus on and venting of emotions” in women were detected. Correlation between expression levels of BDNF mRNA and miR26a was detected (R=-0.44, p=0.02). Correlation of BDNF mRNA and COPE “substance use” in the whole group (R=0.4, p=0.01), religious coping in men (R=-0.45, p=0.02), as well as DSQ-40 “autistic fantasy” (R=-0.48, p=0.02) in women were shown. Correlations between plasma proBDNF and miR-1-3p were demonstrated in the general group (R=-0.35, p=0.03) and in men (R=-0.6, p=0.003). mir-26a correlated with BDNF in women (R=-0.5, p=0.04) while in men miR-26b correlated with proBDNF (R=-0.43, p=0.04). We found also a few associations between BDNF or proBDNF plasma protein levels with DSQ-40 and COPE results.

Conclusions: Studies have shown that changes in BDNF concentration, and therefore miRNA, may be an important biomarker in depression or suicidal behavior in young people.

Associations of functional polymorphisms of immune system genes with psychopathological dimensions of schizophrenia

Authors: Paulina Kozłowska[1], Laura Gadomska[2], Paweł Kapelski[2]
Affiliations: [1]1The Student Scientific Society of Poznan University of Medical Sciences, Student Research Group of Biological Psychiatry, Department of Psychiatric Genetics, Poznan University of Medical Sciences, Poznan, Poland; [2]Department of Psychiatric Genetics, Poznan University of Medical Sciences, Poznan, Poland
Tutor: prof. UMP, dr hab. n. med. Maria Skibińska

Introduction: Schizophrenia is a chronic mental disorder affecting about 1% of the global population, characterized by psychotic, negative, and cognitive symptoms. Although the etiology of this disease remains unclear, it is known to be influenced by genetic and environmental factors. Currently, numerous studies focus on analyzing the role of the immune system in schizophrenia.

The aim of the study: The study aimed to explore the associations of functional polymorphisms (SNPs) of interleukin genes and their receptors (IL1A, IL1B, IL1RA, IL6, IL6R, IL10, IL10RA, TGF) with psychopathological dimensions of schizophrenia extracted from the OPCRIT questionnaire.

Material and Methods: Analysis was conducted on a cohort of 191 patients: 92 women (mean age 35.8, SD 11.8) and 99 men (mean age 32.1, SD 9.6) diagnosed with schizophrenia according to ICD-10 and DSM-IV criteria. The OPCRIT questionnaire was used. Genotyping of 27 SNPs was performed using TaqMan Assays. Principal component analysis (PCA) was applied to identify the psychopathological dimensions of schizophrenia. The Kruskal-Wallis test was used to determine the associations between SNPs and the dimensions of the disease.

Results: PCA of the OPCRIT questionnaire revealed five schizophrenia dimensions: depressive, delusional, manic, psychotic, and addiction-related. The study also identified significant associations: IL1A (rs1800587, rs17561) and IL1B (1143634) with the delusional dimension, IL6R (rs4537545) and TGF (rs1800470) with the manic dimension, and TGF (rs1800469) with the psychotic dimension.

Conclusions: Demonstrating an association of polymorphisms of interleukin genes and their receptors with schizophrenia phenotypes highlights the influence of the immune system on the development of this disorder. This finding opens the door to identifying potential biomarkers and developing personalized therapeutic approaches. Furthermore, focusing on the psychopathological dimensions of the disease may be more beneficial for diagnosing and researching schizophrenia than simply classifying individuals as healthy or ill.

Adiponectin and resistin dynamics as potential neuroinflammation markers in patients with acute ischemic stroke

Authors: Dorota Ratajczak[1], Karina Motolko[1]
Affiliation: [1]Student Research Club of Neurology, Department of Neurology, Faculty of Medicine, Ludwik Rydygier Collegium Medicum in Bydgoszcz, Nicolaus Copernicus University in Toruń, 85-092 Bydgoszcz, Poland
Tutors: dr n. med. Beata Kukulska-Pawluczuk, dr n. med. i n. o zdr. Jarosław Nuszkiewicz

Introduction: Adiponectin and resistin are adipokines secreted by white adipose tissue, involved in metabolic and inflammatory regulation. Their altered levels have been linked to cardiometabolic diseases and are thought to contribute to neuroinflammatory mechanisms in acute ischemic stroke (AIS). This study presents preliminary findings on changes in adiponectin and resistin levels during hospitalisation in AIS patients.

The aim of the study: The aim of the study was to assess serum concentrations of adiponectin and resistin on day 1 and day 8 of hospitalisation in patients with AIS, as potential biomarkers of neuroinflammation.

Material and Methods: This prospective observational study included 30 patients with AIS (13 women, 17 men; mean age: 69.3 ± 2.1 years; body mass index [BMI]: 27.3 ± 0.8 kg/m2), recruited within 48 hours of symptom onset. Stroke severity and functional status were assessed using the National Institutes of Health Stroke Scale (NIHSS) and the modified Rankin Scale (mRS). Serum levels of adiponectin and resistin were measured on day 1 and day 8 of hospitalisation using enzyme-linked immunosorbent assay (ELISA). Depending on data distribution, paired t-tests or Wilcoxon signed-rank tests were used. Statistical significance was set at $p < 0.05$.

Results: Adiponectin levels significantly decreased from 7.611 ± 0.458 µg/mL on day 1 to 7.126 ± 0.589 µg/mL on day 8 ($p < 0.001$). Resistin levels significantly increased from 3.201 ± 0.245 ng/mL to 3.724 ± 0.292 ng/mL over the same period ($p = 0.022$). No significant differences in adiponectin or resistin concentrations were observed between subgroups stratified by gender, age, or BMI.

Conclusions: The observed decrease in adiponectin and increase in resistin levels during hospitalisation suggest that both adipokines may be involved in post-stroke inflammatory responses. These findings support their potential role as biomarkers of neuroinflammation in AIS and indicate the need for further investigation in larger cohorts.

Ophthalmology, Laryngology & Dentistry

Scientific Committee

dr hab. n. med. Anna Szkaradkiewicz-Karpińska
dr n. med. Aleksandra Krasińska-Płachta
dr hab. n. med. Zuzanna Ślebioda

Coordinator

Kinga Kubiak

The Mediating Role of Mindfulness and Self-Compassion in the Link Between Tinnitus Symptoms and Psychological Distress

Authors: Weronika Caban[1], Mikołaj Kuncewicz[1]
Affiliation: [1]University of Warsaw; Medical University of Warsaw
Tutors: prof. UW, dr hab. n. med. Paweł Holas, prof. dr hab. n. med.Kazimierz Niemczyk

Introduction: Tinnitus, the perception of sound without external source, is commonly associated with significant psychological distress. Mindfulness and self-compassion, known for promoting emotional regulation and reducing anxiety in other clinical populations, may similarly mitigate tinnitus-related distress by enhancing adaptive coping.

The aim of the study: The study aimed to investigate how tinnitus distress relates to anxiety and depression, and specifically, whether mindfulness and self-compassion mediate the relationship between tinnitus severity and these psychological outcomes in adults with chronic tinnitus.

Material and Methods: A cross-sectional study was conducted with 92 adults (mean age = 42.62 years) experiencing chronic tinnitus. The Tinnitus Functional Index (TFI) assessed distress, while the Hospital Anxiety and Depression Scale measured anxiety and depression. Mindfulness and self-compassion were evaluated using the Cognitive and Affective Mindfulness Scale-Revised and the Self-Compassion Scale-Short Form, respectively.

Results: Participants reported severe tinnitus distress (mean TFI score = 56.76, SD = 18.39), strongly correlated with anxiety ($r = 0.484$, $p < .001$) and moderately correlated with depression ($r = 0.304$, $p < 0.01$). Mindfulness ($\beta = -0.316$, $p = 0.002$) and self-compassion ($\beta = -0.311$, $p = 0.002$) partially mediated the relationship between tinnitus distress and anxiety. Higher tinnitus distress predicted lower mindfulness and self-compassion, which in turn were associated with higher anxiety levels.

Conclusions: These findings highlight the strong association between tinnitus distress and anxiety, with mindfulness and self-compassion serving as partial mediators. Due to the cross-sectional nature of this study, causal relationships cannot be inferred; future longitudinal research should investigate whether interventions aimed at enhancing mindfulness and self-compassion effectively reduce tinnitus-related distress and anxiety over time.

Exoscope-assisted parotidectomy – a game changer or a passing trend? Single-center experience on 40 consecutive cases

Authors: Karolina Kwaśniak[1], Magda Barańska[1]
Affiliation: [1]Medical University of Lodz, Student Scientific Club at the Otolaryngology, Head and Neck Oncology Clinic of the Norbert Barlicki Clinical Hospital in Lodz
Tutor: prof. dr hab. n. med. Wioletta Pietruszewska

Introduction: Limited literature exists regarding the use of exoscopes in parotid gland surgery, despite its well-documented usage in neurosurgery or transoral laser surgery. Until now only 5 articles describing 153 patients have been published..

The aim of the study: The aim of the study was to evaluate the feasibility of the exoscope as a magnification tool in parotid gland surgery.

Material and Methods: In this prospective observational study 40 cases of exoscope-assisted parotid gland tumors excisions were analyzed. We performed assessment of patients' outcomes, rate of conversion to loupes or microscope and surgical personnel ratings in the scale 1 (worst) to 5 (best) for the image quality, ergonomics, eyestrain and potential.

Results: Both benign (n=37) and malignant (n=3) pathologies were included, with mean operating time of 165 min. The surgeries were conducted without conversion to microscope during the removal of the tumor, however after 2 surgeries suturing was done without exoscope to ease the process. Five patients (12,5%) experienced transient facial nerve palsy, while 3 of them were developed after parotidectomies involving deep lobe excision.
In the surgeon questionnaire, the exoscope received high ratings for: brightness (5.0) and image quality (4.9); growth potential (4.9), educational value, and enhanced communication (4.8); and handling and precision (4.6). However, depth perception scored slightly lower (4.5), and 3D asthenopia was observed. A statistically significant difference in eye strain was noted between levels I-II (mean score: 4.5) and III-V (3.9, p=0.038, U Mann-Whitney test).

Conclusions: Exoscopes appear to be a safe and promising visualization tool in parotid gland surgery, providing sufficient magnification, anatomical clarity, and ergonomic advantages, along with educational benefits. However, depth perception limitations and 3D eye strain warrant further investigation. While early results are promising, larger studies are necessary to determine its long-term role in surgical practice.

Survey of public awareness of bruxism

Authors: Michał Nitoń[1], Ewelina Wiśniewska[1], Marta Muszyńska[1], Aleksandra Moska[1], Julia Binkowska[1]
Affiliation: [1]Students' Scientific Association at the Department of Orthodontics and Temporomandibular Disorders, Poznan University of Medical Sciences, Poznan, Poland
Tutors: dr n. med. Zofia Maciejewska-Szaniec, prof. dr hab. n. med. Agata Czajka-Jakubowska

Introduction: Bruxism is a parafunction of occlusion caused by chronic stress. It leads to the development of functional disorders of the masticatory organ, the symptoms of which are tenderness of the masticatory muscles, changes in the temporomandibular joints, headaches, pathological tooth grinding. Patients are often unaware that they have bruxism and only seek help from the dentist when symptoms appear.

The aim of the study: To assess patients' awareness of bruxism.

Material and Methods: Study group - 339 subjects (F=220; M=119) aged 16 - 45 years (23.56 +/- 6.70). The subjects were divided into 2 age groups -16-25 years (n=264) and 26-45 years (n=75). Each time demographic data was collected (age, gender, education level, place of residence) and a questionnaire survey was conducted - 13 questions on general knowledge of bruxism, possible answers: yes / no.

Results: 226 people (66.67%) thought they knew what bruxism was (mostly respondents with a college education - 80.65%), only 61 of them, more often men ($p=0.0026$), regardless of place of residence, education or age ($p>0.05$), correctly marked that bruxism is not a disease ($p=0.0002$). Only 20.65% of respondents had ever heard of bruxism from a dentist (residents of large cities) ($p<0.0001$). Only 15.34% had their dentist assess the tension of the masticatory muscles and the presence of acoustic symptoms in the temporomandibular joints during a routine visit ($p<0.00001$). A quarter of respondents (25.55%) indicated that the tongue should be between the teeth during swallowing; 34.51% were unaware of the presence of a resting gap between the dental arches.

Conclusions: Patients' health awareness of bruxism is still insufficient.
Patient education in dental offices regarding the causes, symptoms and prevention of bruxism should be increased.
Introducing a routine examination of the structures of the masticatory organ into the basic dental examination seems to be crucial for the early diagnosis of bruxism.

Comparison between two alternative methods of matching the right color for a prosthetic restoration, human eye compared to technological innovation.

Authors: Oliwier Suski[1], A.Spychała[1], M, Różański[1], M. Musialska[1], R. Nowicka[1]
Affiliation: [1]Department of Prosthodontics and Gerodontology, Students Scientific Society, Poznan University of Medical Sciences
Tutor: dr n. med. Magdalena Łukaszewska-Kuska

Introduction: Modern dentistry is constantly evolving, striving to achieve the highest level of aesthetics. Choosing the right color for a prosthetic restoration plays a key role in achieving a satisfying final result. It is necessary to consider whether to make the decision based on personal experience or to trust modern technology fully.

The aim of the study: The aim of the study was to compare two methods for assessing the color of natural teeth for the selection of prosthetic restoration color – evaluation using a spectrophotometer and the human eye.

Material and Methods: The color of natural tooth 21 was assessed using the Vita EasyShade V spectrophotometer and the human eye. The study group consisted of 25 adult patients. The examination was conducted by 7 students of dentistry at the PUMS, and dentists. The tooth color was assessed using the human eye by comparing it to two color guides: VITA Toothguide 3D-MASTER and Classical A1-D4 under the lighting conditions of the clinical room, dental unit and Rite Lite 2. The study using the Vita EasyShade spectrophotometer was conducted under the light of the dental unit.

Results: A total of 750 results were obtained using the human eye. These results were compared to 50 results attained from the spectrophotometer. The results were presented in percentage points, indicating the accuracy of the human eye compared to the Vita EasyShade. Separate results were obtained for each color guide, as well as one main result which was at a level of 77,15%.

Conclusions: The results of the evaluation using the spectrophotometer and the human eye are largely consistent. The assessment using the human eye is dependent on the type of lighting. The readings from the spectrophotometer are not influenced by external factors and with such a high percentage of consistency, it is becoming increasingly reliable and dependable solution for color matching.

Evaluation of the association of temporomandibular disorders (TMD) among the students of the Ignacy Jan Paderewski Academy of Music in Poznan: preliminary report.

Authors: Agata Tesznar[1], Izabela Maćkowiak[1], Julia Sieciechowicz[1], Karolina Bentkowska[1], Julia Świtek[1]
Affiliation: [1]Students' Scientific Association at the Department of Orthodontics and Temporomandibular Disorders, Poznan University of Medical Sciences, Poznan, Poland
Tutors: dr n. med. Zofia Maciejewska-Szaniec, prof. dr hab. n. med. Agata Czajka-Jakubowska

Introduction: Functional disorders of the masticatory organ are the most common musculoskeletal dysfunction causing head and neck pain. Music academy students often adopt a forced body position during hours of practice and overload their muscles (masticatory and facial) while singing or playing instruments. This increases their risk of developing TMD compared to students at other universities.

The aim of the study: To assess the prevalence of TMD among students of the music academy in Poznan.

Material and Methods: 57 students (K=44 ; M=13) aged 19 - 27 years (21.95 +/- 2.36) were divided into groups according to their chosen instrument: keyboard (n=21; 38.89%), wind (n=16; 29.63%), string (n=14; 25.93%), percussion (n=1; 1.85%). A separate group consisted of singers (n=38; 66.67%). Participants completed questionnaires: Oral Behaviour Checklist, Bruxscreen, and a music activity questionnaire (hours of practice, body position while playing). A specialized clinical examination was conducted using the DC/TMD questionnaire.

Results: In the questionnaire, facial and/or neck pain was reported by 75.44% of the subjects (n=43); in the clinical examination, it was found in almost 100% of the subjects (94.75%). In 38 students (88.37%), pain was exacerbated during exercise. The most frequent complaints of pain were reported by vocalists (63.16%) and students playing string instruments (85.71%) and wind instruments (56.25%). The most common symptoms were tenderness in the temporalis (n=32; 56.14%) and masseter muscles (n=38; 66.67%). Pain during mandibular movements was reported in 82.46% (n=47). Acoustic symptoms in the temporomandibular joints were found in 57.89% (n=33). The most frequently indicated parafunctions were: bruxism probable - during sleep (n= 36; 63.16%), during wakefulness (n=40; 70.18%).

Conclusions: There was a high prevalence of TMD-related symptoms among music academy students. Singers and students who play stringed instruments are a group particularly susceptible to the development of TMD. There is a need to educate music students on the causes, symptoms and prevention of TMD.

Pharmacy

Scientific Committee

dr hab. Maciej Stawny, prof. UMP
dr hab. Paulina Skupin-Mrugalska
dr hab. n. farm. Jacek Kujawski
dr n. farm. Szymon Plewa

Coordinator

Zuzanna Dąbek

3D Printing as a tool for modifying nimesulide release from tablets

Authors: Michalina Jurga[1,2], Martyna Kloc[1,2], Paweł Dutkowski[1,2]
Affiliations: [1]3D Printing Division, Chair and Department of Pharmaceutical Technology, Poznan University of Medical Sciences, Rokietnicka 3, 60-806 Poznań; [2]Student's Research Group of Pharmaceutical Technology, The Student Scientific Society of Poznan University of Medical Sciences, 5 Rokietnicka Street, 60-806 Poznań
Tutor: dr n. farm. Anna Froelich

Introduction: 3D printing methods have opened up a new chapter in the pharmaceutical industry, particularly in the manufacturing of solid dosage forms. One of the most known technique is an additive manufacturing, also known as a fused deposition modeling (FDM). This method involves the deposition of a molten material, usually polymer, layer by layer, to create the desired product. Recent technological advances in the field of 3D printing appear to be promising for the personalisation of medicines, as an alternative to the traditional 'one-size-fits-all' model.

The aim of the study: The aim of this study was to develop and optimise 3D printed compartment tablet shells using a hydrophilic polyvinyl alcohol (PVA) filament with a filling containing polyethylene glycol (PEG400 and PEG1500) and nimesulide, a non-steroidal anti-inflammatory drug (NSAID), to improve its bioavailability.

Material and Methods: Tablet prototypes were developed using Tinkercad software. Structural variations, including the number of compartments, wall thickness and porosity were explored to optimize mechanical stability and release properties. The filling was obtained by solid dispersion with nimesulide, which was analysed by differential scanning calorimetry and X-ray powder diffraction (XRPD).

Results: The results of studies on FDM tablets have shown that the geometry of the drug shape, the infill density and the tablet design have a significant impact on the properties of the obtained product, including tablet disintegration and drug release. The results suggest that this approach has the potential for obtaining personalized dosage forms with physicochemical properties tailored to the individual therapeutic requirements.

Conclusions:
This study provides valuable insights into the development of more efficient and safer drug delivery system for anti-inflammatory therapies, with the potential to improve patient compliance and treatment efficacy.

Analysis of potential drug interactions of olaparib in patients with ovarian cancer

Authors: Daria Bayraktar[1], Konrad Lewandowski[1,3], Agnieszka Karbownik[1], Anna Wolc[2], Edyta Szałek[1]
Affiliations: [1]Department of Clinical Pharmacy and Biopharmacy, University of Medical Sciences in Poznan, Rokietnicka 3, Poznan, Poland; [2]Department of Animal Science, Iowa State University, 239E Kildee Hall, Ames, IA, 50011, USA; [3]Doctoral School, University of Medical Sciences in Poznan, Bukowska 70, Poznan, Poland
Tutor: dr n. med. Joanna Stanisławiak-Rudowicz

Introduction: Olaparib is a poly (ADP-ribose) polymerase (PARP) inhibitor used for maintenance therapy in BRCA-mutated cancers. This PARPi is metabolised by CYP3A4, therefore inducers/inhibitors of this enzyme may affect its pharmacokinetics (PK) and pharmacodynamics (PD). Furthermore, olaparib is a substrate of P-gp and BCRP, but also an inhibitor of P-gp, BCRP, OATP1B1, OCT1, OCT2, OAT3, MATE1 and MATE2-K, so it may also be a perpetrator of interactions.

The aim of the study: The study aims to explore the severity of potential drug-drug interactions (pDDIs) in ovarian cancer patients treated with olaparib as maintenance therapy.

Material and Methods: The retrospective study was conducted on 49 ovarian cancer (OC) patients treated with a minimum of two drugs including olaparib. pDDIs were identified using Drugs.com drug interaction checker, which divides interactions into 4 types: major, moderate, minor, and unknown. For interactions in which olaparib was a victim, determinations of the plasma minimum steady-state concentration (Ctrough) of this PARP were performed using a validated UPLC-MS method, with consideration of therapeutic range 1.29-2.50 mg/L.

Results: The analysed patients were taking a total of 194 drugs. In 24 patients, 32 pDDIs were identified. The analysis showed 29 moderate and 3 major pDDIs with olaparib. The Spearman rank correlation coefficient showed a highly significant ($p<0.0001$), positive ($r=0.57$) relationship between the number of drugs taken and the number of interactions in patients. 100% of all interactions had PK mechanism. In 90.6% of interactions olaparib had the role of interaction perpetrator with drugs such as apixaban, metformin, methotrexate, rosuvastatin, atorvastatin, simvastatin, velpatasvir, ezetimibe, propranolol. Olaparib Ctrough in patients on carbamazepine, dexamethasone (CYP3A4 inducers) and fluvoxamine (a CYP3A4 inhibitor) were 0.71, 0.77 and 3.01 mg/L, respectively.

Conclusions: The number of olaparib interactions that have been identified indicates that they need to be monitored in order to improve the safety and efficacy of the therapy.

Anti-aromatase potential of selected azaheterocyclic compounds with pyridine and p-bromophenyl scaffolds

Authors: Karol Kandulski[1], Maria Miotk[1]
Affiliation: [1]Department of Organic Chemistry, Faculty of Pharmacy, Poznan University of Medical Sciences
Tutor: dr n. farm. Warguła Joanna

Introduction: Aromatase is an enzyme catalyzing the transformation of androgens into estrogens which is an important target for medicines used to treat breast cancer. Currently administered in estrogenic dependent breast cancers azaheterocyclic representants of III generation drugs, Vorozole and Letrozole have serious side effects. These facts encouraged us to search for a new active compounds based on 2-acethyl-pyridine and p-bromoacetophenone.

The aim of the study: Synthesis of new aromatic compounds (possessing pyridine or p-bromophenyl scaffolds) as potential aromatase inhibitors. Creation of a pharmacophore model.

Material and Methods: Literature analysis was used to design new derivatives containing crucial scaffolds for the aromatase inhibition. Biological and physicochemical properties of compounds were predicted using in silico methods (*AlogPS, Osiris, SwissAdme programs*). Synthesis was executed using both classical methods of the organic synthesis and techniques involving microwave radiation. Each step of synthesis was conducted with diverse reagents and thermal conditions.

Results: New compounds were designed according to literature data. Potential aromatase inhibitors should include EWG group (f.g. Br), aromatic ring and azaheterocyclic scaffold (f.g. triazole). Physicochemical and biological properties of potential blockers were predicted and compared with Vorozole and Letrozole. Special attention was paid to lipophilicity and solubility. First step of synthesis (reduction of ketons to alcohols) was conducted with natrium borohride in ethanol or methanol. The first methodology was more efficient. The second stage of the synthesis consists of chlorination of alcohols with thionyl chloride in dichlorometane or tetrahydrofuran. Dichloromethane was more efficient in this reaction. Finally, we substituted an chlorine atom by diverse aromatic amines or azahetreocycles. These steps were conducted in dimethyl sulphoxide.

Conclusions: We obtained new derivatives containing aromatic ring, bromine atom as EWG substituent and diverse heterocycles or amines. These substances should exhibit anticancer activity, which will be tested on MCF-7 or MDA-BRA 231 cell lines. Crystallographic analyses and in vitro tests will be conducted after obtaining all planned compounds as a part of the project and allow us to create the pharmacophore model.

Comparison of potential activity of selected pyrazolines

Authors: Maria Miotk[1], Karol Kandulski[1]
Affiliation: [1]Department of Organic Chemistry, Faculty of Pharmacy, Poznan University of Medical Sciences
Tutor: dr n. farm. Joanna Warguła

Introduction: Based on the team's experience in working with ketones, it was decided to evaluate the reactivity of p-Cl-acetophenone and selected benzaldehydes in the formation of chalcones and in further cyclization reactions (with various phenylhydrazines and hydrazones) to pyrazoline derivatives. Chalcones are an interesting group of compounds that can give a number of different five-, six- or seven-ring azaheterocycles in Michael reactions. Such compounds exhibit a wide range of biological activity: from analgesic and anti-inflammatory, through inhibitory activity of cannabinoid CB1 receptors to anticancer activity.

The aim of the study: Synthesis of new aromatic compounds by two-step synthesis: a) formation of chalcones using methyl ketone and benzaldehyde; b) cyclization using hydrazine derivatives and hydrazones. Evaluation of biological potential of the obtained series of derivatives using computer tools. Creating pharmacophore model.

Material and Methods: Literature research was used to design the synthesis of chalcones based on methanol and ethanol (as solvents) and divergent hydroxides as base in room temperature. Cyclization reaction to pyrazoline derivative was carried out in alcohol at 60 oC. Chemical structure was confirmed by spectroscopic methods (NMR, IR). Assessment of potential physicochemical and biological properties was performed using the following programs: SwissAdme, SwissTarget, AlogPs, Osiris, Biosig.

Results: Chalcones planned as intermediate products were obtained by conducting reactions in methanol or ethanol at room temperature or boiling temperature. Derivatives were obtained in yields of about 50-60%. In 1H HNM spectra, characteristic peaks from the C=C double bond were observed in the range of about 2.40 ppm. In IR spectra, characteristic peaks originating from this bond were observed in the range of about 1420 cm-1. Cyclization reaction to pyrazoline derivative was carried out at 60 oC, obtaining products in yields of about 80-90%. In 1H HNM spectra, characteristic peaks from the pyrazoline ring were observed in the range of about 5.15 and 3.15 ppm. In IR spectra, characteristic signals from the formed azaheterocyclic ring were observed in the range of about 3050 and 1550 cm-1. Prediction of biological and physicochemical properties was performed using the following programs: SwissAdme, SwissTarget, AlogPs, Osiris, Biosig. Special attention was paid to lipophilicity and solubility, which due to several aromatic rings in the structure may prove to be a challenge in further studies on anticancer or antibacterial activity in vitro.

Conclusions: A series of 1,3,5-trisubstituted pyrazoline derivatives with potential biological activity were obtained by two-step synthesis. In silico prediction tools allowed to indicate their interesting activity. This activity is planned to be confirmed in in vitro models in the future.

Development and Stability Assessment of Magnolol-and Curcumin-Enriched Intravenous Lipid Nanoemulsions

Authors: Jakub Dobrosielski[1], Joanna Czerniel[1], Aleksandra Gostyńska-Stawna[1]
Affiliation: [1]Department of Pharmaceutical Chemistry, Poznan University of Medical Sciences, Rokietnicka 3, 60-806 Poznan, Poland
Tutor: prof. UMP, dr hab. n. farm. Maciej Stawny

Introduction: Magnolol (Mag) and curcumin (Cur) are well-known bioactive compounds of natural origin, derived from Magnolia officinalis and Curcuma longa, respectively. Both are considered pleiotropic agents exhibiting antioxidant, anti-inflammatory, anticancer, and other activities. Due to their lipophilic nature, effective drug delivery systems are required to enhance their solubility and bioavailability. Intravenous lipid emulsions (ILEs) serve as an optimal carrier, improving both administration efficiency and patient comfort. However, ILEs must adhere to several strict quality criteria, including oil droplet size, as specified by the United States Pharmacopeia, with a mean droplet diameter (MDD) not exceeding 500 nm and a percentage of fat residing in globules larger than 5 μm (PFAT5) constituting <0.05%.

The aim of the study: This study aimed to design and develop Mag- and Cur-enriched ILNs meeting the above standards for safe intravenous administration. The research focused on optimizing the high-pressure homogenization (HPH) process, validating the analytical method for Cur and Mag quantification in the emulsion, and assessing stability over 90 days.

Material and Methods: Two ILEs were prepared: a reference one (ILE) and one enriched with 0.1% and 0.01% Mag and Cur, respectively (ILE-Mag+Cur). The oil phase comprised medium-chain triglycerides, hemp oil, fish oil, and α-tocopherol, while the aqueous phase contained egg yolk and soybean lecithin, sodium oleate, glycerol, and water. High-shear homogenization followed by HPH was employed, with subsequent thermal sterilization.

Results: Optimal HPH conditions were established at 800 bar with ten cycles. The developed ILE and ILE-Mag+Cur met pharmacopoeial and literature standards for ILEs, achieving PFAT5 of 0.01% and MDD of 211.8 and 193.0 nm, respectively. Method validation confirmed high precision and absence of systematic error in Mag and Cur quantification, with an encapsulation efficiency exceeding 99% and 12%, respectively. Stability testing of emulsion at 4°C, 25°C, and 35°C ± 1°C (70% humidity) showed satisfactory stability for 90 days of storage. Both Mag and Cur retained their highest content at 4°C ±1°C, 91% and 86% of their initial content, respectively, after 90 days.

Conclusions: The developed ILEs exhibited satisfactory physicochemical properties and stability. These findings validate the optimized homogenization process and analytical method, supporting the potential of ILE-Mag+Cur for further research and therapeutic applications.

Acknowledgements: This work was funded by grant OPUS No. 2022/45/B/NZ7/01056 from the National Science Centre, Poland.

Differences in the serum proteome of children with asthma

Authors: Paulina Borysewicz[2], Natalia Rzetecka[1], Eliza Matuszewska-Mach[1], Joanna Matysiak[3], Paulina Sobkowiak[4], Irena Wojsyk-Banaszak[4], Anna Bręborowicz[4], Agnieszka Klupczyńska-Gabryszak[1]
Affiliations: [1]Department of Inorganic and Analytical Chemistry, Poznan University of Medical Sciences, Poznan, Poland; [2]The Student Scientific Society of Poznan University of Medical Sciences; [3]Faculty of Health Sciences, University of Kalisz, Kalisz, Poland; [4]Department of Pulmonology, Pediatric Allergy and Clinical Immunology, Poznan University of Medical Sciences, Poznan, Poland
Tutor: prof. dr hab. Jan Matysiak

Introduction: Asthma is a chronic airway condition affecting both children and adults. It is characterized by chronic inflammation, airway hyperresponsiveness, and airway remodeling. Diagnosing pediatric patients might be particularly challenging due to communication difficulties. Consequently, there is a need to search for diagnostic biomarkers of asthma in children.

The aim of the study: We aimed to identify differences in serum proteomic profiles between two groups of children (asthma patients and healthy controls) aged 9 months to 4 years.

Material and Methods: In this study, we analyzed serum samples collected from asthma patients (n=10) and healthy controls (n=10). Sample preparation began with in-solution tryptic digestion, during which proteins were first reduced and alkylated, and then underwent digestion with trypsin. The next step involved purification and concentration of the samples using ZipTip C18 (Merck, Darmstadt, Germany) pipette tips. The prepared samples were then spotted onto the AnchorChip 384 target plate, and analyzed using MALDI-TOF/TOF tandem mass spectrometer (Bruker Daltonics, Bremen, Germany). To identify proteins and peptides, Mascot search engine and SwissProt database were used. The obtained data was subjected to statistical analysis using the PQStat v. 1.8.6 122 software.

Results: The analysis and identification of proteins using the available database revealed differences between protein profiles between young patients with asthma and the control group.

Conclusions: Conclusions Our study revealed differences in proteomic profiles between the study group and the control group. Certain proteins identified in this analysis have the potential to serve as biomarkers of asthma in children and might help to understand the molecular pathogenesis of this disease. Additionally, these differentially expressed proteins may form the basis for developing individualized therapeutic approaches. However, further advanced proteomic research is required to validate these findings and explore their clinical applications.

Acknowledgements: This study was funded by Grant No. 2021/43/O/NZ5/00480 from the National Science Centre, Poland

Evaluation of the possibility of using selected edible flowers in the prevention of diseases caused by aging processes of the body

Authors: Maciej Książkiewicz[1]; Michalina Karczewska[1]; Filip Nawrot[1]; Mateusz Sowelo[2]
Affiliations: [1]Department of Pharmacognosy and Biomaterials, Poznan University of Medical Sciences, 3 Rokietnicka Str., 60-806 Poznan, Poland; [2]Botanical Garden of Adam Mickiewicz University in Poznan, 165 Dabrowskiego Str., 60-594 Poznan, Poland
Tutor: dr hab. n. farm. Elżbieta Studzińska-Sroka

Introduction: There is a growing interest in ways to reduce the effects of aging. Edible flowers, which have played an important role in the diet for centuries, are becoming a popular meal enrichment. Flowers whose health-promoting value is not well understood are: Gomphrena globosa L. (Amaranthaceae), Paeonia officinalis L. (Paeoniaceae), Forsythia x intermedia L. (Oleaceae). There are only a few scientific studies confirming the activity of these raw materials.

The aim of the study: The aim of this research is to investigate the anti-aging potential of extracts from the edible flowers of G. globosa, P. officinalis, and F. x intermedia using in vitro assays and to identify the most promising one.

Material and Methods: Dried, powdered flowers were extracted using ethanol, 70% ethanol, and water in an ultrasonic bath (60°C, 4×20 minutes). The obtained extracts were then concentrated using a rotary evaporator and analyzed using in vitro methods. The antioxidant potential was assessed based on free radical scavenging (DPPH, ABTS), transition metal ion reduction (CUPRAC, FRAP), and Fe2+ ion chelation. Neuroprotective activity was evaluated by measuring the inhibition of acetylcholinesterase (AChE) and butyrylcholinesterase (BChE). Hypoglycemic properties were determined through α-glucosidase (α-Gluc.) inhibition, while hyaluronidase (Hyal.) inhibition was also examined. Additionally, the total polyphenol content (TPC) and total flavonoid content (TFC) were quantified.

Results: The results indicate that the ethanolic extract of P. officinalis flowers has the highest total polyphenol and flavonoid content, which correlates with strong antioxidant potential. Additionally, it exhibited the highest inhibitory activity against the examined enzymes at the tested concentrations.

Conclusions: The ethanolic extract of P. officinalis flowers has the highest anti- aging potential among the examined edible flowers. Its bioactivity suggests potential applications in the prevention of age-related diseases, warranting further research on P. officinalis flowers in this area.

Sphingomyelins as a potential metabolomic biomarker of childhood asthma with IgE-dependent allergy

Authors: Weronika Pierz[5], Natalia Rzetecka[1, 2]; Szymon Plewa[1], Joanna Matysiak[3], Paulina Sobkowiak[4], Irena Wojsyk-Banaszak[4], Anna Bręborowicz[4], Agnieszka Klupczyńska-Gabryszak[1],
Affiliations: [1]Department of Inorganic & Analytical Chemistry, Faculty of Pharmacy, Poznan University of Medical Sciences, Poznan, Poland; [2]Doctoral School, Poznan University of Medical Sciences, Poznan, Poland; [3]Faculty of Health Sciences, University of Kalisz, Kalisz, Poland; [4]Department of Pulmonology, Pediatric Allergy and Clinical Immunology, Poznan University of Medical Sciences, Poznan, Poland; [5]The Student Scientific Society of Poznan University of Medical Sciences, Poznan, Poland
Tutor: prof. dr hab. Jan Matysiak

Introduction: Asthma is the most common inflammatory respiratory disease in childhood and is characterized by cough, wheeze and dyspnea. Childhood asthma, especially in very young children, is difficult to diagnose. Omics sciences such as metabolomics can play an important role in developing new diagnostic methods for asthma. Metabolomics is the study of organism's metabolome and it enables the identification and quantification of low-molecular-weight metabolites (e.g. amino acids, sugars, fatty acids, lipids, small peptides and vitamins) in biological samples. Potential metabolomic biomarkers of various diseases (including asthma) can be discovered using mass spectrometry.

The aim of the study: The aim of the study was to find differences in sphingomyelins concentrations between healthy children and children with asthma and IgE-dependent allergy and therefore to discover potential biomarkers of childhood asthma with IgE-dependent allergy.

Material and Methods: The study analyzed serum samples from children aged between 6 months and 5 years from two following groups: 13 children with asthma and IgE-dependent allergy (study group) and 10 healthy children without asthma and IgE-dependent allergy (control group). The analysis was performed using the AbsoluteIDQ p180 kit with the quantification carried out using a triple quadrupole tandem mass spectrometer coupled with a high-performance liquid chromatograph.

Results: 15 out of 15 sphingolipids were found in the samples. The statistically significant differences were observed in two sphingomyelins: sphingomyelin (d18:1/26:1(17Z)) and sphingomyelin (d18:0/16:1(9Z)(OH)). Their concentration were lower in the study group compared to the control group.

Conclusions: The study showed differences in sphingomyelins concentrations between patients with asthma and IgE-dependent allergy and patients without asthma or IgE-dependent allergy. These results suggest that determined sphingomyelins may play a significant role in the pathophysiology of asthma with IgE-dependent allergy and have potential to be used as biomarkers in the diagnosis of this disease. Further studies in this area can contribute to more precise and effective diagnosis of childhood asthma.

Acknowledgments: This study was funded by Grant No. 2021/43/O/NZ5/00480 from the National Science Centre, Poland

The stability of mycophenolic acid in saliva collecting devices

Authors: Grzegorz Szynkaruk[1], Julia Kerner[1], Ahata Nelipovich[1], Kacper Osuch[1]
Affiliation: [1]Department of Physical Pharmacy and Pharmacokinetics, Poznan University of Medical Sciences
Tutor: dr hab. n. farm. Joanna Sobiak

Introduction: Therapeutic drug monitoring (TDM) of mycophenolic acid (MPA) in children with nephrotic syndrome is recommended but it is not a routine. Instead of stressful and uncomfortable blood sampling, saliva may be used for MPA TDM in children as saliva MPA concentrations reflect their plasma levels.

The aim of the study: The study aimed at checking the stability of MPA in Salivette® devices up to 48 h after the collection as well as defining the maximum time interval between saliva collection at home and the collection tubes delivery to hospital laboratory for centrifuging and further analytical preparation.

Material and Methods: For stability tests, Salivette® tubes were loaded with MPA solutions in artificial saliva at low (5 ng/mL) and high (500 ng/mL) quality control (QC) levels and stored for 12, 24, and 48 h at room temperature and in the refrigerator. After the time elapsed, the samples were analyzed using liquid chromatography with tandem mass spectrometry (LC-MS/MS) method. The stability was calculated as the accuracy of the back-calculated concentrations. The analytes were stable if the deviation from the nominal concentration did not exceed 15%.

Results: MPA back-calculated concentrations at low QC were 91.9%, 101.4%, and 84.5% and at high QC 99.4%, 91.3%, and 88.7% after storage at room temperature for 12, 24, and 48 h, respectively. After storage in refrigerator, MPA low QCs were 87.1%, 92.4%, and 89.8% and high QCs were 96.3%, 94.5%, and 90.3% for 12, 24, and 48h, respectively.

Conclusions: Saliva may be kept in Salivette® at room temperature or in the refrigerator up to 24 h after the collection before being centrifuged in the laboratory.

Vitamin D status and immunotherapy outcomes in advanced lung cancer patients

Authors: Aleksandra Kaługa[1,2], Patrycja Kochan[1,2], Dominika Łuczak[1], Aleksandra Borawska[1], Barbara Kuźnar-Kamińska[3], Maciej Bryl[4]
Affiliations: [1]Department of Physical Pharmacy and Pharmacokinetics, Poznan University of Medical Sciences; [2]The Student Scientific Society of the Poznan University of Medical Sciences; [3]Department of Pulmonology, Allergology and Respiratory Oncology, Poznan University of Medical Sciences; [4]Department of Clinical Oncology with the Subdepartment of Diurnal Chemotherapy, Wielkopolska Center of Pulmonology and Thoracic Surgery
Tutors: dr hab. n. farm. Katarzyna Kosicka-Noworzyń, dr n. farm. Anna Siemiątkowska

Introduction: Lung cancer remains a major global health issue due to the lack of early symptoms and the consequent late diagnosis. The introduction of immune checkpoint inhibitors has been a breakthrough in cancer treatment, but not all patients respond to therapy. Therefore, research continues to identify new biomarkers that could expedite therapy selection. Vitamin D status may play a crucial role in the effectiveness of immunotherapy due to its anti-inflammatory and immunomodulatory properties.

The aim of the study: The study aimed to evaluate how pre- and on-treatment vit.D levels correlate with the long-term benefits of immunotherapy in patients with non-small cell lung cancer (NSCLC).

Material and Methods: Study population: NSCLC patients (n=125) treated with pembrolizumab, atezolizumab, and nivolumab; Samples: Venous blood and serum; Vitamin D analysis: Validated LC-MS/MS method; Statistics: Patient stratification by sex (73 males, 52 females), 12-month benefits, and vit.D status (deficiency when serum level <30 ng/mL).

Results: In females, pre-treatment vit.D levels were higher in patients with 12-month benefits (33.7 vs. 24.6 ng/mL, p=0.058) and vit.D deficiency was observed less often (33.3% vs. 71.9%, p=0.035). In males, no differences were observed (26.1 vs. 23.8 ng/mL; 53.8% vs. 55.8%). Kaplan-Meier survival analysis assessed if vit.D deficiency was associated with time to treatment failure (TTF) and overall survival (OS). In females, median TTF and OS were shorter in patients with vit.D deficiency (TTF: 6.0 vs. 6.8 months, p=0.034; OS: 15.1 vs. 48.0 months, p=0.042). In males, median TTF was 3.0 vs. 4.3 months (p=0.93), and OS was 7.4 vs. 11.7 months (p=0.95). Cox regression analysis confirmed pre-treatment vit.D deficiency as an independent prognostic factor of shorter OS in women (adj. HR=0.452, p=0.050).

Conclusions: Pre-treatment vit.D deficiency can be considered a biomarker of long-term benefits of immunotherapy in female patients with NSCLC.

Acknowledgements: The study was funded by Poznan University of Medical Sciences (grant for student scientific groups; no. NSB0000040).

Gynecology & Obstetrics

Scientific Committee

dr n. med. Ewa Burchardt
dr hab. n. med. Rafał Moszyński
dr n. med. Katarzyna Kawka-Paciorkowska

Coordinator

Maja Korytowska

Amino acid composition of ascites in ovarian cancer patients

Authors: Wojciech Szkudlarek[1], Michał Potograbski[2], Cezary Miedziarek[2], Szymon Plewa[3], Agnieszka Kupszyńska[3]
Affiliations: [1]Student Scientific Group of Gynecologic Oncology, Poznan University of Medical Sciences; [2]Division of Gynecologic Oncology, Department of Gynecology, Poznan University of Medical Sciences, 61-701 Poznań, Poland; [3]Department of Inorganic and Analytical Chemistry, Poznań University of Medical Sciences, 61-701 Poznań, Poland
Tutors: dr n. med. Mikołaj Zaborowski, prof. dr hab. Jan Matysiak

Introduction: The presence of ascites in ovarian cancer is associated with shorter progression-free survival (PFS) and overall survival (OS) of patients. It has already been shown that some components of peritoneal fluid may be associated with clinical features of ovarian cancer.

The aim of the study: The aim of our project is to verify how extracellular amino acids from the peritoneal fluid are associated with the clinical picture of ovarian cancer.

Material and Methods: For a study from 2021 to 2023, we enrolled Caucasian patients with histologically confirmed high-grade serous, low-grade, borderline ovarian tumors in the Department of Gynecologic Oncology, Poznań University of Medical Sciences. Ovarian tumors were staged according to the FIGO (International Federation of Gynecology and Obstetrics) system. Ascites fluid samples were collected from patients (i) at laparoscopy before starting neoadjuvant chemotherapy or (ii) by paracentesis. The panel of amino acids was quantified based on an aTRAQ kit for amino acid analysis (SCIEX, Framingham, MA, USA) and liquid chromatography coupled with a triple quadrupole tandem mass spectrometry technique.

Results: Glutamic acid, aspartic acid, and alpha-aminobutyric acid were different between tumor groups (Kruskal-Wallis test, p=1.4e-6, p=4.9e-6, p=0.0007, respectively). Specifically, glutamic acid, aspartic acid, and alpha-aminobutyric acid were higher in the ascites from high-grade serous tumors than from non-malignant conditions (U-Mann-Whitney test, p=9e-5 and p=0.00034, p=0.00011, respectively). Patients with high-risk ovarian cancer (neoadjuvant chemotherapy, FIGO IV, residual disease following cytoreductive surgery) were different from low-risk patients (adjuvant chemotherapy, FIGO III, complete cytoreduction) in terms of amino acid composition in ascites. Glutamic acid and aspartic acid were higher in the low than in the high-risk group (U-Mann-Whitney test, p=0.0072 and p=0.01, respectively).

Conclusions: The amino acid composition of ascites differs in malignant ovarian tumors compared to benign conditions. Amino acids differentiate between low- and high-risk patients with ovarian cancer.

Impact of pedometer use on GLUT-1, GLUT-3, and GLUT-4 mRNA expression in the placenta of women with early gestational diabetes (eGDM)

Authors: Mateusz Sochacki[1], Rafał Sibiak[1]
Affiliation: [1]Department of Reproduction, Poznan University of Medical Sciences, Poznan, Poland
Tutor: prof. dr hab. n. med. Ewa Wender-Ożegowska

Introduction: Glucose transport across the placenta is regulated by glucose transporters (GLUTs). Changes in their expression might contribute to perinatal complications.

The aim of the study: The study aimed to investigate the GLUT-1, GLUT-3, and GLUT-4 mRNA expression in women with early gestational diabetes (eGDM) who used pedometers during pregnancy compared to those who did not. The secondary objective was to compare anthropometric and biochemical parameters between the groups and analyze their correlation with placental GLUTs mRNA.

Material and Methods: This randomized-controlled study involved 15 obese women (BMI > 30 kg/m2) diagnosed with eGDM based on a 2-hour 75g oral glucose tolerance test (OGTT) before 20 weeks of gestation. Participants were randomized into two subgroups: those using pedometers (n=8) and a control group (n=7). Data collection included anthropometric measurements and blood sampling in each trimester of pregnancy. Placental tissue was collected at delivery for GLUTs mRNA expression analysis using RT-qPCR.

Results: There were no significant differences in GLUT-1, GLUT-3, or GLUT-4 mRNA expression ($p \geq 0.22$) between the studied groups. Pedometer users had decreased levels of low-density lipoprotein (LDL-C, $p = 0.02$) and high-density lipoprotein (HDL-C, $p = 0.02$) at baseline, and lower systolic blood pressure (SBP) in the second trimester ($p = 0.04$). In the whole eGDM group, GLUT-4 mRNA expression showed a strong correlation with the change in the HbA1c levels between the first and third trimesters ($R = 0.92$, $p < 0.001$) and the first trimester HbA1c levels ($R = -0.72$, $p = 0.02$). Moderate correlations of GLUT-1, GLUT-2 and GLUT-4 mRNAs levels were found with various metabolic and anthropometric parameters, including SBP, maternal body weight, waist-to-hip ratio, shoulder blade skinfold and LDL-C.

Conclusions: Pedometer use in eGDM pregnancies did not significantly affect GLUT transporter expression. The placental expression of GLUTs was significantly associated with multiple biochemical and anthropometric parameters.

Lipid metabolism-gene expression predicts ovarian cancer recurrence and survival in a multivariate model

Authors: Alicja Dąbrowska[1], Justyna Kaczanowska[1], Michał Butkiewicz[1], Zuzanna Wilk[1], Iwona Anderko[1]
Affiliation: [1]Student Scientific Group of Gynecologic Oncology, Poznan University of Medical Sciences
Tutor: dr n. med. Mikołaj Zaborowski

Introduction: High-grade serous ovarian cancer (HGSOC), a leading cause of mortality in gynecological cancers, exhibits disrupted lipid metabolism pathways. The expression of lipid metabolism-related genes might be a novel prognostic biomarker.

The aim of the study: To assess the prognostic relevance of lipid metabolism genes' expression of HGSOC patients in The Cancer Genome Atlas Database (TCGA) using the multivariate analysis.

Material and Methods: We analyzed the mRNA expression of 32 lipid metabolism genes in 489 ovarian cancer tumors deposited in TCGA. The multivariate survival model consists of the Cox proportional hazards regression model with ridge regularization. The model was trained using n-repeated 5-fold cross-validation and was evaluated using c-index and log-rank tests performed on the high- and low-risk patient strata. The features associated with low risk or high risk of disease recurrence and premature death were estimated using permutation feature importance and Shapley value measures ($p<0.01$). Correlation analysis utilized both Pearson correlation and Spearman rank test methods.

Results: Multivariate Cox regression model trained on lipid metabolism genes' expression data successfully stratified patients into high- and low-risk groups of the disease recurrence ($p<0.0068$). The feature importance analysis confirmed the relevance of the MIEF2, PMVK, and LIPC genes in predicting the DFS and OS hazard risks. MIEF2 increases disease recurrence risk post-chemotherapy, while LIPC reduces OS. Conversely, PMVK is a strong predictor for longer DFS and OS. The multivariate model identifies ACLY and LDLR as supplementary markers indicating a high risk of disease recurrence, while PRKAA2, SCARB1, MGLL, DGAT1, and PCSK9 are associated with lower risk. LDLR, LRP1, and ACLY reduce OS, whereas MGLL has a beneficial effect on survival. ACLY and LDLR are associated with higher risk in DFS and OS, while MGLL is associated with lower risk in both cases.

Conclusions: The Multivariate Cox regression model identified lipid-related gene expression patterns as an emerging prognostic biomarker.

Molecular and pathological profiling of endometrial cancer patients to identify high-risk group

Authors: Piotr Tyburski[1], Magdalena Nadolna[1], Marta Szczygieł[1], Jędrzej Sikora[1], Mateusz Szot[1]
Affiliation: [1]Student Scientific Group of Gynecologic Oncology, Poznan University of Medical Sciences
Tutor: dr n. med. Mikołaj Zaborowski

Introduction: Introduction: In developed countries, endometrial cancer is the most common gynecologic malignancy. Patients with high-risk endometrial cancer require additional adjuvant treatment. Current indications for adjuvant therapy are based on clinical, pathological, and molecular risk factors. Recent molecular classifications have further stratified patients into prognostic groups: favorable (polymerase epsilon (POLE) mutation), intermediate (microsatellite instability, low copy number), and unfavorable (high copy number, TP53 mutation, estrogen receptor negative).Despite these advancements, some patients experience rapid recurrence, even when initially classified as low-risk. These patients respond poorly to treatment. Therefore, precise risk stratification is crucial for patient management and prognosis.

The aim of the study: The study aimed to identify high-risk patients based on molecular and pathological profiles.

Material and Methods: The study recruited patients (n=144) with endometrioid endometrial cancer who underwent surgical treatment in the Department of Gynecologic Oncology at Poznan University of Medical Sciences (2023-2024). The database included information on the histological type, clinical stage (FIGO), histological grade (G), lymphovascular space invasion (LVSI),and other molecular features.

Results: The analysis included 144 patients. Most cases were endometrioid carcinoma (88.2%). Among the 123 cases with grading data, G2 was the most frequent (48.8%), followed by G1 (33.3%) and G3 (17.9%). FIGO staging data (n=122) revealed that most patients were diagnosed in early stages: IA (39.3%) and IB (32.8%). Stages II and III accounted for 16.4% and 11.5% respectively. LVSI status (n=99) was negative in 58.6% of cases, focally positive in 19.2%, and substantially positive in 22.2%. TP53 status (n=111) was wild-type in the majority (81.1%), mutated in 13.5%, and null in 5.4%. Microsatellite instability (MSI) status (n=134) was MSS in 66.4% and MSI-H in 33.6%. Estrogen receptor (ER) expression was positive in 87.5% of the 64 cases in which it was assessed.

Conclusions: The study cohort predominantly comprised early-stage, G2, endometrioid carcinomas. Many cases demonstrated MSI-H, a potentially important finding for identifying responders to immunotherapy.

Prognostic Significance of MRI in Endometrial Cancer Patients Undergoing Lymphadenectomy

Authors: Natalia Goc[1], Nikola Dzierbicka[1], Łukasz Szymoniak[1], Olga Ciura[1], Maria Borucka[1]
Affiliation: [1]Student Scientific Group of Gynecologic Oncology, Poznan University of Medical Sciences
Tutor: dr n. med. Mikołaj Zaborowski

Introduction: The incidence of advanced endometrial cancer (FIGO III/IV) has recently increased. Patients with this stage of disease will often require adjuvant treatment such as radiation, chemotherapy, and immunotherapy. Hence, precise staging of endometrial cancer is essential to select the best post-operative management. Therefore, tools to identify metastatic lymph nodes (LN) are needed. Magnetic resonance has a high capacity to detect abnormalities in the LN.

The aim of the study: We aimed to determine how efficient preoperative MRI is in detecting LN metastases in endometrial cancer patients scheduled for sentinel lymph node dissection (SLND) or systematic lymphadenectomy (SL).

Material and Methods: We collected patients' data treated in the Department of Gynecologic Oncology between 2022 and 2025 and selected 57 patients with endometrial cancer who underwent SLND or SL with preoperative MRI regarding pelvic LN. The results of the MRI were compared to the histopathological report. We performed exploratory data analysis.

Results: Among 57 Patients, divergence in LN findings between MRI scans and histopathology was observed in 13 cases. Based on MRI scans, there were 12 patients with metastatic LN. Based on histopathology, there were 10 patients with metastatic LN. Among MRI-positive LN, 5/12 (41,67%) were not confirmed in the pathology report (false positives). Within the set of pathologically altered LN, 3/10 (30%) were undetected on MRI (false negatives). Furthermore, 35 of 57 examined patients (61,40%) had consistent FIGO staging scores between MRI and histopathology. In MRI, the least frequent was FIGO stage II (2/57; 3,51%). In patients with detected LN in MRI, there were 5 with microsatellite instability (5/12; 41,67%), and in histopathologically confirmed, three patients had microsatellite instability (3/10; 30%).

Conclusions: Differences between MRI and pathology reports on LN in patients with endometrial cancer can be seen in assessing FIGO stages, and the most common errors are false positive results.

The clinical impact of granulocyte colony-stimulating factors (G-CSF) in ovarian cancer patients

Authors: Antonina Garbowska[1], Jakub Bursy[1], Adrianna Klimczak[1], Barbara Pietrzak[1]
Affiliation: [1]Student Scientific Group of Gynecologic Oncology, Poznan University of Medical Sciences
Tutor: dr n. med. Mikołaj Zaborowski

Introduction: Ovarian cancer continues to challenge medical communities due to its significant mortality rate. While granulocyte colony-stimulating factor (G-CSF) is widely used to support hematopoietic recovery in chemotherapy patients, its potential protumoral effects raise concerns regarding its clinical impact.

The aim of the study: The primary objective of this study is to investigate the relationship between the use of G-CSF and the clinical course of ovarian cancer patients.

Material and Methods: We retrospectively analyzed data from 279 ovarian cancer patients treated in the Department of Gynecologic Oncology, Poznan University of Medical Sciences. We quantified the total absolute number of G-CSF doses per patient, the percentage of chemotherapy cycles followed by G-CSF administration and the use of long versus short-lasting forms of G-CSF. We analyzed the G-CSF use in different FIGO stage subgroups. We compared patients divided into two groups – (1) G-CSF-HIGH (≥ 4 cycles with G-CSF) and G-CSF-LOW (≤ 3 cycles or none).

Results: There were 150 patients in the G-CSF-HIGH, the median number of administered G-CSF doses was 5; 86.13% of chemotherapy courses were followed by G-CSF application and the long-lasting forms of G-CSF were used in 78.75%. In the G-CSF-LOW group, there were 129 patients who received a median of 1 dose, with 22.11% of chemotherapy cycles with G-CSF. In FIGO I/II (121 patients), the proportion of administered G-CSF doses to the chemotherapy courses was 65.31%, while in FIGO III/IV (158 patients), it was 49.81% (p=0.000628,2 U-Mann_Whitney test). Long-lasting forms of G-CSF were delivered to 89.90% of FIGO I/II and 80.12% of FIGO III/IV patients (p = 0.000028, U-Mann_Whitney test.).

Conclusions: G-CSF treatment per chemotherapy course and the long-lasting forms were delivered more frequently in FIGO stages I/II than III/IV.

The impact of GLP-1 receptor agonists (GLP-1-RA) on polycystic ovary syndrome (PCOS): A comprehensive review of recent studies

Authors: Maram El Kassem[1] , Omar Rahal[1]
Affiliation: [1]Medical University Of Warsaw, Department Of Gynecology
Tutors: dr hab. n. med. Jacek Sienko, dr n. med. Joanna Kacperczyk-Bartnik, lek. Aleksandra Urban

Introduction: PCOS is a common endocrine disorder affecting women of reproductive age, characterized by insulin resistance, menstrual irregularities, and an increased risk of cardiovascular diseases. Recent studies have explored the potential benefits of GLP-1-RA in managing PCOS. This review aims to synthesize the latest research on the effects of GLP-1-RA on cholesterol levels, weight management, insulin resistance, fertility, and cardiovascular risk in PCOS patients.

The aim of the study: This review aims to synthesize the latest research on the effects of GLP-1-RA on cholesterol levels, weight management, insulin resistance, fertility, and cardiovascular risk in PCOS patients.

Material and Methods: We reviewed multiple papers about the use of GLP-1-RA in PCOS patients. Key terms used; PCOS, GLP-1-RA, insulin resistance, pregnancy rate, menstrual irregularities.

Results: The effects of GLP-1-RA on cholesterol levels in PCOS patients were variable. Some studies reported no significant effects, while others observed significant reductions in total cholesterol, LDL, HDL, and weight. A 24-week trial by Xin Liu et al. included 176 PCOS patients, with 88 women receiving exenatide and 88 receiving metformin for the first 12 weeks, followed by all participants receiving metformin for another 12 weeks. Women treated with exenatide experienced greater weight reduction, total fat loss, higher insulin sensitivity, and increased menstrual frequency compared to those treated with metformin. During the second 12 weeks, the pregnancy rate was higher in the exenatide group (43.60%) compared to the metformin group (18.70%).
Additionally, there was a reduction in testosterone levels and an increase in SHBG levels, indicating GLP-1-RA in restoring hormonal balance in PCOS females. PCOS patients have an increased risk of cardiovascular diseases. A study on the effect of liraglutide on cardiac markers, midregional-pro-adrenomedullin (MR-proADM) and midregional-pro-atrial-natriuretic-peptide (MR-proANP), found that liraglutid decreased MR-proADM by 6% and MR-proANP by 25%. A randomized clinical trial by M. Nylander et al. reported that liraglutide administration in PCOS women resulted in improvements in ovarian dysfunction and bleeding regularity. Furthermore, a study on antidiabetic medications, including GLP-1-RA, suggested no increased risk of major congenital malformations with their use in early pregnancy.

Conclusions: GLP-1-RA has demonstrated improvements in multiple aspects of PCOS management including reducing cardiovascular risk, reduction in weight and total fat, improved menstrual cycles, fertility and pregnancy rate.

Using the Observational Teamwork Assessment in Surgery during c-section – a pilot study.

Author: Zofia Todys[1]
Affiliation: [1]Department of Sociology of Medicine & Medical Communications, Medical University of Gdańsk, Gdańsk; Department of Neonatology, Medical University of Gdańsk, Gdańsk; Department of Social Sciences, Poznań University of Medical Sciences, Poznań
Tutors: dr n. med. Katarzyna Głodowska, dr hab. Krzysztof Sobczak, dr n. med. Joanna Maria Jassem-Bobowicz

Introduction: Non-technical skills of team members, particularly their teamwork skills, are essential for ensuring the safety and effectiveness of surgical procedures. Evaluating these aspects of surgery with the use of validated tools, allows for an precise assessment.

The aim of the study: The objectives of this pilot study were: (1) to translate the Observational Teamwork Assessment in Surgery (OTAS) into Polish, (2) to propose modifications to the tool, enabling it to assess c-sections setting, which integrates the neonatal team, (3) to outline a framework for subsequent studies focused on the translation, adaptation, and re-validation of the tool.

Material and Methods: This pilot study employed a multi-phase and multi-method approach. In Phase 1, a tentative translation of the tool was developed. Phase 2 involved tool modifications, including the integration of the neonatal team. In Phase 3 two operations involving the delivery of premature newborns and two involving the delivery of full-term neonates were selected, followed by direct observations, and retrospective assessment of two members of each team.

Results: Most of the translated exemplar behaviours were confirmed by Polish healthcare professionals as applicable during c-sections conducted in Poland. Certain items were modified, and two additional items were introduced. A proposed task checklist for the neonatology team was developed, encompassing each phase of the procedure and corresponding behavioral constructs. The analysis of the results demonstrated that the interdisciplinary team received statistically significant higher ratings during procedures involving the delivery of premature newborns. However, most teams received the lowest ratings during the postoperative phase, except for the neonatology team. The anaesthesiology team achieved the highest scores overall.

Conclusions: Modified OTAS use is feasible in the setting of caesarean section. Recommendations for the further use of the modified OTAS to enhance its reliability and validity are provided. The results of own research, along with its preliminary conclusions, require retesting, as this study was conducted as a pilot study.

Multivariate Model to Predict Progression-Free Survival Based on Complete Blood Count in Ovarian Cancer Patients

Authors: Maria Namysł[1], Klara Maruszczak[1], Alicja Kamińska[1], Natalia Kwiatkowska[1], Jakub Kamiński[2]
Affiliations: [1]Student Scientific Group of Gynecologic Oncology, Poznan University of Medical Sciences; [2]Institute of Bioorganic Chemistry, Polish Academy of Sciences, Noskowskiego 12/14, 61-704, Poznań, Poland
Tutor: dr n. med. Mikołaj Zaborowski

Introduction: Although significant efforts have been made in the treatment of ovarian cancer (OC), it remains the leading cause of death among all gynecologic malignancies. Multiple biomarkers can estimate disease prognosis. In this context, attention is being paid to peripheral blood components, including platelets and granulocytes, which may play a pro-tumor role in early metastases in vitro. However, it remains unclear what the collective predictive potential of other complete blood count (CBC) parameters is.

The aim of the study: We used multivariate analysis to determine the relationship between OC patients' progression-free survival (PFS) and initial CBC parameters.

Material and Methods: We collected data from 181 high-grade serous ovarian cancer cases treated at the Department of Gynecologic Oncology (2013–2023) with available CBC data. Survival analysis was performed using multivariate Cox proportional hazards regression models and Kaplan-Meier estimators. Cox models were trained using repeated 5-fold cross-validation with ridge regularization. Their performance was assessed using a c-index measure and separation of high- and low-risk survival probability curves tested with the log-rank method. Additionally, we trained a Random Forest classifier to estimate its performance in assigning patients to risk groups. Feature importance was analyzed using the Shapley values method.

Results: The Multivariate Cox regression model significantly ($p < 0.001$) stratified patients into low- and high-risk groups, with a ~0.25 difference in two-year survival probability. Feature importance analysis identified lymphocyte, leukocyte, and neutrophil counts, FIGO I, hemoglobin, and hematocrit as positive predictors of disease-free survival. In contrast, FIGO III, platelet count, and platelet-to-lymphocyte ratio were associated with increased risk. CBC parameters exhibited predictive potential similar to clinical features and could serve as supplementary prognostic markers.

Conclusions: Incorporating CBC and clinical parameters concurrently into one multivariate Cox model enables the assignment of patients into high-risk and low-risk groups with significant confidence.

Public Health

Scientific Committee

dr n. o zdr. Barbara Czech-Szczapa
dr hab. n. o zdr. Chawłowska Ewelina
dr n. med. Pelczyńska Marta
dr n. hum. Czekajewska Justyna

Coordinator

Karolina Robak

Analise of sweeteners type in popular sugar-free products in the context of obesity treatment

Authors: Anna Mieczyńska[1], Dawid Rosiejka[2], Agnieszka Wesołek-Leszczyńska[2,3], Katarzyna Pastusiak-Zgolińska[2]
Affiliations: [1]Studenckie Koło Naukowe Dietetyki Klinicznej, Katedra i Zakład Leczenia Otyłości, Zaburzeń Metabolicznych oraz Dietetyki Klinicznej ul. Przybyszewskiego 49, Poznań, Uniwersytet Medyczny im. Karola Marcinkowskiego w Poznaniu; [2]Katedra i Zakład Leczenia Otyłości, Zaburzeń Metabolicznych oraz Dietetyki Klinicznej ul. Przybyszewskiego 49, Poznań, Uniwersytet Medyczny im. Karola Marcinkowskiego w Poznaniu; [3]Szkoła Doktorska, Collegium Stomatologicum ul. Bukowska 70 60-812 Poznań, Uniwersytet Medyczny im. Karola Marcinkowskiego w Poznaniu
Tutor: prof. UMP, dr hab. n. med. Monika Szulińska

Introduction: In recent years, there has been a growing interest in food products labeled as "sugar-free. " These products are intended to meet the needs of consumers who care about their health, especially those with obesity, in whose case it is recommended to limit sugar consumption. One of the main ingredients of these food products is sweeteners (SS), which are an alternative to traditional sugar. Nevertheless, their use in diet therapy, especially in the context of obesity, is a topic rarely discussed in the literature.

The aim of the study: This project aimed to assess the content of sweeteners in food products labeled as "sugar-free" and compare the obtained results with the recommendations in the literature on the subject in the context of the impact of these substances on health, particularly obesity.

Material and Methods: The study was conducted in February 2025, including an analysis of products available in popular chain stores in Poland, such as Żabka, Biedronka, Dino, Lidl, Carrefour, Rossmann, and Netto. The final statistical analysis included 347 food products.

Results: The products most often contained sucralose (52.16%), acesulfame K (37.75%), maltitol (33.43%), and aspartame (16.71%). The least frequently used were fructooligosaccharides (0.29%), neotame (0.29%), maltitol syrup (0.58%), and sodium saccharin (0.58%). The smallest number of sweeteners used in one product was one sweetener (alone: maltitol (49.25%), sucralose (34.33%), xylitol (5.22%), and erythritol (3.73%), and the most significant number of sweeteners used at the same time was 7.

Conclusions: In Polish stores, there are safe SS products containing erythritol, xylitol, and sucralose, which can be used in the diets of people with obesity. However, there is a lack of data assessing the glycemic load of whole food products.

Analysis of Gender Discrimination in the Academic Environment: Frequency, Forms and Student Perspectives

Authors: Martyna Płatników[1], Michał Fornalik[1], Agata Puszcz[1], Julia Pilecka[1], Julia Rogalska[1], Jan Górski[1], Karolina Rycman[1]
Affiliation: [1]Poznan University of Medical Sciences, Poznan, Poland
Tutor: mgr Natalia Woźniak

Introduction: This study examines the prevalence and impact of gender discrimination among medical students at Karol Marcinkowski Medical University in Poznań. As a pathway to highly demanding professions, medical education often exposes students to hierarchical structures and intense social interactions where discriminatory behaviors may flourish.

The aim of the study: By exploring the frequency, nature, and consequences of such incidents, this research aims to illuminate the systemic challenges that undermine equity in medical training and practice.

Material and Methods: A total of 209 medical students from years 2–6 participated in an anonymous survey examining the prevalence of discrimination and harassment in the academic environment. Statistical analysis was then performed using the Mann-Whitney U test for nonparametric variables.

Results and Conclusions:
The most frequently reported forms of discrimination were the perpetrator's expectation for the respondent to perform a specific task or activity based on their gender (M=2.22, SD=1.26). Women reported experiencing various forms of discrimination more often than men W(women)=2.29, M(men)=1.82, $p<0.0001$). The perpetrators of discriminatory acts were most often academic teachers. Discriminatory incidents most commonly occur in places where classes frequently took place: hospital wards (60.94% of women and 42.31% of men), seminary rooms (55.81% of women and 35.9% of men) and operating theaters (30.16% of women and 22.37% of men).

Conclusions:
Women are significantly more likely than men to be victims of gender-based discrimination. Men are more often perpetrators when holding positions of power, whereas, among peers, women engage in discriminatory behavior at similar rates. The academic environment facilitates discrimination, with incidents occurring more frequently during classes than in informal settings, particularly in spaces where academic activities are most frequent. Both men and women perceive discrimination as detrimental to career development and mental health.

HPV- related cancers awareness among young adults in Poland

Authors: Emilia Włoszek[1], Kamila Krupa[1]
Affiliation: [1]Students' Scientific Organization of Cancer Cell Biology, Department of Oncology Propaedeutics, Medical University of Warsaw, 02-091 Warsaw, Poland
Tutor: prof. dr hab. n. med i n. o zdr. Anna Badowska-Kozakiewicz

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.

The 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.

Material 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.

Psychosocial and health condition of young adults training amateur team sports: preliminary reports

Authors: Magdalena Lapis[1], Krzysztof Kulka[1]
Affiliation: [1]Students' Scientific Society “Medical Innovations” at the Department of Social Medicine; Pomeranian Medical University in Szczecin, Poland
Tutors: mgr Marcin Grajek, prof. dr hab. n. o zdr. Beata Karakiewicz

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.

The aim of the study: The main objective of the study was to analyze psychosocial and health functioning among young adults practicing amateur team sports.

Material and Methods: Thirty-nine people in the age range of 18-30 years (M=21.82+2.86) participated in the study. The study was conducted using a diagnostic survey method, questionnaire technique, and the research tool was a survey questionnaire, consisting of standardized tests - APSQ, GAD-7, PHQ-9, GSES and the author's survey questionnaire.

Results: Respondents demonstrating higher levels of athlete-specific psychological strain were characterized by lower self-efficacy (p=0.008) and presented a higher frequency of anxiety feelings (p=0.001). Women had significantly higher average feelings of sports-related psychological strain compared to men (p=0.033). Amateur dancers declared higher levels of anxiety feelings compared to amateur soccer players (p=0.0163). Respondents attaching full attention to their diet felt a higher level of strain in terms of self-regulation difficulties compared to respondents declaring partial attention to their nutrition (p=0.0198).

Conclusions: Conclusions: Psychosocial and health functioning among young adults who train amateur team sports varies. The two areas of functioning are related to each other and are determined by personal variables (e.g., gender), the discipline of the sport trained, a psychological sense of personal efficacy, and individual attitudes toward health as manifested by dietary adherence.

Students' knowledge about healthy sleep

Authors: Marta Sztuka[1], Katarzyna Janik[1]
Affiliation: [1]University of Opole, Poland
Tutor: dr n. biol. Michał Braczkowski

Introduction: Sleep is a vital physiological process, and its deficiency has negative consequences for both physical and mental health. Despite this, many individuals—particularly students—neglect healthy sleep habits.
The survey served not only as a research tool but also as an educational and preventive intervention. After each question, participants received a short explanation based on current medical evidence. To evaluate whether this information influenced their understanding, a final question asked: “Did you read the informational notes provided after each question, and did they change your perception of sleep hygiene?”

The aim of the study: This study aimed to assess basic knowledge about sleep among students.

Material and Methods:
The questionnaire included questions such as: recommended sleep duration for their age, the impact of poor sleep on the risk of cancer, autoimmune and cardiovascular diseases, and how sleep hygiene affects sex hormones.
The study was conducted via an online survey platform. The questionnaire collected demographic information including age, gender, and occupation. A total of 173 respondents participated: 28.9% identified as female, 70.5% as male, and 0.6% as other. The survey was administered in Polish.

Results: The results showed that 50.9% of participants were unaware that poor sleep affects female hormone regulation, 46.8% did not know about its influence on testosterone levels, and 47.4% were unaware of its impact on the immune system. In response to the final question, 49.1% reported that the information changed their perception, stating: “I changed my perception and now I believe that sleep is more important.”

Conclusions: This study highlights areas where knowledge gaps still exist and serves as an example of small-scale preventive action that could potentially be implemented on a larger scale in the future. It demonstrates a cost-effective way to contribute to the improvement of public health.

Surgery, Anaesthesiology, Toxicology & Emergency Medicine

Scientific Committee

prof. dr hab. n. med. Tomasz Kotwicki
dr n. med. Magdalena Frankowicz
dr n. med. Anna Kluzik
dr n. med. Eryk Matuszkiewicz

Coordinators

Eliza Kortus
Kanwara Karnchanakas

Ankle-Brachial Index as a Predictor of Mild Cognitive Disorders

Author: Agata Puszcz[1]
Affiliation: [1]Poznań University of Medical Science, Poland
Tutor: dr hab. n. med. Anna Posadzy-Małaczyńska

Introduction: Neurocognitive disorders (NCD) refer to a broad spectrum of conditions characterized by declining cognitive functions, such as memory, attention, language, and executive abilities. It is estimated that up to half of patients affected by NCD remain undiagnosed or are diagnosed at an advanced stage of the disease.

Aim of the study: This study evaluates the potential of vascular markers commonly used in surgery—Ankle-Brachial Index (ABI) and Pulse Wave Velocity (PWV)—as tools for early NCD detection.

Material and Methods: A total of 137 participants underwent neuropsychological assessment (ACE, MMSE), completed a sociodemographic survey, and provided medical history data. ABI and PWV measurements were taken using the BOSSO device. The variables were processed using the Mann-Whitney U test for non-parametric variables, Dunnett's T3 test for variance analysis, and regression analysis, and Pearson's correlation coefficient.

Results: Mild cognitive disorder (MCD) was identified in 26 participants (18.98%), while 8 (5.84%) were diagnosed with dementia. Regression analysis showed that low ABI was an effective predictor of cognitive decline ($p < 0.05$). Pearson's correlation analysis revealed that a low ABI (< 0.9) had a significant impact on memory and visuospatial functions ($p < 0.05$). ABI proved useful in early NCD detection, whereas PWV was not a reliable predictor.

Conclusions: Low ABI values may serve as an accessible, quick screening tool for cognitive impairment. The relationship between NCD and vascular diseases highlights the importance of cardiovascular diagnostics and prevention in protecting cognitive function.

Can perilesional biopsies replace systematic ones? A single-center analysis of two targeted biopsy strategies in the diagnosis of prostate cancer

Authors: Jan Stępka[1], Tomasz Milecki[1]
Affiliation: [1]Department of Urology and General Surgery, University Clinical Hospital, Poznań, Poland
Tutor: dr n. med. Wojciech Cieślikowski

Introduction: The latest EAU Guidelines for prostate cancer (PC) recommend adding perilesional biopsy (PL) to targeted biopsy (TG) instead of systematic biopsy (SB). This can lower the number of biopsy cores without reducing clinically significant PC (csPC, ISUP ≥2). Limited research supports this recommendation, and the impact of PL on ISUP grade concordance with radical prostatectomy specimens remains unclear.

Objectives: We primarily compared detection rates of PC and csPC under two biopsy strategies: targeted plus perilesional biopsy (TGPL) versus targeted plus systematic biopsy (TGSB). Secondarily, we assessed each strategy's effect on ISUP grade agreement between biopsy and radical prostatectomy.

Materials and methods: In a single-institution trial, 482 biopsy-naive patients with PIRADS 3–5 lesions underwent transperineal, computer-assisted fusion prostate biopsy. Each received four to six targeted cores plus either ten to twelve systematic cores (TGSB) or four to six perilesional cores (TGPL). Overall, 116 were assigned to TGPL, 366 to TGSB, and 139 proceeded to radical prostatectomy (28 TGPL, 111 TGSB).

Results: For PIRADS 3–5, PC detection showed no significant difference between TGPL and TGSB (e.g., 57.1% vs. 63.0%, p=0.69). Both boosted detection compared to TG alone (6.0% for TGPL, p=0.008; 6.6% for TGSB, p<0.001). csPC detection (ISUP ≥2) was likewise similar (14.3% vs. 27.8%, p=0.3; 63.6% vs. 68.4%, p=0.91), yet both surpassed TG alone (4.3%, p=0.07 vs. 3.8%, p<0.001). Among surgical patients, TGPL and TGSB showed no major difference in ISUP grade changes (e.g., upgrading 21.4% vs. 15.3%, p=0.44).

Conclusions: TGPL can be a viable alternative to TGSB, achieving comparable diagnostic efficacy with fewer cores. Further studies should refine PL sampling to optimize biopsy protocols.

Testicular torsion – presentation and management

Author: Jędrzej Ksepka[1]
Affiliation: [1]Students' Scientific Association of Urology, Poznan University of Medical Sciences, Poland
Tutor: dr n. med. Radosław Kadziszewski

Introduction: Testicular torsion is a urological emergency, requiring immediate surgical intervention due to the risk of losing the organ. Therefore, the most important role is the timing of patient's presentation to the hospital and the correct medical diagnosis in order to maximize the chances of preserving the affected testicle.

Aim of the study: Retrospective analysis of testicular torsion cases to ensure improved outcomes and fertility protection for future patients.

Material and methods: We analyzed 32 cases of testicular torsion in men aged 19 to 54 years presenting at the ED and subsequently treated surgically in the urology department. Data included patient's age, TRIAGE time and time of surgical procedure after the onset of symptoms, medical history, physical and ultrasound findings, histopathological examination after the orchidectomy.

Results: The median age of the patients was 26 years. 19 (59.4%) patients underwent orchidectomy, and 13 (40.6%) patients underwent orchidopexy. Age did not affect the type of surgery performed (p=0.197). Statistically, torsion involved the right testicle more often (p=0.008). Age was found to be moderately positively correlated with time to report for TRIAGE (p=0.016). The most common physical examination findings were no vascular flow on color-doppler projection (96.9%), pain (87.5%) and swelling (43.8%). The latest successful orchidopexy was performed after 6 hours and 45 minutes. Only 50.0% of patients were surgically treated in less than 8 hours. The median time to report at the ED was 13 hours and 10 minutes. The median time to perform surgery from arrival at the TRIAGE was 3 hours and 5 minutes. Patients who underwent orchidopexy reported significantly earlier on the TRIAGE (p=0.017). Men undergoing orchidopexy had significantly faster surgery upon arrival at TRIAGE (p=0.026).

Conclusions: The average ED arrival time disallows saving the affected testicle in more than half of patients. Therefore, it is crucial to raise awareness about the alarming signs of suspected testicular torsion, especially in elderly men.

Poster Session

Scientific Committee

prof. dr hab. Adrianna Mostowska
prof. dr hab. n. med. i n. o zdr. Dorota Sikorska
dr hab. Justyna Karolak

Coordinator

Piraya Chaiyo

Airway management and general anaesthesia in severe pediatric case of Epidermolysis Bullosa

Authors: Glieb Pak[1], Zofia Bojańczyk[1]
Affiliations: [1]Scientific Student Association of Anaesthesiology and Intensive Care, Medical Faculty, Collegium Medicum, Cardinal Stefan Wyszyński University in Warsaw, Warsaw, Poland; Clinic of Anaesthesiology and Intensive Care, The Childrens' Memorial Health Institute, Warsaw, Poland
Tutors: dr n. med. Małgorzata Mikaszewska-Sokolewicz

Background: Epidermolysis bullosa hereditaria (EBH) is a group of genetically determined blistering skin disorders characterized by extreme fragility, leading to the formation of blisters, erosions, and scarring. The underlying cause is mutations affecting genes that encode structural proteins and adhesive molecules, which stabilize the epidermal-dermal junction. For anesthesiologists, key challenges include preventing the formation of new blisters, managing scarred airway tissues, and ensuring perioperative pain control. Available resources comprise review studies and case-based guidelines. This paper highlights perioperative management strategies through a case study.

Case Report: A 16-year-old female patient with dystrophic epidermolysis bullosa (DEB) and dental caries was admitted for oral sanitation. She presented in good general condition, displaying phenotypic features of EB. Laboratory tests revealed anemia (Hgb 8.8 g/dL). Preoperative measures included the use of a modified pulse oximeter, a soft blood pressure cuff, and silicone-based dressings (Mepitac, Mepitel). Intubation proved challenging due to EB-related mucosal involvement which impaired visualization. Excessive scar tissue in the upper airway further complicated the procedure. Tracheal intubation was performed using a bronchoscope and a cuffless endotracheal tube. The procedure was completed with antibiotic coverage. Opioids and simple analgesics were used for pain control. Postoperatively, the patient experienced severe gag reflexes, treated with ondansetron and omeprazole. Antibiotic therapy continued for five days. She was discharged in good condition.

Conclusions: Although only 500 EB cases are documented in Poland, understanding their management is crucial. Many dermatological diseases share similar pathology, emphasizing the need for standardized protocols. This case illustrates key perioperative risks and management strategies for EB patients.

Transformation of a silent giant Crooke's cell pituitary adenoma to Cushing disease with a severe hypercortisolemia

Authors: Martyna Więcławek[1], Maria Komisarz-Calik[2], Anna Bogusławska[2], Mari Minasyan[2], Aleksandra Gilis-Januszewska[2]
Affiliations: [1]Students' Scientific Group of Endocrinology CMUJ; [2]Department of Endocrinology, Jagiellonian University, Medical College, Krakow, Poland
Tutor: dr hab. n. med. Alicja Hubalewska-Dydejczyk

Background: Conversion from non-functioning pituitary adenoma (NFPA) to Cushing disease (CD) is scarce and not sufficiently investigated. Diagnosis is associated with an uncertain prognosis. Crooke's cell adenoma is a potentially aggressive variant and can manifest as silent, "whispering," and finally, functional clinical hypercortisolemia.

Case Report: In 2016, a 71-year-old man with a history of macroadenoma since 2013 and multimorbidity was admitted to the hospital due to a hormonal reassessment of the tumor. In 2014, hormonal activity was excluded, and NFPA diagnosis was established.
On admission, the patient manifested very subtle symptoms of hypercortisolemia accompanied by elevated ACTH (96 pg/ml), elevated night serum cortisol (7.3 ug/dl), and normal morning cortisol (21.8 ug/dl). The function of the other pituitary axis was normal. In MRI, the tumor consisted of suprasellar (14x13x16 mm) and sellar (23x15x21 mm) lesions. Despite the tumor growth, the patient agreed to surgery seven years later.
Non-radical surgery was performed (05.2023) complicated by the central diabetes insipidus. Histopathology revealed a corticotroph pituitary neuroendocrine tumor with Crooke's cells. Follow-up MRI (09.2024) showed residual macroadenoma of a similar size to the previous tumor. Moreover, in January 2024, the patient presented typical symptoms of CD. Elevated ACTH and cortisol and lack of suppression in the dexamethasone test confirmed the pituitary source of hypercortisolemia. The result of 68GaDODATE PET/CT was nonsignificant. To suppress further tumor growth and simultaneously treat hypercortisolemia, therapy with pasireotide LAR was initiated in 05.2024. Stereotactic radiotherapy (11.2024) was provided. The treatment was modified due to persistent hypercortisolemia by introducing osilodrostat (01.2025), and normalization of cortisolemia was achieved. Owing to aggressive behavior of the tumor, implementation of temozolomide is planned.

Conclusions: Due to the possibility of aggressive behavior of Crooke's cell adenoma and hormonal transformation it is essential to conduct a careful follow-up with reassessments of the cortisol secretion and tumor growth.

Topiramate-induced acute iridocorneal angle-closure: Case report and significance of cycloplegia

Authors: Sławomir Liberski[1], Bartosz Skulimowski[1], Aleksandra Kałużna[1], Lidia Główka[1], Agata Brązert[1]
Affiliation: [1]Department of Ophthalmology, Poznan University of Medical Sciences, A. Szamarzewskiego, 84, 61-848 Poznan, Poland
Tutor: prof. dr hab. n. med. Jarosław Kocięcki

Background: Acute closure of the iridocorneal angle is an emergency condition that requires urgent intervention. Although it is most often associated with pupillary block, it can also be caused by a mechanism of "pushing" the iris-lens diaphragm, secondary to a choroidal effusion. Topiramate, an anticonvulsant and antimigraine drug, is a known cause of secondary angle closure.

Case Report: We present the case of a 31-year-old female patient with a diagnosis of depression and migraine headaches who presented with sudden bilateral visual deterioration and headache. Ophthalmological examination revealed bilateral iridocorneal angle closure, elevated intraocular pressure (IOP) (38 mmHg and 36 mmHg in the right and left eye, respectively), and anterior chamber shallowing. B ultrasound showed features of bilateral choroidal effusion. The patient had been taking sertraline (50mg/day for over a year) and topiramate (15 mg/day for a month). Bilateral angle closure secondary to topiramate-induced choroidal effusion was diagnosed. Topiramate was immediately discontinued, and treatment was initiated: topical intraocular pressure-lowering drugs, 1% tropicamide (cycloplegic), dexamethasone, and oral acetazolamide. In the following days, gradual improvement was observed: reduction of intraocular pressure, widening of the iridocorneal angle (assessed by anterior segment optical coherence tomography (AS-OCT), and reduction of choroidal effusion. After several days of hospitalization, the patient was discharged with the recommendation to continue topical treatment and neurological consultation. The patient's condition remained stable during follow-up visits, and no IOP increases were observed.

Conclusions: This case illustrates a rare but serious complication of topiramate use. It underscores the importance of a thorough medication history in patients with acute angle closure. In the mechanism of "pushing" the iris-lens diaphragm, cycloplegia (along with steroids) plays an essential role in pharmacotherapy, facilitating the repositioning of anatomical structures and normalization of IOP.

The Complexities of Monochorionic Diamniotic Twin Pregnancy: A Rare Case with Twin- Twin Transfusion Syndrome and Twin Anemia-Polycythemia Sequence

Authors: Ting-Wei Chang[1], Sophia Orfanakos[1], Daria Metelkina[1]
Affiliation: [1]Department of Reproduction, Ginekologiczno-Położniczy Szpital Kliniczny, Poznań University of Medical Sciences
Tutor: dr n. med. Sandra Radzicka-Mularczyk

Background: Approximately 1 in 5 twin pregnancies are monochorionic diamniotic (MCDA). While vascular anastomoses are present in nearly all MCDA pregnancies, clinically significant transfusion imbalances such as twin-twin transfusion syndrome (TTTS) develops in 10–15% of cases and nontreatment may result in over 90% mortality of one or both twins.
Fetoscopic laser coagulation (FLC) is the standard treatment for TTTS; despite successful intervention, residual anastomoses may persist in 2-16% of cases, increasing the risk of iatrogenic twin anemia-polycythemia sequence (TAPS). TAPS is associated with severe neonatal morbidity and mortality, particularly affecting the donor twin (DT).

Case Report: A 39-year-old woman G3P0 (0-0-2) presented with MCDA twin pregnancy complicated by TTTS and selective fetal growth restriction (sFGR) in the DT. Despite normal umbilical artery Doppler studies, DT exhibited sFGR with an estimated fetal weight below the 10th percentile. TAPS was not confirmed during hospitalizations and ultrasound follow-ups. Maternal history included in vitro fertilization and a history of first-trimester miscarriages. At 18 weeks of gestation, the patient underwent FLC of vascular anastomoses, followed by amnioreduction to manage polyhydramnios in recipient twin (RT).
At 32 weeks, the patient developed TAPS, and cesarean section was performed–DT (860g) and RT (1660g) were delivered with a significant inter-twin hemoglobin discordance. The cesarean section was complicated by postpartum hemorrhage (1,100 mL) and difficult placental extraction, leading to fragmentation. Due to complications of TAPS, both neonates were admitted to the neonatal intensive care unit for close monitoring. Tragically, death occurred in RT after two weeks, while DT, defying all odds, survived and has since remained under close observation.

Conclusions: This case underscores the complexities of MCDA twin pregnancy. Despite FLC, the development of TAPS led to significant perinatal challenges. The survival of DT highlights the importance of post-FLC monitoring and management for TTTS and its associated complications.

PhD - Clinical Sciences

Scientific Committee

dr hab. n. med. Aleksandra Uruska
dr hab. n. med. Anna Komosa
dr hab. n. med. Barbara Kuźnar-Kamińska

Coordinator

Jakub Waliszewski

The role of CGRP-1 and CGRP-2 in the pathophysiology of migraine – a comparative analysis

Authors: Oliwia Szymanowicz[1,3], Bartosz Słowikowski[2], Joanna Poszwa[1], Paweł Jagodziński[2], Wojciech Kozubski[4]
Affiliations: [1]Laboratory of Neurobiology, Department of Neurology, Poznan University of Medical Sciences, Poznan, Poland; [2]Department of Biochemistry and Molecular Biology, Poznan University of Medical Sciences, Poznan, Poland; [3]Doctoral School of Poznan University of Medical Sciences, Poznan, Poland; [4]Chair and Department of Neurology, Poznan University of Medical Sciences, Poznan, Poland
Tutor: prof. dr hab. Jolanta Dorszewska

Introduction: CGRP (Calcitonin Gene-Related Pep2de) is a neuropeptide central to the pathogenesis of migraine. It exists in two isoforms: CGRP-α (CGRP-1) and CGRP-β (CGRP-2). New therapies, such as monoclonal antibodies, blocking CGRP or its receptor, have shown significant efficacy in reducing the frequency and intensity of migraine aMacks. Therefore, understanding the role of CGRP-1 and CGRP-2 in the pathogenesis of migraine is crucial.

The aim of the study: This study aimed to assess the levels of CGRP-1 and CGRP-2 in patients with migraine and compare them to a control group to better understand migraine pathogenesis.

Material and Methods: The study included 100 patients with migraine (with and without aura) and 50 controls. Serum levels of CGRP-1 and CGRP-2 were measured using the ELISA method. Statistical analysis compared the levels of both isoforms between groups and assessed correlations with migraine type.

Results: The average concentration of CGRP-1 was significantly higher in patients with migraine compared to controls ($p < 0.05$). Elevated levels of CGRP-1 were observed in both migraine with aura and without aura, with a more pronounced increase in patients with migraine without aura. CGRP-2 levels showed greater variability and their increase was less consistent than CGRP-1. Elevated CGRP-2 levels were more common in patients with migraine with aura, suggesting that CGRP-2 may play an additional role in vascular and neuroinflammatory processes in this type of migraine.

Conclusions: CGRP-1 is a dominant player in migraine pathogenesis, making it a primary target for monoclonal antibody therapies. While CGRP-2 also exhibits vasodilatory activity, its role in migraine is more complex and requires further investigation.

Diagnostic examination of Horner syndrome in children

Authors: Katarzyna Kuchalska[1,2], Marta Pawlak[1], Julia Dezor-Garus[1], Anna Chmielarz-Czarnocińska[1]
Affiliations: [1]Department of Ophthalmology, Poznan University of Medical Sciences, Poland; [2]School of Doctors, Poznan University of Medical Sciences, Poland
Tutors: prof. dr hab. Katarzyna Derwich, prof. dr hab. n. med. Anna Gotz-Więckowska

Introduction: Horner syndrome (HS) manifests by unilateral ptosis, miosis, and anhidrosis and is caused by an interruption of the oculosympathetic pathway that sometimes can be a life-threatening disease. There were reports of uncharacteristic clinical images like isolated anisocoria. This is why differentiation from physiologic anisocoria challenges clinicians.

The aim of the study: We aimed to assess the features of both conditions to facilitate decision making process in diagnosing anisocoria character.

Materials and Methods: We included 28 pediatric patients with symptoms of HS (unilateral ptosis and/or anisocoria). HS was diagnosed in 11 children. We performed a pharmacologic test with 0.5% apraclonidine or 2.5% phenylephrine in 19 unclear cases. In every patient we examined pupil diameters with a pupilometer and MRD1 (upper eyelid margin to central corneal reflex distance).

Results: We obtained one positive result of the apraclonidine test and one of phenylephrine with the subsequent negative outcome of the apraclonidine examination. We observed that patients with HS had more apparent anisocoria in the light and the darkness (1.17, 0.93 mm respectively) than those with negative results of pharmacologic tests (0.65, 0.74 mm). MRD1 in HS varied from 0 to 2 mm, and in the second group there was no ptosis or MRD1 was equal to 2 mm or more.

Conclusions: In conclusion, anisocoria in HS is more apparent than in physiological conditions. Moreover, isolated anisocoria is a rare manifestation of HS.

Effect of receiving multiple medicines on the functional capacity of geriatric patients

Author: Mikołaj Szoszkiewicz[1]
Affiliation: [1]Geriatric Unit, Department of Palliative Medicine, Poznan University of Medical Sciences, 61-245 Poznan, Poland
Tutor: prof. dr hab. n. med. Katarzyna Wieczorowska-Tobis

Introduction: Polypharmacy is defined as taking at least five drugs daily. Researchers also distinguish excessive polypharmacy which is taking at least ten medicines daily. Polypharmacy is a growing problem mainly within the geriatric population. According to a recent nationwide study, PolSenior2, more than half of Polish seniors suffer from polypharmacy. Multiple studies revealed that taking multiple medicines predisposes to frequent hospitalizations, falls and higher mortality.

The aim of the study: The study aimed to analyse the correlation between the number of received medicines and demographical data and comprehensive geriatric assessment (CGA) test results.

Material and methods: The study sample consists of 174 patients from two day-care centers for partially dependent seniors in Poland. This is a retrospective cross-sectional study, data were analysed based on medical records. Patients with polypharmacy (taking at least five drugs daily) were included in the analysis. The number of drugs was analysed based on patient interviews. The following parameters were correlated with the number of received medicines: age, Body Mass Index (BMI), Mini-Mental State Examination (MMSE), Geriatric Depression Scale (GDS), Timed Up and Go (TUG) test, Mini Nutritional Assessment short form (MNA-SF). Due to the ordinal scale of the variables, Spearman's rank-order correlation was used.

Results: The mean age of the study sample was 80 years, ranging from 65 to 102 years. The median of received medicines was 9, varying from 5 to 22 drugs taken daily. We found a significant positive correlation between number of received medications and BMI index ($r = 0.33$, $p<0.01$) and TUG test completion time ($r = 0.17$, $p = 0.03$). We found no such association regarding age, MMSE, GDS and MNA-SF scores.

Conclusions: The number of received drugs may influence on physical performance of older people. Further studies are required to investigate its effect in other domains.

PhD - Basic Life Sciences

Scientific Committee

prof. dr hab. n. med. Maciej Krawczyński
prof. dr hab. n. farm. Violetta Krajka-Kuźniak
dr n. biol. Marcin Hołysz

Coordinator

Kacper Maciejczak

Curcumin-Fisetin Combination in Intravenous Fat Emulsions: Synergistic Antioxidant Potential and Preformulation Studies

Authors: Olga Obrzut[1], Aleksandra Gostyńska-Stawna[2]
Affiliations: [1]Department of Pharmaceutical Biochemistry, Poznań University of Medical Sciences, Rokietnicka 3, 60-806 Poznań, Poland; [2]Department of Pharmaceutical Chemistry, Poznań University of Medical Sciences, Rokietnicka 3, 60-806 Poznań, Poland.
Tutor: prof. dr hab. n. farm. Violetta Krajka-Kuźniak

Introduction: Commercial intravenous fat emulsions (IVFE) provide essential fatty acids. However, in total parenteral nutrition (PN), phytosterols from IVFE and excessive glucose administration may contribute to intestinal failure-associated liver disease (IFALD). Research suggests that curcumin (CUR) and fisetin (FIS) possess anti-inflammatory and antioxidant properties, potentially preventing or mitigating IFALD. The synergistic action of these compounds may enhance their protective effects against oxidative stress and inflammation.

The aim of the study: This study aimed to evaluate the potential synergistic antioxidant effects of CUR-FIS in an inflammation model of IFALD and conduct preformulation research on incorporation of those compounds into IVFE for PN.

Material and Methods: The cytotoxicity of CUR, FIS and their combination was evaluated using the MTT assay on THLE-2 liver cells. Further, inflammation was induced with IVFE, LPS and glucose, and SOD-1 expression was measured via Western blot analysis. The solubility of CUR (1 mg/mL) and FIS (1 mg/mL) was tested in various solvents, including commercial IVFE oils (soybean, fish, MCT, olive) and emulsifiers/solubilizers (Kolliphor HS15, Tween 80, triacetin, propylene glycol). Propylene glycol demonstrated superior solubility enhancement and was selected for further formulation studies. The CUR-FIS combination was incorporated into a commercial IVFE at three concentrations, and preliminary stability tests, including mean particle size, PFAT5, zeta potential, osmolality and pH, were conducted over 14 days.

Results: The MTT assay showed that CUR-FIS maintained cell viability and Western blot analysis indicated increased SOD-1 expression, suggesting antioxidant activity. The solubility study identified Tween 80 and propylene glycol as optimal solvents, with the latter significantly enhancing CUR-FIS dissolution. Stability tests confirmed no significant alterations in emulsion properties over 14 days.

Conclusions: The findings suggest that CUR-FIS exhibits synergistic antioxidant properties, potentially benefiting IFALD prevention and treatment. Propylene glycol effectively improved CUR-FIS solubility, allowing for their incorporation into commercial IVFE.

Cyanidin as a Therapeutic Agent for Preventing Liver Failure in Parenteral Nutrition

Authors: Marta Belka[1,2], Aleksandra Gostyńska-Stawna[3], Maciej Stawny[3]
Affiliations: [1]Department of Pharmaceutical Biochemistry, Poznan University of Medical Sciences, Rokietnicka 3, 60-806 Poznań, Poland; [2]Doctoral School, Poznan University of Medical Sciences, Bukowska 70, 60-812 Poznan, Poland; [3]Department of Pharmaceutical Chemistry, Poznan University of Medical Sciences, Rokietnicka 3, 60-806 Poznan, Poland
Tutor: prof. dr hab. n. farm. Violetta Krajka-Kuźniak

Introduction: Cyanidin, a natural anthocyanidin in fruits like blackberries, is a potent antioxidant with anti inflammatory and hepatoprotective effects, particularly under high-fat diet-induced liver stress. It may also modulate gut microbiota, aiding in protection against parenteral nutrition-associated liver disease (PNALD). PNALD, a complication of long-term parenteral nutrition, involves chronic inflammation, oxidative stress, and bile acid and lipid metabolism dysregulation. A key factor in its pathogenesis is phytosterol-rich lipid emulsions from soybean oil.

The aim of the study: This study aimed to assess the protective effects of cyanidin against PNALD by evaluating its antioxidant, anti-inflammatory, and lipid metabolism-regulating properties.

Material and Methods: The study was conducted on normal human liver cells (THLE-2 line) stimulated with lipopolysaccharide (LPS) and a lipid emulsion commonly used in parenteral nutrition. Cell viability in response to cyanidin treatment was assessed using Celena X High Content Imaging System. The effect of cyanidin on key signaling pathways was analyzed using the MAGPIX system, which applies ELISA-based detection with paramagnetic microspheres to measure levels of NF-κB, STAT3, ERK, JNK and AKT kinases. Additionally, Nrf2 activation and translocation were evaluated via Western blot analysis, while gene expression of AMPK2A and CYP7A1 was quantified using RT-PCR.

Results: Cyanidin treatment enhanced the viability of liver cells exposed to LPS and lipid emulsion. MAGPIX analysis revealed that cyanidin downregulates NF-κB, STAT3, JNK, ERK, and AKT signaling pathways. Western blot analysis demonstrated cyanidin-induced translocation of Nrf2 from the cytosol to the nucleus, a key indicator of antioxidant response activation. Furthermore, RT-PCR results showed an upregulation of AMPK2A and CYP7A1 expression, suggesting improvements in fatty acid metabolism and bile acid homeostasis.

Conclusions: These findings suggest that cyanidin may be a promising therapeutic agent for preventing PNALD by mitigating oxidative stress and inflammation while supporting lipid metabolism regulation. Further studies are warranted to confirm its potential clinical applications in long-term parenteral nutrition patients.

Acknowledgments: This work was funded by grant OPUS no. 2022/45/B/NZ7/01056 from the National Science Centre, Poland.

Enhancing Topical Ketoprofen Delivery: Menthol as a Penetration Enhancer and its Effect on Photostability

Authors: M. Gackowski[1], U. Adamiak-Giera[2], D. Malinowski[2]
Affiliations: [1]Chair and Department of Pharmaceutical Technology, Poznań University of Medical Sciences, Poznań, Poland; [2]Department of Pharmacokinetics and Therapeutic Drug Monitoring, Pomeranian Medical University in Szczecin, 70-111 Szczecin, Poland;
Tutor: prof. dr hab. n. med. i n. o zdr. Tomasz Osmałek[1]

Introduction: Topical nonsteroidal anti-inflammatory drugs are widely used for pain management due to their favorable safety profile and lower risk of systemic side effects compared to oral formulations. Among them, ketoprofen is particularly effective in arthritis. Compounded medications allow for personalized pharmacotherapy, enabling patient-specific therapies. Pharmacists can prepare customized topical formulations with optimized skin permeability and enhanced efficacy using penetration enhancers and transdermal bases.

The aim of the study: This study explores the impact of menthol concentration on the transdermal permeability of ketoprofen. Moreover, the photostability profile of the prepared formulations was compared with that of a commercially available product.

Material and Methods: The active pharmaceutical ingredients (APIs) used in the study included ketoprofen, lidocaine hydrochloride, and menthol. Pentravan® was selected as the transdermal base due to its liposomal properties, which enhance skin penetration. Ethanol 96% (v/v) was used as a solvent for the APIs. Five formulations were prepared and subjected to in vitro drug permeation studies using Strat-M® membranes. In addition, photostability testing was performed following ICH Q1B guidelines and microscopic analysis was conducted to evaluate the structural characteristics of the obtained formulations.

Results: The permeability of ketoprofen through Strat-M® membranes depended on menthol concentration, with higher menthol levels significantly increasing drug permeation ($p < 0.05$). Formulations containing menthol increased the permeability of the drug compared to the menthol-free formulation. Photostability studies demonstrated that using Pentravan® as a base significantly improved ketoprofen stability ($p <0.05$). However, the addition of menthol led to API degradation in the Pentravan® formulation, with a degradation profile comparable to that of the commercial product ($p > 0.05$). Microscopic analysis indicated that the liposomal structures in Pentravan® remained intact.

Conclusions: We propose a magistral formulation with enhanced skin permeation properties, enabling composition customization to address the specific needs of individual patients. Additionally, we emphasize the superior safety profile of this formulation compared to commercial preparations.

Evaluation of Gene Expression Involved in Adrenal Gland Physiological Functions in a Mouse Model of Huntington's Disease

Authors: A. Olechnowicz[1,2], M. Blatkiewicz[1], M. Isalan[3,4], M. Mielcarek[3,4]
Affiliations: [1]Department of Histology and Embryology, Poznan University of Medical Sciences, 61-701 Poznan, Poland; [2]Doctoral School, Poznan University of Medical Sciences, 60-812 Poznan, Poland; [3]Department of Life Sciences, Imperial College London, Exhibition Road, London SW7 2AZ, UK; [4]Imperial College Centre for Synthetic Biology, Imperial College London, London SW7 2AZ, UK
Tutor: prof. dr hab. n. med. Marcin Rucinski

Introduction: Huntington's disease (HD) is caused by the huntingtin (HTT) gene mutation, leading to a production of an abnormal protein accumulating within cells. HD symptoms manifest mainly in adulthood and are characterized by a progressive motor and neurological impairments. Growing body of evidence indicates that the mutant HTT affects not only the nervous system but also peripheral organs, including gene expression regulation. The adrenal glands are of particular interest, as they exhibit both histological alterations and disruptions in physiological processes, highlighting their potential role in the HD systemic impact.

The aim of the study: Due to a broad range of physiological functions of the adrenal glands, especially catecholamine and steroid synthesis, we aimed to evaluate the expression of genes associated with these processes in the symptomatic R6/1 mouse model of HD.

Material and Methods: RNA from the adrenal glands of the R6/1 mouse model (n=9) and its genetic background controls (n=8) was used. With the qPCR method, we analyzed the expression of genes involved in catecholamine production (Th, Ddc, Dbh, Pnmt, Prl, Prlr) and steroidogenesis (Cyp family genes, Star, Hsd3b1).

Results: Our study revealed a significant differences in the expression of genes involved in catecholamine and steroidogenesis in the adrenal glands of R6/1 mice compared to control individuals. These findings suggest that the mutant HTT protein may influence R6/1 adrenal gland function. Such alterations could contribute to a broader systemic effects in HD, highlighting the importance of further research into peripheral tissue involvement.

Conclusions: The present study demonstrated gene expression changes in the adrenal glands of the R6/1 mouse model consistent with those previously reported in the R6/2 model. These findings confirm the impact of mutant HTT on gene regulation in peripheral tissues. Future comprehensive analyses of adrenal protein synthesis could enhance our understanding of HD pathology and help identify novel therapeutic targets.

Acknowledgement: This study was supported by Poznan University of Medical Sciences Doctoral School grant number 154 / 2024 / MGB financed from the statutory funds.

Evaluation of Radiation Sterilization Effects on substance from *Magnolia officinalis*

Authors: Katarzyna Dominiak[1,2], Agnieszka Sobczak[1], Aneta Woźniak-Braszak[3], Mikołaj Baranowski[3], Paweł Bilski[3], Anna Jelińska[1]
Affiliations: [1]Chair and Department of Pharmaceutical Chemistry, Poznan University of Medical Sciences, Rokietnicka 3, 60-806 Poznan, Poland; [2]Doctoral School, Poznan University of Medical Sciences, Bukowska 70, 60-812 Poznan, Poland; [3]Functional Materials Physics Division, Faculty of Physics, Adam Mickiewicz University, 2 Uniwersytetu Poznańskiego, 61-614 Poznań, Poland
Tutor: prof. UMP, dr hab. n. farm. Maciej Stawny

Introduction: Honokiol and magnolol are lignans present in the bark and roots of Magnolia officinalis. These compounds exhibit antioxidant, anti-inflammatory, neuroprotective, and anti-cancer effects. Ionizing radiation is one of the sterilization methods for drugs outlined in the European Pharmacopoeia. This method allows for the effective elimination of biological contaminants. However, ionizing radiation can cause changes in the structure of compounds, affecting their stability and efficacy. Therefore, a pharmaceutical analysis must be carried out each time to confirm its applicability to a substance.

The aim of the study: Stability assessment of magnolol and honokiol after ionizing radiation at different doses.

Material and Methods: The tested compounds were irradiated with radiation doses of 25, 100 and 400 kGy using a linear electron accelerator and evaluated the stability of the irradiated samples using electron paramagnetic resonance (EPR) spectroscopy, Fourier-transform infrared (FT-IR) spectroscopy, nuclear magnetic resonance (NMR), and high-performance liquid chromatography (HPLC).

Results: For the EPR analysis, the signal amplitude changed as a function of dose. Other spectral parameter changes were within the measurement error. The free radicals produced by ionizing radiation did not affect the method because they were transient and decayed rapidly. FT-IR spectroscopy was not suitable for detecting structural changes in the irradiated samples, as the spectra showed no differences. Increased molecular mobility was observed during NMR at higher radiation doses. This effect was absent at a dose of 25 kGy, indicating that molecular dynamics remained unchanged. HPLC analysis showed that both lignans were highly stable across all radiation doses. The content of the compounds did not decrease and remained above 95%. No additional peaks, indicative of degradation products, were observed.

Conclusions: The standard radiation dose (25 kGy) did not negatively impact the stability of the tested compounds. Higher doses of radiation adversely affected lignans, causing their degradation.

Acknowledgments:: This work was funded by grant OPUS no. 2022/45/B/NZ7/01056 from the National Science Centre, Poland..

FMT in hematology: one framework, many uses

Author: Aneta Nowicka[1]
Affiliation: [1]Department of Hematology and Bone Marrow Transplantation, Poznan University of Medical Sciences
Tutor: prof. dr hab. n. med. Lidia Gil

Introduction: As our understanding of microbiota's role in health and disease grows, its modulation in cancer management is gaining attention. Fecal microbiota transplantation (FMT) transfers fecal matter from a donor to a recipient's intestinal tract to improve the microbial profile. While currently approved only for recurrent Clostridium difficile infections, FMT may also provide various benefits to patients with hematologic conditions, although clinical studies in this area are scarce.

The aim of the study: To evaluate the efficiency and safety of FMT in patients treated for hematological malignancy at the Department of Hematology and Bone Marrow Transplantation in Poznan.

Material and Methods: This retrospective study involved 28 patients who received FMT for various reasons: 1) to eradicate multidrug-resistant organisms (MDROs) during treatment (n=13), 2) before allogeneic hematopoietic stem cell transplantation (n=11), 3) for recurrent Clostridium difficile infection (n=5). Medical records were reviewed for tolerance, colonization status, and infectious complications at 30 and 100 days. Material from healthy donors was administered via the upper gastrointestinal tract.

Results: No participants experienced serious side effects, though mild gastrointestinal discomfort was common. Decolonization occurred in 28% of patients. Failure rates were 58%, 81%, and 33% in groups 1, 2, and 3, respectively, within a median of 45 days. Infectious complications were observed in 52% of patients (33%, 73%, and 67% by group), with 31% classified as severe by day 30, and in 42% (33%, 30%, 100%), with 30% severe between days 30 and 100, involving initial pathogen in 44%. There were 6 infection-related deaths, 5 due to MDROs.

Conclusions: FMT is a safe option for various indications in immunocompromised patients. Consistent with previous findings, the highest efficacy was observed in cases of recurrent Clostridium difficile infection. Infectious complications, particularly from MDROs, remain a challenge in hematology, highlighting the need for further research on FMT's prophylactic and therapeutic potential.

iPSC-derived chondroprogenitors show enhanced adaptive properties to the osteoarthritic low- grade inflammatory environment compared to primary chondrocytes – in vitro study

Authors: Monika Rosochowicz[1,2,3], Michał Lach[2,3], Magdalena Richter[2]
Affiliations: [1]Doctoral School, Poznan University of Medical Sciences, Poznan, Poland
[2]Department of Orthopaedics and Traumatology, Poznan University of Medical Sciences, Poznan, Poland; [3]Radiobiology Laboratory, Greater Poland Cancer Centre, Poznan, Poland
Tutors: prof. dr hab. n. med. i n. o zdr. Wiktoria Suchorska, dr hab. n. med. Tomasz Trzeciak

Introduction: A major limitation in cartilage repair using autologous chondrocyte implantation (ACI) is excessive senescence and dedifferentiation of patient-derived cells due to synovial fluid (SF) proinflammatory factors. A promising alternative are chondroprogenitors (ChPG), derived from mesenchymal stromal cells (MSCs) or induced pluripotent stem cells (iPSC). iPSC outperform MSCs in regenerative potential, overcoming MSC-related age- and division-related limitations, making them an alternative for cartilage repair. However, their exposition to SF representing the osteoarthritis (OA) microenvironment and biological consequences remain poorly understood.

The aim of the study: To assess whether iPSC-derived ChPG are more resistant to OA inflammatory factors in an in vitro model.

Material and Methods: Methods: ChPG was derived through chondrogenic differentiation of GPCCi001-A iPS cell line in xeno- and serum-free system. Articular cartilage chondrocytes (ACC) were isolated from OA patients (n=4) undergoing knee replacement. ACC and ChPG were cultured in standard chondrogenic medium (CTR) and in 10% SF (pooled from OA knee patients (n=27, Kellgren-Lawrence 3-4)). Proliferation was assessed via MTT assay; senescence by SA-β-gal assay; and viability, cell cycle distribution, and ROS levels via flow cytometry. Western blot and immunofluorescence analysed chondrogenic (COL2A1, COMP, ACAN), hypertrophy/fibrosis (COL1A1, COL10A1), apoptosis (BAX, BCL-2), inflammatory (NFκB, YKL-40), and senescence (LAMP1, p21) markers.

Results: Results: ChPGs proliferation rate has been higher than ACC and showed even increased proliferation in SF presence, unlike ACC. ChPG cultures tend to be younger in CTR than ACC-CTR (not significant). Surprisingly, presence of SF reduced senescence in both cell types (not significant). Living cells' SF/CTR ratio increased in ChPG, while in ACC decreased. ROS production was lower in ChPG-CTR than ACC-CTR. ChPG had higher G0/G1 and S phase percentages but lower SubG1. Protein analysis showed increased ACAN and decreased COL1A1, COL10A1, BAX, NFκB, p21, and LAMP1 in ChPG, with comparable COL2A1, COMP, YKL-40, and BCL-2 levels.

Conclusions: iPSC-derived ChPG demonstrate better adaptation to the OA environment than primary OA chondrocytes.

Acknowledgement: This research was funded by the National Science Centre based on decision no. UMO-2019/33/B/NZ5/01989

The evaluation of anti-glioma effects of cannabidiol and celecoxib-loaded liposomes

Authors: Anna Rybarczyk[1,2], Aleksandra Majchrzak-Celińska[1], Ludwika Piwowarczyk[3]
Affiliations: [1]Chair and Department of Pharmaceutical Biochemistry, Poznan University of Medical Sciences, Poznan, Poland; [2]Doctoral School, Poznan University of Medical Sciences, Poznan, Poland; [3]Chair and Department of Pharmaceutical Chemistry, Poznan University of Medical Sciences, Poznan, Poland
Tutor: prof. dr hab. n. farm. Violetta Krajka-Kuźniak

Introduction: High-grade astrocytomas are glial tumors that remain among the most challenging malignancies to treat, with fewer than 30% of patients achieving long-term survival. Drug nanocarriers offer a promising strategy to enhance treatment efficacy by improving drug permeability across the blood-brain barrier. Combining bioactive natural compounds with repurposed drugs represents a novel approach to supporting existing therapies.

The aim of the study: The study aims to evaluate the anti-glioma effects of novel liposomal formulations loaded with cannabidiol (CBD), celecoxib, and their combinations, focusing on their cytotoxicity, apoptosis induction, and cell cycle arrest against U-87 MG cells.

Material and Methods: Cationic liposomes incorporating CBD, celecoxib, and their combination were prepared using the thin-film hydration method, followed by sonication and extrusion. The cytotoxic effects of the formulations (1–50 μM) on U-87 MG cells were assessed using the MTT assay. Flow cytometry was employed to analyze apoptosis induction (Muse Annexin V & Dead Cell Kit) and cell cycle distribution (Muse Cell Cycle Kit) after 48 hours of exposure.

Results: The cytotoxicity assay revealed that U-87 MG cells were most sensitive to celecoxib loaded liposomes, with reduced cell viability exceeding 50%. The formulation significantly induced apoptosis, leading to up to 40% of cells undergoing programmed cell death compared to the untreated control. The combination of CBD and celecoxib further enhanced apoptosis in a dose-dependent manner. Additionally, cell cycle analysis demonstrated an increased proportion of cells in the G2/M phase, suggesting cell cycle arrest at this checkpoint.

Conclusions: This study highlights the potential of combining celecoxib and CBD within liposomal carriers as an effective anti-glioma strategy. This study underscores the need for further research to evaluate the efficacy and safety of liposomal formulations in additional cell lines and in vivo models.

Acknowledgement: TThis work was funded by grant no. 2021/43/O/NZ5/02346 from the National Science Centre, Poland.

Type I diabetes (T1D) in young adults - implications in areas of health and psychosocial functioning: preliminary reports

Author: Marcin Grajek[1]
Affiliation: [1]Subdepartment of Social Medicine and Public Health, Department of Social Medicine; Pomeranian Medical University in Szczecin, Poland
Tutors: prof. dr. hab. n. o zdr. Beata Karakiewicz

Introduction: Early adulthood, associated with the many new experiences of young adulthood (study, work) represents a critical period for people with T1D. Disturbances in glycaemic control and the impact of numerous stressors of adult life make it difficult to function with the disease and psychosocial functioning on a daily basis.

The aim of the study: The aim of the study was to analyse the psychosocial condition of young adults with T1D with a focus on health functioning, adaptation to the disease and the mental state of young diabetics.

Material and Methods: The study was conducted from December 2024 to March 2025 at the diabetes clinic of the University Clinical Hospital No. 2 PUM in Szczecin. Thirty-six respondents aged 18-30 years (M= 24.03+3.54) participated in the study. A diagnostic survey method using a questionnaire technique was applied. An original survey questionnaire and standardized questionnaires were used: Diabetes Distress Screening Scale (DDS), Diabetes Quality of Life - Brief Clinical Inventory (CQL-BCI) and The Functioning in Chronic Illness Scale (FCIS).

Results: Higher BMI was accompanied by experiencing higher levels of interpersonal distress (p=0.042). The longer the patient was treated with an insulin pump, the lower the level of perceived distress associated with the medical visit (p=0.035). Higher levels of perceived diabetic distress co-occurred with poor quality of life correlated with the patient's diabetes (p=0.0001). Increased diabetic distress (emotional burden) was accompanied by reduced quality of life in patients with T1D (p=0.0001). Pupils and students with T1D felt more in control of the course of T1D compared to respondents with mixed work (p=0.007).

Conclusions: Diabetic distress impairs psychological functioning and quality of life in young adult diabetics. Distress is increased by individual characteristics (e.g. BMI) as well as those specific to the course of the disease (e.g. insulin pump treatment). Adaptation and quality of life with T1D depend on the patients' occupational and educational situation.

Non-surgical Case Report I

Scientific Committee

prof. dr hab. n. med. Ewelina Szczepanek-Parulska
dr n. med. Paweł Niedźwiecki
dr n. med. Krzysztof Hoppe
dr n. med. Daria Keller

Coordinator

Natalia Strawa

A case of a patient with recurrent ischemic stroke and epistaxis - when should we suspect a paradoxical embolism?

Authors: Monika Bajsert[1], Oksana Wiśniewska[1], Aye Mon Myint[1]
Affiliation: [1]The Student Scientific Society of Poznan University of Medical Sciences, First International Scientific Group on Cardiovascular Medicine and English Students Research Association, ESRA Cardiology
Tutor: lek. Sonia Nartowicz

Background: Embolic strokes of unknown source (ESUS) constitute approximately 17% of ischemic strokes and occur when the cause remains undetermined despite sufficient diagnostics. In such cases, embolism usually arises from right-to-left shunts, such as patent foramen ovale or septal defect. This condition is infrequently associated with rare systemic diseases, such as hereditary hemorrhagic telangiectasia (HHT), also known as Osler-Weber-Rendu syndrome.

Case Report: A 54-year-old patient was referred to the cardiology department for the diagnosis of a congenital heart defect characterised by a pulmonary-systemic shunt. The initial diagnosis followed an episode of ischemic stroke due to paradoxical embolism based on a transcranial ultrasound with agitated saline contrast performed during a follow-up examination (Risk of Paradoxical Embolism score: 4). Additionally, the patient had a history of stroke, a surgically treated brain abscess, recurrent nosebleeds (also observed in first-degree relatives), and gastrointestinal bleeding. A transesophageal echocardiogram did not reveal an intracardiac shunt. However, a transthoracic echocardiogram with agitated saline contrast showed the presence of air bubbles in the left atrium after four cardiac cycles, suggesting an extracardiac shunt. Chest CT angiography and cardiac MRI revealed abnormal vessels in the pulmonary hila and posterior mediastinum, along with five vascular malformation lesions in the pulmonary parenchyma. Based on the patient's medical history, imaging studies, mucocutaneous telangiectasias and otolaryngology consultation the diagnosis of HHT was made. To prevent further neurological complications, percutaneous embolisation of pulmonary arteriovenous malformations using coils was performed. No recurrent strokes were observed within three months following the procedure. The patient was referred to an angiology centre and preliminarily qualified for preventive therapy with bevacizumab against the development of further vascular malformations.

Conclusions: Embolic strokes of unknown sources are clinically challenging and often require multidisciplinary evaluation. HHT exhibits a broad spectrum of seemingly unrelated clinical symptoms; however, correct diagnosis enables effective treatment.

A Rare Case of Giant Cell Myocarditis

Authors: Elija Jankauskaitė[1], Žavinta Laikūnaitė[1]
Affiliation: [1]Faculty of Medicine, Medical Academy, Lithuanian University of Health Sciences, Kaunas, Lithuania
Tutor: Milda Kuprytė, MD

Background: Giant cell myocarditis (GCM) is a rare, highly aggressive form of myocarditis, defined histologically by widespread myocardial necrosis, multinucleated giant cells, and a mixed inflammatory infiltrate [Gadela NV, et al. 2021]. The clinical course is typically severe and rapidly progressive, often presenting with acute heart failure or life-threatening arrhythmias, and carries a high risk of sudden cardiac death [Kasouridis I, et al. 2017]. Due to its nonspecific presentation and rapid deterioration, GCM remains a challenging diagnosis, with many cases identified only postmortem [Fallon JM, et al. 2020]. Recognition of its characteristic histopathological features remains essential for accurate diagnosis, particularly in unexpected cardiac fatalities.

Case Report: A 63-year-old male presented clinical symptoms of severe dyspnea, abdominal distention, and leg edema. According to family members, the patient had been experiencing a tearing chest pain since the previous day. During transfer into the ambulance, the patient suffered a cardiac arrest. Cardiopulmonary resuscitation was initiated and return of spontaneous circulation was achieved after approximately 10 minutes. The patient was transported to the emergency department. During hospitalization, the patient's condition remained critical due to extensive, diffuse myocardial injury. This was further aggravated by significant coronary artery stenosis due to atherosclerosis and longstanding systemic hypertension, resulting in prolonged myocardial hypoperfusion. The clinical course was marked by progressive biventricular heart failure. Despite intensive resuscitation, the outcome was fatal. Histopathological examination revealed multifocal substitutive fibrosis, lymphoplasmacytic infiltration, scattered multinucleated giant cells, and granuloma-like aggregates, predominantly in the interventricular septum and left ventricular myocardium, consistent with idiopathic giant cell myocarditis.

Conclusions: Idiopathic giant cell myocarditis is a rare and rapidly progressive form of myocarditis, often diagnosed only postmortem due to nonspecific clinical presentation. Histopathological evaluation plays a key role in identifying such cases, particularly in unexplained cardiac deaths, and is essential to improve diagnostic accuracy, raising clinical suspicion in future.

Beyond surgical repair: lifelong cardiac challenges in an ALCAPA patient

Authors: Aleksandra Świeca[1,2], Michał Dąbrowski[1,3], Hanna Iwanowska[1,2], Michał Kwiatkowski[1,4], Magdalena Kwiatkowska[1,2]
Affiliations: [1]Military Institute of Medicine – National Research Institute, Department of Cardiology and Internal Diseases, Warsaw, Poland; [2]Medical University of Warsaw; [3]Lazarski University; [4]Medical University of Gdańsk
Tutor: dr n. med. Piotr Kwiatkowski

Background: Anomalous Left Coronary Artery from the Pulmonary Artery (ALCAPA), or Bland–White–Garland syndrome, is a rare congenital defect occurring in 1 in 300,000 live births. Without surgical correction, severe myocardial ischemia leads to high infant mortality. Surviving adults often develop collateral circulation between the right and left coronary arteries, which preserves perfusion but predisposes to complications such as left ventricular dilation, mitral regurgitation, and heart failure. Adult presentations include exertional angina, dyspnea, and heart failure, with high risk of sudden cardiac death before age 35. Surgical repair—typically LCA reimplantation or bypass—is essential, but ventricular dysfunction and valvular disease may persist, requiring long-term follow-up.

Case Report: A 69-year-old male with a history of ALCAPA was admitted for coronary angiography due to chronic coronary syndrome symptoms. At age 58, he underwent ligation of the LCA origin from the pulmonary artery and LIMA grafting to the distal LCA. A mechanical mitral valve was also implanted due to severe regurgitation from left ventricular dysfunction. Over time, he developed heart failure with an ejection fraction of 27%. A CRT-D was implanted for ventricular arrhythmias. Recently, he reported worsening exercise tolerance, NYHA II dyspnea, atypical chest pain, and two presyncopal episodes. CRT-D interrogation revealed VT/VF episodes and phrenic nerve stimulation, requiring LV lead reprogramming. Coronary angiography revealed no significant stenoses. However, a markedly dilated RCA (>1 cm) was noted, due to compensatory remodeling. Despite surgical correction, the patient developed typical long-term complications of ALCAPA, including heart failure and mitral dysfunction.

Conclusions: ALCAPA requires surgical intervention to prevent early mortality. However, even after successful revascularization, heart failure and mitral valve disease may persist. This case highlights the importance of lifelong monitoring and individualized management of heart failure and arrhythmic risks in adult patients with surgically corrected ALCAPA.

The Triple Threats - Hypertriglyceridemia, Diabetic Ketoacidosis, and Acute Pancreatitis

Author: Ting-Wei Chang[1]
Affiliation: [1]Internal Medicine, Southwest Healthcare Medical Education Consortium, Temecula Valley Hospital, California Western University of Health Sciences
Tutor: Chanika Assavarittirong, MD

Background: Hypertriglyceridemia (HTG), diabetic ketoacidosis (DKA), and acute pancreatitis (AP) manifest as a rare but life-threatening triad with overlapping clinical presentations. AP is an inflammatory condition of the pancreas often triggered by alcohol use and HTG. Clinical presentations range from abdominal pain, nausea, and vomiting to systemic signs such as fever, tachypnea, tachycardia, hypotension, and oliguria. HTG is commonly associated with poorly controlled diabetes and alcohol use, with the risk of developing AP becoming significant when serum triglyceride levels exceed 1,000 mg/dL. DKA is a critical complication of diabetes, characterized by hyperglycemia, ketosis, and metabolic acidosis. DKA and AP share common risk factors, including gallstones, alcohol use, and HTG. The overlapping presentations of these two conditions—such as severe abdominal pain, nausea, vomiting, and elevated pancreatic enzymes—can often lead to missed diagnoses.

Case Report: We present a Hispanic 38-year-old male with a history of poorly controlled diabetes mellitus and chronic alcohol use and presented with symptoms of severe epigastric pain, nausea, and vomiting. Laboratory findings revealed severe HTG, metabolic acidosis, and elevated serum lipase, confirming the diagnosis of DKA and HTG-induced AP. The patient developed necrotic pancreatitis due to the severity of the disease. Initial management included aggressive intravenous fluid resuscitation, insulin infusion, and electrolyte repletion. Since he was hemodynamically stable, he was treated with meropenem without the need for surgical intervention. His hospital course was also complicated by acute alcohol delirium which required sedation with continuous infusion of dexmedetomidine.

Conclusions: HTG, DKA, and AP coexistence is linked to considerable morbidity and mortality. This case highlights the importance of early recognition due to their similar clinical presentations, particularly when patients with such symptoms present with excessive alcohol consumption and HTG, to prevent associated complications as they may further exacerbate the condition of the patient.

Lipomatous hypertrophy of the interatrial septum in a patient with coronary artery disease

Authors: Krzysztof Sobczyk[1], Andrzej Minczykowski[1], Agnieszka Rutkowska[1], Justyna Rajewska-Tabor[2], Małgorzata Pyda[2], Andrzej Wykrętowicz[1]
Affiliations: [1]Department of Cardiology Intensive Therapy and Internal Medicine, Poznan University of Medical Sciences, Poznan, Poland; [2]First Department of Cardiology, Cardiac Magnetic Resonance Unit, Poznan University of Medical Sciences, Poznan, Poland
Tutor: dr n. med. Mateusz Dziarmaga

Background: Lipomatous hypertrophy of the interatrial septum (LHIS) is an excessive and unencapsulated adipose tissue deposition in the septum secundum. Sparing the fossa ovalis results in its characteristic hourglass appearance. The prevalence ranges from 1 to 8%. Although considered a benign finding, it may occasionally be associated with atrial arrhythmias, atrioventricular blocks, superior vena cava obstruction, and even sudden cardiac death.

Case Report: A 58-year-old female patient was admitted to the Cardiology Department with complaints of retrosternal chest pain and heart palpitations. Past medical history included paranoid schizophrenia, hypertension, type 2 diabetes, and atherosclerosis. Transthoracic echocardiography (TTE) revealed segmental contractility disorders, mildly reduced left ventricular ejection fraction, and abnormal thickening of the interatrial septum (IAS). LHIS was initially suspected. Transesophageal echocardiography (TEE) and computed tomography (CT) were performed and showed significant thickening of IAS (excluding fossa ovalis) measuring from 11 to 23mm. The mass was hourglass-shaped, contractible, vascularized, and adjacent to the RA posterior wall and ceiling with a maximum length of 45mm. For a better assessment of the anomaly, the patient was referred for cardiac magnetic resonance (CMR) which confirmed the adipose nature of the mass. Based on the images obtained from the TEE and CMR, lipomatous hypertrophy of the interatrial septum was diagnosed. The local heart team reviewed the patient's case and determined that she was not eligible for surgical treatment. The patient underwent percutaneous coronary intervention (PCI) with 3 drug-eluting stents (DES) implantation. The periprocedural clinical course was uncomplicated and the patient was discharged home in good general condition.

Conclusions: In most cases, LHIS is asymptomatic and does not require any specific treatment but it should always be differentiated from other cardiac neoplasms and distal metastases. Nonetheless, LHIS may complicate invasive cardiology procedures, and advanced imaging techniques such as TEE and CMR are essential for better assessment of this condition.

Unconventional aspiration thrombectomy using a guiding catheter for a large right coronary artery thrombus

Authors: Michał Dąbrowski[1,2], Aleksandra Świeca[1,3], Magdalena Kwiatkowska[1,3], Hanna Iwanowska[1,3], Michał Kwiatkowski[1,4]
Affiliations: [1]Military Institute of Medicine – National Research Institute, Department of Cardiology and Internal Diseases, Warsaw, Poland; [2]Lazarski University; [3]Medical University of Warsaw; [4]Medical University of Gdańsk
Tutor: dr n. med. Piotr Kwiatkowski

Background: Standard interventional strategies may be inadequate for severely dilated coronary arteries, where thrombectomy devices often fail, and stent sizing is challenging. We present a case of inferior STEMI with a massively dilated, thrombus-laden right coronary artery (RCA), successfully managed using guiding catheter-assisted aspiration and drug-eluting balloon (DEB) angioplasty, followed by significant lesion regression on follow-up angiography.

Case Report: A 52-year-old smoker presented with inferior STEMI after 8 hours of chest pain, transient paresthesia, and mild respiratory symptoms. ECG showed sinus bradycardia, first-degree AV block, and ST-segment elevation in II, III, and aVF. High-sensitivity troponin T was 8721 ng/dl. PCI via radial access revealed a massive thrombotic RCA occlusion 1 cm distal to the ostium. Intracoronary eptifibatide was administered, followed by aspiration thrombectomy, restoring TIMI 2–3 flow. Echocardiography showed inferior wall hypokinesis and LVEF of 38%. Follow-up IVUS revealed a patent, markedly dilated RCA with residual thrombus and non-obstructive dissections. Persistent thrombus and a proximal diameter >7.5 mm prompted repeat thrombectomy with a guiding catheter—an unconventional approach. Large thrombi were aspirated, and DEB angioplasty restored TIMI 3 flow. Viral and autoimmune causes were excluded. The patient was discharged in stable condition. At 1.5 months, follow-up angiography showed significant thrombus regression.

Conclusions: This case highlights the effectiveness of guiding catheter-assisted aspiration thrombectomy for thrombotic occlusions in severely dilated coronary arteries. This unconventional strategy may be effective in anatomically challenging scenarios.

A Rare Case of Trisomy 4q Syndrome in a High-Risk Pregnancy: Diagnostic and Management Challenges

Authors: Sophia Orfanakos[1], Ting-Wei Chang[1]
Affiliation: [1]Department of Reproduction, Ginekologiczno-Położniczy Szpital Kliniczny, Poznań University of Medical Sciences
Tutor: dr n. med. Sandra Radzicka-Mularczyk

Background: Trisomy 4q syndrome is a rare chromosomal disorder that presents with variable clinical phenotypes including growth deficiency, neurological abnormalities, psychomotor retardation, distinctive craniofacial malformation, microcephaly, large low-set ears, prominent nasal bridge, and digital anomalies. Diagnosis and management of such rare disorders pose significant challenges, particularly in pregnancies complicated by maternal comorbidities.

Case Report: A 40-year-old (0-0-0) presented with her first pregnancy complicated by multiple high-risk factors including HIV infection, class G2 gestational diabetes, chronic hypertension, grade 1 obesity, infertility history, and advanced maternal age. Maternal surgical history was further complicated by cervical electroconization due to low-grade squamous intraepithelial lesion, 3 laparotomies due to ovarian teratoma, bilateral salpingectomy, post-cholecystectomy, post-bariatric surgery, and post removal of condyloma acuminata genital warts. The patient underwent amniocentesis at 28 weeks' gestation due to suspected partial agenesis of the corpus callosum and intrauterine growth restriction of the fetus. The results confirmed a heterozygous 4q12q28.3 duplication - resulting in microduplication/trisomy 4q syndrome. The newborn girl was delivered at 37 weeks via uncomplicated vaginal delivery and was subsequently admitted to the neonatal intensive care unit to diagnose anomalies due to abnormal karyotype. The neonate was given prophylactic intravenous Retrovir due to maternal HIV infection. Abdominal ultrasound revealed agenesis of the right kidney with crossed ectopic and fusion on the left. Physical exam showed abnormal body proportions, increased muscle tension, tremors, abnormal repetitive movements, and periodic nystagmus. Otolaryngologic exam revealed a short, coiled epiglottis with a resultant atypical cry. On the 40th day of life, the infant was discharged home with management guidelines and follow-up.

Conclusions: This case highlights the importance of timely prenatal genetic screening, perinatal management, and postnatal surveillance to optimize neonatal outcomes in high-risk pregnancies. The findings contribute to the growing body of limited literature on trisomy 4q and its phenotypic variability.

Chronic Systemic Steroid Therapy in Atopic Dermatitis – challenges and consequences

Authors: Michał Sitkiewicz[1], Patrycja Czyż[1]
Affiliation: [1]Students scientific association “Alergos”, Faculty of Medicine, University of Opole Department of Internal Medicine, Allergology, Endocrinology and Gastroenterology, University Hospital in Opole
Tutor: lek. Łukasz Moos

Background: Atopic dermatitis (AD) is a chronic, non-infectious disease that significantly reduces patients' quality of life. The therapeutic approach to this condition is determined by its severity and may include different options, ranging from topical medications to systemic immunosuppressive agents. Inadequate management of therapy has been demonstrated to result in serious complications.

Case Report: A 60-year-old cachectic female patient was admitted to the Allergology Subunit of the University Clinical Hospital in Opole for the purposes of qualifying for biological treatment of atopic dermatitis with dupilumab. The patient had been treated with methylprednisolone for a period of 21 years. A prior attempt to treat with cyclosporine was complicated by a deterioration in kidney function, which precluded further treatment. During the evaluation, the patient exhibited elevated cholesterol levels and a reduction in the Th10 vertebral body. Steroid therapy with methylprednisolone was interrupted and hydrocortisone treatment was applied. After five months of treatment, the patient underwent an endocrinological assessment, which indicated reduced adrenal reserve. In light of the potential for adrenal crisis, hydrocortisone was recommended on an as-needed basis. Discontinuation of systemic steroid therapy did not lead to worsening of the skin condition. The patient to date (1 year of follow-up) did not require initiation of biological treatment.

Conclusions: Long-term use of chronic steroid therapy carries the risk of significant complications. Regular topical treatment may be a sufficient solution for managing the condition. Given the current therapeutic options, systemic steroid therapy should be used only short-term.

A clinical masquerade - diagnostic challenges of APS-3 obscured by sarcoidosis

Authors: Izabela Majewska[1], Franciszek Przybylski[1]
Affiliation: [1]Student Scientific Association in 2nd Department of Lung Diseases, Lung Cancer and Internal Medicine, Medical University of Bialystok
Tutor: dr n. med. Łukasz Minarowski

Background: Type 3 autoimmune polyendocrine syndrome (APS-3) is part of the group of polyendocrinopathies, characterized by the dysfunction of two or more endocrine glands, often accompanied by autoimmune disorders affecting other organs or tissues. APS-3 commonly presents with the co-occurrence of autoimmune thyroid disease, type 1 diabetes, pernicious anemia, or vitiligo.

Case Report: This medical case concerns a 46-year-old man diagnosed with nodal and pulmonary sarcoidosis in September 2020. Since June 2024, he has experienced progressively worsening renal failure. In August, his creatinine level exceeded 6 mg/dl, prompting a referral to the Internal Medicine and Nephrology Department due to exacerbated refractory hypercalcemia, likely resulting from his sarcoidosis. Systemic steroid therapy with prednisone was initiated. On August 12, 2024, the patient was admitted to the 2nd Clinic of Lung Diseases, Lung Cancer, and Internal Medicine to optimize his sarcoidosis treatment. He presented in good condition, although a physical examination revealed changes consistent with vitiligo. Laboratory tests indicated a high creatinine concentration of 4.56 mg/dl, an estimated glomerular filtration rate (eGFR) of 14.9 mL/min, and a blood urea level of 103.4 mg/dl. Functional respiratory tests showed moderate bronchial obstruction. Medical imaging revealed enlarged lymph nodes in the lung hilum, consistent with stage I sarcoidosis. A thyroid ultrasound showed a heterogeneous echo pattern in the gland, with small, scattered hypoechoic foci suggestive of an autoimmune disease. After a comprehensive assessment that included interviews, physical examinations, laboratory tests, radiological imaging, and functional tests, the patient was diagnosed with APS-3 following consultations with a nephrologist and a diabetologist.

Conclusions: APS-3 is a rare condition that requires a holistic approach to patient care. The diagnosis can only be established through a thorough analysis of comorbidities. This distinction is crucial for the ongoing treatment of sarcoidosis, as it helps differentiate between the primary disease and complications arising from chronic steroid therapy.

A Rapidly Growing Tumor in the Right Parotid Gland Area: Pilomatrical Carcinoma Mimicking an Atheroma

Author: Sandra Przybysz[1]
Affiliation: [1]Department of Clinical Pathomorphology, Poznan University of Medical Sciences
Tutor: dr n. med. Katarzyna Iwanik

Background: The differential diagnosis of neoplastic lesions in the parotid gland area consists of parotid tumors, skin lesions, congenital fistulas, and cysts. Among the rarest tumors in this region is pilomatrical carcinoma, a malignant tumor arising from skin appendages, and it is commonly observed in the elderly.

Case Report: Herein, we report the case of a 21-year-old male patient with a tumor in the preauricular area. The lesion, initially only a few millimeters in size, was first detected in 2018, but it began to grow rapidly in 2019 after intensive palpation. Then, an incision was made, and the lesion was diagnosed as an atheroma by a surgeon. Subsequently, the patient underwent laser excision at his own expense. After that, redness and ulceration of the skin in the right parotid region developed. In January 2020, he was admitted to the Department of Otolaryngology, where a 6 cm tumor with reddened skin, along with two purulent fistulas, was identified. Within five days, the tumor mass doubled. A rapid intraoperative histopathological examination suggested a malignant character and squamous origin of the tumor cells. Comprehensive imaging diagnostics, including MRI of the craniofacial region, chest X-ray, were conducted. The patient underwent a total parotidectomy (levels I - IV) with excision of the infiltrated preauricular skin, lymphadenectomy of the right level II region, and skin reconstruction. However, the final histopathological examination revealed that the lesion did not originate from the parotid gland but was, in fact, pilomatrical carcinoma.

Conclusions: Due to its clinical presentation, pilomatrical carcinoma is often misdiagnosed as other dermatological conditions, as was in our case. This case highlights the importance of the final histopathological examination in diagnosing tumors in the preauricular region, as initial clinical assessments and even intraoperative frozen section analysis may not provide a definitive diagnosis.

Breaking the Prescribing Cascade: A Case of Severe Polypharmacy Leading to Recurrent Hyperkalemia and Hypotension in an Older Adult

Authors: Wiktoria Dzwonkowska[1], Julia Brzęczek[1], Rujith Kovinthapillai[1], Yung-Yi Lan[1], Mikołaj Szoszkiewicz MD[2]
Affiliations: [1]The Student Scientific Society of Poznan University of Medical Sciences, Geritrics Research Group, Poznan, Poland; [2]Poznan University of Medical Sciences, Doctoral School, Geriatric Unit, Department of Palliative Medicine, Poznan, Poland.
Tutor: prof. dr hab. n. med. Katarzyna Wieczorowska-Tobis

Background: Polypharmacy, defined as chronically taking five or more medications, is a growing concern among older adults with multiple conditions. It increases the risk of adverse drug reactions (ADRs), inappropriate prescriptions, and hospitalizations, posing a major public health concern. A key contributor is the prescribing cascade, where an ADR is mistaken for a new condition, leading to the use of unnecessary medications and further exacerbating polypharmacy. Interrupting and preventing prescribing cascades are crucial, yet often overlooked, for improving medication safety and optimizing therapy. This patient exemplifies multiple instances of inappropriate treatment resulting from a prescribing cascade.

Case Report: An 86-year-old patient presented to the emergency department with weakness, abdominal pain, diarrhea, oliguria, and three falls over three days. His medical history included chronic kidney disease (CKD), type 2 diabetes, heart failure, chronic obstructive pulmonary disease, hypertension, a DDD pacemaker for second-degree atrioventricular block, and benign prostatic hyperplasia (BPH). Examination revealed hypotension (98/51 mmHg) and severe hyperkalemia (8.1 mEq/L). Patient's medication regimen consisted of 16 drugs, including notably high-dose furosemide, torsemide, spironolactone, ACE inhibitor (ACE-I), and three BPH medications (finasteride and two alpha-1 blockers). Spironolactone and ACE-I had no clear indication and induced hyperkalemia. Furosemide dose was continuously increased to correct hyperkalemia, which in combination with alpha-1 blockers caused volume depletion and hypotension. Consequently CKD worsened, further increasing hyperkalemia. Despite multiple previous hospitalizations, no medication adjustments were made. Intensive hydration corrected the electrolyte imbalance while medication review reduced the regimen to 11 drugs by discontinuing furosemide, alpha-1 blockers, spironolactone, and ACE-I. At one-month follow-up, potassium levels and kidney function normalized, the patient’s condition improved.

Conclusions: This case underscores the risks of polypharmacy and prescribing cascades in older adults, highlighting their role in adverse outcomes. Medication review and deprescribing are essential to improving patient safety, preventing avoidable hospitalizations, and optimizing treatment in individuals with multiple comorbidities.

Left atrial appendage closure in hereditary hemorrhagic telangiectasia – a suitable alternative to oral anticoagulation therapy

Authors: Jan Jeske[1], Joanna Grygier[1]
Affiliation: [1]First Department of Cardiology, Poznan University of Medical Sciences
Tutor: dr n. med. Sylwia Sławek-Szmyt

Background: Atrial fibrillation (AF) is the most common clinically significant heart rhythm disorder. The standard therapy in the prevention of stroke is oral anticoagulation therapy (OAT). However, a considerable number of patients are unable to tolerate chronic OAT due to high bleeding risk. Among these are patients with hereditary hemorrhagic telangiectasia (HHT), who often experience troublesome bleeding arteriovenous malformations (AVM) leading to OAT dose reduction or discontinuation.

Case Report: We present a case of a 66-year-old female previously diagnosed with HHT, who has multiple nasal, pulmonary, and liver arteriovenous fistulas, along with several angiodysplasia foci in the stomach and duodenum, leading to recurrent bleeding that has been treated multiple times with argon coagulation. Her medical history also included pulmonary hypertension, thrombocytopenia, iron deficiency anemia, primary biliary cirrhosis with hepato- and splenomegaly, and gastroesophageal reflux. Due to persistent atrial fibrillation with high risk of tromboembolism she received OAT. Because of worsening bleeding episodes, including several massive nosebleeds requiring blood transfusions this therapy was discontinued and it was decided to perform percutaneous left atrial appendage closure (LAAC) with implantation of the WATCHMAN device. The patient was prescribed clopidogrel 75 mg for 6 weeks and acetylosalicylic acid for 6 months. After 12 months, the patient is in good health, with rare episodes of minor bleeding. Echocardiography showed a well-positioned LAAC device, without thrombotic apposition.

Conclusions: This case confirms that percutaneous LAAC is a valid therapeutic alternative to OAT and represents a successful strategy in high bleeding risk patients with a contraindication to OAT.

Non-surgical Case Report II

Scientific Committee

dr n. med. Justyna Rajewska-Tabor
dr n. med. Iwona Zaporowska-Stachowiak
dr n. med. Magdalena Dudek
dr n. o zdr. Anna Rychter

Coordinator

Hanna Krawczuk

Giant Cell Myocarditis as a rare but significant cause of heart failure

Author: Kacper Tomaszewski[1]
Affiliation: [1]Department of Clinical Pathology, Poznan University of Medical Sciences
Tutor: dr n. med. Katarzyna Iwanik

Background: Myocarditis is most commonly caused by viral infections; however, rarer forms can have significant clinical implications. One such entity is giant cell myocarditis (GCM), an aggressive autoimmune form of myocarditis characterized by widespread myocardial inflammation with multinucleated giant cells. GCM is often associated with rapid disease progression, severe ventricular dysfunction, and high mortality rates if left untreated. Due to its rarity and nonspecific clinical presentation, it is frequently misdiagnosed as idiopathic or viral myocarditis, delaying appropriate management.

Case Report: We present the case of a 46-year-old male patient diagnosed with dilated cardiomyopathy and advanced heart failure. Despite optimal medical therapy, his condition progressively worsened, leading to listing for heart transplantation. Histopathological examination of the explanted heart revealed the presence of giant cell myocarditis, confirming the diagnosis. Retrospective analysis suggested that early recognition of GCM could have allowed for the initiation of immunosuppressive therapy, potentially altering the disease course.

Conclusions: Although viral myocarditis remains the most common cause of inflammatory cardiomyopathies, clinicians should consider rarer etiologies such as GCM, particularly in cases of rapidly progressive heart failure. Early diagnosis through endomyocardial biopsy and the initiation of appropriate immunosuppressive treatment, including corticosteroids and other immunomodulatory agents, may improve outcomes by slowing disease progression and potentially preventing the need for heart transplantation. Increased awareness of GCM among healthcare professionals is crucial to optimizing patient prognosis.

HIV and Malaria in a Non-endemic Country - Challenges in the Diagnosis of Renal Complications – Case Report

Author: Małgorzata Resiak[1]
Affiliation: [1]Medical University of Warsaw, Students' Scientific Society of the Department of Infectious and Tropical Diseases and Hepatology
Tutors: dr n. med. Dagny Krankowska; dr hab. n. med. Tomasz Mikuła

Background: *Plasmodium malariae* infection can be persistent and develop symptoms decades after exposure including renal complications. HIV-associated nephropathy is still an important cause of kidney disease in people with HIV, especially those from Africa.

Case Report: A 47-year-old Cameroonian woman was admitted to one of the cardiology departments in Poland due to severe generalized oedema, asthenia, and mild lateral abdominal pain. Laboratory investigations revealed acute kidney injury and anaemia. The blood smear revealed schizonts in red blood cells. Additionally, after transfer to the infectious diseases hospital the laboratory revealed HIV infection. The blood smear confirmed *Plasmodium malariae*. The patient hasn't left Poland for the past 2 years and prior to that she had malaria several times in Cameroon. The treatment with artesunate, doxycyline and antiretroviral drugs (BIC/TAF/FTC) was started. The patient received diuretics and albumines. Her clinical condition deteriorated, with worsening oedema, dyspnea, progressive renal dysfunction, and appearance of hypertension. The antiretroviral treatment was adjusted according to renal parameters and was switched to DTG+RPV. Chest radiography showed forming pulmonary oedema and pneumonia. The patient received intensification of diuretics, hypotensive treatment and was treated with ceftriaxone. Due to massive, generalized oedemas, kidney biopsy could not be performed and therefore the mechanism of kidney injury could not be identified. The nephrologists decided to start the patient on corticosteroids leading to a gradual decrease of oedema and stabilization of renal function. The patient was discharged. After a month the patient did not show up for the nephrologists consultation. Her general state was good, she lost 15 kg of weight, had no oedemas, was still taking corticosteroids, but still had parameters of kidney injury.

Conclusions: This case demonstrates difficulties in diagnosis of malaria and HIV co-infection in non-endemic countries. Patients from endemic countries who suddenly develop nephrotic syndrome should be diagnosed for both malaria and HIV.

Iatrogenic coronary artery perforation management: balloon fragments, thrombin injection, and autotransfusion

Authors: Aleksandra Świeca[1,2], Michał Dąbrowski[1,3], Magdalena Kwiatkowska[1,2], Hanna Iwanowska[1,2], Michał Kwiatkowski[1,4]
Affiliations: [1]Military Institute of Medicine – National Research Institute, Department of Cardiology and Internal Diseases, Warsaw, Poland; [2]Medical University of Warsaw; [3]Lazarski University; [4]Medical University of Gdańsk
Tutor: dr n. med. Piotr Kwiatkowski

Background: Coronary perforation is a rare but serious complication of PCI. Initial management includes prolonged balloon inflation. In more severe cases, covered stents, thrombin injection, or coil embolization may be required. Surgery is considered when percutaneous methods fail. Prompt recognition and tailored treatment are crucial to prevent tamponade and death.

Case Report: A patient with inferior STEMI and in-hospital ventricular fibrillation was transferred. On admission, ECG showed left-axis deviation, sinus tachycardia (100 bpm), left anterior hemiblock, and ST-segment elevation in inferior leads. Troponin T was elevated (129.1 ng/L). The patient was hypotensive, meeting criteria for cardiogenic shock. Emergency angiography revealed severe multivessel disease, including 95% LM stenosis extending to the left anterior descending (LAD) and circumflex (CX). LAD had a 99% proximal stenosis at D1, and CX had a 99% ostial stenosis affecting the obtuse marginal (OM). Urgent PCI was performed with intracoronary eptifibatide. Guidewires were placed in LAD and CX, followed by predilatation. A drug-eluting stent (DES) was implanted from LM to LAD with proximal optimization technique (POT), followed by a second DES from LM to CX using a culotte technique and final kissing balloon inflation. Contrast extravasation along the lateral wall indicated coronary perforation. Eptifibatide was stopped. Bleeding was managed with balloon fragments and prolonged inflation. Due to hypotension and pericardial effusion, emergency pericardiocentesis evacuated 1000 mL of hemorrhagic fluid, with 300 mL autotransfused to the jugular vein. Extended balloon inflation at OM confirmed the perforation site. A 50 IU thrombin injection via microcatheter sealed the leak. TIMI III flow was restored except in OM. The patient remained stable. Echocardiography showed a small pericardial effusion. Follow-up angiography at two months showed healed stents and occluded OM.

Conclusions: Balloon fragments and thrombin injection achieved hemostasis in coronary perforation. Pericardial autotransfusion helped stabilize hemodynamics and reduce transfusion needs.

Innovative Topical Lovastatin/Cholesterol Therapy in Porokeratosis of Mibelli: A Case Study

Authors: Jan Stępka[1], Julia Woźna[1], Katarzyna Korecka[1], Monika Bowszysc-Dmochowska[1]
Affiliation: [1]Department of Dermatology, Poznan University of Medical Sciences, Poznan, Poland
Tutor: dr hab. n. med. Magdalena Jałowska

Background: Porokeratosis is a genetically linked keratinization disorder arising from disturbances in the isoprenoid pathway, culminating in the formation of the characteristic cornoid lamella. Conventional treatments—including corticosteroids, antibiotics, and tacrolimus—often fail to provide lasting improvement.

Case Report: We present the case of a 56-year-old male with porokeratosis of Mibelli who experienced a persistent non-healing erosion on his finger for two years. After exhausting traditional therapies, the patient was treated with a novel topical formulation containing 2% lovastatin and 2% cholesterol. Over a treatment period of nine months, significant clinical improvement was observed, with marked reduction in lesion size and normalization of its appearance as confirmed by dermatoscopic evaluation.

Conclusions: This case underscores the potential of a targeted metabolic approach in managing porokeratosis and suggests that combined lovastatin/cholesterol therapy may offer an effective alternative for patients unresponsive to standard interventions.

Left atrial appendage closure in cerebral amyloid angiopathy – never give up...

Authors: Jan Jeske[1], Joanna Grygier[1]
Affiliation: [1]First Department of Cardiology, Poznan University of Medical Sciences
Tutor: dr n. med. Sylwia Sławek-Szmyt

Background: Cerebral amyloid angiopathy (CAA) is a rare neurological disease of small vessels leading to spontaneous, recurrent intracranial hemorrhages (ICH) and cognitive decline. Atrial fibrillation (AF) is the most common heart rhythm disorder linked to an increased risk of thromboembolic events and necessitating anticoagulant prophylaxis. Treating patients with CAA and atrial fibrillation is challenging as the bleedings are a contraindication for oral anticoagulation (OAT) used to prevent stroke.

Case Report: A 69-year-old male patient with persistent atrial fibrillation, arterial hypertension, asthma, and atherosclerosis was admitted to neurology ward because of second episode of ischemic stroke despite appropriate treatment with acenocumarol. The stroke was treated with thrombolysis and percutaneous mechanical thrombectomy. A CT scan revealed eight instances of left cerebral hemisphere intracranial hemorrhage and several posthemorrhagic foci, suggesting probable CAA. Because of increased risk of bleeding and a history of ischemic strokes despite anticoagulation the patient was deemed suitable for left atrial appendage closure (LAAC). The procedure had to be postponed twice because of a thrombus in the left atrial appendage visible in transesophageal echocardiography (TEE) and sudden intraoperational appearance of the thrombus for the second time. Four weeks later, the LAAC procedure, with concomitant application of the Sentinel Cerebral Protection System, typically utilized for embolic protection during transcutaneous aortic valve implantation, was successfully performed despite the unexpected reappearance of the thrombus. The Watchman occluder was implanted, with complete occlusion of the appendage. The intervention proceeded smoothly and the patient was discharged on the third day of hospitalization on dabigatran, taking 2x150mg, to be reduced after three months to 2x110mg, along with clopidogrel 75mg for four weeks.

Conclusions: This case shows that LAAC seems to be an alternative to anticoagulant therapy for stroke prevention in patients with CAA, AF, and a history of ICH.

Unmasking the hidden cause of muscle weakness in patient with previously amyopathic dermatomyositis: a diagnostic and therapeutic challenge

Author: Izabella Ławińska[1]
Affiliation: [1]Department of Rheumatology, Systemic Connective Tissue Diseases and Immunotherapy of Rheumatic Diseases, Poznan University of Medical Sciences
Tutor: dr n. med. Wiktor Schmidt

Background: Dermatomyositis (DM) is a systemic autoimmune disorder characterised by symmetrical muscle weakness and pathognomic skin lesions. Interstitial lung disease frequently coexists. Notably, in up to 20% of patients, DM can present as an amyopathic form, in which characteristic skin findings occur in the absence of clinical or laboratory evidence of muscle involvement.

Case Report: A 62-year-old male was admitted to the rheumatology ward with decreasing exercise tolerance and cough. Dermatological findings included mechanic's hands, Gottron's papules over joints, and hyperkeratosis with fissuring of the fingertips. High-resolution computed tomography (HRCT) revealed fixed interstitial lung changes consistent with fibrosing, a characteristic feature of nonspecific interstitial pneumonia (NSIP), with predominantly active ground-glass opacities. Pulmonary function tests showed significant impairment of the transfer factor of the lung for carbon monoxide (TLCO), measuring 48% of the expected value. Laboratory tests showed mildly elevated aldolase and C-Reactive Protein, with positive antinuclear antibody. A diagnosis of clinically amyopathic dermatomyositis was established. The patient received intravenous methylprednisolone and cyclophosphamide (6 monthly 1000 mg pulses). On assessment after completing the cycle, he developed new-onset rapidly progressing proximal muscle weakness. Cervical spine MRI revealed severe C3-C4 stenosis with myelopathy and edema of the nucleus pulposus. Pulmonary changes on HRCT improved, and TLCO function was 63% of the expected value. The patient subsequently underwent laminectomy, followed by rehabilitation and continuation of his treatment. Methotrexate and nintedanib were initiated and in 1,5 year follow-up the patient achieved further pulmonary and functional improvement (TLCO - 81% of the expected value). The patient was enrolled in a drug program and started on, which stabilized the disease course.

Conclusions: Rheumatological conditions can exhibit atypical or nonspecific presentations, often complicating timely and accurate diagnosis. In the described case, a comprehensive diagnostic evaluation enabled the implementation of targeted therapy, resulting in disease remission.

Electrical storm as the first cardiac manifestation of dermatomyositis-scleroderma overlap syndrome

Authors: Natalia Strawa[1], Peter Cabaj[1], Agata Walczak[1]
Affiliation: [1]The Student Scientific Society of Poznan University of Medical Sciences, SKN First International Group on Cardiovascular Medicine and English Students Research Association, ESRA Cardiology
Tutor: dr n. med. Adrian Gwizdała

Background: Electrical storm (ES) can be the first and critical manifestation of structural heart disease, including systemic diseases such as connective tissue disorder. This case report highlights the diagnostic and management complexities of ES in a patient with significant cardiac involvement attributing to dermatomyositis-scleroderma overlap syndrome.

Case Report: A 68-year-old male presented to the Department of Cardiology with an electrical storm characterized by three episodes of unstable ventricular tachycardia (VT) 160 bpm requiring urgent cardioversions. His medical history included a 20-year history of dermatomyositis-scleroderma overlap syndrome, well-controlled hypertension, and hypercholesterolemia. Upon admission, the patient exhibited no overt signs of heart failure or scleroderma, with stable hemodynamics. However, he experienced three more episodes of VT resistant to IV amiodarone, requiring two electrical cardioversions, and one episode being terminated with IV ajmaline and sedation. Echocardiography showed impaired contractility of enlarged left and right ventricles and reduced left ventricular ejection fraction (20%). The patient was scheduled for coronary angiography which showed normal coronary arteries while cardiac MRI revealed diffuse fibrosis of both ventricles consistent with systemic disease. The patient subsequently underwent successful cardiac ablation, which terminated clinical VT in the posterior right ventricular outflow tract. An implantable cardioverter-defibrillator (ICD) was implanted. He was discharged in stable condition and remained arrhythmia-free at a 12-month follow-up.

Conclusions: This case emphasizes the critical importance of recognizing the cardiac manifestations of systemic diseases, such as dermatomyositis-scleroderma overlap syndrome, which can present as heart failure, myocarditis, conduction disturbances, or life-threatening arrhythmias. Electrical storm and recurrent VTs can occur at any stage of cardiac involvement, especially in patients with reduced ejection fraction or extensive myocardial fibrosis. Regular cardiologic follow-up, including echocardiography and cardiac MRI, is therefore essential for early detection and intervention. Ablation therapy may be critical in managing drug-resistant cases to prevent life-threatening arrhythmias in the long term.

Wolf in sheep's clothing – homozygous hypomorphic HGSNAT variant c.1843G>A as the underlying cause of retinitis pigmentosa in a 55-year-old patient

Author: Anna Futyma[1]
Affiliation: [1]The Student Scientific Society of Poznan University of Medical Sciences, Student Scientific Association of Medical Genetics, Poznan, Poland
Tutor: prof. dr hab. n. med. Maciej Krawczyński

Background: Biallelic pathogenic variants in the HGSNAT gene are a known cause of multisystemic lysosomal storage disease, mucopolysaccharidosis type IIIC, or non-syndromic retinitis pigmentosa (RP). The hypomorphic missense variant c.1843G>A is relatively common in the general population and was initially considered to lead to RP only when paired with a more severe allele in trans. Recent reports indicate the presumable disease-causing character of the homozygous c.1843G>A change. However, incomplete penetrance and possible other etiological contributors are postulated.

Case Report: A 55-year-old female was referred to the Genetic Clinic due to clinical suspicion of RP. She has had a history of night blindness since the age of around 50. Her best corrected visual acuity was 5/7 and 5/10 in the right and left eye, respectively. The eye fundus examination revealed mid-peripheral retinal pigmentary changes and arteriolar attenuation. Optical coherence tomography showed cystoid macular edema and extrafoveal retinal thinning due to photoreceptor loss. The patient had a negative family history for similar ocular symptoms. Given the genetic heterogeneity of RP, the next-generation sequencing (NGS) multigene panel was scheduled. The molecular analysis report did not specify any diagnostic genotype explaining the patient's condition. However, detailed results included a hypomorphic homozygous variant c.1843G>A, p.(Ala615Thr) in HGSNAT, which, in the light of recent studies, was assumed to be the underlying cause of the patient's phenotype, prompting a diagnosis of late-onset RP type 73.

Conclusions: The understanding of human mutations is continuously evolving. The present case provides further evidence for the disease-causing character of the homozygous c.1843G>A HGSNAT variant, which clinical relevance should not be dismissed. Furthermore, it highlights the interpretational challenge posed by hypomorphic variants and exemplifies the importance of their careful evaluation within the clinical context for accurate genetic counseling.

Self-administered vitamin D overdose caused by a nursing home resident - case report

Authors: Zofia Szafarkiewicz[1], Marcin Dalach[1], Marcel Kusyń[1], Mikołaj Szoszkiewicz[2]
Affiliations: [1]Poznan University of Medical Sciences, The Student Scientific Society of Poznan University of Medical Sciences, Geritrics Research Group, Poznan, Poland; [2]Poznan University of Medical Sciences, Doctoral School, Geriatric Unit, Department of Palliative Medicine, Poznan, Poland
Tutor: prof. dr hab. n. med. Katarzyna Wieczorowska-Tobis

Background: Vitamin D by maintaining proper calcium balance, is essential for managing proper functions of many organs. Studies show that vitamin D has anticancer properties. Vitamin D is primarily produced due to UV light exposure which is hindered in higher latitude. As a result, most patients in Poland should supplement vitamin D. Supplementation should proceed under medical control according to current guidelines which are 2,000 - 4,000 IU for a group of older seniors in the age over 75. Nevertheless, there are cases of vitamin D overdose.

Case Report: A 78-year-old female nursing home resident with a history of multiple cancer disease presented with a serum 25-hydroxyvitamin D [25(OH)D] concentration of 127.8 ng/mL, exceeding the toxicity threshold of 100 ng/mL. Her supplementation regimen prior to testing included 10,000 IU of vitamin D daily with BMI of 26,2 kg/m2. The patient claimed that the dose was the result of oncologist instruction. The vitamin was in the form of droplets and the patient took them by herself. Despite the doctor's recommendation after blood analysis she had continued supplementing 4,000 IU of vitamin D for 3 months. A subsequent measurement revealed elevated 25(OH)D at 105 ng/mL and 1,25-dihydroxyvitamin D at 83.9 ng/mL (reference range: 19.9–79.3 ng/mL), with normal serum calcium levels (2.42 mmol/L). After recent blood results the patient takes 2,000 IU. For the whole time the patient remained asymptomatic, with no exacerbation of chronic conditions associated with vitamin D toxicity.

Conclusions: It is crucial to educate patients about present supplementation guidelines in order to support their well-being. This case presents that blood results do not always define clinical features and patients on high intake doses of vitamin D should be constantly supervised.

Non-surgical Case Report III

Scientific Committee

prof. dr hab. n. med. Katarzyna Wieczorowska-Tobis
prof. dr hab. n. med. Marta Stelmach-Mardas
dr hab. n. med. Katarzyna Mazur-Melewska

Coordinator

Zuzanna Paryzek

Peculiar case of hematoma with extravasated contrast after percutaneous coronary intervention of chronic total occlusion

Author: Katarzyna Skorupska[1]
Affiliation: [1]Poznań University of Medical Sciences
Tutor: dr hab. n. med. Marta Kałużna-Oleksy

Background: Percutaneous coronary interventions (PCI) of chronic total occlusions (CTO) are high-risk procedures with an increased complication rate. We present a rare case of hematoma with extravasated contrast after PCI CTO attempt.

Case Report: A 62-year-old man with angina symptoms CCS III was admitted to the hospital for PCI CTO of right coronary artery (RCA). He had a history of successful PCI LCX 7 months ago, type 2 diabetes and hypertension. The electrocardiography stress test was clinically positive. Laboratory tests revealed Troponin I hs within the normal range. Echocardiography (ECHO) showed ejection fraction of 55% and left ventricle diameter of 58mm. Initially, antegrade technique was utilized with coronary guidewire advancing to the medial RCA area, without certainty of true lumen localization. The dissection of proximal RCA occurred. The decision to postpone procedure with possible retrograde technique was made. Post-procedure ECHO revealed a contrasting structure (2,5cmx3,6cm), located at the base of the right ventricle (RV) free wall and 11mm of fluid in the pericardium. Post-procedure laboratory tests revealed minor Troponin I hs elevation (29,6ng/L). In the following days, the amount of fluid did not increase. This image suggested a hematoma with contrast extravasation, prompting further imaging. This abnormality was not visible on cardiac magnetic resonance (CMR), probably due to the use of iodine contrast. However, computed tomography angiography revealed no evidence of vessel perforation and blurred fat tissue images of the RV area. The diagnosis of hematoma with extravasated contrast to the free RV wall without active bleeding was confirmed. The patient was discharged after 13 days of observation with recommendation of dual antiplatelet therapy with ticagrelor and ambulatory control with ECHO.

Conclusions: This case highlights the importance of post-procedural monitoring and imaging to guide clinical decisions, ensuring patient safety and optimal outcomes after complex high-risk procedures, especially in PCI CTO cases.

Schwannoma mimicking metastatic lymph node

Authors: Agnieszka Mariowska[1], Piotr Tyburski[1]
Affiliation: [1]SKN Endocrinology, The Student Scientific Society of Poznan University of Medical Sciences
Tutor: prof. dr hab. Ewelina Szczepanek-Parulska

Background: Schwannoma is a benign, encapsulated tumor arising from Schwann cells that form the myelin sheaths of the nerves of the central and peripheral nervous systems. It typically localizes in the head, neck and extremities. Symptoms depend on the location and severity of the lesion.

Case Report: A 44-year-old woman was admitted to the endocrinology clinic for evaluation of autoimmune thyroid disease. Ultrasound examination of the thyroid showed an organ of normal size, with slightly reduced echogenicity, and with normal blood flow. Coincidentally, a hypoechoic lesion of 16mm in size was located in the right supraclavicular region. On palpation, the detected nodule was firm and painless. Due to the suspicious appearance of the lesion, further diagnostics was performed. Laboratory tests (blood count, tumor biomarkers, inflammatory parameters and parathormone) showed no abnormalities. A fine-needle aspiration biopsy (FNAB) was performed, during which the patient complained of paresthesia and tingling in parts of her right hand, forearm and arm. Subsequently, an MR scan of the neck was performed, which revealed a 21x17 mm oval lesion adjacent to the C7 and/or C6 spinal nerves. On T1, T2 and STIR sequences, the lesion showed characteristic features of a schwannoma. Given the various treatment options, the patient was consulted by a surgical and neurosurgical team and remains under observation due to the oligosymptomatic course of the disease.

Conclusions: Schwannoma is rarely localized in the supraclavicular fossa, but should be considered in the differential diagnosis of tumors located in this area. Tumors in this area can mimic, among others, a lymph node metastasis. An arm paresthesia during FNAB may indicate a brachial plexus injury. The decision on the method of treatment (observation, surgery) is made based on the location of the tumor, clinical symptoms and the advancement extent of the lesion.

Application of focal laser photocoagulation of retina in CSCR

Author: Aleksander Strąk[1]
Affiliation: [1]Wydział Medyczny, Collegium Medicum, Cardinal Stefan Wyszyński University in Warsaw
Tutor: dr n. med. Mariusz Strąk

Background: Central serous chorioretinopathy (CSCR) is the fourth most common central retinopathy among macular diseases. The disorder is characterised by serous detachment of the neurosensory retina, which occurs in the macula as a result of focal damage to the pigment epithelium. The aetiology and pathophysiology of the disease have not been clearly established. However, numerous factors contributing to the occurrence of CSCR are known. It is mostly found in young males aged 20 to 50. Modern diagnostic methods, primarily swept-source OCT, show abnormalities in the structure of the choroid, which has led to the classification of CSCR as a pachychoroid spectrum disease.

Case Report: A 44-year-old man reported to the Ophthalmology Clinic due to deterioration of vision acuity (VA) in the left eye lasting intermittently for approximately 10 months. The patient underwent a standard ophthalmological examination and initial additional tests (swept-source OCT, angioOCT) and a decision was made to perform fluorescein angiography (FA). Based on the tests performed, chronic, recurrent CSCR of the left eye was diagnosed. Initially, treatment with eplerenone was implemented. The FA examination identified the site of RPE damage and performed point, conventional laser photocoagulation at the site of contrast leakage. Currently, the patient is waiting for a follow-up visit to assess the effects of laser photocoagulation. The paper discusses the course of the disease, epidemiology, theoretical pathomechanism, clinical symptoms, diagnostic tests and available treatment options used in the therapy of CSCR.

Conclusions: The unknown nature of CSR's aetiology and pathophysiology poses a challenge in clinical practice, especially in light of the fact that if left untreated, it leads to profound vision loss and there is no established treatment. This fact underlines the importance of highlighting cases of management of this disease, as each of them brings the practitioners closer to developing guidelines for effective therapy and management.

The headache mystery – radiologic imaging in the diagnosis of cerebral venous thrombosis

Authors: Aleksandra Szczech[1], Anna Futyma[1]
Affiliation: [1]The Student Scientific Society of Poznan University of Medical Sciences; Student Scientific Group of Radiology and Medical Imaging, Poznan University of Medical Sciences
Tutor: lek. Marcin Stański

Background: Cerebral venous thrombosis is a rare condition affecting dural venous sinuses and deep cerebral veins. Its development is attributed to numerous causes involving venous malformations, medication use, prothrombotic hematologic conditions, or may be idiopathic. Presentation is usually nonspecific and ranges from nearly asymptomatic to fatal condition, presenting with seizures, confusion, or death. Hence an important role of medical imaging, such as computed tomography (CT), CT venography, magnetic resonance imaging (MRI), and MR venography. Nevertheless, imaging findings are most often subtle, nonspecific, and vague. Therefore, radiologist's experience and the use of advanced techniques are in these cases of utmost importance.

Case Report: A 28-year-old female patient was admitted to the emergency department with a two-week history of headaches, which aggravated in the previous days. It was accompanied by nausea, vomiting, seeing light flashes, and hypersensitivity to light and sounds. Initial CT revealed hyperdense cerebral veins; however, CT venography did not show filling defects. MRI was performed, exposing unilateral thalamic lesion slightly compressing ventricular system. The area was hyperintense in T2-weighted images and showed intravascular contrast enhancement without diffusion restriction. Susceptibility-weighted imaging (SWI) demonstrated foci of hemorrhage in the lesion. MR venography revealed contrast filling defects with flow disturbances in the cerebral sinus system. Finally, detected lesion was identified as an ischemic area due to great cerebral vein (of Galen) thrombosis. During further hospitalization, the patient received anti-thrombotic therapy.

Conclusions: This case underscores the importance of MR imaging in situations with inconsistent CT images. Furthermore, it is essential to consider various causes of thalamic lesions visible on imaging. Patients presenting with nonspecific symptoms require careful evaluation and a thorough diagnostic process, in which radiological imaging is an indispensable tool.

Prenatal presentation of multifocal venous malformations in Blue Rubber Bleb Nevus Syndrome leading to Kasabach-Merritt Phenomenon

Authors: Jakub Kwiatkowski[1], Nicole Akpang[1]
Affiliation: [1]Internal Medicine, Southwest Healthcare Medical Education Consortium, Temecula Valley Hospital, California Western University of Health Sciences
Tutor: prof. dr hab. n. med. Przemysław Kosiński

Background: Blue rubber bleb nevus syndrome (BRBNS) is a rare congenital disorder characterized by numerous diffuse cutaneous and internal venous malformations. Internal lesions, typically affecting gastrointestinal tract, may lead to chronic bleeding and anemia. A rare but severe complication is Kasabach-Merritt phenomenon, a life-threatening consumptive coagulopathy caused by platelet sequestration within vascular tumors, resulting in thrombocytopenia and hypofibrinogenemia.

Case Report: A 34-year-old woman, gravida 2, presented at 35+0 weeks of gestation (WG) with polyhydramnios and multiple fetal abnormalities on ultrasound examination, including a right-sided choroid plexus cyst, banana sign, enlarged bladder, shortened femoral bone, suspected cervical spina bifida with myelomeningocele and a perineal mass. MRI revealed multiple focal lesions with signal characteristics of soft tissue, protein-rich fluid or blood in the left hemisphere of the brain, spinal canal (L3), left kidney, left thigh, and the largest one in the posterior-superior region of the neck extending into the posterior cranial fossa, displacing the cervical spinal cord. The posterior vertebral elements of C1-C3 and L3 were absent. A multifocal proliferative process was suspected. Amnioreduction was performed, confirming a normal female karyotype. At 36+5 WG, an emergency cesarean section was performed due to vaginal bleeding and suspected placental abruption. Postnatally, the neonate exhibited cardiovascular instability, severe neurological impairment, and required constant intubation due to respiratory failure. BRBNS with Kasabach-Merritt phenomenon was diagnosed. Despite treatment with sirolimus and glucocorticosteroids, neurological deterioration progressed, leading to neonatal demise on day 28.

Conclusions: Prenatal visualization of multiple venous malformations in BRBNS is feasible; however, establishing a definitive diagnosis based solely on imaging studies appears virtually impossible. Nevertheless, multifocal venous malformations should be considered in the differential diagnosis of a suspected multifocal proliferative process in the fetus. Although intracranial involvement is rare in BRBNS, its presence, particularly with brainstem dysfunction and the development of Kasabach-Merritt phenomenon, is associated with a poor prognosis.

Ablation of atrial fibrillation is not always a pulmonary vein isolation: a case report.

Authors: Jakub Limbowski[1], Wiktoria Dzwonkowska[1], Wei-Cheng Hung[1]
Affiliation: [1]The Student Scientific Society of Poznan University of Medical Sciences, SKN First International Group on Cardiovascular Medicine and English Students Research Association, ESRA Cardiology
Tutor: dr n. med. Adrian Gwizdała

Background: Pulmonary vein isolation (PVI) is a cornerstone of atrial fibrillation ablation (AFib). Extra-pulmonary vein triggers are among the factors contributing to recurrences of AFib despite successful PVI. The following report presents two individual cases with normal left atrial sizes who - despite similar clinical presentation - underwent completely different diagnostic and ablative pathways leading to isolation of superior vena cava (SVC).

Case Report: A 45-year-old male subject with a 7-year history of paroxysmal AFib was admitted for another ablation following three previous procedures (two cryoballoon ablations and one radiofrequency (RF) ablation). Despite durable PVI, recurrent and troublesome arrhythmic episodes persisted (no clinical improvement). Extra-pulmonary vein triggers were suspected when AFib episodes were briefly interrupted by spontaneous restoration of sinus rhythm. Electroanatomical mapping identified a “firing” focus in the SVC as the trigger of AFib. Following isolation of the SVC, the patient experienced immediate and complete resolution of AFib. No other atrial arrhythmias were observed during 12-month follow-up. In a second case, a 64-year-old female was referred for elective PVI due to clinically significant, recurrent, self-terminating episodes of paroxysmal AFib. Intracardiac recordings revealed AFib temporarily organizing into right-sided atrial activity. Further mapping of the right atrium identified the SVC as the site of earliest local activity. RF ablation successfully isolated the SVC, resulting in immediate termination of AFib. No PVI or other ablation was performed, and the patient remained arrhythmia-free during a 3-month follow-up.

Conclusions: While PVI remains a primary approach for AFib ablation, patients with atypical presentations or recurrent AFib despite initial strategies should be carefully evaluated for extra-pulmonary vein triggers, such as the SVC or left atrial posterior wall. Detailed electroanatomical mapping can identify these triggers, allowing for targeted interventions that can prevent unnecessary procedures and achieve complete arrhythmia resolution.

The complex treatment of MFN2-associated lipomatosis – a case report

Authors: Jakub Wilk[1], Julia Bednarek[1]
Affiliation: [1]Student Scientific Group of Innovative and Traditional Internal Medicine, Poznan University of Medical Sciences, The Student Scientific Society of Poznan University of Medical Sciences
Tutor: dr n. med. Anna Braszak-Cymerman

Background: Pathogenic mutations in MFN2 gene are associated with the presence of lipomatosis classified as lipodystrophy. The clinical manifestation and severity of symptoms may differ between the patients and include metabolic and neurological abnormalities.

Case Report: The 38-year-old woman with MFN2-associated lipomatosis diagnosed 2 years previously was admitted to the internal medicine department for routine follow-up. The patient had Cushingoid appearance with lipomatous masses present on the back of the neck and substantial lipoatrophy of lower limbs. On admission, the patient reported the presence of painful and itchy skin lesions with lipoma morphology on both calves with more changes appearing during the hospitalization. The patient suffered from poorly controlled type 2 diabetes with the levels of fasting blood glucose ranging from 200 to 300 mg/dL, which was treated with insulin and empagliflozin. Because of the elevated levels of blood sugar the intensification of antidiabetic treatment with the introduction of metformin and semaglutide was considered. The triglyceride level was 7932 mg/dL, which was associated with severe hypertriglyceridemia typical of lipodystrophy. The treatment was intensified by increasing the dose of statin and omega 3 acids along with maintaining the fibrate. Polyneuropathy caused by diabetes and MFN2 mutation was manifested by the searing pain of distal parts of lower and upper limbs, which was treated with pregabalin with moderate therapeutic effect. The patient remains under hepatology clinic's care due to huge hepatosplenomegaly.

Conclusions: Genetically determined lipomatosis may pose a difficult therapeutic challenge that requires a multi-specialized approach during the diagnostic process and the therapy. Although Cushingoid body structure and metabolic disorders may be caused in the majority of cases by Cushing syndrome, the rare causes of aforementioned symptoms such as genetic disorders should be taken into consideration during the further stages of differential diagnosis.

An unusual cause of fulminant pericardiomyositis and multiorgan failure in 28-year old patient – macrophage activation syndrome complicating Still's disease

Author: Julia Kołodziejczyk[1]
Affiliation: [1]Student Scientific Society of Poznan University of Medical Sciences, Student Research Group of Rheumatology, Systemic Connective Tissue Diseases and Immunotherapy of Rheumatic Diseases
Tutor: dr n. med. Wiktor Schmidt

Background: Still's Disease (SD) is a rare autoinflammatory illness with distinctive clinical and laboratory findings. Macrophage Activation Syndrome (MAS) with rapid multi-organ failure occurs in 10-30% of SD patients and is fatal if untreated.

Case Report: A 28-year-old man sought emergency department treatment for sudden-onset chest pain and sore throat, quotidian fever, and macular rash that oral penicillin failed to resolve. Due to increased acute phase reactants and cardiac markers, cardiomyositis was suspected and the patient was admitted to Cardiology Ward. Broad-spectrum antibiotic medication did not improve the patient's condition over a three-week hospitalization. Microbiological testing was negative. Decreasing erythrocyte sedimentation rate, maculopapular rash with decline in platelets, erythrocytes and leukocytes, and persistent fever were seen. Systemic disease was suspected, thus rheumatology was consulted. Lymphadenopathy, hepatomegaly, splenomegaly, anuria, and hypotension were found. Point-of-care ultrasound revealed pleuropericardial effusion with 55% left ventricle ejection fraction (LVEF). New lab results showed hypertriglyceridemia, hyperferritinemia, hypertransaminasemia, hyperbilirubinemia, and uremia. MAS-complicated SD with multi-organ failure was diagnosed. Initial treatment included intravenous glucocorticoids, cyclosporin, intravenous immunoglobulins, and catecholamines. Patient was referred to the intensive care unit due to deterioration and LVEF decline to <10%. Hemodialysis and extracorporeal membrane oxygenation (ECMO) were required. The patient was initially qualified for cardiac transplantation (CTx). Clinical, organ, and laboratory indicators improved with additional anakinra therapy. After three weeks, the patient returned to Rheumatology Ward with 40% LVEF and no symptoms. In 6 months, he was stable and asymptomatic, immunomodulatory medicines were reduced, and he returned to work without CTx.

Conclusions: Macrophage Activation Syndrome (MAS) can cause multi-organ failure and fulminant cardiomyositis. Early diagnosis requires clinical examination and laboratory testing. Anticytokine treatment is preferred, with over half of patients responding well if diagnosed and treated early.

Spastic ataxia: A Challenging Syndrome for Neurorehabilitation

Authors: Julita Peplińska[1], Dawid Dzido[1], Oskar Frejda[1], Hubert Klecha[1]
Affiliation: [1]The Student Scientific Society of poznan University of Medical Sciences, SKN Neurorehabilitacji, Institute of Neurological Disorders, Poznań University of Medical Sciences, Poland
Tutors: prof. dr hab. Sławomir Michalak, mgr Ewa Kozielewska-Zwierska

Background: Spastic ataxia syndrome is characterized by a combination of cerebellar ataxia and spasticity, along with other pyramidal symptoms. While it is often seen in congenital ataxias, it can also occur in spastic paraplegias, and may result from other neurologic conditions. Although, surgical treatment for brain tumors is critical, however there is no specific pharmacological treatment available for spastic ataxia. Therefore, neurorehabilitation plays a vital role in enhancing a patient's independence.

Case Report: We present a case of 32-years-old male with spastic paresis, cerebellar ataxia, epilepsy and hypothyroidism. His medical history includes brain tumor resection, chemotherapy, radiotherapy and a decompressive craniectomy performed due to cerebellar hemorrhage penetration to the ventricular system. The patient was admitted to the Neurological Department due to epileptic seizures. Upon admission,he was confied to bed, with spastic tetraplegia, was fed through a PEG tube, had a tracheostomy, and was unable to stabilize his head and neck. During hospitalization, rehabilitation allowed the patient to sit in a wheelchair with high head support. After discharge, physical therapy was continued at home, occurring five times per a week for the first three years. This therapy included exercises for verticalization to sitting and standing positions, strengthening, balance training, and motor exercises in sitting, crawling, on all fours and standing. Thanks to consistent physiotherapy, which within last year included also Digital Therapeutics (i.e. Virtual Reality training) patient is now able to walk with a walker, and his independence significantly improved.

Conclusions: Properly tailored physical therapy in combination with Digital Therapeutics has a profound impact on improving the quality of life for patients with cerebellar ataxia and spastic paresis.

Seizures and dyspnoea in 60-year-old patient with lupus and history of subarachnoid hemorrhage – diagnostic and therapeutic challenge

Authors: Marcelina Wiśniewska[1], Wiktoria Jakubowska[1]
Affiliation: [1]Student Scientific Society of Poznan University of Medical Sciences, Student Research Group of Rheumatology, Systemic Connective Tissue Diseases and Immunotherapy of Rheumatic Diseases
Tutor: dr n. med. Wiktor Schmidt

Background: Neuropsychiatric Systemic Lupus Erythematosus (NSPLE) is a chronic autoimmune disease, involving the nervous system with neurological and psychiatric manifestations.

Case Report: 60-year-old female with previously diagnosed Systemic Lupus Erythematosus (SLE) presented with fever, pleural effusion, rash, arthritis, hair loss, presence of ANA antibodies, significant weakness, new-onset seizures and severe cognitive impairment with memory and concentration issues disabling from working. Furthermore, there was a history of depression and subarachnoid hemorrhage in the course of ruptured aneurysm in 2019. Before the onset of neurological symptoms, the patient was treated with hydroxychloroquine (HCQ) and high-dose oral glucocorticosteroids (GC). After clinical, radiological, laboratory, neurological and neuropsychological assessment and differential diagnosis severe NPSLE was diagnosed (SLEDAI-2K=30). Treatment with intravenous cyclophosphamide (CTX) and glucocorticoids pulses (3x500 mg methylprednisolone) was administered with sustaining HCQ and oral GCs in reduced dose. After the full induction cycle clinical, cognitive, laboratory and functional improvement was achieved with low disease activity (SLEDAI-2K=2). No seizures were observed after the fist CTX dose. In two years ambulatory observation conductional treatment comprised oral mycophenolate mofetil (up to 2 g/day) and oral GCs that were reduced up to withdrawal within 12 months. Patient achieved sustained disease remission according to the DORIS definition.

Conclusions: Severe acute NPSLE presents with neuropsychiatric and systemic features and requires broad and multispecialty differential diagnosis. Treatment with intravenous CTX and GCs is usually of choice. Early diagnosis and treatment of NPSLE can be successful and prevent permanent damage to the nervous system and improve patient prognosis..

Actinomycosis mimicking a lymphoma

Authors: Mateusz Hałas[1], Marta Szczygieł[1], Marek Spichalski[1], Radosław Siemionek[1]
Affiliation: [1]The Student Scientific Society of Poznan University of Medical Sciences, Poznan; Student Research Group of Tropical Medicine, Laboratory of Tropical and Parasitic Diseases, Poznan University of Medical Sciences, Poznan, Poland
Tutor: dr hab. n. med. Małgorzata Paul

Background: Bacteria belonging to the *Actinomyces* genus are facultative anaerobic filamentous Gram-positive microorganisms that colonize the human gastrointestinal tract. Clinical manifestations of the illness may imitate other infections, such as tuberculosis or even malignancies. Cervicofacial is the most common type of actinomycosis, but the disease sporadically leads to generalized lymphadenopathy.

Case Report: A 43-year-old patient was admitted to the university department for a differential diagnosis of cervical and axillary lymphadenopathy with suspected parasitic infection. The lymphadenopathy had been persisting for over 20 months. The patient with a 20-pack-year history of smoking reported additionally an unintentional loss of 14 kg of weight in a year and a half. Previous images of enlarged lymph nodes obtained by the computed tomography scan indicated a reactive inflammatory process. Numerous lymph node biopsies did not confirm neoplastic changes. The multidirectional diagnostics for infectious and connective tissue diseases failed to identify the cause of chronic lymphadenopathy. Due to the inconvenient localization of the enlarged lymph nodes, archival histopathology slides were retrieved instead of a biopsy. Microscopic reevaluation of lymph node specimens visualized bacteria with morphology consistent with the *Actinomyces* genus. Implemented targeted systemic antibiotic therapy resulted in the regression of the changes.

Conclusions: Actinomycosis can masquerade a variety of diseases. The described case emphasizes that rare infectious diseases should be a part of the differential diagnosis of generalized lymphadenopathy. Microbiology tests and histopathological examination are significant steps in establishing the final diagnosis.

Phenotypic variation due to pathogenic variants in PTEN and SCN4A: a case report of paramyotonia congenita with other congenital defects

Authors: Michał Nowak[1], Michał Kmiecik[1]
Affiliation: [1]The Student Scientific Society of Poznan University of Medical Sciences, Student Scientific Association of Medical Genetics, Poznan, Poland
Tutor: dr n. med. Karolina Biel

Background: Paramyotonia congenita is a rare autosomal dominant muscle disorder characterized by paradoxical myotonia. It is predominantly caused by mutations in the gene encoding Sodium Voltage-Gated Channel Alpha Subunit 4 (SCN4A). This case report describes a 13-year-old patient presenting with atypical symptoms of paramyotonia congenita associated with SCN4A and other congenital defects caused by pathogenic variant in Phosphatase And Tensin Homolog (PTEN). To best of our knowledge, this case marks the first reported instance of concurrent pathogenic variants in these two genes.

Case Report: The patient was 13 years-old girl born in the 39th week of an uneventful pregnancy. Her body weight was 3700 g and head circumference totaled 36 cm. She scored 9/10 points in Apgar score. Motor development was delayed - she started walking at 18 months old. Currently the subjective symptoms of myotonia are not reported. Notably, the patient exhibited macrocephaly and extra fifth finger in the right hand and left food. Family history is positive. The cousin was diagnosed with congenital myotonia. Regarding molecular studies of the described patient in this case report, dynamic mutations were negative. Whole exome sequencing (WES) was performed revealing two pathogenic variants SCN4A and PTEN genes. However, PTEN mutations are typically linked to tumor predisposition syndromes, such as Cowden syndrome or congenital malformations, and are not commonly associated with muscle disorders. Therefore, PTEN variant may contribute to the interaction with the SCN4A mutation to broaden the disease phenotype.

Conclusions: Further research is essential to explore the potential interplay between SCN4A and PTEN variants and their combined impact on muscle function. PTEN affects the PI3K/AKT pathway, which might be associated with paramyotonia. In the case described, segregation analysis in parents and sibling shall be considered. Micro-array screening regarding congenital malformations is also advised.

Plaque rupture revealed by OCT to navigate the treatment of acute coronary syndrome complicated with out-of-hospital cardiac arrest

Author: Piotr Arski[1]
Affiliation: [1]Chair and Department of Cardiology, Medical University of Warsaw, Warsaw, Poland
Tutor: dr hab. n. med. Aleksandra Gąsecka

Background: Optical coherence tomography(OCT)-guided percutaneous coronary intervention (PCI) in comparison with coronary angiography-guided PCI reduces the risk of procedural complications and gives insights into the lesion characteristics which helps to plan the PCI trajectory and optimise the result. Despite those benefits, the widespread adoption of OCT in daily PCI practice is still limited.

Case Report: A 61-year-old female with a history of type 2 diabetes mellitus, stroke, atrial fibrillation and hypercholesterolemia was admitted to the intensive care unit because of out-of-hospital cardiac arrest (OHCA) due to ventricular fibrillation. She had undergone a successful reanimation with defibrillation. Electrocardiography showed evolution of the anterior ST elevation myocardial infarction. Coronary angiography revealed normal coronary arteries and a large thrombus in the left anterior descending artery (LAD). PCI was not performed due to the risk of distal embolization and no-reflow. Instead, eptifibatide and dual antiplatelet therapy (DAPT) were administered for 2 weeks, when the follow-up angiography was scheduled. The angiogram showed a normal LAD with no signs of thrombus. However, the OCT showed a ruptured plaque in the mid LAD, prompting PCI. Considering the reversible cause of OHCA identified by OCT, no ICD implantation was needed.

Conclusions: OCT provides information that cannot be obtained with coronary angiography, helping in making clinical decisions and providing invaluable support in guiding PCI.

Recurrent Ischemic Strokes in a Young Patient with an Aortic Prosthetic Valve: Is the Heart the Only Culprit?

Authors: Taha Hayee[1], Victoria Dulinski[1], Obinna Nzewi[1]
Affiliation: [1]The Student Scientific Society of Poznan University of Medical Sciences, SKN First International Group on Cardiovascular Medicine and English Students Research Association, ESRA Cardiology
Tutor: dr n. med. Aleksandra Ciepłucha

Background: Infective endocarditis (IE) is a life-threatening condition often requiring prolonged intravenous antibiotics and surgical intervention. It can lead to neurological complications, such as stroke, due to embolization of bacterial vegetation. In addition to the infectious forms, there is a non-infective type of endocarditis known as Libman-Sacks endocarditis (LSE), which is a rare condition associated with autoimmune disorders, particularly systemic lupus erythematosus (SLE) and antiphospholipid syndrome (APS).

Case Report: A 31-year-old female with a history of IE underwent surgical removal of vegetations (2019) and later biological aortic valve replacement (2021), intracerebral hematoma requiring decompressive hemicraniectomy (2021), recurrent ischemic strokes (most recent in May 2024), post-stroke epilepsy, and a seizure-induced right scapula fracture (January 2025). During a routine outpatient follow-up transthoracic echocardiogram (TTE), some additional lesions on the prosthetic aortic valve and mitral valve were revealed. She was hospitalized due to suspected recurrent IE, but inflammatory markers and blood cultures remained negative. A transesophageal echocardiography (TEE) showed small, round-oval lesions on the aortic and mitral valves, consistent with LSE. This finding led to the exclusion of IE, hence cardiac surgery was found unnecessary. Importantly, the patient had a history of miscarriage and prior suspicion of autoimmune disease but has never met diagnostic criteria. However, the presence of vegetations with negative blood cultures now meets the criteria for non-infective endocarditis, raising renewed concern for APS/SLE. An extensive rheumatologic workup was recommended, because in this context, introduction of dedicated therapy could change disease trajectory and significantly improve the outcome.

Conclusions: This case highlights the diagnostic complexity of LSE in a patient with prior IE, prosthetic valve replacement, and recurrent strokes. A high index of suspicion is needed for autoimmune-mediated thromboembolic complications in patients with recurrent cerebrovascular events and valvular abnormalities. Further investigations are in progress to diagnose SLE and/or APS.

Superior Vena Cava Syndrome in the course of Giant Cell Arteritis

Authors: Wiktoria Jakubowska[1], Marcelina Wiśniewska[1]
Affiliation: [1]Student Scientific Society of Poznan University of Medical Sciences, Student Research Group of Rheumatology, Systemic Connective Tissue Diseases and Immunotherapy of Rheumatic Diseases
Tutor: dr n. med. Wiktor Schmidt

Background: Giant Cell Arteritis (GCA) is an inflammatory autoimmune disease of large and medium blood vessels: the aorta and its branches, especially involving the carotid and vertebral arteries. An example of an atypical presentation of GCA is superior vena cava syndrome (SVCS), typically associated with neoplastic or thrombotic causes rather than inflammatory vasculitis.

Case Report: A 68-year-old patient was admitted to the hospital after syncope while driving, accompanied by a history of dizziness, weakness and decreased exercise tolerance. Initial evaluations suggested an unclear etiology of superior vena cava syndrome. Chest Computed Tomography Angiography (CTA) showed mediastinal infiltrates around the ascending aorta, aortic arch and its branches. The infiltrate compressed venous vessels, resulting in stenosis and thrombosis of the superior vena cava and the brachiocephalic veins. The patient was initially treated with glucocorticosteroids (GCS) in high doses, which was complicated by sepsis, gastric ulcer bleeding and acute coronary syndrome. After rheumatologic consultation, exclusion of other causes of SVCS and vascular ultrasound showing typical arterial wall thickening, GCA was diagnosed. Treatment with intravenous cyclophosphamide (CTX) and immune globulins (IVIG) was initiated and GCS dose reduced. The patient demonstrated significant clinical and laboratory improvement, remission was achieved and methotrexate (MTX) was initiated in consolidation treatment.

Conclusions: In patients with superior vena cava syndrome, large vessel vasculitis may be considered in the differential diagnosis. This case underscores the need for a multidisciplinary approach in diagnosing and managing atypical GCA presentations.

Surgical Case Report I

Scientific Committee

dr hab. Mateusz Puślecki

Coordinator

Chih Han Yang

Diagnostic Challenges in Neuro-Oncology: A Case of Recurrent Craniopharyngioma Mimicking a Thrombosed Aneurysm

Authors: Tara Radaideh[1], Omar Rahal[1], Humnna Zaib[1], Sai Deepikaa Sotheenathan[1]
Affiliation: [1]Department of Neurosurgery, Medical University of Warsaw
Tutor: lek. Paulina Juszyńska

Background: Neuro-oncological diagnostics are composed of a broad spectrum of tests and imaging modalities available. Remarkable advances in the preoperative diagnostics have been made in recent years, but in some cases differential diagnosis can still pose a challenge, especially in patients with complicated medical history and atypical presentation.

Case Report: We present a 33-year-old male with progressive vision deterioration in his right eye and a history of craniotomy in 2006 due to a craniopharyngioma. Additionally, in 2011 the patient underwent right internal carotid unruptured intracranialaneurysm treatment with a flow diverting stent implantation. Ophthalmological examination on admission revealed optic nerve atrophy, and steroid therapy did not lead to improvement. Imaging studies (CT, MRI, AngioCT) showed a lesion in the area of the anterior clinoid process with peripheral calcifications, raising suspicion of both recurrent craniopharyngioma and a thrombosed internal carotid artery aneurysm. Cerebral angiography confirmed the correct placement and patency of a previously implanted stent and lack of aneurysmal perfusion. However, due to the progressive neurological deficit, a surgical approach was decided upon.
A right-sided re-craniotomy was performed, during which a soft, well-demarcated lesion was removed. Upon incision, pus-like content was evacuated. Postoperatively, the patient reported subjective improvement in vision, but experienced a seizure, necessitating the initiation of anti epileptic treatment. After one week, a full recovery of visual acuity in the right eye was confirmed, and histopathological examination identified the lesion as a craniopharyngioma.

Conclusions: This case highlights the diagnostic challenges in differentiating calcified tumors from thrombosed aneurysms and emphasizes the need to consider a broad spectrum of possible pathologies in neurosurgical imaging. Although differential diagnosis is particularly difficult in some cases, it is crucial to use the imaging modalities available and carefully assess the possibilities before entering the operation room.

Melanoma of the Urethra: A Rare Case Report

Authors: Anmol Inam Khan[1], Layla Settaf-Cherif[1]
Affiliation: [1]Department of Urology and Andrology, Ludwik Rydygier Collegium Medicum, Nicolaus Copernicus University, Bydgoszcz, Poland
Tutor: dr n. med. Adam Ostrowski

Background: Melanoma primarily affects the skin and eyes, with genitourinary tract melanomas constituting less than 1% of cases. Urethral melanoma is exceptionally rare due to the urethra's embryonic origin from the endoderm, where melanocytes are uncommon. With only a handful of cases reported, no standardized treatment guidelines exist. This case contributes to the limited literature, emphasizing the importance of early recognition and management.

Case Report: An 80-year-old female presented with a two-month history of spotting and a firm, round lesion at the urethral meatus. Initial ultrasound and laboratory tests showed no significant abnormalities in adjacent structures. Due to persistent symptoms, she underwent surgical excision under general anesthesia.
During surgery, a fragile 1×1 cm tumor was identified at the external urethral meatus, disintegrating easily upon manipulation. Monopolar electrocautery was used for resection. Histopathology confirmed urethral melanoma, with tumor cells positive for S100 and PRAME and a high proliferative index (Ki67 up to 50%). No neuroinvasion or angioinvasion was observed.
The patient recovered uneventfully. She is scheduled for further staging, including CT and oncology consultation, as part of ongoing surveillance.

Conclusions: This case highlights the diagnostic challenge of urethral melanoma, which can present with subtle symptoms like spotting. Due to its rarity and aggressive nature, early recognition and a thorough diagnostic workup are essential to guide management. Increased awareness among clinicians may facilitate timely intervention and improve patient outcomes.

Multidisciplinary Management of a Complex Renal Tumor with Vascular Invasion: A Case Report

Authors: Melika Sharififar[1], Anjali Bijoy Theruvan[1], Nimmy Treasa George[1]
Affiliation: [1]Department of Urology and Andrology, Ludwik Rydygier Collegium Medicum, Nicolaus Copernicus University, Bydgoszcz, Poland
Tutor: dr n. med. Adam Ostrowski

Background: Renal cell carcinoma (RCC) with vascular invasion is a rare and aggressive form of kidney cancer which carries a high risk of mortality due to its tendency to extend into the renal vein and inferior vena cava (IVC), often necessitating a multidisciplinary approach. Radical nephrectomy with thrombectomy is the standard treatment; however, extensive vascular involvement increases complexity, requiring cardiothoracic intervention. This case highlights the successful management of an advanced RCC with IVC invasion using a collaborative surgical approach.

Case Report: A 53-year-old male with a history of hernioplasty and appendectomy was diagnosed with a left renal tumor extending into the renal vein and the IVC. He previously underwent chemoembolization. CT scan showed a mass (12x7x17cm) with thrombi in the renal vein and IVC. Preoperative coronary angiography revealed no coronary artery disease. The patient underwent radical nephrectomy, splenectomy, and removal of the tumor thrombus from the IVC, managed by a team of urologic and cardiothoracic surgeons. The procedure required extracorporeal circulation to manage the vascular invasion, with thrombus removal extending to the liver level. Postoperatively, the patient developed a pancreatic fistula with persistent pancreatic fluid leakage, forming a collection that required prolonged drainage and conservative management over several months. Despite these complications, his condition remained stable. Over the following two years, the residual pancreatic fluid collection gradually resorbed.

Conclusions: This case underscores the necessity of a multidisciplinary surgical approach in managing RCC with extensive vascular involvement. The successful radical nephrectomy and thrombectomy were only part of the challenge, as the development of a pancreatic fistula required prolonged intervention. The patient's excellent baseline condition was a key factor in proceeding with surgery, ultimately leading to a favorable long-term outcome. This case highlights the importance of meticulous preoperative planning, postoperative vigilance, and long-term management in complex oncologic cases.

Recanalization and Recurrence in Cerebral Aneurysm Management: A Case Study on Stent-Assisted Coiling

Authors: Natalia Torz[1], Klaudia Kawalec[1], Marcin Sokołowski[1], Bartosz Balicki[1]
Affiliation: [1]Neurosurgery Student Scientific Club, Collegium Medicum University of Zielona Góra
Tutor: lek. Marcin Kot

Background: Endovascular treatment of brain aneurysm is considered one of the leading surgical methods for treating cerebral aneurysms. However, it is associated with a high risk of recanalization and relapse. Risk factors for recanalization after successful endovascular treatment include smoking, hypertension, congenital vascular defects, atherosclerosis, wide-necked aneurysms, size ≥10 mm, and location. In 7-34% patients with intracranial aneurysm, the multiple aneurysms occur. The answer to the limitations of aneurysm coiling may be the use of various supportive techniques.

Case Report: 78-year-old female admitted to the Neurosurgery Department for surgical treatment of an 8 mm basilar artery tip aneurysm with a wide neck and origin of both posterior cerebral arteries. Via the right femoral artery, the left vertebral artery was catheterized, and angiography performed. A stent secured the aneurysm neck and inflow to the posterior cerebral arteries. The aneurysm sac was optimally filled using 8 coils. The procedure was completed without complications.
After six months, a 6x7 mm wide-necked cold aneurysm of the right internal carotid artery was diagnosed and treated with a stent. A year later, the patient was readmitted due to subarachnoid hemorrhage from a ruptured, recanalized basilar artery aneurysm. Eight embolization coils were used to fill the aneurysm sac, and a stent was implanted from the right posterior cerebral artery to the basilar artery.
Six months post-procedure, angiography showed significant recanalization of the aneurysm with massive enlargement (>25mm) and coil compression at the bottom of sac. Flow-diverter was placed from the basilar to the right posterior cerebral artery, covering the aneurysm neck. The endovascular procedure was performed without complications, and the patient, in good general condition, was discharged home.

Conclusions: Endovascular cerebral aneurysm treatment is associated with recurrence and recanalization risks. While stent-assisted coiling enhances initial occlusion, sustained durability necessitates extended follow-up and potential reintervention. Further investigation into robust endovascular strategies is warranted.

Sex cord tumor with annular tubules (SCTAT): A case report

Authors: Zuzanna Tyburska[1], Alicja Głogowska[1]
Affiliation: [1]The Student Scientific Society of Poznan University of Medical Sciences, Department of Gynecological Oncology, Poznan University of Medical Sciences, Poznan, Poland
Tutor: dr hab. n. med. Marcin Mardas

Background: Sex cord tumor with annular tubules (SCTAT) is an extremely rare ovarian tumor associated with sex cord and stromal tumors. Histologically, it is characterized by annular tubules arranged in distinctive ringlike structures. Due to rarity there is no standard of treatment; management mainly involves cytoreductive surgery and chemotherapy.

Case Report: A 32-year-old female patient presented to the gynecologic oncology department for further evaluation due to ascites and ovarian mass. In March 2022 she underwent an exploratory laparotomy with inconclusive biopsies in another hospital. In April 2022 she underwent a modified radical hysterectomy with bilateral adnexectomy, omentectomy and resection of peritoneal lesions. The final histopathology was revealed as a sex cord tumor with annular tubules (SCTAT) FIGO stage IIIC. She was initially treated with BEP chemotherapy (4 cycles) and continued with 2 EP. Due to good platinum response she continued with paclitaxel + carboplatin for 17 cycles up to progression. Next chemotherapy included adriamycin + cyclophosphamide + vincristine (4 cycles) and paclitaxel + ifosfamide (2 cycles). Due to massive progression best supportive care was recommended. A peritoneal drainage was implanted with resolution of ascites and reduced pain. She died in December 2024 with 32 months overall survival.

Conclusions: Due to rarity of the tumor diagnosis and treatment pose a challenge due to the lack of established management guidelines. Therapy requires a multidisciplinary approach, including cytoreductive surgery and chemotherapy, though optimal regimens remain unclear. Despite intensive therapy, the disease may progress, requiring treatment modification and palliative care to improve the patient's quality of life. Further research is needed to develop more effective therapeutic strategies and improve patient prognosis.

Sporadic Renal Hybrid Oncocytic Chromophobe Tumor in an 18-Year-Old Female Patient

Authors: Karol Olszak[1], Wanesa Góralczyk[1], Iga Kuliniec[1]
Affiliation: [1]Medical University of Lublin, Poland
Tutor: dr n. med. Przemysław Mitura

Background: The hybrid oncocytic chromophobe tumor (HOCT) is a rare renal tumor featuring cells that exhibit characteristics of both chromophobe renal cell carcinoma (ChRCC) and renal oncocytoma (RO). It often develops insidiously with non-specific symptoms. HOCT is typically associated with renal oncocytosis or Birt-Hogg-Dubé syndrome. Sporadic cases of HOCT are exceptionally rare, with fewer than 30 documented reports in the literature. The youngest patient was 25 years old. This report aims to detail the diagnosis and treatment of this tumor in a young female patient.

Case Report: An 18-year-old female was admitted to the Urology Department for a newly diagnosed left kidney tumor. She reported recurrent urinary tract infections persisting for several weeks, with worsening symptoms despite antibiotic therapy. A computed tomography (CT) scan revealed a 17x16x11 cm tumor in the left kidney, raising suspicion for either renal cell carcinoma (RCC) or Wilms' tumor. On physical examination, the tumor was palpable through the abdominal wall. To exclude late-onset Wilms' tumor, a biopsy was performed, but the histopathological examination revealed necrotic tissue and was inconclusive. The patient underwent transabdominal left radical nephrectomy and was discharged home in good condition on the fifth postoperative day. Histopathological analysis confirmed a diagnosis of sporadic renal hybrid oncocytic chromophobe tumor. One year of follow-up with tomography showed no evidence of metastases.

Conclusions: Sporadic renal hybrid oncocytic chromophobe tumor is an extremely rare entity, particularly in younger patients. Differential diagnosis should include more aggressive subtypes like RCC or late-onset Wilms' tumor. Given the non-specific nature of imaging and the limited diagnostic value of biopsies, partial nephrectomy or radical nephrectomy is recommended for treatment. The prognosis for HOCT appears favorable, but limited long-term follow-up data, justify increased clinical awareness in young patients.

Supraglottic squamous cell carcinoma in the posterior larynx - A case report on an uncommon malignancy

Authors: Julia Bernaciak[1], Monika Wiczuk-Wiczewska[1]
Affiliation: [1]The Student Scientific Society of Poznan University of Medical Sciences, Student Research Group - Otolaryngology, Poznan University of Medical Sciences, Poznań, Poland
Tutor: lek. Piotr Nogal

Background: Laryngeal squamous cell carcinoma (SCC) is one of the most common malignancies of the head and neck. The condition appears frequently among patients in their fifth, sixth, or seventh decade of life. The most significant risk factors are alcohol consumption, human papillomavirus infection, and smoking. The progression rate of SCC can vary significantly. In some cases carcinoma advances rapidly, while in others it can remain indolent for months or years before instant development.

Case Report: We report a case of a 71-year-old male who presented with an 18-year history of laryngological treatment due to hoarseness. During this period of time, the patient developed various benign changes in the larynx, which were regularly removed during microlaryngoscopies. In May 2023, a tumour was observed on the posterior one-third of the left vocal fold and the left arytenoid cartilage during one of his second-look examinations. Intraoperative assessment of the change revealed laryngeal SCC. The tumour was excised piecemeal with the use of a CO2 laser. A follow-up computed tomography scan did not reveal any residual tumour or metastases. Four months later, the second-look microlaryngoscopy revealed granulation tissue in the posterior larynx. Histopathological examination of the excised tissue confirmed the initial diagnosis.

Conclusions: This case report emphasizes the importance of constant monitoring and immediate intervention, which are a necessity during the treatment of chronic laryngeal conditions. Microlaryngoscopy constitutes a successful method of treatment as it enables precise excision of tissues without any complications.

The curious case of unusual spleen changes - A rare incidental finding

Authors: Anjali Bijoy Theruvan[1], Nimmy Treasa George[1], Melika Sharififar[1]
Affiliation: [1]Department of Urology and Andrology, Ludwik Rydygier Collegium Medicum, Nicolaus Copernicus University, Bydgoszcz, Poland
Tutor: : dr n. med. Adam Ostrowski

Background: Renal cell carcinomas are the most common malignant tumors of the kidney, constituting around 90% of the cases. They are often identified incidentally through imaging studies, with partial or radical nephrectomy being a standard treatment depending on the size of the tumor. Incidental intraoperative findings are rare during nephrectomy but can have significant clinical implications. Here, we present a rare spleen abnormality detected during a laparoscopic left nephrectomy for clear cell renal cell carcinoma, prompting further investigation into its etiology and potential links to the patient's medical history.

Case Report: A 70-year-old male with a history of type 2 diabetes, hypertension, and previous radioiodine therapy following thyroidectomy was scheduled for laparoscopic left nephrectomy due to a renal tumor. Intraoperatively, an atypical white, plaque-like coating was observed on the spleen's surface during trocar placement, requiring immediate surgical consultation. The lesion was suspected to be lymphatic infiltration. In addition, significant inflammatory infiltration around the kidney was noted, making dissection challenging. Histopathological examination confirmed clear cell renal carcinoma (G2, pT1b) in the kidney and lymphocytic infiltration in the spleen, suggesting a reactive inflammatory process. The rarity of spleen involvement in renal cancer surgery raises the possibility of uncommon etiologies, including a chronic inflammatory response or a late effect of radioiodine therapy. The limited exploration of similar cases in the literature highlights the need for further investigation into these changes and their possible impact on surgical management.

Conclusions: This case highlights the importance of recognizing unexpected intraoperative findings, especially in patients with a history of radioiodine therapy. The observed changes in the spleen may be a reflection of reactive inflammatory response or a delayed effect of prior treatments. Further research is needed to determine whether these spleen changes represent a rare inflammatory response or a distinct pathology, which may influence its management.

Trapped in the Bladder: A Complex Case of Diverticulum, Cancer Suspicion and Areflexia

Authors: Nimmy Treasa George[1], Melika Sharififar[1], Anjali Bijoy Theruvan[1]
Affiliation: [1]Department of Urology and Andrology, Ludwik Rydygier Collegium Medicum, Nicolaus Copernicus University, Bydgoszcz, Poland
Tutor: dr n. med. Adam Ostrowski

Background: Managing chronic bladder dysfunction is complex, particularly when compounded by suspected malignancy, detrusor areflexia, and anatomical abnormalities such as a large bladder diverticulum. We present a case requiring a multi-stage diagnostic approach and surgical planning.

Case Report: A 57-year-old male with a history of prolonged suprapubic catheterization, bladder neck incision, and multiple endoscopic procedures presented with chronic urinary dysfunction, hypertension, and hypercholesterolemia. Cystoscopy revealed a diverticulum opening with a hemorrhagic lesion on the posterior bladder wall, raising concern for malignancy. MRI demonstrated bladder wall thickening (22 mm) and a large left-sided diverticulum (55 × 36 × 61 mm). Scintigraphy showed impaired left renal function (GFR 15.67ml/min), and urodynamics confirmed detrusor areflexia. Pyelography revealed left ureteral stenosis and kinking, complicating ureteral catheterization. Given the suspicion of malignancy and poor bladder function, radical cystectomy was initially considered. However, histopathology revealed chronic inflammatory changes and cystitis glandularis without malignancy. Consequently, robotic-assisted laparoscopic diverticulectomy was performed using the da Vinci system. The diverticulum was successfully excised, and the bladder was reconstructed. The patient recovered well postoperatively, with improved bladder drainage. Given the challenges in urinary diversion planning due to poor bladder function and impaired left renal function, the decision for radical cystectomy was made, with considerations for either an ileal conduit or a continent reservoir for urinary diversion.

Conclusions: This case highlights the complexity of managing a patient with chronic bladder dysfunction, suspected malignancy, and anatomical abnormalities. A multi-stage diagnostic approach was crucial in determining the final diagnosis and guiding treatment. Careful preoperative assessment played a pivotal role in determining the need for radical cystectomy and optimizing postoperative outcomes in patients with chronic bladder dysfunction and complex urological pathology

When Ductal Patency Saves a Life-Double Patent Ductus Arteriosus in Aortic Valve Atresia and Interrupted Aortic Arch - A Case Report

Author: Samuel Reszytyło[1]
Affiliation: [1]Uniwersytet im. Kazimierza Pułaskiego w Radomiu, ICZMP Łódź cardiac surgery clinic
Tutor: prof. dr hab. n. med. Katarzyna Januszewska

Background: Interrupted aortic arch (IAA) is a rare, ductal-dependent congenital heart defect associated with significant hemodynamic challenges. It is life-threatening when accompanied by aortic valve atresia, as systemic circulation relies on ductal patency for survival. Ductus arteriousus is a lifesaver in many congenital heart malformations, often seen in pediatric cardiology.

Case Report: I present a neonate, prenatally diagnosed with truncus arteriosus communis, born at 36 weeks of gestation. Further testing revealed double inlet left ventricle (DILV), aortic valve atresia, and IAA type B. Imaging showed a narrowed aortic arch, with systemic perfusion dependent on ductal flow from the pulmonary artery. The right patent ductus arteriosus (R-PDA) supplied the hypoplastic ascending aorta, right subclavian artery, right and left common carotid arteries, and retrogradely the coronary arteries. The left subclavian artery and descending aorta were perfused by the L-PDA.
Initial management included prostaglandin E1 infusion to maintain ductal patency. Bilateral stent implantation was performed in both PDAs, allowing discontinuation of prostaglandin. However, ST-segment elevation and elevated troponin levels indicated incomplete stent coverage, compromising coronary perfusion. Prostaglandin infusion was reintroduced.
Due to the complex, course of the R-PDA and the presence of a single-ventricle anatomy, surgical palliation was necessary. A modified Norwood procedure was performed. Surgery involved transecting both ducti, removing the stents, and connecting the main pulmonary artery to the ascending aorta. The entire aortic arch and hypoplastic ascending aorta were reconstructed and augmented with a pulmonary homograft patch. The reconstructed arch was then anastomosed to the double aorto-pulmonary root.

Conclusions: The combination of aortic atresia, IAA, and single-ventricle physiology made survival dependent on dual ductal inflow pathways. Early diagnosis, prostaglandin infusion, and initial catheter-based palliation were critical, but ultimately, complex surgical reconstruction was required for survival.

Surgical Case Report II

Scientific Committee

dr hab. n. med. Małgorzata Leszczyńska
dr hab. Jacek Karoń
dr n. med. Magdalena Richter
dr n. med. Krzysztof Szmyt

Coordinator

Aye Mon Myint

Deep aggressive angiomyxoma of the vulva misdiagnosed as a Bartholin's cyst: a case report

Author: Alicja Głogowska[1]
Affiliation: [1]The Student Scientific Society of Poznan University of Medical Sciences, Department of Gynecologic Oncology, Poznan University of Medical Sciences, Poznan, Poland
Tutor: dr hab. n. med. Marcin Mardas

Background: Deep aggressive angiomyxoma (DAA) is a rare, benign mesenchymal tumor, predominantly diagnosed in women of the reproductive age, typically occurring in the pelvis and peritoneum with less than 350 cases reported to date. It was first described in 1983 and reclassified as deep angiomyxoma by the WHO in 2003. It is a slow-growing, locally infiltrative neoplasm with a low tendency to metastasize, although it is known for local recurrence. Due to rarity and nonspecific symptoms, such as a painless, visible mass, patients tend to be misdiagnosed.

Case Report: A 28-year-old female patient was admitted due to a soft tissue lesion on the vulva, complaining of pain while sitting. The lesion was initially diagnosed in a regional hospital as a Bartholin's cyst and an incision was attempted, however during the procedure the tissue appeared similar to bowel, leading to the intervention being aborted. Transvaginal ultrasonography revealed the lower pole of the lesion, however the image was blurred and inconclusive. Further imaging, including MRI, revealed a thick-walled fluid collection adjacent to the puborectalis muscle and anal sphincter, extending toward the left gluteal region (41x87x72 mm). The patient was referred to a gynecologic oncology department for surgical excision of the mass. Intraoperative histopathological examination led to the diagnosis of benign lesion and final result as DAA. Postoperatively, the patient recovered well and was discharged in good condition with a recommendation for follow-up.

Conclusions: The case underscores the importance of considering DAA in the differential diagnosis of vulvar and perineal lesions in young women, as it might be mistaken for several other benign conditions. Accurate diagnosis using imaging is essential for proper management and to reduce the risk of recurrence. Surgical resection remains the current gold standard of treatment, however due to the high rate of recurrence, a long-term follow-up is necessary.

Congenital Pseudarthrosis of Tibia – Challenges in the Treatment of a Complicated Patient: Case Report

Author: Eliza Kortus[1]
Affiliation: [1]Department of Spine Disorders and Pediatric Orthopedics, Wiktor Dega Clinical Hospital, Poznan University of Medical Science
Tutors: lek. Jędrzej Tschurl, dr hab. n. med. Piotr Janusz

Background: Congenital pseudarthrosis of tibia (CPT) results, among other factors, from periosteum malformation. It impedes both healing and growth of the affected bone. CPT manifests as pathological fractures which evolve into difficult to treat pseudoarthrosis. It affects 1 in 140,000-250,000 people, half of which suffer from NF-1. Treatment is complex and involves affected bone and periosteum resection, followed by grafting, and both intramedullary and extramedullary fixation.

Case Report: A 11 year old male with CPT due to NF-1, autistic, with mild psychomotor impairment. Medical history revealed a fracture of the right tibia after fall from standing height at 7 months. During the next 6 years the patient has undergone multiple unsuccessful procedures including: cast immobilization, intramedullary fixation, bone grafts, platelet-rich plasma injections, open reduction and plate fixation. Prolonged treatment resulted in a significant bone deficit.
At 7 y/o the patient was admitted to our clinic for the first time. Surgical treatment considering mechanical stability and local bone biology was applied. Affected bone and periosteum were resected, autologous bone and periosteal grafts were used and mechanical stability was achieved with both intramedullary nailing and Illizarov external fixator. Bone union was achieved within 6 months. Patient still had 8 cm lower limb discrepancy.
After 7 months the patient underwent tibial lengthening using hexapod external fixator. Insufficient parental supervision combined with the patient tampering with the apparatus resulted in poor outcomes. Tibia was elongated by only 2 cm. Salvage treatment consisted of arresting the growth of the unaffected lower limb through percutaneous epiphysiodesis.

Conclusions: Effective treatment of CPT requires taking into account both the biological and mechanical aspects of the disease. Parent and patient adherence is key to successful bone elongation. Alternatively, the guided growth techniques can be used in an attempt to reduce the lower limbs discrepancy..

Hidradenoma papilliferum mimicking cervical cancer recurrence

Authors: Aleksandra Kossmann[1], Barbara Pąkowska[1], Aleksandra Szymańska[1]
Affiliation: [1]The Student Scientific Society of Poznan University of Medical Sciences, Department of Gynecological Oncology
Tutor: dr hab. n. med. Marcin Mardas

Background: Hidradenoma papilliferum is a rare, benign, cystic tumor originating from apocrine sweat glands. Most commonly diagnosed in adult women and found in the anogenital region, particularly the vulva, perineum and labia majora. Extragenital occurrences have also been reported in areas such as the eyelids, axilla and perianal region. However, vaginal involvement is exceptionally rare.

Case Report: A 48-year-old woman with a history of cervical cancer FIGO stage IIA2 was referred to the gynaecological oncology department due to a suspected vaginal recurrence.
The patient reported occasional bleeding. Suspected lesion in her vagina was found by follow-up gynaecological examination. Two years ago she underwent hysterectomy with ovarian preservation due to cervical cancer. She had declined from adjuvant radiotherapy and favoured alternative medicine treatment. On physical examination, a polypoid, glandular lesion in the apex of the vagina 3 cm in diameter was present, with a visible vascular pattern. Histopathological examination of vaginal specimens revealed Hidradenoma papilliferum with focal hyperplasia of the paraepidermoid epithelium. A radical tumor resection was performed. The patient was discharged home in good condition.

Conclusions: EIntensive follow-up in cervical cancer is needed to early diagnosis of recurrence. Before radical / palliative treatment biopsy is indicated to confirm diagnosis. The patient had a surgical excision, which is the treatment of choice for Hidradenoma papilliferum. The etiology of the Hidradenoma papilliferum is unknown. Connections between this tumor and the history of cervical cancer have not been described yet. Further research on this topic is worth conducting.

When the Mandible Breaks Silence: A Rare Case of Neglect and Its Consequences

Authors: Olena Marushko[1,2], Olesya Marushko[1,2], Katarzyna Błochowiak[1]
Affiliations: [1]Dental Surgery Research Group, Department of Oral Surgery, Periodontal Diseases and Oral Mucosal Diseases in Poznan University of Medical Sciences, Poland
[2]Poznan University of Medical Sciences, Department of Maxillofacial Surgery, Poland
Tutor: lek. Aleksy Nowak

Background: 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. This case presents a highly unique scenario 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, undergoing further examinations for psychotic disorder and was taking 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. She was prescribed Augmentin and Enterol and referred to Maxillofacial Surgery. Under general anesthesia, the fistula was removed, and a reconstructive plate was placed to stabilize the fracture. Two weeks post-surgery, the wound healed, but marginal mandibular nerve paralysis persisted.

Conclusions: This case underscores the significant consequences of patients delaying timely medical care, as untreated mandibular fractures can lead to severe complications such as 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.

Surgical Orbital Decompression in Graves' Orbitopathy: A Case Report

Authors: Roksana Nowicka[1], Oliwia Kasperska[1], Kacper Nijakowski[2], Aleksy Nowak[3]
Affiliations: [1]The Student Scientific Society of Poznan University of Medical Sciences; [2]Poznan University of Medical Sciences, Department of Conservative Dentistry and Endodontics, Poland; [3]Poznań University of Medical Sciences, Department of Maxillofacial Surgery, Poland
Tutors: lek. dent. Maciej Okła, lek. Marek Jaxa-Kwiatkowski

Background: Thyroid orbitopathy is a rare autoimmune disorder affecting a small subset of patients with Graves' disease (GD, also known as Graves' orbitopathy). Inflammatory involvement of the periorbital tissues leads to ocular symptoms such as proptosis, diplopia, and restricted ocular motility, significantly impairing patients' quality of life. In severe cases, optic nerve damage and vision loss may occur.

Case Report: This study presents the case of a 37-year-old female patient hospitalized for urgent elective surgery due to Graves' orbitopathy progressive since December 2023. The patient also had inadequately controlled hypothyroidism, poorly managed type 1 diabetes with hyperglycemia, glaucoma, gout, dyslipidemia, vitamin D3 deficiency, and nicotine dependence. Initial treatment included lubricating eye drops, followed by four cycles of intravenous steroid therapy for active disease (CAS 5/7). Clinical and MRI studies confirmed significant orbital changes. Due to asymmetric exophthalmos, superior orbital muscle enlargement, and excess retrobulbar adipose tissue, the patient was qualified for right orbital decompression surgery. Surgical access was obtained through the lateral and medial orbital walls, with a bone segment resected from the temporal fossa. Removal of 3.5 cm3 of periorbital fat increased orbital volume, leading to a reduction in exophthalmos. Additionally, the patient was referred for strabismus surgery and eyelid retraction correction, with potential blepharoplasty recommended.

Conclusions: Orbital decompression surgery is sometimes a necessary emergency procedure in advanced thyroid orbitopathy, given the substantial risk of vision loss. Treatment requires an individualized, interdisciplinary approach based on disease severity and comorbid conditions, incorporating pharmacological therapy, radiotherapy, and surgical intervention.

Esophageal Perforation—A Diagnostic Challenge

Authors: Suphicha Sirawattanakul[1], Ine Husby Sandnes[1], Natcha Kruamool[1]
Affiliation: [1]Department of Thoracic Surgery, Wielkopolskie Centrum Pulmonologii i Torakochirurgii, Poznań, Poland
Tutor: lek. Katarzyna Żanowska

Background: Esophageal perforation is a life-threatening condition characterized by a full-thickness esophageal tear, caused by endoscopic interventions, surgery, trauma, foreign body ingestion, or spontaneous rupture (Boerhaave syndrome). Leakage of esophageal contents into surrounding structures can lead to severe complications such as mediastinitis, empyema, and sepsis. However, due to its rarity and nonspecific symptoms, early diagnosis is challenging, increasing the risk of fatal outcomes..

Case Report: We present a case of a 42-year-old male with no comorbidities who visited the emergency department (ED) with epigastric pain, nausea, and vomiting. His symptoms improved with initial symptomatic treatment, and he was discharged the same day. However, persistent symptoms led him to consult his general practitioner two days later, resulting in referral back to the ED.
On admission, a chest radiograph revealed a right-sided pneumothorax and pleural effusion. The patient was admitted to the surgical department, where surgical drainage of the right pleural cavity was performed. A diagnosis of pleural empyema was established, and empiric antibiotic therapy was initiated.
Due to persistent pneumothorax and elevated inflammatory markers, the patient was referred to the pulmonology department for further evaluation.
A contrast-enhanced CT scan revealed an esophageal perforation, later confirmed by endoscopy in the thoracic surgery department. The perforation, approximately 3 cm in length, was located in the distal thoracic esophagus.
Despite a nearly two-week diagnostic delay, emergency surgery was performed, and primary repair of the esophageal defect was successfully completed.

Conclusions: This case highlights the challenges in diagnosing esophageal perforation and underscores the need to consider it in patients with nonspecific symptoms. Due to its variable presentations, it can mimic other common emergencies, delaying treatment. Early recognition and timely intervention are crucial to reducing morbidity and improving outcomes.

Pediatric Case Report

Scientific Committee

prof. dr hab. n. med. i n. o zdr. Anna Mania
dr hab. n. med. Katarzyna Wróblewska-Seniuk
dr n. med. Katarzyna Maćkowiak-Lewandowicz

Coordinator

Kanwara Karnchanakas

Multiple unspecified lesions in the liver, spleen, and kidneys observed during the course of T-cell precursor acute lymphoblastic leukemia (ALL-T)

Authors: Kacper Sochacki[1], Katarzyna Śladecka[1]
Affiliation: [1]Department of Oncology, Hematology and Pediatric Transplantology Poznan University of Medical Sciences, Poznań
Tutor: dr n. med. Katarzyna Adamczewska-Wawrzynowicz

Background: Acute lymphoblastic leukemia can originate from B-cell precursors (B-ALL) or, less commonly, from T-cell precursors (T-ALL). Patients with acute leukemia often face numerous challenges, including complications from their treatment and issues related to weakened immune systems.

Case Report: 3-year-old girl was admitted to the Emergency Department with symptoms including bruising, pale skin for about a week, lack of appetite, and bleeding gums. Laboratory tests indicated a leukocyte count of 290,000, accompanied by reduced platelet and erythrocyte levels. Bone marrow aspiration biopsy confirmed the presence of numerous cells with a phenotype consistent with T-cell acute lymphoblastic leukemia (ALL-T). Treatment was initiated according to the AIEOP BFM 2019 protocol. Given the results of additional tests, along with the patient's steroid resistance during the treatment induction phase, she was classified in the high-risk group. During the course of leukemia treatment, abdominal imaging revealed several disseminated hypoechoic lesions in the liver, spleen, and both kidneys. The imaging results and histopathology were inconclusive, necessitating consideration of fungal lesions, despite negative cultures and abscesses in the differential diagnosis. However, leukemic infiltration could not be completely ruled out. The progression and remission of changes may have resulted from the patient's immunosuppression followed by attempts to reduce it. The lesions changed over time, appearing and disappearing in subsequent imaging examinations. Throughout the treatment, the patient required antifungal therapy in addition to antibiotics.

Conclusions: Patients with leukemia frequently face various complications arising from both the disease and its treatment. Among the most common complications are infections. Fungal infections, which often result from the immunosuppression associated with treatment, can be particularly severe and pose additional challenges during the recovery process. Changes may stem from IRIS syndrome or infections during treatment.

A Case of Pediatric PKD: Diagnosis, Genetic Confirmation, and Treatment Success

Author: Karolina Piwko[1]
Affiliation: [1]Medical University of Warsaw, Clinic of child neurology, paediatrics and rare diseases, UCK WUM
Tutor: lek. Michał Zawadka

Background: Paroxysmal kinesigenic dyskinesia (PKD) is one of the most common forms of paroxysmal dyskinesia. It is characterised by the occurrence of brief episodes of involuntary movements such as dystonic, choreotic or athetotic movements triggered by movement, especially sudden. The condition usually manifests in childhood or adolescence, more common in men. The aetiology of the condition is related to mutations in the PRRT2 gene leading to abnormal neurotransmission, resulting in the onset of disease symptoms.

Case Report: A 12-year-old boy was admitted to the neurology department with episodes of involuntary movements occurring for approximately 1.5 years. Symptoms included dystonia of the face, neck and trunk, and were triggered by sudden movement as well as intense emotions. Seizures lasted up to 10 seconds, occurred up to 6 times a day and were preceded by an aura in the form of a 'cold' sensation in the lower limbs. The boy remained fully conscious, but was unable to speak during the episode. Family history indicated similar symptoms in the patient's grandmother. Laboratory tests, EEG and MRI of the brain found no abnormalities. Based on the clinical picture a suspicion of PKD was made. Genetic analysis revealed the presence of a heterozygous c.649dup variant in the PRRT2 gene, confirming the diagnosis. Carbamazepine (50 mg daily) was instituted, resulting in a rapid therapeutic effect with good treatment tolerance. After the start of therapy, one typical seizure occurred, and after a few days the patient no longer experienced any seizure episodes. At the next follow-up visit, 6 months after hospitalisation, the boy was still asymptomatic, confirming the effectiveness of the therapy.

Conclusions: This case highlights the importance of diagnosis based primarily on accurate history taking and observation (including analysis of video recordings) in children with paroxysmal involuntary movements and the role of genetic testing in confirming the diagnosis of PKD.

Diagnostic problems in a paresthesia: Case study of a 17-year-old female patient

Author: Maciej Napiórkowski[1]
Affiliation: [1]Department of Neurology and Epileptology, Children's Memorial Health Institute, Wydział Medyczny, Collegium Medicum, Cardinal Stefan Wyszyński University in Warsaw
Tutor: lek. Kinga Szczepaniak

Background: Paresthesia is an unpleasant sensation involving numbness and tingling. These symptoms can manifest in various regions of the body and may be attributed to a wide range of underlying factors, including nerve compression, cutaneous injury, systemic disorders, or neurological conditions. The diverse etiologies of paresthesia necessitate comprehensive diagnostic evaluation to identify the underlying cause of the symptoms, thereby facilitating the implementation of targeted and effective treatment for the condition responsible

Case Report: A 17-year-old girl was admitted to the neurology and epileptology department for diagnosis of numbness in the neck and upper and lower extremities. In addition, the patient reported impaired color vision. During the examination, the patient was noted to have increased tendon reflexes, particularly the patellar reflex. Nystagmus was also observed during leftward gaze. Based on the symptoms, multiple sclerosis (MS) was suspected. It was decided to perform an MRI of the head and spinal cord, as well as VEP and SEP testing. No abnormalities were visualized. Vitamin D3 and calcium and magnesium levels were tested next. The patient demonstrated significantly reduced levels of vitamin D3 and borderline low levels of calcium in the blood. Magnesium levels were within normal limits. The diagnostic workup was expanded to include an EMG, which revealed findings characteristic of tetany. It was determined that the current test results provided sufficient evidence to diagnose tetany secondary to calcium deficiency. Consequently, the patient was advised to initiate supplementation with vitamin D3, calcium, and magnesium.

Conclusions: The diagnosis of paresthesia poses a considerable challenge in clinical practice, as it can arise from a broad spectrum of etiologies, ranging from benign to life-threatening conditions. Therefore, it is imperative to accurately ascertain the underlying cause of paresthesia to facilitate eNective diagnosis and management.

Rare case of a child with an insidious congenital disease - Nemaline Myopathy

Author: Marta Sztucka[1]
Affiliation: [1]Students Scientific Association of Clinical Patomorphology, Poznan University of Medical Sciences, Poland
Tutor: dr n. med. Katarzyna Iwanik

Background: Nemaline myopathy (NM) is a rare, genetic muscle disease. It is caused by mutations in multiple genes, particularly NEB and ACTA1, which encode sarcomeric proteins, leading to a diverse clinical presentation. Histopathologically, it is characterised by the presence of nemaline bodies in myocytes, disrupting sarcomere organisation. NM typically presents with infantile hypotonia, delayed motor development, and respiratory failure, being the most common cause of death.

Case Report: A 10-year-old girl was urgently admitted to the Paediatric Nephrology and Hypertension Clinic due to lower leg oedema. The physical examination revealed additional periorbital oedema and abdominal tenderness. During hospitalisation there was no response to diuretic treatment and the child developed nausea with vomiting. On day thirteen a dramatic increase in troponin, B-type natriuretic peptide, and lipase occurred with deterioration in patient's condition. A chest CT was performed, revealing ground glass opacity in the lungs, enlargement of the heart and pleural and pericardial effusions. EKG showed ST depression and blood gas analysis indicated rapid metabolic acidosis. Given the worsening condition and increasing pulmonary oedema, it was decided to place a Sheldon catheter for haemofiltration. During the procedure, a drop in blood pressure unresponsive to catecholamine treatment led to sudden cardiac arrest. The child died on the fourteenth day of hospitalisation. A post-mortem examination revealed passive hyperaemia of organs, accompanied by an image depicting pulmonary oedema. Electron microscope evaluation confirmed that the cause of death was acute heart failure secondary to nemaline myopathy, with a significant effect on the myocardium.

Conclusions: In rare cases NM may present as heart failure, carrying a risk of exacerbation and sudden cardiac death, which emphasises the role of phenotypic variability among the patients. Therefore, multidisciplinary medical care and prompt diagnostic evaluation should be provided for patients with NM.

Clinical Diagnosis and Management of Familial Hypercholesterolemia in Pediatric Siblings: A Case Report Emphasizing Treatment Without Genetic Confirmation

Authors: Natali Murghulia[1], Nikoloz Kajaia[1], Elene Apridonidze[1], Lizi Guliashvili[1], Luka Ksnelashvili[1]
Affiliation: [1]Tbilisi State Medical University, Faculty of Medicine
Tutor: Mariam Oniani, MD

Background: Familial hypercholesterolemia (FH) is a hereditary condition marked by elevated low-density lipoprotein cholesterol (LDL-C) and increased risk of early cardiovascular events. Diagnosis is often based on lipid levels, clinical presentation, and family history, as genetic testing may not be affordable. Early treatment is crucial to mitigate long-term cardiovascular risks.

Case Report: Two Georgian brothers, aged 8 and 10, presented with persistently high total cholesterol (TC: 180 mg/dl) and LDL-C (170 mg/dl) levels over a nine-month period. Family screening revealed elevated lipid levels among parents and several relatives, indicating a pattern compatible with familial hypercholesterolemia. Both boys appeared slim (younger brother's BMI: 17.4, older's: 19.6) and prepubertal on examination, with no noticeable xanthomas or corneal arcus. Before initiating treatment, liver function tests (LFTs) and abdominal ultrasounds were performed to assess baseline liver health. All other causes of secondary hyperlipidemia were excluded. Despite the lack of genetic confirmation due to financial constraints, we decided to start statin therapy based on the strong clinical and familial indicators of FH. Six weeks after initiating statin therapy LDL-C levels dropped to 150 mg/dl and TC levels lowered to 140 mg/dl. Three months into treatment, lipid profiles showed improvement without any side effects of statin therapy, confirming the efficacy of the intervention. Initiating treatment was more valuable in this case than waiting for genetic testing, ensuring the boys received necessary care to manage their elevated cardiovascular risk.

Conclusions: This case highlights the practicality and necessity of using clinical criteria to diagnose familial hypercholesterolemia, especially when genetic testing is not affordable. Utilizing clinical and familial evidence allows for effective early intervention with statins, improving lipid profiles and reducing future cardiovascular risk. This approach aligns with guidelines that support treating based on clinical presentation to protect patient health when genetic diagnostics are inaccessible.

Prolactinoma in a 13-year-old girl: case report

Author: Natasza Leśkow[1]
Affiliation: [1]The Student Scientific Society of Poznan University of Medical Sciences, Poznan, Poland
Tutor: dr hab. n. med. Monika Obara-Moszyńska

Background: Prolactin-secreting tumors account for up to 40% of pituitary adenomas in the general population and occur primarily in women aged 25-34. However, they are scarce in the pediatric population—0.1 per 1,000,000. In children, pituitary adenomas can be more aggressive or treatment-resistant than in adults and may have a genetic background (mutations in AIP, FGF4, PTTG, or MEN1 genes). Prolactinoma is caused by the expansion of lactotroph cells inducing various symptoms – either attributed to hyperprolactinemia or the mass effect. The clinical picture may include galactorrhea, amenorrhea, visual field defects, and headaches.

Case Report: A 13-year-old girl was admitted to the endocrinology department because of 3-month galactorrhea and secondary amenorrhea. The patient reported a weight-gain of 10 kg in the last 6 months. The laboratory results revealed an increased prolactin level (>200 ng/ml, N:5.18 - 26.53). Other hormonal parameters did not indicate clinically significant disturbances. The brain MRI showed a lesion on the left side of the pituitary gland (12x10x11 mm), which, combined with the patient's clinical picture, was suggestive of prolactinoma. Cabergoline treatment (0.5 mg weekly) was implemented, normalizing the prolactin concentration, and resulting in galactorrhea subsidence and menstruation reappearance over the consecutive weeks. Furthermore, follow-up tests revealed a significant reduction in tumor size - noticeable after 4 months and one year of diagnosis (3x3.5 mm). The patient continues cabergoline therapy and is on a follow-up appointment. Genetic tests for MEN1 gene mutations were negative.

Conclusions: Cabergoline treatment of prolactinoma is effective and reflects decreased prolactin levels, alleviation of symptoms, and significant tumor size reduction. This case proves the importance of differential diagnostics of secondary amenorrhea and considers hyperprolactinemia as one of the potential causes. Due to the rare occurrence of prolactinoma in children, further research is needed to refine recommendations—duration, time, and doses—and examine the long-term outcomes of cabergoline treatment.

Congenital disorders of glycosylation - early diagnosis as a key to better treatment

Authors: Sonia Serafin[1], Maciej Napiórkowski[1]
Affiliation: [1]Cardinal Stefan Wyszynski University in Warsaw, Children's Memorial Health Institute
Tutors: lek. Michał Zarzecki, dr n. med. Joanna Bothur-Nowacka

Background: Glycosylation is the process whereby carbohydrate chains are attached to proteins in post translational processing. Inborn glycosylation disorders are a group of metabolic diseases characterized by impaired protein glycosylation. Symptoms are multiorgan from the first months of life. The most common manifestations burden psychomotor development, coagulation, muscle tone and the heart. In the diagnosis, transferrin isoforms should be evaluated first. Treatment is symptomatic and multispecialty.

Case Report: We will present a case of a 22-day-old patient who was admitted to the Neonatology Clinic, due to a suspected metabolic defect. During admission, the following were observed: dysmorphic features and neurological abnormalities. Evaluation of the patient's medical history established the patient's burden of hypertrophic cardiomyopathy. Since birth, the patient presented feeding disorders, trouble gaining weight, hypoglycemic tendencies, loose stools and coagulation disorders. Imaging studies were performed showing cerebellar hypoplasia, CNS focal lesions and the presence of pericardial fluid. On the basis of the abnormalities, a presumption of glycosylation disorders was made, which was later confirmed. The child's condition and prognosis deteriorated due to increasing pericardial fluid. Effective treatment with diuretics was introduced, stabilizing the child's condition and reducing the amount of fluid. Medication doses were reduced under cardiac ECHO guidance. Well-tolerated attempts were made to improve nutrition. The patient was discharged in good general condition with recommendations for follow-up. During subsequent follow-up hospitalizations, the patient's psychomotor development, despite the delay, was progressive.

Conclusions: Good knowledge of the clinical manifestations of the disease allows for a quick diagnosis and the use of specialized tests to confirm it. Protein glycosylation disorder is a rare metabolic disease but one that can be accurately diagnosed. Despite the lack of causal therapy, appropriately selected symptomatic treatment and follow-up in a specialized centre create conditions for improving the patient's condition and improving his quality of life.

When Autism Isn’t Just Autism - Autoimmune Encephalitis Mimicking Neurodevelopmental Regression and the Impact of IVIG Therapy

Author: Weronika Zegardło[1]
Affiliation: [1]Student Scientific Circle at the Department of Pediatrics and Neurology Children's III Department of Pediatrics, Medical University of Lublin
Tutor: dr hab. n. med. Magdalena Chrościńska-Krawczyk

Background: Autoimmune encephalitis (AIE) is a group of inflammatory diseases of the central nervous system in which the immune system attacks neuronal structures, leading to a variety of neurological and psychiatric symptoms. AIE is increasingly recognized in pediatric patients; however, its diagnosis remains challenging, particularly when symptoms overlap with pre-existing neurodevelopmental deficits, as seen in autism spectrum disorder (ASD). Appropriate therapy can help improve patients' psychomotor development. In select cases, it is feasible to resolve symptoms resulting from the autoimmune process, which may have been erroneously interpreted as a consequence of neurodevelopmental disorders.

Case Report: A 9-year-old male patient with ASD and delayed psychomotor development, who at the age of 6, following numerous infections, exhibited sudden neuropsychiatric symptoms, including vocal tics, obsessive-compulsive disorders (OCD), complete speech regression, and impaired social interaction. A comprehensive evaluation led to the diagnosis of AIE, and the patient was treated with intravenous immunoglobulin (IVIG). The eight-cycle therapy (2020-2023) resulted in an improvement in cognitive function, a partial speech recovery, and a reduction in OCD symptoms. In 2024, following a streptococcal infection, the patient experienced another regression, marked by a loss of speech, an increase in vocal tics, and nystagmus. Following the administration of IVIG from December 2024 to March 2025, a complete resolution of nystagmus was observed, along with an improvement in speech, and a reduction in tics. Presently, the patient is able to communicate needs, construct simple sentences, and establish social contact.

Conclusions: This case confirms the role of autoimmune processes in some cases of developmental regression in children. The effectiveness of IVIG therapy in alleviating neuropsychiatric symptoms underscores the need for further research on immunotherapy in similar cases. Moreover, the occurrence of episodic deterioration following infections highlights the imperative for close monitoring for autoimmune processes in children with neurodevelopmental disorders.

GOLDEN SESSION

Scientific Committee

Prof. Karl-Heinz Herzig
Dr hab. Mariusz Kaczmarek, prof. UMP
Dr hab. Magdalena Roszak
Dr hab. n. med. Marcin Mardas

GOLDEN SESSION Participants

Internal Medicine Cardiology & Hypertension	**Seham Mohamed Saif** Polypharmacy and risk of falls in hospitalized older adults
Basic Life Sciences Oncology, Hematology & Radiotherapy	**Marta Kropacz** Targeted Cancer Immunotherapy: Silk Nanospheres as Carriers for Oligonucleotide Activation of cGAS-STING and RIG-I/MAVS Pathways
Neurology, Neurosurgery & Psychiatry	**Antoni Cierniak** Stent-related complications following endovascular treatment of the Internal Carotid Artery aneurysm: relations with arterial tortuosity
Gynecology & Obstetrics	**Maria Namysł** Multivariate Model to Predict Progression-Free Survival Based on Complete Blood Count in Ovarian Cancer Patients

GOLDEN SESSION
Participants

Pharmacy	**Aleksandra Kaługa** Vitamin D status and immunotherapy outcomes in advanced lung cancer patients
Opthalmology, Laryngology & Dentistry	**Oliwier Suski** Comparison between two alternative methods of matching the right color for a prosthetic restoration, human eye compared to technological innovation
Public Health	**Emilia Włoszek** HPV- related cancers awareness among young adults in Poland
Surgery Anaesthesiology, Toxicology & Emergency Medicine	**Jan Stępka** Can perilesional biopsies replace systematic ones? A single-center analysis of two targeted biopsy strategies in the diagnosis of prostate cancer

WINNERS

1st place

MARTA KROPACZ

Targeted Cancer Immunotherapy: Silk Nanospheres as Carriers for Oligonucleotide Activation of cGAS-STING and RIG-I/MAVS Pathways

2nd place

ANTONI CIERNIAK

Stent-related complications following endovascular treatment of the Internal Carotid Artery aneurysm: relations with arterial tortuosity

3rd place

EMILIA WŁOSZEK

HPV-related cancers awareness among young adults in Poland

Thank you for being part of this special jubilee edition of the event!

See you next year at...

26th International Congress of Young Medical Scientists

Poznań

UNIWERSYTET MEDYCZNY IM. KAROLA