



MEDICAL
UNIVERSITY
OF GDAŃSK



BOOK OF ABSTRACTS

31st International Students
Scientific Conference

26th-28th
March

Gdańsk, Poland

ORGANISING COMMITTEE LEADERS

Chairperson of the conference

Eka Grandhe

Vice Chairperson

Anna Jarmola

Secretary of the conference

Patrycja Kijańska

Team

Wiktoria Senkbeil

Scientific Sessions

Anna Angielska,

Aria Zarei

Team

Afiya Parvez

Alicja Grabowska

Dishita Suneja

Hana Mehtab

Janvi Chandalia

Karolina Schulz

Mallika Wagle

Maryam Ishaya

Olga Radzanowska

Oliwia Mutka

Sebastian Kowalik

Shima Maleki

Shreya Namboodiri

Zuzanna Drwięga

Finance

Anna Jarmola

Team

Maja Baranowska (Treasurer Assistant)

Beata Rajszel

Irmina Krause

Pola Karolczak

Weronika Mazur

Zofia Kowalewska

Workshops

Khushi Chhillar

Team

Aarya Kudtarkar

Afiya Parvez Bazidpuri

Daniya Siddiq

Hana Mehtab Abdul Kalam

Ibrahim Siddiqi

Jagannatha Giridhari

Jakub Hopke

Marcelina Więch

Shaima Aziz

Shreya Namboodiri

Yara Mahgoub

Lectures

Swamini Choudhari

Team

Aayisha Raihan Hassansha

Jhanvi Chandalia

Yuthika Iruvanti

Julia Kropidłowska

Logistics

Jakub Cybulski

Stanisław Meissner

Team

Agata Florek

Aarya Kudtarkar

Paweł Ciesielski

Sreya Alakkatt

Promotions

Yochi Okeke

Team

Adannia Mbakigwe

MarioAngelo Ashibuogwu

Janek Płóciennik

Graphics

Jagoda Szczebiot

Outreach

Khushboo Verma

Team

Shreya Namboodiri

Shalina Sheikh

Renata Pekarskaya

Jackie Osio

Technical Support

Aly Adel Aly Ahmed Ibrahim

Team

Kinda Abdallah

Ali Ziad

Elmustafa Hamed

Afeef Butt

Onsite Team

Iqra Baig

Immanuel D'Costa

ISBN 978-83-67147-67-5

Wydawnictwo Gdańskiego Uniwersytetu Medycznego

ul. Dębinki 1, 80-210 Gdańsk

e-mail: redakcja@gumed.edu.pl | wydawnictwa@gumed.edu.pl

tel. +48 58 349 15 37 | + 48 58 349 14 83

PATRONS

Patronat Rektora GUMed
Polskie Towarzystwo Kardiologiczne
PIEBM
Medtube
Societas Medicinae Internarum Polona
Polskie Towarzystwo Anestezjologii i Intensywnej Terapii
Polskie Towarzystwo Alergologiczne
Polskiego Towarzystwa Gastroenterologii
Polskie Towarzystwo Farmakologiczne
UCK
IFMSA-Poland
Polskie Towarzystwo Neurochirurgii
Polskie Towarzystwo Radioterapii Onkologicznej
Radio Gdańsk

SPONSORS

AMBOSS
HILTON GDAŃSK – właściciel hotelu Filip Wójcikiewicz
LEPoLEK
Louis Lanier
MedycynaPraktyczna
Polpharma
PZWL
Servier
Skin Science
Więcej niż LEK
Ziaja

HONORARY PATRONAGE



HONORARY PATRONAGE
RECTOR
MEDICAL UNIVERSITY OF GDAŃSK
Prof. Michał Markuszewski, Pharm.D.



Polish
Institute for
Evidence
Based
Medicine



Klub 30
Polskiego Towarzystwa
Kardiologicznego



sharing
medical
knowledge™



www.pta.med.pl



Polskie Towarzystwo
Gastroenterologii

PATRONAGE



UCK Uniwersyteckie
Centrum Kliniczne



Polskie Towarzystwo Neurochirurgów



**Polskie Towarzystwo
Radioterapii Onkologicznej**



IFMSA-Poland
Oddział Gdańsk

Radio Gdańsk

SPONSORS



skin science®



INDEX

Oncology.	8
Internal Medicine I	15
Biomedical Sciences	24
Surgery	30
Neuroscience and neurosurgery	36
Rare diseases	46
Cardiology.	53
Pharmacy	59
Internal Medicine 2	65
Psychology and psychiatry	70
Pediatrics	76
Gynecology	83
Biotechnology	89
Poster session	93



SINGLE NUCLEOTIDE POLYMORPHISMS AS BIOMARKERS PREDICTING RESPONSE TO NEOADJUVANT CHEMORADIOOTHERAPY IN RECTAL CANCER – SYSTEMATIC REVIEW ID: 657

Katarzyna Połomska, Magdalena Rybicka, Adrianna Jażdżewska, Magdalena Prud, Piotr Spychalski

Department of Surgical Oncology, Transplant Surgery and General Surgery, Medical University of Gdańsk, Gdańsk, Poland

Intercollegiate Faculty of Biotechnology, University of Gdańsk and Medical University of Gdańsk, Gdańsk, Poland

Introduction

Neoadjuvant chemoradiotherapy is standard treatment for locally advanced rectal cancer, but only 15–30% of patients achieve pathological complete response. Single nucleotide polymorphisms (SNPs) represent stable, accessible genetic markers with potential predictive value for treatment response. In the era of personalized medicine, single nucleotide polymorphisms (SNPs) are being extensively explored for their potential to support individualized approaches to the diagnosis, prognosis, and treatment of patients with colorectal cancer.

Aim

This systematic review aims to synthesize current evidence on the association between SNPs and response to nCRT in rectal cancer.

Methods and materials

PubMed and Web of Science databases were searched for relevant English studies. Two reviewers independently screened titles and abstracts using the DistillerSR tool. Full-text articles were assessed for eligibility. Data extraction followed the PRISMA guidelines, and the risk of bias was assessed.

Discussion

Thirty-two studies (4,116 patients) assessed 304 SNPs across 126 genes in 407 analyses. DNA repair genes (XRCC1, XRCC3, ERCC1, ERCC2) and folate metabolism genes (MTHFR, TYMS) were most frequently investigated. Among the analyzed variants, rs25487 (XRCC1) and rs1801133 (MTHFR) were the most frequently reported SNPs showing potential predictive relevance across multiple studies; however, the observed associations varied between cohorts. Other SNPs demonstrated associations in individual studies, although these findings have not yet been consistently replicated. Overall, while no single SNP has emerged as a universally robust predictive marker across independent populations, the results suggest a possible contribution of selected variants, particularly within XRCC1 and MTHFR, to individualized therapeutic outcomes.

Conclusion

Current evidence does not support the clinical use of individual SNPs to predict nCRT response in rectal cancer patients. Although XRCC1 and MTHFR polymorphisms are the most extensively studied, their predictive utility remains inconclusive. Future research should prioritize large, multicenter prospective studies with standardized treatment and outcome definitions, and consider polygenic risk models or integrated multi-omic approaches.

**ONCOLOGY****EARLY-ONSET LUNG ADENOCARCINOMA.
THE IMPORTANCE OF REPRODUCTIVE HEALTH
IN TREATMENT WITH OSIMERTINIB ID: 724****Filip Gajewski, Weronika Pająk, Jakub Kleinrok, Kamil Pająk**

Student Scientific Association at the Department of Pneumonology, Allergology, and Oncology
at the Medical University of Lublin, Lublin, Poland

Introduction

Adenocarcinoma of the lung is a malignant tumour belonging to the group of non-small cell lung cancers. In Poland, it accounts for 40% of primary lung cancers. It is more common in women and young people. Its occurrence is associated with exposure to tobacco smoke, but it also affects people who have never smoked. In adenocarcinoma, especially in young non-smokers, mutations in the EGFR gene are quite common.

Aim

To present a clinical case of lung adenocarcinoma treated with osimertinib, and emphasise the need of fertility counselling during treatment planning.

Methods and materials

A single patient clinical case report.

Discussion

A 29-year-old patient was diagnosed with adenocarcinoma of the right lung with metastases to the skeletal system. Genetic testing of a fine-needle biopsy taken during EBUS revealed a deletion of exon 19 of the EGFR gene. The patient denied exposure to tobacco smoke in his medical history. A treatment regimen was used that included osimertinib in combination with cisplatin and pemetrexed, in accordance with the results of the FLAURA2 clinical trial. Prior to his illness, the patient had been trying to conceive a child. This poses a significant clinical problem, as the use of osimertinib may adversely affect male fertility by causing testicular degradation. In patients planning to have children, gamete preservation in a sperm bank should be considered.

Conclusion

This case highlights the possibility of adenocarcinoma of the lung occurring in very young people without exposure to classic risk factors. Rapid diagnosis is particularly important, allowing for the initiation of treatment that significantly prolongs survival and improves prognosis. At the same time, the case highlights an important but often insufficiently discussed issue, namely fertility in people undergoing cancer treatment. Treatment planning should include not only cancer treatment, but also early reproductive counseling and consideration of fertility preservation.



SECOND CNS TUMOR IN MEDULLOBLASTOMA SURVIVOR: RADIATION-INDUCED OR COINCIDENTAL? CASE-BASED DISCUSSION ID: 761

Hubert Jedynasty

University of Warmia and Mazury, Olsztyn, Poland

Introduction

Modern treatment protocols for pediatric central nervous system (CNS) tumors have significantly extended survival rates but carry risks of late complications, including radiation-induced secondary malignancies. Glioblastoma (GBM) is among the most frequent secondary malignant neoplasms developing within the field of prior irradiation, known for its highly aggressive clinical course.

Aim

To present a case of glioblastoma (WHO grade 4) diagnosed 27 years after medulloblastoma treatment and analyze the correlation between prior radiotherapy and current tumor pathogenesis.

Methods and materials

A 34-year-old male presented with worsening hearing and visual disturbances. His medical history included childhood medulloblastoma treatment in 1998 (resection, chemotherapy, and radiotherapy). Long-term complications involved hearing loss and hypopituitarism. MRI revealed an infiltrative lesion in the right parieto-occipital region. Gross total resection was performed, and histopathology confirmed Glioblastoma, IDH-wildtype, CNS WHO grade 4 (MGMT methylated). The patient was qualified for adjuvant radiochemotherapy with temozolomide.

Discussion

Definitively establishing a radiation-induced etiology (RIG) for this glioma is challenging. Supporting factors include the IDH-wildtype status, characteristic of radiation-induced tumors, and the patient's young age, as sporadic GBM typically affects older populations. Counterarguments are the long 27-year interval since the original treatment and the fact that glioblastoma is the most common malignant primary brain cancer, meaning it could have appeared naturally, regardless of past therapy.

Conclusion

While early detection of high-grade gliomas like GBM may not significantly improve the overall poor prognosis, it allows for a more localized surgical intervention, minimizes the extent of neurological deficits, and enables the timely implementation of supportive or palliative care, optimizing the patient's quality of life. Any new neurological symptom in a survivor of pediatric CNS radiotherapy must be treated as a "red flag" requiring immediate neuroimaging.



ONCOLOGY

SNAIL AND EPITHELIAL–MESENCHYMAL TRANSITION MARKERS IN NON-SMALL CELL LUNG CANCER TISSUES

ID: 835

Martyna Borkowska¹, Monika Migdalska-Sęk², Daria Domańska-Senderowska², Jolanta Kryczka², Aleksandra Zielińska³, Maria Możdżan¹, Laura Biskup¹, Piotr Jędrzejczak¹, Michał Poznański³, Adam Antczak³, Ewa Brzezińska-Lasota²

¹ Student Research Group of Biomedicine and Molecular Biology, Medical University of Łódź, Łódź, Poland

² Department of Biomedicine and Genetics, Medical University of Łódź, Łódź, Poland

³ Clinic of General and Oncological Pulmonology, Medical University of Łódź, Łódź, Poland

Introduction

Epithelial–mesenchymal transition (EMT) contributes to non-small cell lung cancer (NSCLC) progression by reducing epithelial adhesion and promoting a migratory phenotype, typically reflected by decreased E-cadherin with increased vimentin. EMT can involve transcription factors such as Snail (product of Snail1). We hypothesized that NSCLC tumors display an EMT-associated marker shift compared with matched adjacent non-tumor lung tissue. A paired tumor–adjacent design was used to limit inter-individual variability and enable within-patient comparisons.

Aim

To characterize EMT-associated molecular changes in NSCLC by assessing Snail1 mRNA and EMT marker proteins in paired tumor and adjacent non-tumor lung tissue.

Methods and materials

resected NSCLC tumors and matched adjacent non-tumor lung tissue (n=32) were processed for RNA and protein extraction. Snail1 expression was assessed by RT-qPCR, normalized to a housekeeping gene (GAPDH) and quantified using the $\Delta\Delta C_t$ method. EMT marker proteins (E-cadherin, vimentin) were evaluated by Western blotting. Tumor–adjacent comparisons were performed in paired analyses, with subsequent integration of transcriptional and protein readouts.

Discussion

RT-qPCR showed a trend toward lower Snail1 mRNA expression in tumors versus adjacent tissue; the difference was not statistically significant ($p>0.05$). Currently available immunoeexpression results for EMT protein markers (n=5/32) indicate lower levels of Ecadherin and vimentin in tumor samples compared to adjacent tissue.

Conclusion

Interim paired-tissue profiling suggested EMT remodeling in NSCLC at the E-cadherin protein level. Surprisingly, Snail1 transcript levels were not elevated in this cohort, as many factors influence the expression profile. The final interpretation of an EMT marker shift will depend on confirmation of E-cadherin and vimentin levels across the sample set and changes in Snail transcript levels across the cross-matched sample set in relation to tumor stage.



TARGETING CHOLESTEROL METABOLISM IN BREAST CANCER: A REVIEW OF THERAPEUTIC POTENTIAL ID: 873

Agata Kozajda¹, Aleksandra Czumaj²

¹ Student Scientific Circle of the Department of Biochemistry, Medical University of Gdańsk, Gdańsk, Poland

² Department of Pharmaceutical Biochemistry, Medical University of Gdańsk, Gdańsk, Poland

Introduction

Breast cancer (BC) is the most frequently diagnosed cancer among women worldwide and continues to be a major cause of cancer-related mortality. Beyond genetic and hormonal influences, metabolic reprogramming has emerged as a milestone of BC progression. In particular, altered cholesterol metabolism plays a critical role in supporting tumor growth, survival, and therapeutic resistance.

Cancer cells rely on elevated intracellular cholesterol to maintain membrane integrity, promote signaling pathway activation, and facilitate metastasis. Studies have demonstrated that reducing intracellular cholesterol levels can delay tumor progression and decrease metastatic potential.

Aim

This review aims to explore strategies for targeting cholesterol metabolic pathways in BC in order to impair tumor growth and progression. It examines how cholesterol metabolism can be therapeutically manipulated, identifies available inhibitors, and evaluates which agents have already been assessed in clinical settings.

Methods and materials

A systematic literature search was conducted using the PubMed database. Inclusion criteria were publications from 2010 onward, articles written in English, and studies focusing on cholesterol pathways in BC. Following an initial screening of abstracts, 12 articles met the eligibility criteria and were included in the final analysis.

Discussion

Existing evidence supports targeting cholesterol metabolism as a therapeutic strategy in BC, particularly through statins and cholesterol pathway inhibitors. Statins demonstrate both antiproliferative and antimetastatic effects, especially when combined with AKT inhibitors or endocrine therapy. Inhibitors targeting SQLE, ACAT1, and CYP27A1 modulate oxysterol synthesis, lipid storage, and estrogen receptor activity.

Conclusion

Cholesterol metabolism inhibitors hold significant promise in improving outcomes for BC patients by targeting key metabolic and signaling pathways driving tumor progression and resistance. Observational and clinical findings suggest reduced recurrence and mortality in Estrogen-Receptor Positive and Triple Negative subtypes. Future clinical progress will depend on researching subtype-specific applications and optimizing combination treatments. Integrating cholesterol-targeting agents into personalized breast cancer therapy could enhance treatment efficacy and long-term disease control.

ONCOLOGY**CHLAMYDIA-RELATED CONJUNCTIVAL T(14;18) –
NEGATIVE FOLLICULAR LYMPHOMA MASQUERADING AS
CONJUNCTIVITIS – CASE REPORT ID: 876****Krzysztof Galla, Igor Pasteczka, Ewa Zarzycka, Mateusz Ślizień**

Medical University of Gdańsk, Gdańsk, Poland

Introduction

Conjunctival lymphomas are rare and often indolent adnexal tumours, most frequently represented by extranodal marginal zone lymphoma (MALT type). Chronic conjunctivitis, particularly associated with Chlamydia infection, may clinically resemble low-grade lymphoproliferative disorders and delay proper diagnosis. Ch. psittaci is associated with adnexal lymphomas. Follicular lymphoma of the conjunctiva is rare and typically harbors the IGH-BCL2 t(14;18) translocation; t(14;18)-negative cases are unusual.

Discussion

A 48-year-old woman presented with recurrent bilateral conjunctival thickening and irritation. In 2023 she was diagnosed with chlamydial conjunctivitis and treated with multiple topical antibiotics and corticosteroids, followed by a 4-week course of oral doxycycline in 2025, without complete resolution. Due to persistent lesions, a conjunctival biopsy was performed.

Histopathology revealed a B-cell lymphoid proliferation (CD20+) with a follicular growth pattern and Ki-67 index of approximately 15%, consistent with follicular lymphoma grade 1–2. Fluorescence in situ hybridization showed no IGH-BCL2 t(14;18) translocation and no BIRC3-MALT1 rearrangement. MRI demonstrated bilateral conjunctival involvement without orbital masses. Bone marrow trephine biopsy, laboratory tests including LDH, and serum protein electrophoresis were normal. The disease was classified as localized ocular adnexal lymphoma (Ann Arbor stage IE). Staging CT revealed a single enlarged cervical lymph node.

The patient was managed conservatively with ophthalmologic treatment and hematologic observation (“watch and wait”), with no systemic therapy initiated. Excision of the lesion was proposed.

Conclusion

Low-grade ocular adnexal lymphomas may closely mimic chronic infectious conjunctivitis. Lack of response to adequate antimicrobial therapy should prompt early biopsy. Follicular lymphoma of the conjunctiva, especially without the typical t(14;18) translocation, is rare and may be initially misinterpreted as MALT lymphoma. Awareness of this diagnostic difficulty may shorten time to diagnosis and prevent prolonged ineffective treatment.



MODULATION OF PI3K/AKT PATHWAY BY 1-(ISOTHIOCYANATOMETHYL)-4-PHENYLBENZENE REVERSES CISPLATIN-RESISTANCE IN NON-SMALL CELL LUNG CANCER ID: 822

Jolanta Kryczka¹, Daria Domańska-Senderowska¹, Ewa Brzezińska-Lasota¹, Marta Modrzewska², Aleksandra Gołuszek², Konstancja Wiktorska², Adrianna Pietras², Jakub Kryczka³, Joanna Boncela³, Łukasz Janczewski⁴, Beata Kolesińska⁴, Andrzej Frączyk⁵

¹ Department of Biomedicine and Genetics, Chair of Biology and Medical Microbiology, Medical University of Łódź, Łódź, Poland,

² Student Research Group of Biomedicine and Molecular Biology, Medical University of Łódź, Łódź, Poland,

³ Laboratory of Cell Signalling, Institute of Medical Biology, Polish Academy of Sciences, Łódź, Poland

⁴ Institute of Organic Chemistry, Faculty of Chemistry, Łódź University of Technology, Łódź, Poland

⁵ Institute of Applied Computer Science, Łódź University of Technology, Łódź, Poland

Introduction

The predominant therapeutic strategy for treating advanced lung cancer (LC) is cisplatin-based chemotherapy. However, prolonged cisplatin use may lead to cancer cell chemoresistance primarily developed and mediated via PI3K/Akt pathway.

Aim

Verification of 1-(isothiocyanatomethyl)-4-phenylbenzene effectiveness in reversing PI3K/Akt -mediated cisplatin-resistance in Non-Small Cell Lung Cancer (NSCLC) cells.

Methods and materials

NSCLC cell lines A549, NCI-H1581 (and their cisplatin-resistant subvariants: A549CisR and NCI-H1581CisR), and normal lung HBEC3-KT were used. Transcriptomic data of lung cancer and adjacent tissues were obtained from the Gene Expression Omnibus database (GSE102287). Analysis of FOXO3 and AKT1 expression levels was performed via qPCR. Akt/pAkt protein levels were analyzed by Western blot. Analysis of the affinity of 1-(isothiocyanatomethyl)-4-phenylbenzene to PI3K/Akt and apoptotic proteins was performed using AutoDock.

Discussion

Preliminary bioinformatic analysis revealed higher expression levels of PIK3CB, PDK1, TP53, and lower expression levels of PIK3CA, FOXO1/3/4, AKT1, BAD, BCL2, and BNIP2 in tumor tissue vs. controls. qRT-PCR analysis of our NSCLC in vitro models confirmed changes in FOXO3 in the A549 cell line, whereas AKT1 is higher in all analyzed cancer cell lines vs. the control. The pAkt/Akt ratio was higher in cisplatin-sensitive lines than in their resistant variants. In silico modeling demonstrated a high affinity of 1-(isothiocyanatomethyl)-4-phenylbenzene for PI3K/Akt and apoptotic proteins, and prolonged supplementation (over 48h) reduced the expression level of AKT1 and FOXO3 in the A549CisR cell line.

Conclusion

Alterations in the expression of key genes (PIK2CB, PDK1, TP53; FOXO3, FOXO4, BAD) and proteins (Akt, pAkt) in LC confirm the role of the PI3K/Akt pathway in lung carcinogenesis. The high affinity of 1-(isothiocyanatomethyl)-4-phenylbenzene for PI3K/Akt proteins and apoptotic proteins, along with changes in the level of genes (FOXO3, AKT1) and proteins (Akt, pAkt) expression after incubation with the studied compound validate its potential as a modulator of the PI3K/Akt pathway.

INTERNAL MEDICINE I

WHEN SEPSIS REACHES THE SPINE: OSTEODISCITIS AS A COMPLICATION OF STAPHYLOCOCCUS AUREUS SEPSIS ID: 867

Yin Qi Lee¹, Zuzanna Jóźwiak¹, Paulina Gorzelak-Pabiś², Agnieszka Pawlos²

¹ Student Scientific Circle at the Department of Internal Medicine and Clinical Pharmacology, Medical University of Łódź, Łódź, Poland

² Department of Internal Medicine and Clinical Pharmacology, Medical University of Łódź, Łódź, Poland

Introduction

Osteodiscitis, an infection of the intervertebral disc and adjacent vertebrae, is a severe complication of bacteremia, most frequently caused by *S.aureus*. Despite its rarity, the clinical presentation is often nonspecific, which may delay diagnosis and increase the risk of vertebral destruction, abscess formation and neurologic deficit. Hence, recognition through early imaging and targeted antibiotic therapy are crucial.

Aim

We present a case of osteodiscitis following bacteremia, highlighting its diagnostic difficulties and challenges in management.

Methods and materials

A 74-year-old man was admitted due to severe low back pain (LBP), progressive weakness and 8-kg weight loss over the past 2-months. Medical history included heart failure, pacemaker implantation, paroxysmal atrial fibrillation, hypertension, gout, hepatic steatosis, and a recent hospitalization for *S.aureus* sepsis. Physical examination was unremarkable. Lab findings showed anemia and elevated inflammatory markers (CRP-142mg/L). Blood cultures again grew methicillin-sensitive *S.aureus* (MSSA). MRI demonstrated destructive lesions in the lower thoracic vertebrae, with inflammatory infiltrate, consistent with osteodiscitis.

Intravenous cloxacillin was initiated on day-3 but the response was limited (CRP-64mg/L on day-19). Vancomycin was added on day-

21. Surgery was not indicated due to the absence of neurologic deficits. The course was complicated by *Klebsiella pneumoniae* urinary tract infection, treated with meropenem. On day-48, both antibiotics were discontinued due to severe drug-induced agranulocytosis, requiring granulocyte colony-stimulating factor. Due to persistent inflammation, the therapy was transitioned to oritavancin on day-84, with CRP decreasing to 1.2mg/L by discharge on day-114.

Discussion

Osteodiscitis is a rare but severe complication of bacteremia. Diagnosis is often delayed due to nonspecific symptoms, resulting in vertebral destruction albeit in the absence of neurologic deficits. Given its rarity, no universally standardized treatment exists, and therapy must be individualized. Oritavancin represents an effective alternative in cases of adverse events.

Conclusion

Persistent or new-onset LBP, particularly after recent bacteremia, should raise suspicion for osteodiscitis, prompting early imaging and targeted therapy.



AN UNUSUAL CASE OF MASSIVE HEMORRHAGE DUE TO PEPTIC ULCER ID: 859

Aarya Kudtarkar

Medical University of Gdańsk, Gdańsk, Poland

Introduction

Peptic ulcer disease causes ulcers to develop in the mucous lining of the stomach or duodenum due to gastric secretion or pepsin. The Main etiological factors : H.pylori and NSAIDs. PUD can often lead to life-threatening conditions resulting from untreated ulcers, primarily including:- GI bleeding, perforation, gastric outlet obstruction, and penetration into adjacent organs.

Aim

To present a rare case of splenic artery rupture triggered by a stomach ulcer in a patient using chronic NSAIDs, underlining the significance of immediate angiographic intervention when endoscopic therapy fails.

Methods and materials

A 74 year-old female patient came into the Emergency department with hematemesis and hemorrhagic shock after several days of epigastric pain. On arrival, the patient exhibited hypotension with signs of circulatory failure. CT imaging revealed liver cirrhosis and portal hypertension. Endoscopy indicated small, non-bleeding esophageal varices and a stomach filled with blood clot, restricting the assessment. A very large and deep ulcer on the lesser curvature with arterial bleeding from its base was visualised and five hemostatic clips were placed. Endovascular embolisation was recommended. Due to persistent bleeding, the patient was transferred to the ICU for hemodynamic stabilization, with central line and arterial line placement. Angiography demonstrated, perforation of the proximal splenic artery with a rupture. Successful embolization was performed using five detachable penumbra coils.

Discussion

Chronic NSAID use likely contributed to the deep ulcer and subsequent arterial erosion. When major vessels are involved, endoscopic therapy may be inadequate. Ongoing instability should prompt urgent angiographic assessment, as endovascular embolization offers an effective, less invasive alternative to surgery in high-risk cirrhotic patients.

Conclusion

This case illustrates a rare vascular cause of a massive upper GI bleed mimicking a bleeding gastric ulcer. When endoscopic hemostasis is insufficient, a vascular bleed should be suspected. Expedious angiographic diagnosis and endovascular treatment were crucial for definitive management and a positive result.



CASE REPORT: CONGENITAL ADRENAL HYPERPLASIA ID: 831

Natasza Leśków¹, Michalina Grześkowiak¹, Katarzyna Wołyńska², Karolina Biel^{2, 3}

¹ Student Scientific Society, Poznań, Poland, Student Scientific Association of Medical Genetics, Poznań, Poland, Poznań University of Medical Science, Poznań, Poland

² Department of Clinical Genetics of Poznań University of Medical Sciences, Poznań, Poland

³ Diagnostyka GENESIS, Poznań, Poland

Introduction

Congenital adrenal hyperplasia (CAH) is a rare autosomal recessive disorder affecting 1 in 15,000 newborns. The disease is mostly caused by mutation in the CYP21A2 gene coding 21-hydroxylase, resulting in enzyme deficiency and steroidogenesis impairment. There are 2 forms of CAH – classic and nonclassic, which has late onset. Symptoms may vary depending on the form of CAH and on the sex of the patient, which might be challenging in diagnostic process

A 16.5-year-old female patient was admitted to the endocrinology department because of primary amenorrhea. On admission the patient presented acne and hirsutism. Laboratory results showed high DHEA-S, androstenedione, 17-OHP and testosterone values. Additionally, polycystic ovaries were revealed on the ultrasound. Clinical symptoms combined with diagnostic tests were indicative of hyperandrogenism. During hospitalization the patient was consulted psychologically where she reported heightened sexual tension and suicidal thoughts. The psychologist found the patient depressive and of low self-esteem. In the past the patient was hospitalized on psychiatric wards because of suicidal tendencies and borderline personality disorder. What is important to note, the patient did not show any disturbing symptoms or abnormalities in development in her childhood.

As a 25-year-old adult the patient presented at the clinical geneticist's office, where a MLPA test was conducted. It showed 2 mutations in the CYP21A2 gene, which confirmed the diagnosis of nonclassic congenital adrenal hyperplasia.

Conclusion

This case report is of high educational value, highlighting challenges in diagnosing CAH. Depending on the CAH form, it may be asymptomatic or life-threatening, making it crucial to conduct a proper diagnostic process. Furthermore, it raises a question of how the disease affects patients' physical and mental health. Nonclassic CAH may not be detected in neonatal screening and present later in life. Therefore, it is incredibly important to consider genetic causes in patients showing symptoms of hyperandrogenism and irregular menstruation.



ONE MARROW, TWO STORIES: PREMATURE IMMUNOSENESCENCE AND ACUTE MYELOID LEUKEMIA IN A YOUNG DONOR ID: 777

Igor Pasteczka

Medical University of Gdańsk, Gdańsk, Poland

Introduction

Fanconi anemia is an inherited DNA repair deficiency predisposing to bone marrow failure and malignant transformation, including acute myeloid leukemia. We present a paradoxical case of siblings in which AML developed not in the FA-affected transplant recipient, yet in his seemingly healthy bone marrow donor.

Aim

This case report aims to analyze the potential role of immunosenescence induced by environmental factors in AML pathogenesis in a young adult without genetic predisposition, and to propose a biomarker-based framework for identifying at-risk individuals.

Methods and materials

A retrospective single-case analysis was performed. Clinical data, cytogenetic and molecular findings (karyotype, FISH, NGS panels for FA and AML-associated mutations), treatment course and exposure history were reviewed.

Discussion

A 33-year-old male, matched related donor for allo-HSCT for his Fanconi anemia-affected brother in 2012, presented with AML (WBC 36.8 G/L, 30% marrow blasts) in October 2024. Cytogenetics revealed *inv(16)* and CBFB: MYH11 fusion gene. NGS identified KIT (N822K) and NRAS mutations. FA panel did not detect any pathogenic variants. The estimated probability of simultaneous FA in one sibling and de novo AML in the other within this age group is approximately 1 in 200 billion, emphasizing the exceptional nature. Anamnesis revealed exogenous testosterone use, nicotine use and extensive psychoactive substance exposure, which are factors potentially accelerating immunosenescence through replicative stress. Induction DA+GO achieved morphologic remission (MRD 0.045%), followed by two AraC+GO consolidations. Rising MRD (0.048%), cachexia (BMI 15), polyneuropathy and typhlitis impeded further consolidation and allo-HSCT. Oral azacitidine maintenance was started but discontinued due to intolerance. AML relapse (44% blasts) occurred in October 2025.

Conclusion

This case highlights premature immunosenescence as a potential mechanism linking environmental exposures to de novo AML in young adults. Evaluation of telomere length, TEMRA cell proportion, SASP profile and p16INK4a expression may aid risk stratification. Long-term surveillance of related bone marrow donors remains essential.



INTERNAL MEDICINE I

BILATERAL ENDOGENOUS BACTERIAL PANUVEITIS IN A CROHN'S DISEASE PATIENT ON IMMUNOSUPPRESSIVE THERAPY ID: 770

Valerija Zlobina

University of Latvia, Riga, Latvia

Introduction

Endogenous bacterial endophthalmitis is a rare, severe intraocular infection resulting from hematogenous spread of systemic pathogens. Immunosuppressed patients are at higher risk. Bilateral cases are especially rare and often lead to poor visual outcomes.

Aim

This report presents a rare case of bilateral endogenous bacterial panuveitis in a patient with Crohn's disease who is receiving systemic immunosuppressive therapy.

Methods and materials

A retrospective descriptive analysis of clinical, microbiological, imaging, and surgical data was conducted in a 27-year-old male patient treated at a tertiary ophthalmology center.

Discussion

An initial misdiagnosis of immune-mediated uveitis delayed appropriate treatment and allowed the infection to progress. Gram-negative pathogens were subsequently identified, confirming endogenous bacterial endophthalmitis. Despite timely surgical and antimicrobial intervention, both eyes sustained severe structural damage. This case underscores the diagnostic challenges in immunosuppressed patients and the need for early microbiological assessment.

Conclusion

Endogenous bacterial panuveitis should be considered in immunocompromised patients presenting with atypical or steroid-refractory uveitis. Early invasive diagnostics can help prevent irreversible visual loss.



FULMINANT PRESENTATION OF ADVANCED AIDS WITH HIGH-GRADE B-CELL LYMPHOMA AND OPPORTUNISTIC INFECTIONS ID: 884

Geevan Joe Baby

Medical University of Gdańsk, Gdańsk, Poland

Introduction

Advanced HIV infection is often undiagnosed until severe immunosuppression leads to opportunistic infections or AIDS-defining malignancies. Complete CD4⁺ T-cell depletion (0 cells/ μ L) at presentation is rare (<1%) and associated with high morbidity, particularly when lymphoma and high viremia coexist, increasing the risk of complications such as immune reconstitution inflammatory syndrome (IRIS).

Aim

To describe a fulminant case of undiagnosed advanced AIDS with complete CD4⁺ depletion, AIDS-defining high-grade B-cell lymphoma, and multisystem complications, highlighting multidisciplinary management strategies.

Methods and materials

A 67-year-old man presented with severe anemia (hemoglobin 5.9 g/dL), acute gastrointestinal bleeding, and symptoms prompting HIV testing. Laboratory findings included HIV viral load of 107copies/mL and CD4⁺ count of 0 cells/ μ L. Endoscopy confirmed esophageal candidiasis; blood PCR detected cytomegalovirus (CMV) and Epstein-Barr virus (EBV) viremia. Imaging showed generalized lymphadenopathy and hepatic lesions; liver biopsy verified high-grade B cell lymphoma. Management involved deferred antiretroviral therapy (ART) to mitigate IRIS, followed by CHOP/R-CHOP chemotherapy, broad-spectrum antimicrobials, antiviral escalation, anticoagulation, transfusions, and supportive care (vasopressors, high-flow oxygen, pleural drainage, parenteral nutrition).

Discussion

The course was complicated by septic shock (multidrug-resistant *Escherichia coli*), pulmonary embolism, acute pancreatitis, recurrent gastrointestinal bleeding, *Clostridioides difficile* infection, and CMV reactivation—reflecting the perils of profound immunosuppression. Stabilization occurred with pancreatic regression and improved markers, underscoring IRIS precautions per DHHS guidelines.

Conclusion

The course was complicated by septic shock (multidrug-resistant *Escherichia coli*), pulmonary embolism, acute pancreatitis, recurrent gastrointestinal bleeding, *Clostridioides difficile* infection, and CMV reactivation—reflecting the perils of profound immunosuppression. Stabilization occurred with pancreatic regression and improved markers, underscoring IRIS precautions per DHHS guidelines.



A SYSTEMATIC REVIEW: IMPLEMENTING GENE THERAPY AS A TREATMENT FOR YOUNG OBESE ADULTS ID: 618

Kamilė Kairiūkštytė, Gerda Vyšniauskaitė

LSMU, Kaunas, Lithuania

Introduction

Since the American Medical Association classified obesity as a disease, it has become a major public health concern. With obesity rates rising rapidly, especially among young adults, the increasing prevalence of related conditions – particularly cardiovascular diseases and infertility – is alarming. Given the limited long-term success of life-style-based treatments, researchers have turned to genetic approaches for obesity treatment. To date, 74 genes have been identified as influencing obesity through mechanisms involving food intake regulation, energy expenditure, fat metabolism, and adipose tissue accumulation.

Aim

To compare different gene therapy approaches for obesity treatment.

Methods and materials

This study is conducted based on the articles obtained through scientific databases of PubMed, SpringerLink, Oxford Medicine Online, Taylor and Francis and Wiley Online Library. The search has been done using the combination of keywords obesity, gene therapy, FGF21, CRISPR-Cas9, FABP-4, UCP-1, genome-wide association studies.

Discussion

Uncoupling Protein-1 (UCP1) gene therapy, which enhances glucose tolerance and insulin sensitivity by stimulating endogenous UCP1 expression in adipose tissue. This process promotes the formation of brown adipocyte-like cells, known to improve metabolic health via increasing catabolism of excess lipids.

Fatty Acid Binding Protein-4 (FABP4) gene therapy, which reduces lipid accumulation and enhances lipolysis. Studies have shown that FABP4 gene therapy significantly decreases obesity-related inflammation while improving metabolic health and reversing lipid accumulation.

Fibroblast Growth Factor 21 (FGF21) gene therapy, delivered via adeno-associated virus vectors. This method provides a long-term strategy for obesity management by increasing energy expenditure, enhancing insulin sensitivity, and promoting stable metabolic health, enabling individuals to maintain a healthy weight.

Conclusion

All 3 therapies are novel, have not yet been tested in human subjects. They have shown promising results in mice by reducing lipid accumulation and activating brown fat tissue to accelerate the breakdown of excess lipids, increasing energy expenditure. These make gene therapy targeting the before-mentioned genes a promising approach to treating obesity.



EFFECTIVE NON-TRANSPLANT TREATMENT OF MULTIPLE MYELOMA: A CASE REPORT OF 20-YEAR-LONG SURVIVAL ID: 700

Magdalena Rodzaj, Martyna Rodzaj

Jagiellonian University Collegium Medicum, Kraków, Poland

Introduction

Multiple myeloma (MM) is the 2nd most common malignancy of the lymphoid system which resulted in over 1300 deaths in Poland in 2022 alone. It can be characterised by an uncontrolled growth of plasma cells which produce monoclonal immunoglobulins and cytokines responsible for symptoms of disease. Despite the fact that it is achievable for some MM patients to experience remission, prognosis remains poor for the vast majority - 5 years survival rate is 61.1%.

Aim

The aim was to analyse this patient's clinical management in the context of emerging MM treatment strategies to understand the mechanisms underlying long-term survival.

Methods and materials

A 59-year-old female was diagnosed with IgG lambda multiple myeloma in clinical advancement IIIA in 2005. She underwent 9 lines of myeloma treatment without a bone marrow transplant, ultimately reached CR, surviving 20 years, and counting. Despite unfavorable cytogenetics, additional sickness burden and numerous complications such as thrombophlebitis, osteonecrosis of the jaw, *Clostridioides Difficile* colitis, she greatly surpassed the median survival rate which makes her a fascinating case to analyse and to learn from.

Discussion

Modern treatments such as immunotherapy and targeted therapies played a key role in achieving remission. In 2005, at diagnosis, clinical management options were severely limited. The patient's long-term survival is likely attributable to a sequential combination therapy incorporating novel drugs developed over the last two decades — such as immunomodulatory drugs (pomalidomide), monoclonal (belantamab) and bispecific antibodies (teclistamab). By leveraging diverse mechanisms of action, this multidimensional approach resulted in complete remission.

Conclusion

It seems that sequential therapy with novel agents is by far the most effective treatment option for MM patients due to greater efficacy and lower toxicity which translates into prolonged survival despite disease-related or patient-related factors.

**INTERNAL MEDICINE I****ID: 676 OPHELIA SYNDROME: A PARANEOPLASTIC LIMBIC ENCEPHALITIS ASSOCIATED WITH CLASSICAL HODGKIN LYMPHOMA – CASE REPORT****Ritu Amit Chhabria, Abhishek Singla, Michał Kurlapski, Jan Maciej Zaucha**

Department of Hematology and Transplantology, University Clinical Centre, Medical University of Gdańsk, Gdańsk, Poland

Introduction

Ophelia syndrome is an exceptionally rare paraneoplastic neurological syndrome associated with classical Hodgkin lymphoma (cHL), characterised by limbic encephalitis-like neuropsychiatric symptoms. It is typically linked to anti-metabotropic glutamate receptor 5 (mGluR5) antibodies, though many cases are seronegative. Neurological involvement in cHL is uncommon, and direct CNS infiltration is exceedingly rare (~0.02%), highlighting the importance of recognising paraneoplastic syndromes.

Aim

To report and characterise a rare presentation of Ophelia syndrome in a patient with classical Hodgkin lymphoma and discuss its clinical implications.

Methods and materials

A 19-year-old male presented in November 2024 with two generalised tonic-clonic seizures; past history included childhood growth hormone deficiency. Neurological examination revealed spastic paraparesis, bladder and bowel dysfunction, and cognitive impairment. Brain MRI showed a right temporal lobe lesion with intraslesional haemorrhage. Stereotactic biopsy demonstrated dense intravascular and perivascular inflammatory infiltrates without neoplastic cells. CSF analysis revealed intrathecal IgG synthesis with oligoclonal bands, supporting an immune-mediated paraneoplastic process. An extensive neuronal autoantibody panel in serum and CSF was negative; anti-mGluR5 antibodies were not assessed. Nerve conduction studies were normal. Enlarged cervical lymph nodes were biopsied, confirming cHL, nodular sclerosis subtype, stage IIA.

Discussion

The combination of limbic seizures, cauda equina-related autonomic dysfunction, CNS inflammation on biopsy, intrathecal IgG synthesis, and absence of radiological CNS infiltration suggested Ophelia syndrome. The patient received ABVD chemotherapy starting December 2024, with rapid neurological improvement after the first cycle; bladder and bowel dysfunction persisted. Vinblastine dose reduction was required due to agranulocytosis and transient neuropathy. Interim and end-of-treatment PET/CT showed sustained complete metabolic response. At follow-up in November 2025, the patient remained in complete remission; Persistent autonomic dysfunction was attributed to irreversible cauda equina injury.

Conclusion

Ophelia syndrome should be considered in cHL patients with unexplained limbic encephalitis-like symptoms, even with negative neuronal antibody testing. Prompt lymphoma-directed therapy may lead to significant neurological improvement.



EPITHELIUM IS NOT THE MAIN DRIVER OF INTESTINAL MALFUNCTION IN NRF-2 KNOCKOUT MICE ID: 755

Zuzanna Tomaszewska, Aleksandra Piechota-Polańczyk

Department of Cell Cultures and Genomic Analysis, Medical University of Łódź, Łódź, Poland

Introduction

Gastrointestinal function depends on tightly coordinated interactions among diverse cell types and signaling pathways. NRF2 activity within distinct gut cell populations, particularly the intestinal epithelium, is critical for regulating cellular stress responses and maintaining intestinal homeostasis. In our previous studies, we demonstrated that loss of NRF2 transcriptional activity (NRF2 tKO) induces pronounced microscopic alterations in the colon without compromising overall physiological function in mice, we also found some cell-specific changes in the colon mostly related to oestrogen receptors localization.

Aim

Therefore, in this study we wanted to verify if epithelial knockout of NRF2 is the main driver of colon malfunction in female mice.

Methods and materials

In the study we subjected 12-week-old NRF2 tKO female mice and NRF2-Epithelium knockout (NRF2-EpiKO, LoxP/Villin-Cre) female mice with proper controls (C57Bl6, LoxP/LoxP and Villin-Cre) to tests assessing colon functionality (whole gastrointestinal transit (WGT), bead expulsion and defecation), and histological analyses.

Discussion

The results showed that NRF2 tKO females have significantly reduced bead expulsion time compared to controls ($p < 0.02$), without changes in WGT or defecation. Interestingly, we did not notice any significant changes in gut function in NRF2-EpiKO mice. Microscopic scoring and histological examination showed increased number of goblet cells in NRF2tKO mice in small and large intestine comparing to the control. Of note, we noticed alterations in histology independent of cell-selective deletion of NRF2a but rather associated with Cre-recombinase expression. Tissue sample of Vill-Cre mice showed excessive inflammatory cells number and depletion of crypts and increase number of goblet cells.

Conclusion

In conclusion, inactivity of NRF2 transcriptional activity in the whole body influence intestinal function and morphology. Loss of NRF2 in the intestinal epithelium alone is not sufficient to induce abnormalities in gut function and morphology.

**BIOMEDICAL SCIENCES****THE ROLE OF VITAMIN D IN MELANOMA IMMUNOTHERAPY
– ASSESSMENT OF CD8+ CYTOTOXIC T LYMPHOCYTES
ACTIVATION ID: 764****Katarzyna Pakulska, Tomasz Ślebioda, Michał Żmijewski, Anna Piotrowska**

Department of Histology, Faculty of Medicine, Medical University of Gdańsk, Gdańsk, Poland

Introduction

Melanoma, despite representing only 1% of skin cancers, is responsible for 80% of the deaths in this location. Introduction of immune checkpoint inhibitors (ICIs) was a breakthrough that significantly increased patients' survival in comparison to previous types of treatment (such as surgical excision, chemotherapy, or early immunotherapy). However, 40-60% of them still do not respond to treatment or develop resistance within 2 years, even in combination with other treatment methods. CD8+ cytotoxic T lymphocytes, a component of the melanoma microenvironment, are considered to play a crucial role in its immunotherapy.

Aim

Based on our previous work demonstrating the anti-melanoma effects of vitamin D, this study evaluates its influence on PD-1 expression in CD8+ T cells and associated biological characteristics.

Methods and materials

Firstly, cytotoxic lymphocytes were isolated from buffy coats of healthy donors and subsequently treated with vitamin D ($1,25(\text{OH})_2\text{D}_3$) or with supernatant from A375 melanoma cell culture, in the presence or absence of $1,25(\text{OH})_2\text{D}_3$. This model reflects cellular interaction in the melanoma lesion.

Discussion

Cytometric analysis of CD8+ T cells revealed that $1,25(\text{OH})_2\text{D}_3$ significantly reduces the expression of PD-1, programmed cell death receptor 1, one of the ICIs' targets. Moreover, $1,25(\text{OH})_2\text{D}_3$ modulated activation and differentiation of CD8+ T cells towards both effector and memory cells.

Conclusion

These preliminary results suggest a potential clinical role of the active form of vitamin D as an adjuvant in immunotherapeutic melanoma treatment. Further in-depth studies will focus on vitamin D's impact on effector properties of CD8+ T cells and will be extended to other melanoma cell lines, representing different stages of the disease.



ANTIBACTERIAL ACTIVITY OF PLASMA-ACTIVATED WATER AGAINST MULTIDRUG-RESISTANT KLEBSIELLA PNEUMONIAE ID: 794

Milica Đaković, Vuk Obradović

University of Belgrade - Faculty of Medicine, Belgrade, Serbia

Introduction

Antimicrobial resistance is a major global health threat, underscoring the need for alternative strategies beyond conventional antibiotics. Plasma-activated water (PAW), generated by exposure to cold atmospheric plasma, contains reactive oxygen and nitrogen species with recognised antibacterial properties.

Aim

To evaluate the antibacterial efficacy of PAW generated by an originally developed atmospheric-pressure plasma jet and to assess its influence on the antibiotic susceptibility of a multidrug-resistant *Klebsiella pneumoniae* strain.

Methods and materials

We generated PAW by treating deionised water under two conditions: 150 mL for 20 minutes (PAW1) and 15 mL for 10 minutes (PAW2), using an atmospheric-pressure plasma jet we originally developed. We exposed a multidrug-resistant *K. pneumoniae* strain (ATCC BAA-1705) to PAW for 15 and 60 minutes. We assessed bacterial viability using colony-forming unit assays. To characterise PAW, we measured concentrations of hydrogen peroxide, nitrate, and nitrite. We evaluated the effect of repeated PAW2 exposure on bacterial susceptibility to ceftazidime and imipenem by determining minimum inhibitory concentrations across four consecutive bacterial generations.

Discussion

PAW2 contained significantly higher concentrations of reactive oxygen and nitrogen species compared to PAW1. Exposure to PAW1 for 60 minutes resulted in a modest reduction in bacterial viability ($1.11 \pm 0.09 \log_{10}$), while shorter exposure had no effect. In contrast, PAW2 demonstrated a pronounced bactericidal effect, achieving a $6.93 \pm 0.18 \log_{10}$ reduction after 60 minutes ($p < 0.001$). Repeated PAW2 exposure did not result in consistent changes in susceptibility to ceftazidime but led to a twofold reduction in the minimum inhibitory concentration of imipenem after the fourth treatment.

Conclusion

PAW showed strong antibacterial activity against multidrug-resistant *K. pneumoniae*, associated with treatment duration and reactive species concentration, and demonstrated potential to enhance susceptibility to selected antibiotics.



THE ULK1–LC3 PATHWAY REGULATION BY VITAMIN D IN SQUAMOUS CELL CARCINOMA AND MELANOMA CELLS

ID: 796

**Hubert Sikorski², Joanna Nowak¹, Joanna Nowak¹, Paweł Domżański¹,
Michał A. Zmijewski¹, Anna Piotrowska¹**

¹ Department of Histology, Faculty of Medicine, Medical University of Gdańsk, Gdańsk, Poland

² Scientific Circle, Department of Histology, Faculty of Medicine, Medical University of Gdańsk, Gdańsk, Poland

Introduction

The active form of vitamin D (1,25(OH)₂D₃) induces autophagy in various cancer models, primarily through modulation of the mTOR axis, context dependently influenced by AMPK or PI3K/AKT. The specific mechanisms linking early initiation signals (ULK1 activation) to autophagosome maturation (LC3 conversion) remain poorly defined in skin cancers.

Aim

We aimed to dissect the ULK1–LC3 axis in skin cancer, clarifying how vitamin D orchestrates discrete steps of autophagy and distinguishing the contributions of the VDR and PDIA3 receptors.

Methods and materials

Experiments were conducted in skin cancer cell lines: A375 melanoma and A431 squamous cell carcinoma (WT, VDR-knockout, PDIA3-knockout), with HaCaT keratinocytes as a non-tumorigenic control. Cells were treated with 1,25(OH)₂D₃ and samples were collected at 4 and 24 hours, including untreated controls. Analyses included qPCR, Western blot, and flow cytometry.

Discussion

In SCC cells, qPCR revealed higher basal LC3A/B expression in WT compared to ΔVDR and ΔPDIA3 cells, indicating a role for both receptors in maintaining efficient autophagic progression, while elevated basal ULK1 expression in ΔPDIA3 cells suggests compensatory activation of autophagy initiation.

At the protein level, vitamin D increased LC3B in WT and ΔVDR cells but not in ΔPDIA3 cells, and significant p62 accumulation occurred only in WT, indicating coordinated autophagic responses dependent on PDIA3. In A375 melanoma cells, vitamin D enhanced ULK1 mRNA and phosphorylated ULK1 (Ser555), with concomitant increases in LC3B and moderate p62 accumulation, reflecting modulation of autophagosome formation and autophagic progression.

Conclusion

These findings suggest that 1,25(OH)₂D₃ modulates multiple stages of autophagy in skin cancer cells, including autophagosome formation and adaptor protein regulation. The effects appear to depend on receptor context and cell type, highlighting differential contributions of PDIA3 and VDR. The results indicate relationships between autophagy stages and receptor-mediated regulation, but further studies may clarify molecular mechanisms connecting autophagy initiation with autophagosome maturation.



LONG-TERM STATIN USE DOES NOT INDUCE TYPE 2 DIABETES BUT IMPROVES INSULIN SENSITIVITY ID: 815

Joanna Osika¹, Emilia Czabrowska¹, Przemysław Kowiański^{1 2}, Grażyna Lietzau¹

¹ Medical University of Gdańsk, Gdańsk, Poland

² Pomeranian University of Słupsk, Słupsk, Poland

Introduction

The use of 3-HMG-CoA reductase inhibitors (statins), widely prescribed for dyslipidemia, has been linked in some studies to an increased risk of type 2 diabetes mellitus (T2DM), impaired glycemic control, and worsened diabetic nephropathy. Conversely, other studies report up to a 30% reduced diabetes risk with statin use. This inconsistency warrants further investigation.

Aim

This study aimed to assess whether long-term statin administration induces T2DM and promotes its progression.

Methods and materials

Four-month-old male C57BL/6J mice (n=48) were fed a standard (SD) or high-cholesterol (HCD) diet for 5 months, then gavaged daily with simvastatin (SMV, 5 mg/kg) or vehicle (VEH, 0.9% NaCl) for 20 weeks. Mice were randomly assigned to four groups: SD_{VEH}, SD_{SMV}, HCD_{VEH}, and HCD_{SMV}. To assess whether SMV induces/exacerbates obesity, body weight was monitored. The effects of SMV on glycemia, insulin secretion, and insulin sensitivity were evaluated via fasting glucose and insulin (glucometer and ELISA, respectively), the Insulin Tolerance Test, and HOMA index. To test whether SMV affects T2DM progression, glycemic and insulin parameters were compared between between HCD_{VEH} and HCD_{SMV} groups.

Discussion

Glucose and insulin levels in SD_{SMV} mice did not differ significantly from SD_{VEH}. Insulin sensitivity was comparable between the groups, and HOMA-IR in SD_{SMV} mice (1.47±0.49) indicated mild insulin resistance. Since similar values were observed in SD_{VEH}, this effect is likely age-related rather than SMV-induced. HCD_{VEH} mice showed hypercholesterolemia (100.4±44.06 mg/dL), hyperglycemia (8.1±0.93 mmol/L), hyperinsulinemia (0.72±0.38 µU/mL), reduced insulin sensitivity (p=0.01 vs. SD_{VEH}), and elevated HOMA-IR (4.2±1.89). Glucose and insulin levels did not differ significantly between HCD_{VEH} and HCD_{SMV}. However, HCD_{SMV} mice showed a significantly lower HOMA-IR (2.7±0.62, p=0.02).

Conclusion

These results indicate that chronic simvastatin administration under experimental conditions does not induce T2DM or accelerate its progression but improves insulin sensitivity.

**BIOMEDICAL SCIENCES**

ANTI-INFLAMMATORY-ANALGESIC EFFECTS OF C.SATIVA EXTRACTSON INFLAMMATORY PAIN: MODULATION OF INFLAMMATORY CYTOKINES AND CANNABINOID RECEPTORS ID: 858

Julia Gierszewska

Uniwersytet Medyczny im. Karola Marcinkowskiego w Poznaniu, Poznań, Poland

Introduction

Low-THC Cannabis sativa preparations and cannabidiol (CBD) are increasingly explored as potential alternatives to non-steroidal anti-inflammatory drugs (NSAIDs) for inflammatory pain. However, their efficacy and molecular mechanisms in acute inflammation remain unclear.

Aim

This study evaluated the anti-inflammatory and analgesic effects of two low-narcotic Cannabis sativa extracts (Tygra and Dora) and pure CBD in comparison with acetylsalicylic acid (ASA) in a carrageenan-induced rat paw inflammation model.

Methods and materials

Fifty male Wistar rats were randomly assigned to five groups (n=10): vehicle control, ASA (200 mg/kg), CBD (20 mg/kg), Extract B (Tygra, 20 mg/kg), and Extract D (Dora, 20 mg/kg). Treatments were administered intragastrically 30 minutes after carrageenan injection. Paw edema was assessed by plethysmometry at 0, 1, 3, 6, and 10 hours. mRNA expression of inflammatory mediators (COX-1, COX-2, TNF α , NF κ B) and cannabinoid receptors (CB1, CB2) in paw tissue was quantified using qPCR.

Discussion

ASA significantly reduced paw edema and NF κ B expression during the peak inflammatory phase, confirming its anti-inflammatory efficacy. In contrast, CBD and both Cannabis sativa extracts failed to reduce edema and were associated with sustained or increased paw swelling, particularly at later time points. Extract D significantly upregulated CB1 and CB2 expression, while Extract B markedly increased TNF α expression. Correlation analyses revealed distinct relationships between paw volume and inflammatory or cannabinoid-related gene expression across treatment groups.

Conclusion

Unlike ASA, orally administered CBD and low-THC Cannabis sativa extracts did not exert anti-edematous effects in acute carrageenan-induced inflammation and may prolong or exacerbate the inflammatory response. These findings indicate extract composition-dependent modulation of inflammatory pathways and highlight the complexity of cannabinoid pharmacodynamics in acute inflammatory conditions.



DOES THE ROBOT OUTPERFORM LAPAROSCOPY? A META-ANALYSIS OF PYELOPLASTY OUTCOMES IN INFANTS AND TODDLERS ID: 832

Maciej Szyduczyński¹, Johannes Korneliussen², Adrianna Jażdżewska², Daria Sosińska¹, Ewelina Wojciechowska¹, Stefan Anzelewicz¹, Andrzej Gołębiewski¹

¹ Medical University of Gdańsk, Department of Surgery and Urology for Children and Adolescents, Gdańsk, Poland

² Medical University of Gdańsk, Gdańsk, Poland

Introduction

Ureteropelvic junction obstruction (UPJO) is a common congenital anomaly requiring surgical intervention. While laparoscopic pyeloplasty (LP) and robot-assisted laparoscopic pyeloplasty (RALP) are established minimally invasive techniques, their comparative outcomes in patients under 3 years remain insufficiently defined. This study evaluates the safety and efficacy of RALP versus LP in infants and children under 3 years of age or with a body mass below 15 kg.

Aim

To evaluate the safety and efficacy of RALP versus LP in infants and children under 3 years of age or with a body mass below 15 kg.

Methods and materials

A systematic search of PubMed, Web of Science, and Embase was conducted through May 2025. Five retrospective cohort studies comprising 272 patients met the inclusion criteria (age <3 years or weight <15 kg). Meta-analysis was performed using random-effects models to compare perioperative and functional outcomes.

Discussion

The meta-analysis revealed that hospital stay was significantly shorter in the RALP group compared to LP (mean difference = -1.69 days; 95% CI: -2.71 to -0.67; $p < 0.001$). No statistically significant differences were observed between the two approaches regarding operative time, complication rates, or overall success rates. Both methods demonstrated high safety profiles in this specific pediatric population.

Conclusion

RALP is a safe and effective alternative to LP for infants and toddlers under 15 kg, offering a significant reduction in hospital stay (mean difference = -1.69 days). Both techniques demonstrate comparable operative times, complication rates, and success profiles. These findings suggest that RALP effectively overcomes the technical challenges of small working spaces, facilitating faster recovery. While the robotic approach provides clear advantages in hospitalization, larger prospective studies are warranted to further validate these clinical benefits and evaluate long-term cost-effectiveness.

SURGERY**MISLEADING MACROSCOPIC APPEARANCE OF CENTRAL NECK LYMPH NODES DURING THYROID CANCER SURGERY ID: 829****Goda Kaupytė, Gintarė Šiaudikytė, Kristijonas Jasaitis**

Lithuanian University of Health Sciences, Kaunas, Lithuania

Introduction

Intraoperative assessment of lymph nodes often influences the extent of surgery in patients with thyroid cancer. Enlarged or visually abnormal lymph nodes are commonly interpreted as metastatic. However, macroscopic appearance alone may be unreliable. We present a case in which central neck lymph nodes appeared suspicious during surgery, while histological examination showed no metastatic involvement.

Aim

To highlight the limitations of macroscopic lymph node assessment during thyroid cancer surgery.

Methods and materials

A 57-year-old patient underwent left hemithyroidectomy for papillary thyroid carcinoma. During the procedure, several level VI lymph nodes appeared enlarged and had an unusual dark pigmentation. Based on their macroscopic appearance, metastatic involvement was strongly suspected, and extension of the procedure to formal central neck dissection was considered. To guide intraoperative decision-making, the suspicious lymph nodes were sent for frozen-section analysis. The examination revealed no evidence of malignancy. In the absence of other high-risk features, additional lymph node dissection was not performed. Final histopathological examination confirmed papillary thyroid carcinoma confined to the thyroid gland, while the removed lymph nodes showed reactive changes without metastatic disease. The postoperative course was uncomplicated.

Discussion

This case illustrates the limitations of relying solely on visual assessment of lymph nodes during oncologic surgery. Lymph node enlargement or pigmentation may result from benign reactive changes, hemorrhage, or anthracotic deposition and does not necessarily indicate metastatic spread. Overinterpretation of macroscopic findings may lead to unnecessary extension of surgery, exposing patients to avoidable risks such as recurrent laryngeal nerve injury and hypoparathyroidism. In selected cases, intraoperative frozen-section examination can support more balanced surgical decision-making.

Conclusion

Macroscopic appearance of lymph nodes may be misleading during thyroid cancer surgery. Histopathological confirmation remains essential before extending the extent of lymphadenectomy. Selective use of frozen-section analysis may help prevent overtreatment and reduce surgical morbidity.



LATE-ONSET TYPE I ENDOLEAK AND MASSIVE ANEURYSMAL EXPANSION ID: 771

Hubert Jedynasty

University of Warmia and Mazury, Olsztyn, Poland

Introduction

Endovascular aneurysm repair (EVAR) is a popular, minimally invasive treatment for abdominal aortic aneurysms. However, its long-term success is sometimes disrupted by endoleaks. Among these, Type I endoleaks are particularly important as they involve a failure of the proximal or distal seal, exposing the aneurysm sac to direct systemic pressure.

Aim

This report aims to present a case of massive aneurysm growth caused by a Type I endoleak and to emphasize the importance of lifelong medical monitoring for these patients.

Methods and materials

An 81-year-old female with a history of hypertension and coronary artery disease presented to the hospital with acute, severe abdominal pain (8/10). Her surgical history included an aorto-biiliac stent-graft placement in 2017 for an 8 cm abdominal aortic aneurysms and a secondary repair in 2019 for an inferior mesenteric artery leak. Diagnostic evaluation was performed using computed tomography imaging upon admission. The CT scan revealed a significant expansion of the abdominal aortic aneurysms to 15 cm, secondary to an active Type I endoleak. The patient underwent emergency laparotomy to reinforce the aneurysm neck. Postoperatively, she required a transfusion of two units of packed red blood cells due to pre-existing anemia.

Discussion

Unlike Type II leaks, which may remain stable, Type I endoleaks require urgent intervention due to the high risk of rupture. While Type II endoleaks are the most prevalent, they typically only require close imaging surveillance. In contrast, although Type I endoleaks account for only up to 20% of all early and late endoleaks, they represent an important complication, as they are responsible for the majority of mortality during secondary post-EVAR interventions related to rupture.

Conclusion

Lifelong monitoring via CT angiography or duplex ultrasound is crucial for post-EVAR patients. Early detection and surgical correction of Type I endoleaks are essential to ensure patients' health and safety.

SURGERY**TEVAR WITH BEBACK NEEDLE IN SITU FENESTRATION: MINIMALLY INVASIVE ALTERNATIVE FOR PENETRATING AORTIC ARCH ULCERS ID: 708****Oliwia Dolińska¹, Joanna Halman², Łukasz Znaniński²**¹ Medical University of Gdańsk, Gdańsk, Poland² Department of Vascular Surgery, University Clinical Centre, Gdańsk, Poland**Introduction**

Penetrating atherosclerotic ulcer (PAU) of the aortic arch is a rare but potentially life-threatening condition, which may be complicated by pseudoaneurysm formation. TEVAR remains a standard of care, but proximity of PAU to the Left Subclavian Artery (LSA) origi may require either a surgical reconstruction of arch branches (eg. carotid-subclavian bypass) or a use of custom-made prosthesis. There is a necessity of minimal invasive solution for urgent cases as there is no access to custom made stent-grafts in that setting.

Aim

To demonstrate that TEVAR with in situ fenestration using the BeBack needle can serve as an effective alternative not only to custom-made stent-grafts in urgent PAU cases, but also to carotid–subclavian bypass.

Methods and materials

A 77-year-old male presented with interscapular pain. He was hemodynamically stable, with a history of hypertension, dyslipidemia, and active smoking. Computed tomography angiography revealed a thoracic aortic PAU complicated by a 60 mm pseudoaneurysm on the lesser curvature of the aortic arch. The patient was admitted for endovascular repair (TEVAR). The procedure included in situ fenestration of the left subclavian artery using the BeBack needle, followed by covered stenting of the fenestration. Final angiography confirmed normal patency of the aorta and supra-aortic branches with no endoleaks. The peri- and postoperative courses were uneventful.

Discussion

In situ fenestration allows immediate treatment of PAU-related pseudoaneurysms when waiting for a custom-made stent-graft would delay therapy. This approach preserves left subclavian artery patency, may reduce the need for carotid–subclavian bypass, avoids perioperative complications, and provides a safe and effective alternative in urgent scenarios. Technical feasibility and availability make it particularly suitable for urgent interventions.

Conclusion

In situ fenestration using the BeBack needle is an effective alternative to custom-made stent-grafts and carotid–subclavian bypass for urgent aortic arch PAU, enabling timely intervention and favorable outcomes.



SILENT SINUSITIS MANIFESTED BY SEIZURES: A CASE REPORT ON BRAIN ABSCESS CAUSED BY CHRONIC PANSINUSITIS ID: 678

Julia Bernaciak¹, Monika Wiczuk-Wiczewska¹, Agnieszka Bugaj², Joanna Jackowska²

¹ The Student Scientific Society of Poznań University of Medical Sciences, Student Research Group – Otolaryngology, Poznań University of Medical Sciences, Poznań, Poland

² Department of Otolaryngology and Laryngological Oncology, Poznań University of Medical Sciences, Poznań, Poland,

Introduction

Sinusitis is defined as inflammation of paranasal sinuses. Various types of sinusitis can be distinguished: acute, chronic, or recurrent. The most common symptoms of sinusitis include nasal congestion, facial pain, and hyposmia. The condition is typically caused by viruses, only 2% of infections have bacterial etiology. Sinusitis becomes invasive in only 4% of hospitalized patients. Complications of invasive sinusitis include brain abscess, cavernous sinus thrombosis, and epidural empyema.

Discussion

We present an infrequent case of a 59-year-old male patient with no prior medical history who was admitted to the Emergency Department following four epileptic seizures. Initially, neurological conditions were suspected. The patient reported a dull frontal headache, which had been present for a week, and chronic untreated nasal obstruction. Urgent magnetic resonance imaging demonstrated a left frontal brain abscess, while computed tomography revealed inflammation of the paranasal sinuses. Initially, fungal infection was suspected as hyperdense homogenous secretion was visible in the sinuses. The patient underwent functional endoscopic sinus surgery, which is a standard approach for complicated sinusitis. Tissue samples from drained material were sent for histopathological and microbiological examination. Microbiological cultures identified *Streptococcus intermedius*, while histology confirmed chronic inflammation of sinuses without fungal elements. It is an uncommon result, as the usual causative organisms of bacterial sinusitis are *H. influenza* and *S. pneumoniae*. Subsequently, the patient underwent left frontal craniotomy with abscess drainage due to persistent presence of the condition, even though Ceftriaxone treatment had been implemented. Following the procedure, the patient was discharged in satisfactory condition.

Conclusion

Chronic sinusitis is a benign condition which can easily develop life-threatening complications when neglected. This case highlights the importance of taking possible sinonasal infections into consideration when diagnosing new-onset seizures. Appropriate imaging techniques, surgical procedures, implementation of targeted antibiotics and, most importantly, early recognition of chronic sinus inflammation may prevent severe neurological consequences.

SURGERY**SEXUAL FUNCTION AFTER LASER THERAPY FOR PENILE CANCER: A SYSTEMATIC REVIEW ID: 637****Pouya Ariamanesh¹, Mateusz Czajkowski², Marcin Matuszewski²**¹ Medical University of Gdańsk, Gdańsk, Poland² Department of Urology, Medical University of Gdańsk, Gdańsk, Poland**Introduction**

Penile cancer is rare but rising in incidence. Any optimal treatment must balance oncologic control with preservation of sexual and urinary function. Objectives: To evaluate sexual function, patient satisfaction, and oncologic outcomes after carbon dioxide (CO₂), neodymium-doped yttrium aluminum garnet (Nd:YAG), and thulium-doped yttrium aluminum garnet (Tm:YAG) laser therapies for penile cancer.

Aim

In this systematic review, we evaluated sexual function, patient satisfaction, and oncological outcomes after CO₂, Nd:YAG, and Tm:YAG laser therapies for penile cancer.

Methods and materials

A systematic review was conducted in accordance with PRISMA 2020. We searched PubMed, Embase, Scopus, Google Scholar, ScienceDirect, ClinicalTrials.gov, and conference proceedings from January 2000 to 5 February 2025 for observational studies reporting sexual function after laser therapy. Risk of bias was assessed with the Newcastle–Ottawa Scale (NOS) and certainty of evidence with Grading of Recommendations Assessment, Development, and Evaluation (GRADE).

Discussion

Eleven studies comprising 593 patients were included, mostly carcinoma in situ or T1. Local recurrence occurred in 6–19% of patients with Tis/T1 and 17–42% in T2. Across laser types, 59–72% of patients retained erectile function, 50–100% reported sexual satisfaction, and 80–100% reported satisfaction with the cosmetic outcomes, with some degree of variation. Reports on libido and orgasm were heterogeneous and generally unvalidated. General patient satisfaction was high but often assessed using non-validated instruments.

Conclusion

Laser therapy is a reasonable penile-sparing option for Tis/T1 disease, but mandates strict surveillance. Data are insufficient to support its use for T2 tumors. Laser therapy generally preserves sexual function, but heterogeneous and non-standardized reporting limits firm conclusions. Prospective studies with standardized patient-reported outcome measures are needed.



EYE TO EYE WITH A DIAGNOSTIC PITFALL: ATYPICAL DURAL ARTERIOVENOUS FISTULA MIMICKING CAROTID CAVERNOUS FISTULA ID: 868

Julia Stelmach¹, Patrycja Jaworska¹, Jakub Rychlik¹, Michał Krakowiak²

¹ Polish Student's Scientific Circle for Neurosurgery, Gdańsk, Poland

² Department of Neurosurgery, Gdańsk, Poland

Introduction

PCranial dural arteriovenous fistulas (dAVFs) are rare vascular anomalies characterized by abnormal connections between dural arteries and venous sinuses or cortical veins. Their clinical manifestations depend primarily on venous drainage patterns. Although carotid cavernous fistulas (CCFs) are classically associated with ocular symptoms such as chemosis, proptosis, and elevated intraocular pressure, similar presentations caused by dAVFs are uncommon and may lead to misdiagnosis.

Aim

To present a case of a cranial dAVF mimicking a carotid cavernous fistula and to highlight the importance of accurate differential diagnosis in patients presenting with ocular symptoms suggestive of CCF.

Methods and materials

We report the case of an 83-year-old male with a 4-month history of progressive left-sided exophthalmos, lacrimation, and conjunctival redness. Initial imaging suggested a carotid cavernous fistula. However, detailed digital subtraction angiography (DSA) was performed to further evaluate the vascular lesion and determine the exact angioarchitecture and venous drainage pattern.

Discussion

Angiographic studies revealed multiple dural arteriovenous fistulas draining into the left sigmoid sinus with retrograde cortical venous reflux, classified as Cognard IIb and Borden II. The patient underwent endovascular embolization using Onyx 18, which resulted in complete occlusion of the fistulas. The postoperative course was uneventful, and the patient was discharged in good clinical condition without neurological deficits.

Conclusion

This case underscores the necessity of including dAVFs in the differential diagnosis of patients presenting with ocular symptoms typically attributed to CCFs. Failure to recognize a dAVF with retrograde cortical venous drainage may delay treatment and increase the risk of hemorrhage or neurological deterioration. Comprehensive angiographic evaluation and early endovascular intervention are crucial for achieving favorable clinical outcomes.

NEUROSCIENCE AND NEUROSURGERY**CLASH OF THE TUMORS: A COLLISION TUMOR LEADING TO DIENTEPHALIC SYNDROME ID: 864****Daniya Siddiq, Paulina Skrzypkowska**

Medical University of Gdańsk, Gdańsk, Poland

Introduction

Collision tumors of the central nervous system are rare pathologies defined by the coexistence of two histologically distinct neoplasms in close proximity without histological infiltration. Sellar and anterior cranial fossa tumors usually present with visual or endocrine symptoms. However, tumor-related edema may produce cognitive, behavioral, and seizure manifestations resembling an encephalitic syndrome.

Discussion

A 72-year-old man was admitted for elective surgical management of anterior cranial fossa and sellar region tumors identified on magnetic resonance imaging (MRI) during evaluation of progressive visual impairment and behavioral changes. Neurological examination revealed frontal lobe executive dysfunction and bitemporal visual impairment. Craniotomy with resection of both tumors was performed. The immediate postoperative neurological status was stable. However, postoperative imaging identified a hematoma in the resection bed, and the patient experienced an epileptic seizure. Anti-epileptic and anti-edema therapies were initiated, resulting in clinical improvement, and he was subsequently discharged.

Days later, the patient returned with progressive neurological deterioration. Examination revealed features of frontal lobe syndrome, including executive dysfunction, impaired orientation, motor stereotypies, and left-sided neglect. This was accompanied by symptoms of corticotrophic insufficiency, including fainting, dizziness, nausea, orthostatic hypotension, and pallor. Persistent mild hyponatremia was observed, supported by features of diencephalic dysfunction such as hyperphagia, circadian rhythm disturbance, dysphoria, and hypopathy. Anemia and leukocytosis were present, but low CRP and procalcitonin excluded an infectious etiology.

The constellation of frontal and diencephalic features was consistent with a postoperative diencephalic syndrome. Anti-edema, anti-epileptic, and endocrinological treatments were resumed, resulting in gradual clinical stabilization, although residual cognitive and behavioral deficits persisted.

Conclusion

This case highlights how collision tumors with extensive peritumoral edema and fronto-limbic involvement may mimic infectious or autoimmune diencephalic syndromes, thereby emphasizing the importance of early recognition and multidisciplinary management to prevent misdiagnosis and treatment delay.



NIDUS SIZE AND LOCATION PREDICT MULTIPLE-STAGE EMBOLIZATIONS IN BRAIN ARTERIOVENOUS MALFORMATIONS ID: 813

Gabriela A. Brożek¹, Roger M. Krzyżewski², Sandra A. Pilawska², Tadeusz J. Popiela³

¹ Students' Scientific Group at the Department of Neurosurgery and Neurotraumatology, Jagiellonian University Medical College, Kraków, Poland

² Department of Neurosurgery and Neurotraumatology, Jagiellonian University Medical College, Kraków, Poland

³ Department of Radiology, Jagiellonian University Medical College, Kraków, Poland

Introduction

Endovascular embolization, which seems to relatively often require a multiple-stage approach, can be an effective standalone treatment modality for some patients with brain arteriovenous malformations (bAVMs).

Aim

To establish anatomical factors associated with the need for a multiple-stage embolization in bAVMs.

Methods and materials

117 consecutive patients undergoing bAVM embolization with intention to treat were included into the study. Baseline clinical data were collected retrospectively. Anatomical factors including nidus size and location, origin of the feeding arteries, pattern of venous drainage, draining vein stenosis or ectasia, as well as presence of coexisting aneurysms were determined based on baseline imaging. Univariate and multivariate logistic regression analyses were performed to identify the predictors of staged embolization.

Discussion

Fifty patients (42.73%) required more than one embolization procedure to achieve complete obliteration. In this group, arterial feeders significantly more often originated from the posterior cerebral artery (53.19% vs. 32.31%; $p=0.027$) and the anterior choroidal artery (10.64% vs. 0.00%; $p=0.007$). bAVMs located in the parietal lobe were more likely to require multiple-stage treatment (18.37% vs. 6.25%; $p=0.046$), similarly to those with a higher number of pedicles (3.14 ± 1.52 vs. 2.40 ± 1.15 ; $p=0.002$) and higher Spetzler-Martin grade (2.81 ± 1.12 vs. 2.23 ± 1.23 ; $p=0.012$). In multivariate logistic regression analysis, bAVM location in the temporal lobe remained an independent predictor of multiple-stage embolization (OR 8.34; 95% CI 1.34–51.84; $p=0.023$), while nidus size <3 cm predicted a lower likelihood of requiring staged procedures (OR 0.06; 95% CI 0.02–0.23; $p<0.001$).

Conclusion

Multiple-stage embolization was determined by anatomical factors such as nidus size and location. These findings support an individualized, anatomy-driven approach to treatment planning in bAVM patients.



NEUROSCIENCE AND NEUROSURGERY

INFLAMMATORY CROSSROADS IN THE PATHOPHYSIOLOGY OF MIGRAINE - THE ROLE OF CGRP, IL-5 AND IL-6 ID: 802

Olga Kokorniak^{1,2}, Anna Futyma^{1,2}, Aleksandra Szczech^{1,2}, Oliwia Szymanowicz^{2,3}, Wojciech Kozubski⁴, Jolanta Dorszewska²

¹ Student Scientific Society, Neurobiological Student Scientific Group, Poznań university of Medical Sciences, Poznań, Poland

² Laboratory of Neurobiology, Department of Neurology, Poznań University of Medical Sciences, Poznań, Poland

³ Doctoral School of Poznań University of Medical Sciences, Poznań, Poland

⁴ Chair and Department of Neurology, Poznań University of Medical Sciences, Poznań, Poland

Introduction

Migraine is a headache condition affecting approximately 12% of the population and markedly reducing the quality of life. The attacks of pain are sometimes preceded by neurological symptoms referred to as aura. Accordingly, the main types of the disease are migraine without aura (MO) and with aura (MA). The leading hypothesis behind the migraine pathogenesis involves the trigeminovascular system and neuroinflammation - due to the release of e.g. calcitonin gene-related peptide (CGRP), and in turn IL-5 and IL-6.

Aim

The objective of this study was to analyse CGRP, IL-5 and IL-6 serum concentrations in MO and MA patients, and the control group, as well as to assess the relation between CGRP and IL-5 and IL-6 levels.

Methods and materials

The study included 15 MO patients, 15 MA patients and 30 controls. The age at the time of the first migraine attack and the disease duration were also taken into account. ELISA was used to measure the levels of CGRP, IL-5 and IL-6.

Discussion

The MO group exhibited significantly higher (median: 288.10pg/ml; IQR: 83.56-489.45pg/ml; $p=0.04489$) levels of IL-5 compared to the control group (median: 69.79pg/ml; IQR: 12.97-179.43pg/ml). Moreover, there was a strong relationship between CGRP and IL-5 ($r=0.7286$, $p=0.0021$), as well as a moderate one between CGRP and IL-6 ($r=0.6929$, $p=0.0042$) in the MO group. Significantly higher IL-5 (median: 501.60pg/ml; IQR: 291.85-767.00pg/ml; $p=0.00169$) and IL-6 (median: 205.00pg/ml; IQR: 100.12-333.43pg/ml; $p=0.00434$) concentrations were observed in patients who suffered from migraine since the age of >19 and for >10 years.

Conclusion

The results highlight the importance of CGRP in the inflammatory pathways in migraine, especially in MO patients. Thus, the further development of CGRP-targeted medications (like gepants and monoclonal antibodies) and research regarding factors that modulate the secretion of CGRP might be promising in the migraine management.



EFFECTS OF LONG-TERM USE OF 3-HYDROXY-3-METHYLGLUTARYL-COENZYME A REDUCTASE INHIBITORS (STATINS) ON LEARNING AND MEMORY

ID: 752

Emilia Czabrowska¹, Joanna Osika¹, Oliwia Kmiec¹, Hanna Smukowska¹, Iga Łobińska¹, Aniela Rękawek¹, Przemysław Kowiański^{1 2}, Grażyna Lietzau¹

¹ Division of Anatomy and Neurobiology, Faculty of Medicine, Medical University of Gdańsk, Gdańsk, Poland

² Institute of Health Sciences, Pomeranian University in Słupsk, Słupsk, Poland

Introduction

There is mixed evidence regarding the long-term effects of statins, which are widely used in the treatment of dyslipidemia, on cognitive functions. Some studies have linked statin use to neurocognitive disorders, while others reported beneficial effects on cognition in certain patients, as well as statin-induced memory improvement in animal models. Therefore, further research on this topic is warranted.

Aim

The aim of the present study was to determine the effect of long-term statin administration on memory and learning in hypercholesterolemic and non-hypercholesterolemic subjects.

Methods and materials

Four-month-old male C57BL/6J mice were randomly assigned to one of two groups: SD (standard diet-fed, n=20) and HCD (high-cholesterol diet-fed, n=28). After 5 months, the mice were gavaged with either statin or vehicle for 12 weeks: SDVEH (0.9% NaCl), SDSMV (5 mg/kg of simvastatin (SMV)), HCDVEH (0.9% NaCl) and HCDSMV (5 mg/kg). Cognitive functions: spatial learning and reference memory; recognition short- and long-term memory (STM, LTM) were evaluated using the Barnes Maze and the Novel Object Recognition Test.

Discussion

An increased latency to find the escape hole was observed in HCDVEH mice compared with SDVEH mice on days 1, 2 and 3 ($p=0.004$, $p<0.0001$, and $p=0.0001$, respectively) indicating HCD-induced impairment of spatial learning. In contrast, reduced escape latency in HCDSMV compared with HCDVEH mice ($p=0.002$, $p=0.0006$, and $p=0.01$, respectively) suggested simvastatin-induced improvement in spatial learning. Short-term reference memory testing revealed an increased latency to find "blinded" escape hole in HCDVEH group versus SDVEH group ($p=0.006$). Simvastatin did not affect this parameter. No differences were detected between the groups in the long-term reference memory. No HCD- or SMV-induced effects were observed on recognition STM and LTM.

Conclusion

In conclusion, 12-week simvastatin administration reversed high-cholesterol diet-induced spatial learning deficits. However, it had no effect on reference memory and on short- and long-term recognition memory in the applied hypercholesterolemic model.

**NEUROSCIENCE AND NEUROSURGERY****WEB EMBOLIZATION OF A PCOA ANEURYSM SUSTAINING RETROGRADE POSTERIOR-TO-ANTERIOR FLOW: A CASE REPORT ID: 733****Samuel Chybowski**

Student Scientific Circle at the Department of Neurosurgery and Oncology of the Central Nervous System, Medical University of Łódź, Łódź, Poland

Introduction

Internal carotid artery (ICA) occlusion triggers significant hemodynamic remodeling within the Circle of Willis. In such cases, the posterior communicating artery (PCoA) often undergoes massive compensatory changes, becoming a primary collateral bridge where flow direction is reversed to sustain the anterior circulation.

Aim

To evaluate the management of a “flow-related” PCoA aneurysm arising from a rare hemodynamic configuration where the entire middle cerebral artery (MCA) territory is dependent on retrograde posterior-to-anterior perfusion.

Methods and materials

An 87-year-old male presented with subarachnoid hemorrhage. Angiography revealed a right-sided ICA occlusion. Crucially, the right MCA territory was entirely supplied by retrograde flow from the posterior circulation via the PCoA. This vessel harbored a 3.8 mm aneurysm, likely formed due to chronic hemodynamic shear stress. Management involved external ventricular drainage and subsequent intrasaccular embolization using the Woven EndoBridge (WEB) system (3x2mm).

Discussion

True PCoA aneurysms in the setting of ICA occlusion are classic “flow-related” lesions. In this patient, the PCoA was the sole arterial conduit for the right hemisphere. Maintaining its patency was paramount; any intraluminal obstruction would result in a massive hemispheric stroke. The WEB system served as an optimal flow disruptor within the aneurysm sac, excluding the lesion while ensuring the vital retrograde flow remained unobstructed—avoiding the risks of dual antiplatelet therapy in a geriatric patient.

Conclusion

Retrograde posterior-to-anterior flow via the PCoA creates a high-stakes environment for aneurysm treatment. Intrasaccular embolization with the WEB system is an effective strategy that secures the aneurysm while preserving the critical collateral perfusion essential for hemispheric survival.



WHITE AND GRAY MATTER VOLUMES IN AUTISM SPECTRUM DISORDER: AN AUTOMATED MRI ANALYSIS ID: 732

**Filip Gajewski¹, Agata Dusza¹, Aleksandra Osińska¹, Aleksandra Kozińska¹,
Magdalena Woźniak², Andrzej Materniak², Karolina Kawa³**

¹ Student Scientific Society At the Department of Pediatric Radiology, Medical University of Lublin, Lublin, Poland

² Department of Pediatric Radiology at University Children's Hospital of Lublin, Lublin, Poland

³ AGH University of Kraków

Introduction

Autism spectrum disorder (ASD) is a neurodevelopmental condition affecting approximately 1 in 36 children. Neuroimaging studies have increasingly identified structural anomalies in the brains of children with ASD, and volumetric MRI provides a reliable method to evaluate these variations.

Aim

The goal of the study is to determine whether children with Autism Spectrum Disorder (ASD) show measurable differences in white and gray matter volumes compared with typically developing controls, using volumetric MRI.

Methods and materials

The study included fifty children with clinically confirmed Autism Spectrum Disorder aged 3 to 17 years, including 34 males and 16 females. Children with known genetic syndromes, significant perinatal complications, chronic neurological diseases, or other medical conditions unrelated to ASD were excluded. VolBrain was used to analyse data from MRI. Volumetric measurements of normal and abnormal appearing white and gray matter, intracranial and cerebral volumes. Analysis of covariance (ANCOVA) with linear regression models, adjusting for age and sex was used for group comparisons. To assess whether age-related volumetric changes differed between groups, group-by-age interaction terms were included in the regression analyses.

Discussion

No statistically significant volumetric differences in normal and abnormal appearing white and gray matter, intracranial and cerebral volumes were identified between the ASD and control groups. All measured and compared values had $p > 0.05$.

Conclusion

After adjusting for age and sex, normal and abnormal appearing white and gray matter, intracranial and cerebral volumes did not differ significantly between ASD and control groups. Weak, non-significant trend in total cerebellar volume suggest that limbic volumetry alone is not a reliable standalone marker for ASD in small samples.

NEUROSCIENCE AND NEUROSURGERY

UNMASKING ANTI-LGI1 ENCEPHALITIS IN A PATIENT WITH INITIAL FEATURES OF TRANSIENT GLOBAL AMNESIA ID: 721

Antoni Bolek, Karol Okoński

Medical University of Łódź, Łódź, Poland

Introduction

Anti-LGI1 encephalitis represents the most common cause of autoimmune limbic encephalitis in patients over 50 years of age. Clinically, the condition presents with a triad of subacute confusion, memory deficits, and seizures. A distinctive feature of this etiology is the presence of faciobrachial dystonic seizures (FBDS) - brief, frequent involuntary movements affecting the arm and face. Crucially, FBDS often manifest as a prodromal symptom, preceding cognitive decline.

Aim

We report a case of autoimmune limbic encephalitis associated with LGI1 antibodies.

Methods and materials

A clinical case study analyzed the patient's medical history, pharmacological treatment, and laboratory findings.

Discussion

A 72-year-old male was initially hospitalized for transient confusion. During this stay, his symptoms fully regressed, and an EEG revealed only non-specific generalized slowing without epileptiform activity. Given the clinical improvement and no findings in neuroimaging, he was discharged with a diagnosis of Transient Global Amnesia. However, he was readmitted after 2 weeks due to rapid cognitive deterioration, fever, visual hallucinations, and daily "switching off" episodes. Upon the second admission, the patient presented with involuntary dystonic jerking of the face and arm, with no other focal deficits. The diagnostic workup was complex; MRI was normal, and CSF analysis - including the BioFire panel and autoimmune antibodies - was negative. Due to the rapid cognitive decline, a 14-3-3 protein test was performed to rule out Creutzfeldt-Jakob disease. Despite a confounding positive *Borrelia* result, the identification of FBDS prompted serum testing, which confirmed Anti-LGI1 Limbic Encephalitis. Initial therapy with corticosteroids proved ineffective, but the patient showed clinical improvement following Intravenous Immunoglobulin (IVIG).

Conclusion

This case demonstrates that LGI1 encephalitis can initially mimic Transient Global Amnesia, making the recognition of typical Faciobrachial Dystonic Seizures (FBDS) a critical diagnostic feature. It also shows that LGI1 antibodies are sometimes exclusively detectable in serum, making CSF analysis insufficient for exclusion.



DETERMINANTS OF SURGICAL STRATEGY IN HIGH-GRADE GLIOMA: BIOPSY VS RESECTION ID: 715

Gabriela A. Brożek¹, Roger M. Krzyżewski²

¹ Students' Scientific Group at Department of Neurosurgery and Neurotraumatology, Jagiellonian University Medical College, Kraków, Poland

² Department of Neurosurgery and Neurotraumatology, Jagiellonian University Medical College, Kraków, Poland

Introduction

Surgical management plays a key role in diagnosis and treatment of high-grade gliomas (HGG). While maximal safe resection is associated with improved outcomes, a substantial proportion of patients undergo diagnostic biopsies due to clinical condition or anticipated surgical risk. Factors influencing the choice of surgical strategy remain incompletely characterized.

Aim

To assess factors influencing the decision on the extent of surgery in HGG patients.

Methods and materials

250 consecutive patients undergoing surgery for HGG between 2020-2024 were included into the study. Data on demographics, clinical presentation, treatment course, radiological and histopathological characteristics, as well as the surgical strategy were analysed retrospectively.

Discussion

Sixty-four (25.6%) patients underwent tumor biopsy, while 186 (74.4%) were found eligible for resection. The median age was significantly higher in the biopsy group (64.0 vs. 59.0; $p=0.003$). Biopsy was more often the primary surgical approach (96.9% vs. 76.9%; $p<0.001$). Tumor location in the left hemisphere (62.5% vs. 46.2%; $p=0.025$), midline (28.1% vs. 0.5%; $p<0.001$), thalamus (11.3% vs. 0.5%; $p<0.001$) and brainstem (8.1% vs. 0.0%; $p<0.001$) was observed more commonly in the biopsy group. Preoperative consciousness alteration (25.8% vs. 12.5%; $p=0.017$) and behavioural changes (12.9% vs. 4.6%; $p=0.040$) were more prevalent among patients undergoing biopsy. Histopathological diagnoses did not differ significantly between groups.

Conclusion

Older patients undergoing primary surgery, presenting with impaired consciousness or behavioural changes and midline or left hemisphere tumors extending into deep brain regions were more often qualified for biopsies.

NEUROSCIENCE AND NEUROSURGERY

MRI TRACT VOLUMETRY AS A PREDICTOR OF MOTOR OUTCOME IN PARKINSON'S DISEASE ID: 667

Anna Dębska

Department of Neurosurgery and Neurooncology, Medical University of Łódź, Barlicki University Hospital, Łódź, Poland

Introduction

Predicting motor improvement after subthalamic nucleus deep brain stimulation (STNDBS) in Parkinson's disease (PD) remains challenging. MRI-based tractography allows quantitative assessment of white matter tracts, which may serve as imaging biomarkers.

Aim

Our goal was to determine whether volumetric and fiber length measures of specific white matter tracts predict clinically meaningful motor improvement ($\geq 50\%$ MDS-UPDRS reduction) following STN-DBS.

Methods and materials

In 33 PD patients treated with unilateral STN-DBS, diffusion MRI tractography reconstructed five major associative tracts bilaterally: ILF, IFOF, UF, SFOF, and SLF. Tract volume and mean fiber length were extracted. Logistic regression with backward elimination identified independent predictors of motor improvement. Model performance was assessed with ROC analysis, 5-fold stratified cross-validation, and calibration metrics.

Discussion

Greater volume of the left SFOF (OR = 4.86, $p = 0.005$) and longer fiber length of the right SFOF (OR = 1.90, $p = 0.045$) were independently associated with achieving $\geq 50\%$ MDS-UPDRS improvement. Patients with both favorable measures had a substantially higher probability of meaningful motor benefit. The final model demonstrated good discrimination (AUC = 0.78, 95% CI: 0.57–0.95) and acceptable calibration (Brier score 0.12), with stable performance on cross-validation.

Conclusion

Preoperative SFOF tract volume and fiber length predict motor improvement after STNDBS in PD. These findings support the potential of tractography-based structural metrics as imaging biomarkers to enhance patient selection and optimize surgical planning.



A RARE COMBINED 8P23.3P23.1 DELETION AND 12P13.33P13.31 DUPLICATION: REPORT OF TWO CASES ID: 688

Devanshi Sharma, Karolina Śledzińska

Medical University of Gdańsk, Gdańsk, Poland

Introduction

We describe two unrelated male patients presenting with the same rare combination of chromosomal abnormalities, consisting of a microdeletion in chromosome 8p23.3p23.1 and a microduplication in chromosome 12p13.33p13.31. To date, only a single case with this specific genomic rearrangement has been reported, highlighting the exceptional rarity of this finding.

Conclusion

This report demonstrates that identical chromosomal aberrations may result in different clinical phenotypes. Variable expressivity may be influenced by modifier genes, epigenetic mechanisms, somatic mosaicism, and perinatal factors such as prematurity, hypoxia, and infection. Management remains supportive, emphasizing the need for individualized multidisciplinary care.

RARE DISEASES

OVERLAPPING CLINICAL FEATURES: DIAGNOSTIC JOURNEY IN A CHILD WITH HYPOTONIA, MULTI-SYSTEM INVOLVEMENT AND DYSMORPHIC FEATURES ID: 687

Iqra Baig¹, Karolina Śledzińska²

¹ Student Scientific Circle Rare Diseases, Faculty of Medicine, Medical University of Gdańsk, Gdańsk, Poland

² Department of Pediatrics, Hematology and Oncology, Medical University of Gdańsk, Gdańsk, Poland

Introduction

Myotonic Dystrophy Type 1 (DM1) is the most common form of myotonic dystrophy in childhood, with an estimated prevalence of 1 to 5 per 10,000 individuals. It is caused by a CTG repeat expansion in the DMPK gene on chromosome 19q13.3. DM1 shows marked phenotypic variability and multi-system involvement, affecting the neuromuscular, cardiac, gastrointestinal, endocrine, and central nervous systems. The diagnostic pathway in rare diseases such as DM1 is often complex, particularly in pediatric patients with nonspecific or atypical clinical features.

Discussion

We describe a 12-year old boy admitted due to generalised hypotonia and progressive muscular weakness. He was born at term by cesarean section for breech presentation, with normal Apgar score and birth weight. Developmental history revealed delayed motor milestones, delayed speech development with nasal dysarthria, and attends an integrated school. Physical examination showed distinct dysmorphic facial features, generalised hypotonia, genu valgum, flat feet, and a recent lower limb fracture. Additional symptoms included persistent fatigue, intermittent snoring with brief apneic episodes, and episodic fecal incontinence. Brain MRI, EEG, echocardiography (mild mitral valve regurgitation), ophthalmologic, and ENT evaluations were unremarkable. The patient underwent multiple specialist consultations and surgical procedures. Initial genetic workup focused on connective tissue disorders due to a reported family history of Marfan syndrome. Connective tissue gene panel and array CGH were normal. Whole exome sequencing identified only an SLTM c.162+1G>T variant of uncertain significance. Following multidisciplinary re-evaluation, targeted molecular testing revealed more than 2000 CTG repeats in the DMPK gene, confirming Myotonic Dystrophy Type 1.

Conclusion

This case highlights the broad phenotypic spectrum of pediatric DM1 and emphasizes the importance of a structured diagnostic pathway integrating detailed history, physical examination, and targeted molecular testing in children with unexplained neuromuscular and developmental findings.



RETINITIS PIGMENTOSA MASQUERADING AS INTERMEDIATE UVEITIS IN AN 8-YEAR-OLD BOY – A CASE REPORT ID: 684

**Anna Futyma¹, Aleksandra Szczech¹, Olga Kokorniak¹, Marta Pawlak²,
Anna Gotz-Więckowska²**

¹ Poznań University of Medical Sciences, Student Scientific Society, Poznań, Poland

² Poznań University of Medical Sciences, Department of Ophthalmology, Poznań, Poland

Introduction

Uveitis masquerade syndrome (UMS) is a generic term for a variety of systemic and ocular disorders of primary noninflammatory etiology that may manifest with an intraocular inflammation. An example of such a condition is retinitis pigmentosa (RP), the most common inherited retinal dystrophy. It is distinguished by a classic triad of pigmentary retinal deposits, vascular attenuation, and optic disc pallor. However, due to wide genetic heterogeneity, manifestations are highly variable and may also include cystoid macular edema (CME), vitreous cells, and retinal mottling, which can clinically appear as uveitis.

Discussion

An 8-year-old boy was referred for evaluation of a gradual decline in vision for about a year, CME, and retinal pigment epithelium atrophy. He also endorsed joint symptoms. Upon ophthalmologic evaluation, his best corrected visual acuity was decreased to 0.4 and

0.5 decimal in the right and left eye, respectively. Anterior segment examination did not reveal any abnormalities. Dilated fundus examination was remarkable for vitreous floaters and snowballs in the inferior vitreous. Optical coherence tomography revealed bilateral CME. The boy was initially suspected of bilateral intermediate uveitis (IU) and managed with sub-Tenon corticosteroid injections and topical anti-inflammatory drugs. A work-up for infectious and systemic diseases associated with IU was unrevealing. During follow-ups, CME persisted, and reduced visual acuity was virtually stable. The subsequently obtained, full-field electroretinogram (ffERG) recordings showed a pattern consistent with rod system dysfunction, raising a suspicion of RP. Genetic testing revealed two compound heterozygous missense variants, c.2843G>A and c.3518A>C, in the CRB1 gene, substantiating a definite diagnosis of RP.

Conclusion

Although pediatric IU is predominantly idiopathic, UMS should be incorporated in the differential, particularly in cases refractory to treatment. RP, especially associated with CRB1, may occasionally manifest with features of uveitis, which can obscure diagnosis. Discerning these conditions may be successfully assisted by ERG and genetic testing.

**RARE DISEASES****DECIPHERING A CLASSICAL PUZZLE: HIDDEN MUTATIONS IN BRANCHIO-OTO-RENAL SYNDROME - A CASE REPORT ID: 664****Daniya Siddiq, Karolina Śledzińska**

Medical University of Gdańsk, Gdańsk, Poland

Introduction

Branchio-oto-renal (BOR) syndrome is a rare autosomal dominant disorder characterized by branchial arch anomalies, ear malformations, hearing loss, and renal anomalies. Mutations in the EYA1 gene account for approximately 40% of cases. Hearing loss is the most consistent feature. Variable expressivity frequently leads to delayed or missed diagnoses.

Discussion

A 14-year-old female was referred to a specialist genetic clinic for evaluation of bilateral hearing loss and congenital ear abnormalities. Her medical history was significant for outer, middle, and inner ear defects, bilateral preauricular fistulas, preauricular protrusions, scoliosis, and torticollis. She experienced mild learning difficulties. Spine radiography confirmed scoliosis without vertebral malformations. Her family history was notable for an older brother with congenital bilateral sensorineural hearing loss, developmental delay, and craniofacial dysmorphism, previously diagnosed with 7p22.1 microduplication syndrome, which was initially considered sufficient to explain his phenotype. Therefore, chromosomal microarray analysis was performed in other family members, including the index patient, and yielded normal results. A targeted genetic panel for hearing loss was then performed, revealing a heterozygous pathogenic frameshift variant in the EYA1: c.1384dup (p.Glu462Glyfs*11), consistent with a diagnosis of BOR syndrome. Following this result, cascade genetic testing was initiated. The patient's mother and 3-year-old brother were both found to carry the same heterozygous EYA1 variant, confirming autosomal dominant inheritance. However, her 7-year-old brother who presented with hearing loss tested negative. He was noted to have enlarged tonsils, with improvement in hearing following surgical intervention, suggesting a non-genetic etiology. The older brother with 7p22.1 microduplication was also found to carry the EYA1 variant, suggesting that this mutation may also contribute to his clinical diagnosis.

Conclusion

This case demonstrates that despite being clinically recognizable, BOR syndrome may be obscured by phenotypic variability within families, emphasizing the importance of systematic genetic investigation.



MOLECULAR FINDINGS IN A BOY WITH INFANTILE NYSTAGMUS – DISEASE-CAUSING CNGA3 GENOTYPE AND CONCOMITANT ABCA4 VARIANTS ID: 645

Anna Futyma¹, Maciej Krawczyński^{2,3}

¹ Student Scientific Society, Poznań University of Medical Sciences, Poznań, Poland

² Department of Medical Genetics, Poznań University of Medical Sciences, Poznań, Poland

³ Diagnostyka GENESIS, Poznań, Poland

Introduction

Infantile nystagmus has a prevalence of approximately 6-14 per 10,000 live births and may be of various etiologies; however, with a significant preponderance of ophthalmic disorders. Two main causes are albinism and early-onset inherited retinal dystrophies (IRDs). However, they altogether comprise a numerous group of distinct rare genetic diseases; hence, an efficient diagnostic approach necessitates employment of targeted next-generation sequencing or exome sequencing. The broad range of genes screened renders the possibility of detecting multiple variants, which require careful interpretation.

Discussion

A 4-month-old boy presented to the genetic clinic with signs of early-onset retinal dystrophy, including infantile nystagmus since the age of 2 months, poor eye tracking, and lack of eye contact. He also had high-rate hyperopia of +10.0 dioptres sphere. Fundus examination was remarkable for bilaterally blunted foveal light reflex and a tessellated appearance of the peripheral retina; thus, ophthalmologists initially suspected ocular albinism. Whole-exome sequencing (WES) identified two pathogenic variants in the CNGA3 gene, c.572G>A and c.1688G>A, securing a diagnosis of achromatopsia type 2. Moreover, molecular findings revealed two variants in the ABCA4 gene – a frequent hypomorphic c.5603A>T and a mild pathogenic c.5882G>A variant. However, these mutations are insufficient alone to cause the typical Stargardt disease phenotype, yet they might predispose to late-onset macular dystrophic changes.

Conclusion

High-throughput genetic testing methods play a pivotal role in reaching a prompt, definitive diagnosis in cases of infantile nystagmus, which is of importance for the timely implementation of optimal management and visual prognosis, as some IRDs are non- or slowly progressive. Nonetheless, molecular findings should be cautiously interpreted within the clinical context and existing genotype-phenotype correlations. In this instance, the detected ABCA4 variant constellation may not be expected to markedly impact the visual functioning of an achromatopsia patient, yet it carries significant implications for genetic counselling as the boy matures.

RARE DISEASES

UNMASKING HIDDEN METABOLIC DISORDERS: LESSONS FROM THE CLINICAL COURSE OF TWO PEDIATRIC PATIENTS ID: 623

Divya thamizhini¹, Joanna Jagłowska²

¹ Medical University of Gdańsk, Gdańsk, Poland

² Department of Pediatrics, Hematology, Oncology and Immunology Medical University of Gdańsk, Gdańsk, Poland

Introduction

Ornithine Transcarbamylase (OTC) is one of the enzymes of the urea cycle – a pathway expressed only in periportal hepatocytes for the conversion of nitrogenous waste into water-soluble urea, playing a central role in the ammonia homeostasis. OTC deficiency is the most common Urea Cycle Disorder (UCD) with an X-linked inheritance and prevalence ranging from 1 in 14000 to 80000. While the usual subject is male neonate presenting symptoms of reduced intake and somnolence, this report follows the divergent clinical trajectories of a male and a female patient, both with late-onset OTC deficiency.

Discussion

Case 1: 8 months-old male hospitalized due to vomiting, lethargy and oculomotor disturbances with a recent history of UTI and diarrhea resolved 3 weeks ago.

Case 2: 4.5 years-old female with a history of protein aversion, found to have elevated liver enzymes incidentally before a scheduled adenoidectomy.

In the course of diagnostic work-up, tests ranged from Head CT, routine lab tests, abdominal USG, plasma ammonia, urine organic acid profile, plasma amino acid profile, neurological consultation to genetic analysis.

Both patients demonstrated significant hyperammonemia (Case 1: 433 µg/dL; Case 2: 294 µmol/L) and pathogenic mutations in the OTC gene. Genetic analysis revealed a hemizygous c.386+5G>A mutation in Case 1 and a heterozygous c.605A>C (p.His202Pro) mutation in Case 2.

Conclusion

By documenting the different rationales for hospitalization and their subsequent clinical courses, we illustrate the heterogeneous landscape of late-onset OTC deficiency. Whether presenting as incidental transaminase elevation or acute post-infectious decompensation, ammonia testing can unmask critical metabolic etiologies. Such disorders must remain a central consideration in the differential diagnosis for any child presenting with unexplained gastric or neurological symptoms, regardless of age and gender.

Increasing awareness of these diverse clinical presentations is essential to prevent the significant morbidity associated with missed metabolic crises in the post-neonatal population.



X-LINKED PROGRESSIVE POLYNEUROPATHY AND SENSORINEURAL HEARING LOSS VIA PRPS1 MUTATION: CASE REPORT ID: 622

Bartosz Rodziewicz¹, Mikołaj Kacperski¹, Agnieszka Sawicka², Marta Zawadzka²

¹ Medical University of Gdańsk, Gdańsk, Poland

² Clinic of Developmental Neurology, University Clinical Centre, Gdańsk, Poland

Introduction

Mutations in the phosphoribosyl pyrophosphate synthetase 1 (PRPS1) gene are associated with a spectrum of X-linked disorders, ranging from nonsyndromic sensorineural hearing loss (DFNX1) to complex syndromic forms such as Charcot-Marie-Tooth disease type X5 (CMTX5) and Arts syndrome. These conditions are characterized by a triad of hearing loss, peripheral neuropathy, and potential optic atrophy, though the onset and severity of symptoms can vary significantly.

Aim

The aim of this case report is to present the diagnostic pathway of an adolescent male with a confirmed PRPS1 mutation, highlighting the significant latency between the onset of auditory symptoms and neurological deterioration, and to emphasize the crucial role of family history in diagnosing X-linked neuropathies.

Methods and materials

We retrospectively analyzed the clinical data, neuroimaging, and genetic results of a 16-year-old male patient. The patient was admitted to the Department of Developmental Neurology for the evaluation of progressive gait disturbances and frequent falls. The diagnostic process included a detailed analysis of the patient's medical history (including early childhood audiometry), neurological examination, and Next-Generation Sequencing (NGS) genetic testing.

Discussion

We describe a 16-year-old male's transition from isolated deafness to a syndromic phenotype. Despite profound pre-lingual hearing loss treated with cochlear implants, early motor development was preserved. However, adolescence unveiled progressive ataxia, areflexia, and muscle atrophy. The identification of six affected maternal male relatives was crucial, directing molecular testing toward PRPS1. This confirmed the diagnosis, unifying the clinical picture within the CMTX5/Arts spectrum.

Conclusion

PRPS1-related disorders should be considered in the differential diagnosis of male patients with early-onset hearing loss who subsequently develop signs of peripheral neuropathy or ataxia. A detailed family history is crucial for identifying X-linked inheritance patterns. Early genetic diagnosis allows for appropriate multidisciplinary management and genetic counseling for affected families.

CARDIOLOGY**SEVERE TRICUSPID REGURGITATION AS A CARDIAC MANIFESTATION OF METASTATIC ILEAL NEUROENDOCRINE TUMOR: CASE REPORT ID: 889****Harshita Kaushik¹, Amitabh Mehta², Rahul Mehrotra²**¹ Medical University of Gdańsk, Gdańsk, Poland² Department of Non-invasive Cardiology, Artemis Hospital, Gurugram, India**Introduction**

Carcinoid heart disease (CHD) is a rare but significant complication of metastatic neuroendocrine tumors (NETs), occurring in 20–70% of carcinoid syndrome patients. Fibrotic plaque deposition predominantly affects right-sided cardiac valves. Early multimodality imaging recognition is essential for diagnosis and management.

Aim

To demonstrate multimodality imaging's role in diagnosing carcinoid heart disease secondary to metastatic ileal NET.

Methods and materials

A 69-year-old male presented with right upper quadrant pain, diarrhea, vomiting, 10 kg weight loss, and palpitations. Ultrasonography revealed a hepatic lesion; liver biopsy confirmed well-differentiated Grade 1 NET (Ki-67 <2%) of unknown primary. Ga-68 DOTANOC PET-CT identified somatostatin receptor-positive ileal primary (Krenning score 3) and multiple hepatic metastases. Holter monitoring showed atrial fibrillation and frequent ventricular ectopic beats. Transthoracic echocardiography demonstrated severe tricuspid regurgitation with thickened, retracted leaflets, right atrial dilation, and elevated right atrial pressure—diagnostic of CHD. CT aortography confirmed a spiculated terminal ileal lesion with mesenteric fibrosis and hypervascular liver metastases. The patient was started on somatostatin analogue, everolimus, and PRRT.

Discussion

CHD results from hepatic metastases releasing serotonin/bradykinin, causing myofibroblast proliferation and endocardial plaque deposition, classically sparing left heart (pulmonary amine inactivation). Tricuspid regurgitation (90–100%) and pulmonary valve involvement (70%) predominate. Ga-68 DOTANOC PET-CT's high sensitivity (90–95%) for somatostatin receptor expression was crucial for staging and PRRT eligibility (Krenning score ≥2). Serial echocardiography screening is recommended for carcinoid syndrome, as valvular dysfunction predicts poor prognosis (median survival <2 years untreated). Somatostatin analogues stabilize progression; PRRT offers durable responses. This case exemplifies integrated imaging's diagnostic value, emphasizing right-heart surveillance in metastatic NETs for optimal outcomes.

Conclusion

This case highlights multimodality imaging's pivotal role in identifying CHD secondary to metastatic ileal NET, enabling timely multidisciplinary intervention.



OUTCOMES OF INTRAVASCULAR LITHOTRIPSY FOR CORONARY CALCIUM LESIONS: EXPERIENCE FROM A HIGH-VOLUME CENTER ID: 742

Katarzyna Skorupska

Poznań University of Medical Sciences, Poznań, Poland

Introduction

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

Aim

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

Methods and materials

A total of 201 consecutive patients treated with Shockwave C2 or C2+ IVL during PCI between April 2020 and onwards were analyzed. Patients were divided into a non-MI group (Group 1, n=125) and an MI group (Group 2, n=76).

Discussion

The present study demonstrates that IVL is a highly effective and safe strategy for calcium modification in complex coronary lesions, including in patients with acute MI and high procedural risk. Despite a more unfavorable clinical and angiographic profile in the MI group-characterized by lower LVEF, higher SYNTAX scores, and more frequent left main involvement-procedural success and lumen gain were comparable between groups. Periprocedural complication rates remained low, supporting the safety of IVL even in complex settings such as bifurcations, chronic total occlusions, and lesions requiring adjunctive rotational atherectomy. Importantly, long-term outcomes, including mortality and major adverse cardiovascular events, did not differ significantly between MI and non-MI patients.

These findings suggest that IVL provides durable clinical benefits and may be considered a valuable tool for managing severe coronary calcification across a broad spectrum of patients.

Conclusion

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

CARDIOLOGY

THE TRANSCATHETER CORRECTION OF INTERRUPTED AORTIC ARCH IN A YOUNG WOMAN WITH EXTENSIVE COLLATERAL CIRCULATION ID: 697

Ewa Mazur¹, Wiktoria Karos-Słomiak¹, Jadwiga Fijałkowska², Radosław Targoński¹, Robert Sabiniewicz³

¹ 1st Department of Cardiology, Medical University of Gdańsk, Gdańsk, Poland

² 2nd Department of Radiology, Medical University of Gdańsk, Gdańsk, Poland

³ Department of Pediatric Cardiology and Congenital Heart Defects, Medical University of Gdańsk, Gdańsk, Poland

Introduction

We present the case of a 30-year-old woman born with a ventricular septal defect, surgically corrected at 3 months. Since childhood, she reported reduced exercise tolerance. No other cardiac symptoms were noted. During pregnancy, she developed hypertension, and due to preeclampsia risk, cardiac diagnostics were expanded. CT angiography showed an interrupted aortic arch with extensive collateral circulation.

Aim

To report successful transcatheter correction of interrupted aortic arch in an adult patient.

Methods and materials

Decision was made to attempt transcatheter correction of the aortic anomaly. A pigtail catheter was inserted into the descending aorta via the femoral artery. Angiography showed clear blood supply from collateral circulation. A second catheter was inserted into the ascending aorta via the radial artery. Repeated attempts to identify a residual aortic lumen with coronary catheters were unsuccessful. Given the short distance between lumens, the lesion was crossed using 0.014 VersaTurn rigid tip. The guidewire tip was captured in the descending aorta with a vascular loop, and after 1.5 mm balloon dilation, the catheter advanced. An Amplatz ExtraStiff 0.035 guidewire was introduced and pulled through the femoral sheath. A 10F Mullins sheath was inserted to the aortic arch, and a 12 × 39 mm Bentley BeGraft stent was implanted.

Discussion

Interrupted aortic arch is a rare congenital defect, and survival to adulthood is possible due to extensive collateral circulation. Comprehensive imaging, particularly CT angiography, provides high-resolution anatomical and functional information, enabling precise assessment of complex vascular anomalies and individualized treatment planning. While surgical correction remains standard, transcatheter intervention offers a minimally invasive alternative, even in adult patients, with the potential for reduced procedural risk and shorter recovery. This case highlights its feasibility and safety in such rare scenarios.

Conclusion

Successful stent implantation with favorable short-term outcomes demonstrates that advanced imaging combined with endovascular techniques can effectively manage complex congenital aortic anomalies.



FATTY ACID PROFILE CHANGES AFTER TAVI IN AORTIC STENOSIS ID: 674

Wiktoria Karos-Słomiak¹, Tomasz Figatowski¹, Joanna Marłęga-Linert¹, Ludmiła Hasak³, Agnieszka Kuchta², Gabriela Chyła-Danił², Agnieszka Ćwiklińska², Monika Czapiewska², Marcin Fijałkowski¹, Marcin Gruchała¹, Radosław Targoński¹, Dariusz Jagielak⁴, Adriana Mika⁴, Agnieszka Mickiewicz¹

¹ First Department of Cardiology, Medical University of Gdańsk, Poland

² Department of Clinical Chemistry, Medical University of Gdańsk, Poland

³ Department of Anaesthesiology and Intensive Care, Medical University of Gdańsk, Poland

⁴ Department of Cardiac Surgery, Medical University of Gdańsk, Poland

⁵ Department of Pharmaceutical Biochemistry, Faculty of Pharmacy, Medical University of Gdańsk, Poland

Introduction

Pathogenesis of aortic stenosis (AS) involves lipid infiltration, inflammation, and oxidative stress, which drive calcification of the aortic valve and progression to heart failure (HF). Fatty acids (FAs) play a crucial role in these processes. A treatment option for severe symptomatic AS in elderly and high-risk patients is transcatheter aortic valve implantation (TAVI).

Aim

The aim of this study was to evaluate changes in serum fatty acid profiles in patients with severe aortic stenosis undergoing transcatheter aortic valve implantation and to assess the relationship between fatty acid concentrations and aortic valve hemodynamic parameters over a six-month follow-up period.

Methods and materials

This single-center prospective study included 25 patients with severe AS qualified for TAVI procedure. Blood samples were collected before TAVI and after six months. FA profiles were analyzed by gas chromatography-electron ionization mass spectrometry.

Discussion

This study demonstrates that TAVI is associated with significant alterations in serum fatty acid profiles six months after the procedure. We observed a reduction in docosahexaenoic acid (DHA) and total n-3 PUFA levels, alongside an increase in alpha-linolenic acid (ALA), selected medium-chain fatty acids, and anti-inflammatory branched-chain fatty acids. Additionally, concentrations of pro-inflammatory arachidonic and adrenic acids were reduced. These findings suggest that improved valve hemodynamics after TAVI influence systemic lipid metabolism and inflammatory pathways. Correlations between reductions in aortic valve pressure gradients and changes in n-3 PUFA levels indicate interaction between valve function and fatty acid metabolism. Increased BCFAs may reflect metabolic adaptation following relief of left ventricular afterload. The decrease in DHA may reflect altered myocardial utilization, while increased ALA could indicate a shift toward a protective fatty acid profile. Overall, TAVI appears to induce systemic metabolic changes beyond mechanical valve improvement.

Conclusion

Our results underscore the complex interplay between cardiac intervention and FA changes, providing novel insights into the metabolic impact of TAVI on FAs serum profile.

CARDIOLOGY**TRICVALVE IMPLANTATION IN END-STAGE TRICUSPID REGURGITATION AFTER FAILED TRANSCATHETER EDGE-TO-EDGE REPAIR ID: 654****Natalia Zielińska, Radosław Targoński**

Gdański Uniwersytet Medyczny, Uniwersyteckie Centrum Kliniczne, Gdańsk, Poland

Introduction

Severe tricuspid regurgitation (TR) in high-risk patients remains a therapeutic challenge. Heterotopic caval valve implantation using the TricValve system has emerged as a treatment option in patients unsuitable for surgery or failed transcatheter repair [1,2]. A patient with symptomatic right-sided heart failure presented with rapid fatigue, exertional dyspnea (NYHA class III), and palpitations.

Echocardiography demonstrated severe functional TR with annular dilatation, reduced right ventricular (RV) systolic function (TAPSE 1.4 cm), reduced left ventricular ejection fraction (LVEF 45%), and pericardial effusion. A prior attempt at transcatheter edge-to-edge repair with TriClip was unsuccessful due to device malfunction and inability to achieve stable leaflet grasping.

Discussion

Given the high surgical risk, supported by a TRI-SCORE of 5/12 corresponding to an estimated risk of 14%, the patient underwent transcatheter implantation of the TricValve system in July 2025. Self-expanding bioprostheses (25 mm in the superior vena cava and 31 mm in the inferior vena cava) were implanted under transesophageal echocardiography and fluoroscopic guidance, achieving good immediate hemodynamic results with only trace regurgitation. Post-procedurally, the patient developed significant pericardial effusion requiring pericardiocentesis, with transient clinical improvement and stabilization on follow-up imaging. Despite correct prosthesis positioning and preserved valve function, the patient experienced recurrent hospitalizations due to progressive heart failure.

Subsequent echocardiography revealed deterioration of RV function, persistent massive native TR, and signs of advanced right-sided congestion. In October 2025, the patient suffered recurrent PEA cardiac arrests associated with hemorrhagic pleural effusion and shock. Despite all resuscitative measures, drainage, transfusions, and intensive therapy, the patient developed progressive multiorgan failure that ultimately resulted in death.

Conclusion

This case highlights that while TricValve implantation can provide short-term hemodynamic improvement after failed TEER, advanced right ventricular dysfunction and ongoing extracardiac complications may limit long-term benefit and adversely affect prognosis.



INTRAOPERATIVE ARRHYTHMIA AND CARDIAC ARREST IN PATIENTS UNDERGOING TRANSCATHETER AORTIC VALVE REPLACEMENT ID: 800

**Marcelina Głowacka, Michał Piotrowski, Kamila Kowalewska, Jakub Batko,
Katarzyna Wijatkowska-Batko**

CAROL – Cardiothoracic Anatomy Research Operative Lab, Department of Cardiovascular Surgery and Transplantology, Institute of Cardiology, Jagiellonian University Medical College, Kraków, Poland

Introduction

The Transcatheter Aortic Valve Implantation (TAVI) procedure has become a groundbreaking alternative to traditional surgical aortic valve replacement. Despite of many advantages, TAVI is associated with a substantial risk of intraoperative complications including arrhythmias.

Aim

The aim of the study was to investigate the impact of intraprocedural arrhythmias or cardiac arrest during TAVI on 30 day and 1 year mortality.

Methods and materials

A total of 122 patients (50% females) with severe aortic stenosis, who underwent TAVI were included in study. Clinical and echocardiographic evaluation was performed during qualification to the procedure. All patients undergoing TAVI were screened for arrhythmia or cardiac arrest during the procedure. The survival comparison of patients with cardiac arrest and arrhythmia and without such intraoperative conditions was performed. Patients' characteristics predisposing to intraoperative arrhythmia were also analyzed.

Discussion

Patients were divided and analyzed in three subgroups: 1) patients without intraoperative arrhythmia (n=100); 2) patients with 3rd degree atrioventricular block (n=11), 3) patients with cardiac arrest (n=8). Multiple pre-operative comorbidities predisposed to those arrhythmias ($p<0.05$). In hospital, 30 day and 1 year mortality were respectively: for patients without intraoperative arrhythmia 1%, 4%, 7%; for patient with intraoperative cardiac arrest 62.5%, 50.0%, 62.5%; for patients with 3rd degree heart block 18.2%, 18.2%, 18.2%. In hospital, 30 day and 1 year mortality was significantly higher in cardiac arrest group compared to population without it ($p<0.001$). In hospital mortality ($p<0.001$) and 30-day mortality ($p=0.048$) were significantly higher in 3rd degree heart block group of patients. No patient with other arrhythmia died in first year post intervention. No intraoperative characteristics had impact on cardiac arrest or arrhythmia occurrence.

Conclusion

Awareness of risk factors related to arrhythmia and cardiac arrest occurrence during TAVI is crucial for effective management of these patients.

**PHARMACY****STUDY OF THE EFFECT OF ROSAE CANINAE FOLIUM
INFUSION ON THE FACIAL SKIN MICROBIOTA ID: 874**

Amelia Korzeniowska, Zuzanna Kohnke, Martyna Grochowalska, Agnieszka Konopacka, Justyna Ejzel, Alicja Renda, Hanna Grodzka, Zuzanna Drwięga, Natalia Breza, Magdalena Chylewska, Martyna Gawłowska, Ewa Adamkowska, Ksawery Głowiński, Iga Wawrzyniak, Radosław Kijanko, Michał Niedźwiedzki, Wojciech Szczepaniak

Faculty of Pharmacy, Medical University of Gdańsk, Gdańsk, Poland

Introduction

In recent years, there has been growing interest in using natural plant materials to prevent and support the treatment of skin diseases while maintaining and restoring the balance of the skin microbiome. Conventional methods of treating skin lesions are often associated with adverse effects, including microbiota dysbiosis. One such material is rosehip (*Rosa canina*), known in pharmacy primarily for its fruit, while the leaves of this plant were considered waste. It turned out that the phenolic compounds, flavonoids, and organic acids contained in the leaves have effective antibacterial activity against selected pathogenic strains, especially Gram-positive *Staphylococcus aureus*. An easy-to-prepare rose leaf infusion seemed like an attractive addition to daily facial skin care.

Aim

The Microbiology SKN planned and implemented a series of experiments to examine the effect of rosehip leaf infusion on the microbiological balance of facial skin and the subjective skin condition of pharmacy students.

Methods and materials

Participants were instructed to use a rosehip infusion twice daily for two weeks - morning and evening. Subjective skin assessment data were collected in the form of questionnaires before, during, and after the treatment. Facial swabs were collected before and after the treatment. Each swab was duplicated. One was used for a preliminary analysis of the skin bacteriobiome, using classical microbiological techniques, which were supplemented with MALDI-TOF mass spectrometry. The second swab was appropriately preserved for genetic analysis.

Discussion

Microbiological analysis revealed that the number and type of bacteria naturally occurring in the skin did not appear to change significantly. A number of isolates were identified for the species. Statistical analysis of the questionnaires showed that 43% of participants experienced an overall improvement in skin condition. Four skin swabs were selected for metagenome analysis.

Conclusion

Observations and results indicate a beneficial effect of *Rosa canina* leaf infusion on improving skin condition, without any drastic impact on the microbiota.



POLYPROPYLENE MICROPLASTICS IN FOOD – PROBLEM OF THE 21ST CENTURY ID: 824

Natalia Nowak, Justyna Ośko, Małgorzata Grembecka

Medical University of Gdańsk, Gdańsk, Poland

Introduction

The European Food Safety Authority (EFSA) defines microplastics as plastic particles ranging in size from 0.1 to 5,000 micrometers (μm). These particles may be intentionally added to products (primary microplastics) or formed as a result of the decomposition of larger plastic fragments (secondary microplastics). Microplastics can consist of various polymers and have different shapes (spherical, fragmentary, fibrous). One of the most common polymers identified in studies is polypropylene (PP), which is used in the production of food-contact packaging, as well as in the manufacture of fittings and sanitary ware, in the automotive and textile industries.

Aim

The aim of the study was to collect and systematize knowledge on the risks associated with the presence of polypropylene microplastic particles in food, to assess their potential as carriers of contaminants, and to identify the risks associated with the presence of PP microplastics in human organisms.

Methods and materials

The review was based on articles published after 2020. Databases such as ScienceDirect and PubMed were searched. The analysis was conducted using specific criteria, including the following keywords: “microplastics”; “polypropylene”; “degradation”; “food” in full-text articles published in English.

Discussion

Studies published to date indicate the presence of polypropylene-derived contaminants in human tissues. Their presence have also been found in many food products, such as fish, shellfish, poultry, fruit, vegetables, milk, honey, salt, carbonated drinks, energy drinks, tea, and alcoholic beverages. Literature data also indicate the potential of PP microplastic particles as carriers of many contaminants, including heavy metals.

Conclusion

Given the widespread use of polypropylene packaging for food storage, research assessing its potential impact on human health should continue. Further research is also needed on its biological mechanisms, toxicity, and the effects of long-term exposure. The results obtained may contribute to the development of effective strategies to reduce microplastic pollution and increase food safety.

PHARMACY

PREPARATION OF INCLUSION COMPLEXES OF HYDROCORTISONE AND NAPROXEN WITH CYCLODEXTRINS ID: 783

Oliwia Zyngiel¹, Barbara Rojek², Alina Plenis²

¹ Medical University of Gdańsk, Faculty of Pharmacy, Gdańsk, Poland

² Medical University of Gdańsk, Faculty of Pharmacy, Department of Analytical Chemistry, Gdańsk, Poland

Introduction

Cyclodextrins belong to the group of cyclic oligosaccharides, which by forming supramolecular complexes, can alter the physicochemical properties of active substances.

Aim

The aim of the study was to improve the solubility of active substances by forming inclusion complexes with β -cyclodextrin and γ -cyclodextrin, thereby enhancing their pharmaceutical availability. Increasing the bioavailability can reduce the required dose and enable gradual release of the active substance from the inclusion complex, leading to prolonged duration of action.

Methods and materials

naproxen, hydrocortisone, β -cyclodextrin and γ -cyclodextrin were used as model substances. The active substances were mixed with cyclodextrins in mass ratios of 1:1, 1:2 and 2:1 (active substances : cyclodextrin). Two methods were used to obtain the inclusion complexes – co-precipitation and kneading. Binary physical mixtures of the active substances with cyclodextrins were also prepared using the same mass ratios. The obtained inclusion complexes and physical mixtures were analyzed using differential scanning calorimetry (DSC), Fourier-transform infrared spectroscopy (FTIR) and Raman spectroscopy. The data obtained from the thermal and spectroscopic analyses of the inclusion complexes and physical mixtures were compared with the results for the pure components.

Discussion

The thermal and spectroscopic results confirmed the formation of inclusion complexes. In the DSC analyses, changes were observed on the curves of the inclusion complexes and binary mixtures compared to the pure components, including a significant reduction in the peak height, disappearance of characteristic peaks or shifts of peak extremes toward lower temperatures. In the FTIR and Raman spectra, changes in band intensity and shifts of bands corresponding to vibrations of characteristic chemical groups present in the molecules of the active substances and cyclodextrins were observed.

Conclusion

Based on the obtained results, inclusion complexes were formed. The co-precipitation method was the most effective. The formation of inclusion complexes led to changes in the physicochemical properties of the active substances.



ANALYSIS OF MICROPLASTICS IN FOOD MATRICES: CURRENT CHALLENGES ID: 758

Katarzyna Jażdżewska, Kornelia Kadac-Czapska, Małgorzata Grembecka

Medical University of Gdańsk, Gdańsk, Poland

Introduction

Microplastics (MPs) are plastic particles with a size range of 0.1 to 5,000 μm . These particles have the potential to migrate into foodstuffs during their production, packaging, and transportation. In recent years, there has been an increasing interest in the impact of MPs on human health, which has led to a greater focus on assessing their potential toxicity. The issue arises from the potential for these particles to be both physical and chemical contaminants. To determine the level of exposure to MPs, it is essential to develop reliable methods for their determination in food matrices.

Aim

The objective of the present study was to identify the challenges and prospects related to the analysis of MPs in food.

Methods and materials

A comprehensive literature review covering the last five years was conducted, using major databases such as ScienceDirect and Google Scholar. The following keywords were used to search for articles: "microplastics" in combination with "food" or "determination" or "isolation".

Discussion

When analyzing MPs in food, it is imperative to maintain conditions that minimize the risk of sample contamination. Isolation of MPs is a crucial step in the analysis, as improper optimization may lead to analyte degradation or incomplete decomposition of the food matrix. Furthermore, the validation of the developed procedure for the determination of plastic particles is frequently disregarded in current practices. Consequently, assessing the efficacy and verifying analytical methods remains a significant challenge. This may also mislead consumers who, lacking specialist knowledge, may misinterpret the presented results.

Conclusion

Further research is needed to assess human exposure to MPs and determine the risks associated with contaminated food.



PHARMACY

RELEASE OF MICROPLASTIC PARTICLES FROM PHARMACEUTICAL-GRADE POLYETHYLENE BOTTLES UNDER DIFFERENT CONDITIONS ID: 754

Piotr Kowalczyk¹, Kornelia Kadac-Czapska², Natalia Nowak¹, Justyna Ośko², Małgorzata Grembecka²

¹ The First MUG Doctoral School, Medical University of Gdańsk, Gdańsk, Poland Department of Bromatology, Faculty of Pharmacy

² Department of Bromatology, Faculty of Pharmacy, Medical University of Gdańsk, Gdańsk, Poland

Introduction

Microplastics (MPs) are synthetic polymer particles ranging in size from 0.1 μm to 5.0 mm. They have been associated with inflammation, cell damage, fertility disorders, as well as cardiovascular and neurodegenerative diseases. Such particles have been detected in various products, including infant formulas, dietary supplements, and parenteral infusions. Nevertheless, the factors affecting their release, as well as the direct impact of product packaging itself, remain poorly understood.

Aim

The aim of this study was to assess the release of MPs from plastic packaging used in the pharmaceutical and food industries under different solvent conditions and exposure times.

Methods and materials

virgin polyethylene bottles were exposed to 5 different solutions: water, 3% acetic acid, 10%, 20%, and 50% ethanol. Tests were conducted at 40 °C with exposure times ranging from 5 minutes to 10 days. All tests were performed in triplicate, including blank glass samples. Samples were filtered using filters with a pore size of 10 μm , which were subsequently analyzed using optical and micro-Fourier transform infrared ($\mu\text{-FTIR}$) microscopy. Quality control measures were implemented, and recovery tests were performed.

Discussion

No MPs were detected in blank samples. Recovery of approximately 10-20 particles with a size of $\sim 50 \mu\text{m}$ was $95.66\% \pm 3.81\%$. Released particles were categorized according to shape and size and compared between solutions and exposure times.

Conclusion

The obtained results indicate that polyethylene packaging can release MPs into all tested fluids and may constitute their direct source in medicines and food. Released particles included fragments, spheres, and foils, with sizes ranging from 18 μm to 1.3 mm. The highest total release was found in 10% ethanol, followed by 20% ethanol, 50% ethanol, 3% acetic acid, and water. Not all samples contained MPs. No clear correlation with exposure time was found. This study was financially supported by the National Science Centre, Poland (OPUS 25, grant number NR2023/49/B/N29/0061).



IN VITRO CULTURES OF RHODODENDRON TOMENTOSUM (LEDUM PALUSTRE) AS A SOURCE OF PHARMACOLOGICALLY ACTIVE COMPOUNDS ID: 725

Stefan Bagieński, Asset Ibrashov, Adam Kokotkiewicz, Agata Król, Sylwia Godlewska, Mirosława Krauze-Baranowska, Maria Łuczkiwicz

Department of Pharmacognosy with Medicinal Plant Garden, Faculty of Pharmacy, Medical University of Gdańsk, Gdańsk, Poland

Introduction

Rhododendron tomentosum Harmaja, also known as *Ledum palustre* L. is a subshrub, typically found in marshlands in arctic and subarctic regions. It belongs to the Ericaceae family whose species are protected in numerous countries all over the world. Main biologically active metabolites of the *R. tomentosum* are non-volatile polyphenols and essential oil. It has been confirmed that such substances display antibacterial, anti-inflammatory, antioxidative and antiarthritic activities.

Aim

Given the therapeutic potential of *R. tomentosum*, microshoot cultures of the species have been established, in the Department of Pharmacognosy, Medical University of Gdańsk, to obtain an alternative source of biomass for production of biologically active compounds. The goal of this study was to stimulate the biosynthesis to increase quantity of valuable secondary active metabolites such as flavonoids and flavan-3-ols derivatives through introducing appropriate stress factors to the plant tissue.

Methods and materials

shake flask cultures were maintained on Schenk and Hildebrandt (SH) medium supplemented with 5 mg/L 6-(γ,γ -Dimethylallylamino)purine (2iP). To increase polyphenolic content elicitors: nickel ions (20,50 and 100 $\mu\text{M/L}$), yeast extract (1000,3000 and 5000 $\mu\text{M/L}$), and methyl jasmonate (50, 100 and 150 $\mu\text{M/L}$) were added on day 20 of culture, 10 days prior to harvest. To determine the chemical composition of nonvolatile polyphenol fraction, the collected biomass samples were lyophilized, extracted with methanol and analyzed using HPLC-DAD-MS system.

Discussion

The microshoots of *R. tomentosum* produced an abundance of polyphenols such as catechin, chlorogenic acid, hyperoside, quercetin derivatives and myricetin (HPLC-DAD and HPLC-MS analyses) from which catechin showed to be the main constituent of this fraction (up to 100mg/gDw).

Conclusion

Considering given data the microshoots of *R. tomentosum* can serve as a new, valuable source of biologically active metabolites, especially catechin and its derivatives.

INTERNAL MEDICINE 2

SEVERE HEART FAILURE AND TOXIC HEPATITIS AFTER ANABOLIC STEROID ABUSE IN A YOUNG BODYBUILDER ID: 710

Katarzyna Skorupska

Poznań University of Medical Sciences, Poznań, Poland

Introduction

The use of anabolic-androgenic steroids (AAS) is an issue among professional athletes, but the majority of users are recreational athletes. Although AAS promote skeletal muscle growth, they can cause adverse effects involving multiple organs. We present a rare case of 32-year-old bodybuilder with AAS induced heart failure (HF) and toxic hepatitis.

Discussion

A previously healthy 32-year-old bodybuilder presented with symptoms of acute heart failure. He had trained 4-5 times per week for over five years and abused AAS (nandrolone decanoate and testosterone enanthate) for four years. There was no family history of cardiovascular or liver disease, and no alcohol or acetaminophen abuse. One year earlier, echocardiography showed left ventricular end-diastolic diameter (LVEDD) of 63 mm and ejection fraction (EF) of 49%, but despite symptoms, the patient continued training and steroid use. At hospital admission, EF had declined to 25% and LVEDD increased to 78 mm. Laboratory tests revealed elevated troponin level, NT-proBNP, creatine kinase, and liver transaminases, along with increased sex hormone levels. After improvement with pharmacological treatment, the patient was discharged at his own request. Six months later, he was rehospitalized with jaundice, hepatomegaly, and worsening heart failure. Toxic hepatitis induced by AAS was diagnosed. Cardiac imaging confirmed dilated cardiomyopathy with myocardial fibrosis, EF of 10%, and progressive ventricular dilation. ICD implantation was performed. At 3 months of follow-up, ECHO showed LVEDD of 87 mm and EF of 15%. The patient was qualified for the Poltransplant list. After seven months, improvement was observed, including reduction of heart failure symptoms, improvement in EF to 30%, and decreased LVEDD to 63 mm.

Conclusion

This case is indicative of catastrophic effects of AAS and reinforces the warning against use of drugs. AAS consumption is becoming more widespread, and adverse effects, including cardiovascular and hepatic toxicity, are expected to increase in the coming years.



METHOTREXATE TOXICITY DUE TO UNINTENTIONAL OVERDOSE: A CASE REPORT ID: 703

Rita Siksniute¹, Skaistė Žukaitienė²

¹ Faculty of medicine, Medical Academy, Lithuanian University of Health Sciences, Kaunas, Lithuania

² Institute of Physiology and Pharmacology, Lithuanian University of Health Sciences, Kaunas, Lithuania

Introduction

Methotrexate is a DNA synthesis inhibitor, most commonly used in oncology and rheumatology, with its effects depending on the administered dose. However, methotrexate has a narrow therapeutic index, placing patients at an increased risk of toxicity. Methotrexate toxicity may also occur with low-dose regimens when administered incorrectly.

Aim

To highlight errors in methotrexate dosing and administration and their potentially severe clinical consequences.

Methods and materials

A 63-year-old woman presented to the emergency department with oral ulcerations, fever up to 38 °C, dyspnea, generalized weakness, painful movement of both shoulders. According to the available history, the patient had been taking methotrexate, which was prescribed for polymyalgia rheumatica. Instead of the prescribed 15 mg once weekly, she had taken methotrexate 15 mg daily for seven consecutive days. Leukopenia and thrombocytopenia were observed, accompanied by elevated C-reactive protein levels, increased liver enzyme activity, and a blood methotrexate concentration of 0.05 µmol/L. Methotrexate toxicity was diagnosed. During the disease course, febrile agranulocytosis with pancytopenia developed. Leucovorin rescue therapy was initiated, and treatment with piperacillin/tazobactam and filgrastim was administered. Upon recurrence of fever, with suspected oral mucosal infection, antimicrobial therapy with ampicillin–sulbactam and antifungal treatment with nystatin were initiated. Subsequently, inflammatory markers and methotrexate serum concentration decreased, oral mucosal ulcers resolved. After clinical stabilization, the patient was discharged for outpatient follow-up.

Discussion

Methotrexate overdose commonly manifests as mucositis, gastrointestinal bleeding, fever, agranulocytosis, heightened infection risk, and liver damage. In cases of overdose with particularly high cumulative doses, outcomes may be fatal. Leucovorin is the main of treatment for methotrexate toxicity, as it counteracts the drug's antifolate effects and reduces cellular damage in rapidly dividing tissues.

Conclusion

Timely administration of leucovorin, prophylaxis with folic acid, and patient education on proper methotrexate use are crucial measures that help prevent the most severe outcomes.



INTERNAL MEDICINE 2

BUDD-CHIARI SYNDROME SECONDARY TO POLYCYTHAEMIA VERA, LEADING TO LIVER TRANSPLANT

ID: 691

Rose Maria James, Aleksandra Cegła

Katedra i Klinika Gastroenterologii i Hepatologii, Medical University of Gdańsk, Gdańsk, Poland

Introduction

Budd-Chiari Syndrome is a rare condition characterised by hepatic venous outflow obstruction. It often manifests with hepatomegaly, ascites, and abdominal discomfort or pain. The disease is mostly associated with hypercoagulable states, particularly with Chronic Myeloproliferative neoplasm, such as polycythaemia vera. The obstruction of the blood flow results in liver congestion and subsequent liver damage. The non-specific symptoms make it rather challenging to diagnose, and delayed recognition could lead to rapid progression of liver decompensation. Complications include portal hypertension, acute liver failure, cirrhosis, hepatic encephalopathy, variceal hemorrhage, hepatocellular carcinoma, hepatorenal syndrome, and bacterial peritonitis in the presence of ascites.

Discussion

A 43-year-old female patient with no significant past medical history was emergently admitted to the Department of Gastroenterology and Hepatology for evaluation of acute liver injury and ascites, peripheral edema, and mild jaundice. The worsening of the patient's symptoms and weight gain of 9 kg occurred within a span of 2 weeks. Imaging and clinical findings revealed abnormal liver biochemistry consistent with hepatic venous thrombosis. Comprehensive hematological diagnostics and consultation revealed polycythaemia vera with JAK2 V617 mutation. The patient was initially managed with therapeutic thrombectomy, anticoagulants, cytoreductive therapy, and supportive therapy, but the patient developed refractory ascites and rapid progression of liver dysfunction. Liver elastography confirmed liver cirrhosis. Recurrent decompensation was complicated by hepatorenal syndrome requiring renal replacement therapy. This episode called for the patient to be listed and undergo an orthotopic liver transplant from a deceased donor. The postoperative period was complicated by a hematoma requiring relaparotomy, wound healing difficulties, infections, and later by biliary anastomotic stricture with bile leak, which was successfully managed endoscopically.

Conclusion

Budd-Chiari syndrome associated with polycythaemia vera can often have either an acute severe or chronic course. Early recognition of the disorder and management are essential for better outcomes.



COEXISTENCE OF COWDEN SYNDROME AND NF1 IN 31-YEAR-OLD FEMALE WITH RECURRENT GASTROINTESTINAL POLYPOSIS AND HIRSUTISM ID: 666

Abdullah Alam, Judith Ugwuja

Medical University of Silesia, Katowice, Poland

Introduction

Coexistence of Cowden Syndrome and Neurofibromatosis type 1 in 31-year-old female with recurrent gastrointestinal polyposis and hirsutism: Case Report.

Aim

To report a rare case of coexisting Neurofibromatosis type 1 (NF1) and Cowden syndrome / PTEN hamartoma tumor syndrome (PHTS) in a young woman with recurrent gastrointestinal polyposis and hyperandrogenic features, and to highlight associated diagnostic and surveillance challenges.

Methods and materials

This case report is based on a 31-year-old woman evaluated for recurrent gastrointestinal polyposis and hirsutism. Clinical data were obtained from multidisciplinary medical records, including history, examination, laboratory testing, genetic analysis, colonoscopy findings, and histopathology. Endocrine assessment included metabolic parameters and hormone profiling. Serial colonoscopies with polypectomy were performed as part of routine care. Pathogenic variants in NF1 and PTEN were identified. Data were retrospectively reviewed and summarized. Written informed consent was obtained; ethical approval was not required.

Discussion

NF1 and Cowden syndrome involve distinct oncogenic pathways, Ras/MAPK and PI3K/AKT/mTOR, respectively. Their coexistence is exceptionally rare and may amplify tumorigenic and endocrine effects, complicating clinical management and cancer surveillance.

Conclusion

This case highlights the need for personalised surveillance protocols for patients with dual genetic syndromes, mainly focusing on malignancy risk and gastrointestinal polyp management. It also poses important clinical and research questions: whether NF1 mutations affect PTEN-driven tumorigenesis. Without clear guidelines, a multidisciplinary approach, genetic counselling, and further research are critical in optimising the needs of these rare patient populations, adding to the sparse literature on such dual diagnosis.

INTERNAL MEDICINE 2

ULCERATIVE COLITIS WITH MASSIVE PULMONARY EMBOLISM, PORTAL HYPERTENSIVE SYNDROME AND SEVERE THROMBOPHILIA: A CASE REPORT ID: 662

Shreya Bhowmik

Medical University of Gdańsk, Gdańsk, Poland

Introduction

A 27 year old male patient represents a rare case of Ulcerative Colitis associated with increased risk of hepatobiliary and thromboembolic complications. The coexistence of massive saddle pulmonary embolism, extensive portal vein thrombosis with cavernous transformation, recurrent gastric variceal bleeding , severe infections and complex inherited thrombophilia makes it a challenging clinical scenario.

Aim

To present and discuss methods of diagnosis along with management of Ulcerative Colitis complicated by multiple thrombotic events including a severe saddle pulmonary embolism, secondary infections and portal hypertensive syndrome leading to consideration for multivisceral transplantation.

Methods and materials

The patient's clinical course , laboratory findings, endoscopic procedures, imaging and therapeutic interventions over the course of multiple hospitalisation between 2019 (UC diagnosed) and 2026 (2024-2026 severe complications) was thoroughly analysed.

Discussion

The patient developed extensive portal and renal vein thrombosis all along with a saddle pulmonary embolism, cavernous transformation of portal vein leading to portal hypertension and recurrent variceal bleeding in the setting of complex inherited thrombophilia (prothrombin G20210A mutation , antithrombin deficiency, elevated factor VIII) . The management of the disease is further complicated by recurrent infections (C.difficile, Legionella pneumophila, bacterial peritonitis, staphylococcal and fungal sepsis), portal hypertensive syndrome and severe malnutrition. Despite advanced biological therapy (vedilizumab, mirikizumab) achieving intestinal remission, a standard liver transplantation was excluded due to irreversible portal vein reconstruction. These combined clinical factors qualifies the patient for an urgent multivisceral transplantation.

Conclusion

This case illustrates a rare combination of severe Ulcerative Colitis, life threatening thromboembolism and portal hypertensive complications all on the background of inherited thrombophilia due gene mutation. It highlights the need for careful balancing of anticoagulants and bleeding risks, consideration of multivisceral transplantation and proper medical guidance for critical clinical cases.



EMOTION REGULATION AND EMOTION SUPPRESSION IN THE ASPECT OF ALCOHOL CRAVING ID: 834

Zofia Wawrzyniak, Łucja Bieleninik

Medical University of Gdańsk, Gdańsk, Poland

Introduction

Alcohol dependence is a significant public health problem in Poland. Alcohol craving, as one of the diagnostic criteria for alcohol dependence (WHO, 2022), constitutes an important factor influencing individuals on multiple levels and represents a risk factor for relapse. This phenomenon requires a deeper psychological understanding. Emotion dysregulation occurs when an individual is unable to regulate emotions despite efforts to do so (Jazaieri et al., 2013). Dysregulation is a common underlying factor in many mental disorders. Similarly, emotional suppression is considered an ineffective strategy in the long term (Werner and Gross, 2010).

Aim

The present study focuses on the relationship between emotion dysregulation, emotion suppression, and alcohol craving. Additionally, it examines the moderating role of gender and duration of abstinence.

Methods and materials

The study included individuals diagnosed with alcohol dependence attending a day addiction treatment center in Gdańsk. The research had a cross-sectional design and involved 102 participants. The following methods were used: the Difficulties in Emotion Regulation Scale (DERS), the Penn Alcohol Craving Scale (PACS), the Courtauld Emotional Control Scale (CECS), and the Emotion Regulation Questionnaire – Short Form (ERQ-S).

Discussion

The results indicate that greater difficulties in emotion regulation are associated with higher levels of alcohol craving, particularly in areas such as emotional awareness, emotional acceptance, impulse control, goal-directed behavior, and access to adaptive regulation strategies. Emotional suppression was not significantly related to craving and did not predict its intensity, while gender and duration of abstinence did not moderate the observed relationships. Overall, difficulties in emotion regulation emerged as a significant predictor of alcohol craving, explaining 16% of its variance.

Conclusion

The findings of the present study may contribute to understanding the necessity of addressing emotion regulation in the treatment of individuals with alcohol dependence.



THE MODERATING ROLE OF SEXUAL LIFE SATISFACTION IN THE RELATIONSHIP BETWEEN MPA AND LIFE QUALITY ID: 827

Wojciech Włodarczyk

Medical University of Gdańsk, Gdańsk, Poland

Introduction

Music performance anxiety (MPA) is a prevalent and relatively stable form of anxiety among musicians, classified as a subtype of social anxiety disorder. It is associated with increased stress, health problems, and reduced quality of life. Intensive practice schedules and performances involving evaluation by experts may restrict opportunities for social and emotional connection, affecting intimacy and sexual satisfaction. Satisfaction with intimate relationships and sexual life is linked to quality of life, yet this area remains underexplored among musicians.

Aim

This study aimed to examine the relationship between MPA and quality of life, as well as the role of sexual satisfaction as a moderating factor in this relationship.

Methods and materials

A total of 213 students from three music academies in Poland participated in the study. Music performance anxiety was measured using the K-MPAI-R, while quality of life and sexual life satisfaction were assessed with single-item self-report measures. A regression analysis followed by moderation analysis was conducted with MPA as the predictor, sexual satisfaction as the moderator, and quality of life as the outcome variable, controlling for relationship status and Big Five personality traits.

Discussion

MPA was negatively associated with sexual satisfaction and quality of life. Moderation analyses further revealed that MPA was significantly related to quality of life only among individuals with low or moderate levels of sexual satisfaction.

Conclusion

The results confirm the significant impact of MPA on the well-being of young musicians and that sexual life plays an important role in the overall quality of life and health. At the individual level, neglecting this domain may contribute to tension and difficulties in functioning, underscoring the need to view sexual life satisfaction as an integral part of well-being. A better understanding of the interplay between sexual life satisfaction, quality of life, and music performance anxiety may allow for more tailored psychological and medical interventions.



EFFECTIVENESS OF PSILOCYBIN IN TREATMENT-RESISTANT DEPRESSION: A SYSTEMATIC REVIEW

ID: 817

Roberta Matulevičiūtė¹, Emilija Labutytė², Gintarė Šiaudikytė³

¹ Faculty of Medicine, Medical Academy, Lithuanian University of Health Sciences, Kaunas, Lithuania

² Department of Psychiatry, Lithuanian University of Health Sciences, Kaunas Clinics, Kaunas, Lithuania

³ Department of Family Medicine, Lithuanian University of Health Sciences, Kaunas Clinics, Kaunas, Lithuania

Introduction

Major depressive disorder affects 332 million people globally, with one-third progressing to treatment-resistant depression (TRD), defined as failing to respond to at least two adequate antidepressant trials. Despite the availability of numerous antidepressants, the need for alternative treatment approaches for individuals with TRD remains.

Aim

The aim of this literature review is to evaluate the effectiveness and safety of psilocybin as an alternative treatment for treatment-resistant depression.

Methods and materials

A systematic review was performed following PRISMA guidelines, analyzing 9 studies sourced from the PubMed database. The following keywords were used: “psilocybin” and “treatment-resistant depression”. Studies published between 2022 and 2025 that met the selection criteria were retrieved and reviewed.

Discussion

The analysis of 9 studies demonstrates that psilocybin combined with psychological support provides rapid and sustained antidepressant efficacy for TRD. The pivotal phase II randomized controlled trial (N=233), a single 25 mg dose, achieved a significant reduction in MADRS scores (-12.0) versus a 1 mg control (-5.4) at week three. Remission and response rates for the 25 mg cohort were 29% and 37%, respectively. Antidepressant effects were reported as early as day two. Furthermore, open-label trials in severe TRD recorded substantial MADRS improvements (-15.8) maintained until week 12. The safety profile remains favorable; common adverse events included transient headaches (up to 50%) and nausea (4%–22%). Although serious adverse events such as suicidal ideation were observed in some cohorts, rates were not significantly different across dosage groups. Notably, all findings were contingent upon structured psychological support, which remains integral to the therapeutic model.

Conclusion

Psilocybin provides rapid, significant antidepressant effects for TRD with a manageable safety profile. Integration of structured psychological support is essential for achieving sustained clinical remission in treatment-resistant cases.

INTENSIVE AND PERSONALIZED CHATBOT USAGE AND DETERIORATION OF STUDENTS' MENTAL WELL-BEING – A CROSS-SECTIONAL STUDY ID: 814

Bartosz Rodziewicz¹, Mikołaj Kacperski¹, Przemysław Waszak²

¹ Medical University of Gdańsk, Gdańsk, Poland

² Department of Hygiene and Epidemiology, Medical University of Gdańsk, Gdańsk, Poland

Introduction

AI chatbots have become integral tools for academic and daily tasks. However, their utilization for emotional regulation raises concerns regarding mental health, particularly among medical students. It is crucial to determine whether reliance on AI for emotional support is associated with social isolation or the emergence of psychotic-like experiences.

Aim

This study assessed the association between patterns of chatbot usage among medical students and their mental well-being. Specifically, we investigated whether using AI for emotional support correlates with poorer mental health outcomes or unusual psychological experiences compared to strictly academic usage.

Methods and materials

We conducted an online cross-sectional survey from January to February 2026 involving 201 students from the Medical University of Gdańsk. Data were collected regarding demographics, study details, and chatbot usage patterns. Mental health was evaluated using the WHO-5 Well-Being Index, while the Prodromal Questionnaire-Brief (PQ-B) was employed to screen for unusual experiences. We compared students utilizing AI for academic purposes against those seeking emotional support.

Discussion

Preliminary analysis reveals a high prevalence of low well-being (around 55%) among students, with 24% explicitly using AI for conversation and emotional support. Regarding post-interaction feelings, the majority (58%) report no change, while 39% feel calmer or more organized. However, data links this coping mechanism to increased dissociative symptoms (16% reported derealization) compared to students using AI solely for academic purposes.

Conclusion

Chatbots act as a “safe” therapy surrogate, offering relief to the 24% of students seeking support without interpersonal stress. However, exclusive reliance on AI risks blurring the distinction between reality and simulation. Universities must therefore prioritize education on safe digital habits and provide accessible, anonymous professional support



COMPARING THE PREVALENCE OF NEURODIVERSITY ESTIMATED WITH SCREENING TOOLS TO SELF-REPORTED DIAGNOSIS RATES ID: 795

Kinga Dykier

Medical University of Gdańsk, Gdańsk, Poland

Introduction

Population research highlights a significant “diagnostic gap” in adult neurodivergence. Clinical statistics often reflect healthcare accessibility rather than the true prevalence of neuroatypical traits (O’Nions et al., 2023). Numerous systemic and financial barriers make screening tools essential for identifying the needs of “hidden” populations who remain unregistered due to high diagnostic costs and social camouflaging (Ardeleanu et al., 2024). This discrepancy leads to inadequate support and an increased risk of secondary mental health crises. Understanding this phenomenon is crucial for designing inclusive academic education strategies.

Aim

This study aimed to estimate the prevalence of ADHD and ASD traits using standardized screening tools and to contrast these findings with participants’ self-reported formal clinical diagnoses.

Methods and materials

This cross-sectional study was conducted online and included 3,023 students (2,201 women, 729 men, 93 other; Mage=21.6, SD=2.84) and 89 doctoral students (60 women, 26 men, 3 other; Mage=28.5, SD=4.40). The sample is representative of the University of Gdańsk. ADHD traits were assessed using the Adult ADHD Self-Report Scale (ASRS-v1.1), and autism traits were assessed via the Autism Spectrum Quotient-10 (AQ-10). Participants also provided information regarding their formal diagnoses.

Discussion

A significant discrepancy was found between screening positivity rates and formal diagnoses. While 51.9% of students screened positive for potential ADHD, only 6.0% reported a formal diagnosis. For ASD, 16.0% exhibited significant traits, whereas only 1.5% had a formal diagnosis.

Conclusion

The data confirm a profound diagnostic gap in the academic environment. This high prevalence of undiagnosed neurodivergence likely stems from limited symptom awareness and systemic barriers, including a critical shortage of specialists and extensive waiting lists in the Polish public healthcare system. These findings underscore the urgent need for early systemic screening and “needs-led” support models in universities that prioritize functional student needs over formal clinical documentation.



PSYCHOLOGY AND PSYCHIATRY

ASSESSING STRESS, COPING STRATEGIES AND IMPACT OF PSYCHOSOCIAL INTERVENTION AMONG PARENTS OF CHILDREN WITH AUTISM ID: 747

Arnika Tahsin

MAG Osmani Medical College Sylhet Bangladesh, Sylhet, Bangladesh

Introduction

Autism spectrum disorders (ASD) are complex conditions that involve impairments in social interaction, communication and behavioural functioning such as repetitive and stereotyped behaviour. Children with ASD require extensive physical and emotional care which can be extremely difficult and stressful for parents. Previous studies explored the effect of children's autism on parental stress and anxiety level, however, limited data exists about parental coping mechanisms and about effectiveness of interventions in such particular cases.

Aim

The aim of this study is to Assess stress and coping strategies among parents of children with ASD. Evaluate the impact of structured psychosocial intervention on parental stress coping.

Methods and materials

This study was conducted in a tertiary level autism care centre of Bangladesh. A total of 218 parents of children diagnosed with ASD (confirmed via Autism diagnostic observation schedule) were recruited with consent. Participants completed sociodemographic questionnaire, Brief Cope Inventory scale and Perceived Stress Scale (PSS 10). Thereafter, participants were randomly allocated in intervention group (n 109) who received 12 weeks long psychosocial therapy and control group (n 109) with regular care. In post intervention phase, both groups were reassessed using the same tools. For data analysis, SPSS version 24 was used.

Discussion

Parents of autistic children reported higher level of stress compared to the normative data. Parents predominantly followed approach based coping strategies, however, coping strategies showed significant association with sociodemographic variables such as gender, age of the parents and their education level. In the post intervention phase, the intervening group reported lower stress level in relation to control group.

Conclusion

This study highlights the psychological burden faced by parents of autistic children and reveals the effectiveness of targeted interventions in reducing parental stress. These findings are potential suggestions for development of caregiver focused mental health programmes in autism care services.



BENIGN LESION, CRITICAL CHALLENGE: STAGED SURGERY FOR NEONATAL CERVICOFACIAL LYMPHATIC MALFORMATION ID: 641

Anna Paczkowska^{1,2}, Rami Katra¹

¹ Department of Paediatric ENT, Second Faculty of Medicine, Motol University Hospital, Prague, Czech Republic

² Medical University of Gdańsk, Gdańsk, Poland

Introduction

Lymphatic malformations (LMs) are rare congenital anomalies of the lymphatic system with an estimated incidence of 1:2,000-6,000 live births. 1. Approximately 75% involve the head and neck region, where extensive lesions may compromise the airway. 2. Management in newborns is particularly challenging and requires careful multidisciplinary planning.

Aim

To present a case of a massive congenital cervicofacial LM and highlight the complexity of surgical decision-making, potential complications, and functional outcomes.

Methods and materials

A male infant with a prenatally suspected left-sided cervical LM was delivered at term by elective cesarean section, with excellent postnatal adaptation (Apgar score of 10). At two days of age, he underwent first-staged surgery, consisting of extensive cervical dissection of a 6 x 6 cm lymphangioma with parapharyngeal extension. One month later, the patient experienced tongue oedema and apneic episodes, requiring prolonged ventilatory support and subsequent tracheostomy. At 10 months of age, second-stage surgery was performed via an exclusively intraoral approach, achieving complete extirpation of the residual sublingual LM (3 x 3 cm). Cranial nerve function remained intact, cervical spaces were not compromised, and postoperative recovery was uneventful. Temporary feeding difficulties resolved with nasogastric supplementation, speech therapy, and oral desensitization.

Discussion

The staged surgical strategy was chosen to ensure respiratory stability and reduce the risk of postoperative oedema during the neonatal period. Delaying intraoral intervention allowed somatic growth, maturation of tissue planes, and improved anesthetic conditions. A secured airway enabled safe and controlled definitive resection.

Conclusion

Although benign, cervicofacial LMs may become life-threatening due to airway involvement. Staged surgery can improve safety and outcomes. Long-term multidisciplinary follow-up is essential to support functional recovery and quality of life.

PEDIATRICS**A UNIQUE PRESENTATION OF SERONEGATIVE GRANULOMATOSIS WITH POLYANGIITIS IN A PAEDIATRIC PATIENT ID: 750****Swamini Choudhari¹, Aleksandra Stanisławska²**¹ Medical University of Gdańsk, Gdańsk, Poland² Uniwersyteckie Centrum Kliniczne, Gdańsk, Poland**Introduction**

Granulomatosis with polyangiitis (GPA) is an infrequent form of necrotising vasculitis associated with anti-proteinase 3 antineutrophil cytoplasmic antibodies (PR3-ANCA), affecting small to medium-sized vessels. The main symptoms affect the upper and lower respiratory tract and the renal system. As the mean age of onset is approximately 50 years, GPA is rarely observed in the paediatric population.

Aim

The aim is to describe rare symptoms facilitating early diagnosis of paediatric GPA.

Discussion

An 11-year-old male was transferred to the Paediatric Haematology and Oncology department due to persistent bleeding, wound dehiscence and severe swelling around the left Achilles tendon post-tendon lengthening surgery. He also showed signs of gingival bleeding, petechiae, and ecchymoses, especially severe on the upper and lower limbs. Laboratory findings revealed anaemia and progressively decreasing fibrinogen concentrations. He required multiple blood transfusions. Head, including brain computed tomography (CT) showed a chronic epidural hematoma and sinuses with bone destruction. Although serological testing for vasculitis was negative, histopathological findings from skin and gingival biopsies raised suspicion of small-vessel vasculitis, and the overall findings were consistent with seronegative GPA. Once the diagnosis was made, the patient was started on rituximab – a monoclonal antibody targeting CD20, intravenous immunoglobulins (IVIG) and steroids. High-dose steroid therapy resulted in various complications such as Cushing's syndrome and seizures occurred following skull trepanation for hematoma evacuation. Due to prolonged wound healing, the patient underwent multiple surgical and orthopaedic interventions including excision of the necrotic tendon.

Conclusion

Clinical improvement was observed following initiation of treatment. The surgical wound healed, and the patient was discharged one month after admission in good condition; follow-up brain MRI showed no new signs of bleeding. In children, the clinical presentation of GPA may vary, underscoring the importance of diagnosis based on the overall clinical picture.



BALANCING CANCER TREATMENT AND GRAFT PROTECTION - A CHALLENGING LYMPHOMA AFTER HEART TRANSPLANTATION ID: 718

**Agata Dusza¹, Anna Kuraś¹, Zofia Marcula¹, Aleksandra Dembicka¹,
Małgorzata Mitura-Lesiuk²**

¹ Student Scientific Society at the Department of Pediatric Hematology, Oncology and Transplantology, Medical University of Lublin, Lublin, Poland

² Department of Pediatric Hematology, Oncology and Transplantology, Medical University of Lublin, Lublin, Poland

Introduction

Post-transplant lymphoproliferative disease (PTLD) is a diverse group of lymphoid proliferations arising as a consequence of long-term immunosuppression following solid organ transplantation. It is one of the most severe late complications of heart transplantation, particularly in children and adolescents. The reported incidence of PTLD in pediatric heart transplant recipients range from 0.7% to 6.8% and is influenced by EBV status and the degree of immunosuppression. Diffuse large B-cell lymphoma (DLBCL) is one of the most frequent variants of PTLD. It is characterised by pan-B-cell antigen expression, diffuse tissue infiltration, and a high proliferation rate.

Aim

The aim is to describe rare symptoms facilitating early diagnosis of paediatric GPA.

Discussion

The staged surgical strategy was chosen to ensure respiratory stability and reduce the risk of postoperative oedema during the neonatal period. Delaying intraoral intervention allowed somatic growth, maturation of tissue planes, and improved anesthetic conditions. A secured airway enabled safe and controlled definitive resection.

Conclusion

Although benign, cervicofacial LMs may become life-threatening due to airway involvement. Staged surgery can improve safety and outcomes. Long-term multidisciplinary follow-up is essential to support functional recovery and quality of life.

**PEDIATRICS****ONE IN A MILLION – A RARE CASE OF ATYPICAL TERATOID RHABDOID TUMOR ID: 717**

**Aleksandra Szczech¹, Anna Futyma¹, Katarzyna Adamczewska-Wawrzynowicz²,
Marta Andrzejewska²**

¹ The Student Scientific Society of Poznań University of Medical Sciences, Poznań, Poland,
Student Scientific Group of Pediatric Oncology, Hematology and Bone Marrow
Transplantation, Poznań University of Medical Sciences, Poznań, Poland

² Department of Pediatric Oncology, Hematology and Transplantation, Institute of Pediatrics,
Poznań University of Medical Sciences, Poznań, Poland

Introduction

Atypical Teratoid Rhabdoid Tumor (ATRT) is a very rare and aggressive neoplasm of the central nervous system (CNS). It is mostly diagnosed in patients under three years of age; however, occurrence in older children and adults has also been reported. The majority are located infratentorial, in the cerebellum or brainstem, although other parts of the brain and spinal cord may be affected. The clinical presentation is non-specific and varies between patients. Symptoms may arise from increased intracranial pressure; thus, include nausea, vomiting, morning headaches, increased head size, sleepiness, or may be attributable to the localization of the lesion and cause impaired coordination, walking disturbances, vision changes.

Discussion

A 7-month-old infant presented to the Pediatric Emergency Department with a history of vomiting and possetting reported by parents. Physical examination revealed a unilateral head tilt and postural asymmetry. Head magnetic resonance imaging (MRI) identified hydrocephalus and a mass in the posterior cranial fossa within the fourth ventricle. Subsequently, the patient was referred to the Pediatric Oncology Department, where a subtotal surgical resection was performed. The histopathology report revealed the diagnosis of ATRT. Afterward, the patient underwent multiple cycles of chemotherapy, megachemotherapy followed by autologous hematopoietic stem cell transplantation. Despite the aggressive therapy protocols over the course of several months, a follow-up MRI reported progression of the tumor with newly found metastatic lesions in the meninges.

Conclusion

Sparsity of ATRT cases and ambiguous manifestation pose a diagnostic challenge and requires heightened attention and scrutiny from clinicians. ATRT must be differentiated from other CNS neoplasms; thus, the histopathologic report plays a vital role. Despite current advancements in pediatric oncology, numerous cases of ATRT still have an unfavorable prognosis. It exposes the need for further research in this area, which will hopefully lead to the improvement in treatment protocols, and development of novel targeted therapies.



CASE REPORT: SEVERE EARLY-ONSET VALVULAR DISEASE IN MARFAN SYNDROME ID: 704

Patrycja Nowaczyk

Medical University of Gdańsk, Gdańsk, Poland

Introduction

Marfan syndrome is a relatively common autosomal dominant connective tissue disorder caused by FBN1 variants, leading to fibrillin-1 deficiency and dysregulated TGF- β signaling. While aortic root disease is the hallmark of MFS, severe valvular abnormalities requiring cardiac surgery during infancy represent a rare, aggressive phenotype.

Aim

This case highlights that early-onset MFS may be dominated by severe mitral valve disease rather than classic aortic pathology.

Methods and materials

A 7-month-old female was admitted for the diagnostic work-up of suspected congenital toxoplasmosis. A cardiac murmur and subtle facial dysmorphic features were detected, prompting cardiologic work-up and genetic testing. Echocardiography revealed severe mitral regurgitation, moderate tricuspid regurgitation, and aortic root dilatation. A pathogenic FBN1 variant affecting a conserved cysteine (c.3458G>C; p.Cys1153Ser) confirmed the diagnosis of MFS. She underwent mechanical mitral valve replacement and tricuspid annuloplasty. The postoperative course was complicated, requiring ECMO support and management of severe atrioventricular conduction disturbances and atrial tachycardia. Subsequently, the patient developed recurrent, massive intracranial hemorrhages with intraventricular extension, necessitating urgent neurosurgical interventions, including craniotomy and ventriculostomy.

Discussion

MFS affects multiple organ systems, and prognosis typically depends on aortic involvement. However, in this case, severe mitral regurgitation was the deciding factor. Since approximately 25% of FBN1 mutations arise de novo, relying on the Revised Ghent nosology is challenging in infants as features like ectopia lentis are age-dependent, making genetic testing crucial. Loss of a conserved cysteine residue may disrupt critical disulfide bonds in fibrillin modules, contributing to severe cardiovascular involvement. Follow-up revealed left ventricular dilatation with severely reduced systolic function despite a functioning prosthesis, suggesting myocardial involvement.

Conclusion

Due to multiorgan impairment, the patient was transitioned to hospice. This case emphasizes MFS may present with severe early-onset valvular disease, not only aortic pathology, making genetic testing essential for early diagnosis and multidisciplinary care.



PEDIATRICS

LONGITUDINAL LV AND RV DYSFUNCTION IN DUCHENNE MUSCULAR DYSTROPHY CHILDREN – A CASE-CONTROL RETROSPECTIVE STUDY ID: 619

Abhishek Singla, Ritu Amit Chhabria, Jarosław Meyer-Szary

Department of Paediatric Cardiology and Congenital Heart Defects, Medical University of Gdańsk, Gdańsk, Poland

Introduction

Duchenne Muscular Dystrophy (DMD) is associated with early myocardial involvement that might not be detected by conventional systolic parameters. Simple echocardiographic measures of longitudinal ventricular function, like Mitral Annular Plane Systolic Excursion (MAPSE) and Tricuspid Annular Plane Systolic Excursion (TAPSE), may allow earlier identification of cardiac dysfunction in affected children.

Aim

This study sought to compare left and right ventricular (LV and RV) longitudinal systolic functions in children with Duchenne Muscular Dystrophy versus a matched healthy control group.

Methods and materials

This retrospective study compared echocardiograms from 20 genetically confirmed DMD patients and 40 healthy controls selected from 435 patients referred for cardiac complaints but found healthy. Controls were matched for age, height, and weight using propensity score matching and in 1:2 ratio. Left ventricular (LV) long-axis (2D) and systolic functions (lateral/septal MAPSE in M-Mode) and right ventricular (RV) long-axis (2D) and systolic functions (TAPSE in M-mode) were measured. LVEF, derived via the Teicholz-derived ejection fraction, was used for the assessment of concentric LV ejection fraction. Statistical analysis used Wizard 2 software, mean±SD reporting and t-test with $p < 0.05$ considered significant.

Discussion

Matching was successful with no significant difference in age, weight and height between the two groups. All analysed measured indices were found to be significantly ($p < 0.001$) lower in the DMD group: lateral MAPSE (13.1±2.9 vs 16.9±2.5 mm); septal MAPSE (11.7±2.0 vs 15.4±2.5 mm); Concentric LV systolic function (Teichholz-derived ejection fraction) 62.0±6.2% vs 70.5±5.3%; TAPSE 18.7±3.8 vs 24.0±3.2 mm.

Conclusion

Children with DMD demonstrate early marked impairment of both RV and LV longitudinal systolic functions compared with matched healthy controls, supported by the results of MAPSE and TAPSE, as key sensitive markers of myocardial involvement in this population.



DIVERGENT CLINICAL COURSES OF ASPARAGINASE-ASSOCIATED ACUTE PANCREATITIS IN PEDIATRIC ACUTE LYMPHOBLASTIC LEUKEMIA ID: 842

Kacper Wrzosek¹, Maria Leśniak¹, Kamila Mozga¹, Kacper Ponikowski¹, Emilia Kamizela¹, Joanna Zawitkowska²

¹ Student Scientific Society of the Department of Pediatric Hematology, Oncology and Transplantology, Medical University of Lublin, Lublin, Poland

² Department of Pediatric Hematology, Oncology and Transplantology, Medical University of Lublin, Lublin, Poland

Introduction

Pegylated L-asparaginase (PEG-L-ASP) is an essential component of contemporary treatment protocols for pediatric acute lymphoblastic leukemia (ALL), significantly improving survival outcomes. However, its use is associated with potentially severe toxicities, including hepatotoxicity, hypertriglyceridemia, coagulopathy, and acute pancreatitis.

Aim

To compare the clinical presentation, management, and outcomes of two pediatric ALL patients who developed PEG-L-ASP-associated acute pancreatitis with markedly different severity.

Methods and materials

The first patient, a 10-year-old girl with intermediate-risk T-cell ALL, developed CTCAE Grade 3 acute pancreatitis after a single dose of PEG-L-ASP during induction. The episode was complicated by hypertriglyceridemia, hyperammonemia, hypofibrinogenemia, and paralytic ileus. Intensive conservative treatment resulted in gradual recovery. Asparaginase was discontinued, chemotherapy resumed after 18 days, and sustained remission was maintained. The second patient, a 12-year-old girl with high-risk pre-B ALL, experienced recurrent hepatotoxicity and progressive hypertriglyceridemia during treatment. During Protocol IIIA, she developed CTCAE Grade 4 acute pancreatitis accompanied by disseminated intravascular coagulation, severe metabolic acidosis, and multiple organ failure. Despite aggressive supportive therapy and intensive care management, the patient died.

Discussion

These cases illustrate the broad clinical spectrum of AAP. Severe hypertriglyceridemia, coagulopathy, and cumulative exposure to asparaginase may contribute to a fulminant course. Early detection and prompt supportive therapy are crucial, yet even intensive management may not prevent fatal outcomes in high-risk patients.

Conclusion

Asparaginase-associated pancreatitis can vary from reversible toxicity to life-threatening disease. Close monitoring of metabolic and coagulation parameters, particularly in patients receiving repeated asparaginase exposure, is essential to improve early recognition and optimize management strategies.

GYNECOLOGY

FERTILITY PRESERVATION IN A PATIENT WITH BREAST CANCER AND COEXISTING ENDOMETRIOSIS: A CASE REPORT ID: 896

Diana Akhmed, Natalia Karolina Szczepańska, Anna Skowrońska

Medical University of Gdańsk, Gdańsk, Poland

Introduction

Advances in oncologic therapies have significantly improved survival rates among women of reproductive age, making quality of life after treatment, including fertility preservation, an increasingly important aspect of comprehensive care. The coexistence of endometriosis and previous adnexal surgery may further impair ovarian reserve and significantly reduce reproductive potential.

Aim

To present the reproductive outcomes of a multidisciplinary strategy of fertility preservation and post-chemotherapy management in a 39-year-old breast cancer survivor with advanced endometriosis and a significant decrease in ovarian reserve.

Methods and materials

In 2021, prior to the start of neoadjuvant chemotherapy and subsequent breast preservation surgery, controlled ovarian stimulation was performed, allowing cryopreservation of a single euploid embryo. In 2023, after completing cancer treatment and medical clearance for pregnancy, the patient resumed infertility treatment. Post-chemotherapy examination revealed deep ovarian failure with anti-Müllerian hormone (AMH) levels <0.010 ng/ml, follicle stimulating hormone (FSH) levels up to 109 IU/l, and luteinizing hormone (LH) levels up to 82 mIU/l. An individualized treatment plan was implemented, including repeated cycles of ovarian stimulation and the use of GnRH antagonists to reduce significantly elevated gonadotropin levels.

Discussion

Despite biochemical parameters suggesting ovarian failure after chemotherapy and prior ovarian surgery for endometriosis, repeated and carefully tailored ovarian stimulation protocols enabled further follicular recruitment. This approach led to the cryopreservation of one additional euploid embryo in 2024 and two more in 2025. This case demonstrates that even in cases of extreme ovarian failure after chemotherapy, consistent and adapted reproductive management can still lead to successful embryo development.

Conclusion

Early fertility preservation, combined with consistent personalized post-chemotherapy reproductive management, can provide significant reproductive potential even in patients with severe ovarian failure and complex gynaecological comorbidities.



PREMATURE DUCTUS ARTERIOSUS CONSTRICTION WITHOUT IDENTIFIABLE RISK FACTORS: CASE REPORT ID: 860

Anna Skiba

Medical University of Łódź, Łódź, Poland

Introduction

Premature constriction or closure of the fetal ductus arteriosus (DA) is a rare but potentially life-threatening condition leading to right ventricular pressure overload, tricuspid regurgitation, and intrauterine circulatory failure. The primary etiological factor is usually maternal exposure to non-steroidal anti-inflammatory drugs (NSAIDs) or consumption of polyphenol-rich foods in the third trimester.

Aim

The aim of this study is to present a clinical case of restrictive DA flow in a pregnant patient where maternal pharmacological and dietary causes were rigorously excluded, highlighting diagnostic challenges and management strategies.

Methods and materials

A 29-year-old patient in her second pregnancy at 29 weeks of gestation was admitted to the hospital with suspected premature fetal DA constriction. The diagnostic protocol included a detailed maternal interview regarding NSAID intake and diet, which was negative. Serial fetal echocardiography was utilized as the primary diagnostic tool to assess ductal flow velocities and right ventricular function.

Discussion

Despite strict monitoring and prenatal corticosteroid therapy (betamethasone), signs of circulatory failure progressed, necessitating a cesarean section at 31+3 weeks of gestation. A female neonate (1840 g) was delivered in fair condition, with Apgar scores of 6/6/7/7. Postnatal imaging confirmed right ventricular hypertrophy and pulmonary hypertension requiring mechanical ventilation and dobutamine support. The infant was discharged in good general condition on the 47th day of life. The clinical course suggests an idiopathic etiology. This case emphasizes that echocardiographic monitoring is critical for determining the optimal timing of delivery, balancing the risks of severe prematurity against irreversible fetal cardiac decompensation.

Conclusion

The absence of identifiable risk factors does not preclude premature DA constriction. These findings support the inclusion of DA flow assessment in routine third-trimester fetal echocardiography, regardless of maternal history. Further research is necessary to establish currently unknown causes of this pathology.

GYNECOLOGY

FETAL CRANIOFACIAL ANOMALIES BASED ON PRENATAL ULTRASONOGRAPHY ID: 857

Aleksandra Piekut¹, Jakub Siedlar¹, Weronika Żmudzińska², Małgorzata Wachulska¹, Aneta Skoniecka¹, Anna Szablewska³, Michał Piśula¹

¹ Division of Embryology, Department of Anatomy, Scientific Student's Circle ANTE PARTUM, Medical University of Gdańsk, Gdańsk, Poland

² Gameta Infertility Treatment Clinic, Gdynia, Poland

³ Division of Obstetric and Gynaecological Nursing, Medical University of Gdańsk, Gdańsk, Poland

Introduction

Cleft lip and palate are among the most common congenital craniofacial malformations, occurring in approximately 1 in 1000 live births worldwide. Their etiology is multifactorial, involving both genetic and environmental factors. Folate deficiency and exposure to teratogenic agents such as tobacco smoke, alcohol, and certain anti-convulsants increase the risk. Ultrasound detection of craniofacial abnormalities requires a complete assessment of fetal anatomy, as dysmorphic features, especially those associated with central nervous system and limb anomalies, may suggest underlying genetic syndromes and require expanded diagnostic tests.

Aim

This case report aims to present the prenatal diagnosis of cleft lip and palate and to discuss its embryological background, imaging characteristics, and clinical implications for perinatal management.

Methods and materials

This report is based on the analysis of ultrasound results obtained with a Voluson E10 device in a patient at 26 weeks of gestation. The fetus had been diagnosed with a craniofacial cleft at the beginning of the second trimester.

Discussion

Ultrasound allows for the assessment of fetal facial anatomy and morphology between 11 and 14 weeks of gestation. In patients without risk factors, the sensitivity of detecting dysmorphic features in the facial region is 20 – 40%. Due to the more advanced fetal anatomy and improved visibility of structures, the sensitivity of the examination increases in the second and third trimesters of pregnancy.

Conclusion

Early diagnosis of congenital craniofacial malformations improves prognosis by enabling birth planning and the initiation of multidisciplinary postnatal care to minimize functional difficulties in the child.



UTERINE FIBROIDS DO NOT PRECLUDE SUCCESSFUL EMBRYO TRANSFER: A CASE REPORT ID: 837

Natalia Karolina Szczepańska, Anna Skowrońska, Diana Akhmed

Medical University of Gdańsk, Gdańsk, Poland

Introduction

Uterine fibroids are the most common benign tumour in women, affecting up to 70% of the female population. Their presence, in addition to causing heavy periods and abdominal pain, is considered to be a cause of infertility.

Aim

A 42-year-old patient presented for a gynaecological examination due to irregular menstrual cycles and uterine bleeding, which had begun a month earlier. In 2020, the patient underwent laparoscopic removal of uterine fibroids due to heavy menstrual bleeding and lower abdominal pain unrelated to her menstrual cycle, which most possibly were not removed (despite the procedure being described as successful). Then, after continuous attempts to conceive, in 2024 (at the age of 40), the patient enrolled in an in vitro programme, during which 10 cells were collected. Four embryos were obtained. Due to her age, a decision was made to perform pre-implantation genetic diagnosis for embryo aneuploidy. Two embryos were found to be viable. Pregnancy was achieved with the transfer of the first euploid embryo and the birth of a healthy child. Throughout this time, the patient maintained AMH levels above 5 ng/ml, as well as obesity, insulin resistance and hypercholesterolemia.

Methods and materials

To determine the cause of the current issues, a TV ultrasound has revealed a 52x39 mm fibroid in the fundus of the uterus, as well as another one in the posterior wall, measuring 25x16 mm.

Discussion

Due to her age and the size of the fibroids, the patient was advised to consider a rapid transfer of the remaining embryo, with a possible repeat in vitro procedure to obtain further healthy embryos.

Conclusion

This case shows that medical records do not always correspond to the actual clinical situation, and even large fibroids may not be a problem during the transfer of genetically healthy embryos.

GYNECOLOGY

THE USE OF ASSISTED REPRODUCTIVE TECHNOLOGIES IN PATIENT WITH PREMATURE OVARIAN INSUFFICIENCY: A CASE STUDY ID: 816

Anna Skowrońska, Diana Akhmed, Natalia Karolina Szczepańska, Julia Mesjasz

Medical University of Gdańsk, Gdańsk, Poland

Introduction

Premature ovarian failure (POI) is commonly defined as the absence of menstruation or irregular menstruation before the age of 40, accompanied by elevated gonadotropin levels and decreased oestradiol levels. Estimates vary, but suggest that the condition affects 1–3.5% of women, making it a common clinical problem. It is associated with medical consequences such as reduced bone mineral density (BMD), increased risk of cardiovascular disease (CVD), and reduced fertility, prompting patients to undergo assisted reproductive technology (ART) treatments, often involving in vitro fertilisation with oocyte donation (IVF-OD). One option for increasing the chances of pregnancy using autologous oocytes is PRP (platelet-rich plasma) therapy. The administration of platelet-rich plasma under the ovarian cortex is intended to increase the number of simultaneously maturing ovarian follicles (oocytes) in individuals with declining ovarian reserve.

Aim

The aim of this report is to describe the case of infertility treatment in a 31-year-old woman with POI (without any genetic causes found).

Methods and materials

The study is based on a retrospective review of medical records.

Discussion

In 2024, the patient underwent three platelet-rich plasma (PRP) therapies administered to the ovaries. Despite achieving clinical effects of the therapy, i.e. an increase in the number of antral follicles in the ovaries, pregnancy was ultimately not achieved. However, the available evidence suggests that this method has limited effectiveness in cases where there are no primordial follicles in the ovaries, which may ultimately lead to the need to use donor eggs.

Conclusion

The patient is currently undergoing hormone replacement therapy (HRT) and has undergone a hysteroscopic examination and endometrial receptivity testing, which showed reduced pro-inflammatory activity (including a reduced number of NK cells in the endometrium). She is prepared for IVF-OD with stimulation of the immune system in the endometrium by means of scratching prior to embryo transfer.



DIAGNOSTICALLY CHALLENGING CASE OF ABNORMAL FETAL DOPPLER FLOW WITH A SUSPECTED TRUE UMBILICAL CORD KNOT ID: 632

Yelizaveta Nikitsina, Igor Gniadek, Adam Grzeczka, Dariusz Wydra

Medical University of Gdańsk, Gdańsk, Poland

Introduction

True umbilical cord knot is a rare finding, reported in about 0,3-1,2% of pregnancies. Although not all true knots lead to fetal abnormalities, previous studies have shown an increased risk of serious pregnancy outcomes.

Aim

We present a clinically significant case of a 34-year-old gravida 12 para 2 woman after bariatric surgery. The pregnancy was achieved via in vitro fertilization and was complicated by hypothyroidism due to Hashimoto's disease, reactive hypoglycemia, cervical cerclage, and a history of multiple unexplained miscarriages.

Methods and materials

First and second trimester prenatal ultrasound revealed only a single umbilical artery. At 31 weeks abnormal fetal heart rate patterns were observed on cardiotocography, without a definitive diagnosis. At 34 weeks the patient was referred to the hospital due to transient abnormal Doppler findings that raised suspicion of fetal circulatory centralization. During hospitalization, episodic abnormal umbilical artery Doppler flow with transient features of fetal circulation centralization were observed, while cardiotocography remained reassuring. Prenatal ultrasound also revealed a true umbilical cord knot, which was suspected to be the cause of the abnormal Doppler findings. Due to breech presentation, fetal abnormalities of unclear etiology, and the mother's complex obstetric history, an elective cesarean section was performed at 37 weeks and 1 day. A male infant was delivered in good condition, with Apgar scores of 10.

Postnatally, congenital anal atresia was diagnosed, which had not been detected prenatally. Surgical correction was successfully performed on day 13 of life. No additional anomalies were found, and the infant was discharged in good condition on day 19.

Discussion

True knots may coexist with other maternal or fetal complications, which may or may not be causally related.

Conclusion

This case highlights potential correlations between multiple coexisting maternal and fetal risk factors and underscores diagnostic challenges associated with umbilical cord abnormalities and limited prenatal detection of anorectal malformations.

BIOTECHNOLOGY**MAPPING GLOBAL IN SILICO ANTILEISHMANIAL RESEARCH: INSIGHTS ON MOROCCO'S CONTRIBUTION
ID: 852****Mohammed-Yassine Takzima, Mohamed Echchakery, Mohamed Hafidi, Loubna El fels**

Laboratory of Water Sciences, Microbial Biotechnologies, and Natural Resources Sustainability (AQUABIOTECH), Unit of Microbial Biotechnologies, Agrosciences, and Environment (BIOMAGE) – CNRST Labeled Research Unit N°4, Faculty of Sciences-Semlalia, University Cadi Ayyad, Marrakech, Morocco

Introduction

Leishmaniasis remains a major neglected tropical disease affecting millions of people worldwide, particularly in low- and middle-income countries. Despite its significant public health burden, therapeutic options are limited by toxicity, resistance, high costs, and lengthy drug development processes.

Aim

This bibliometric study maps the global scientific landscape of antileishmanial research employing in silico methodologies, with a particular focus on Morocco's scientific contributions.

Methods and materials

Publications indexed in the Scopus database between 2006 and 2024 were retrieved using the keywords “antileishmanial” and “in silico.” A total of 281 eligible documents were analyzed using VOSviewer and the Bibliometrix to evaluate temporal publication trends, geographic distribution, keyword networks, journal impact, and institutional productivity.

Discussion

Results reveal a marked expansion of research output over time, with publications increasing substantially from 31 articles (11%) during 2006–2015 to 250 articles (89%) during 2016–2024, reflecting the growing integration of computational approaches in antileishmanial drug discovery. Brazil (78 publications), India (70), and Iran (21) emerged as the most productive countries, consistent with the endemic burden of leishmaniasis in these regions. Additional contributions from the United States, Pakistan, and the United Kingdom further consolidated global research activity, together accounting for nearly half of the total output. Conversely, several scientifically advanced nations, including China, Germany, and France, demonstrated comparatively limited engagement in this specialized domain. Within the African context, Morocco ranks among the leading contributors; however, its overall scientific production remains modest, with 17 publications and a relatively low citation impact (mean citations = 3). Notably, no multiple-country publications were identified for Morocco, indicating weak international collaboration networks.

Conclusion

These findings underscore the necessity for strategic investment in computational parasitology, stronger interdisciplinary partnerships, and integration into global research consortia. This analysis offers a data-driven foundation to inform national research policies and capacity-building initiatives aimed at strengthening Morocco's position in antileishmanial drug discovery.



DECODING CIRCULATING NEUTROPHIL PHENOTYPES IN TRIPLE-NEGATIVE BREAST CANCER VIA OPTIMIZED SINGLE CELL RNA SEQUENCING ID: 790

**Marcin Banacki^{1,2}, Krzysztof Pastuszak^{1,3}, Michał Sieczyński¹,
Iwona Inkielewicz-Stępnia², Anna Supernat^{1,3}, Anna Żaczek¹**

¹ Laboratory of Translational Oncology, Intercollegiate Faculty of Biotechnology of the University of Gdańsk and the Medical University of Gdańsk

² Department of Pharmaceutical Pathophysiology, Faculty of Pharmacy, Medical University of Gdańsk

³ Centre of Biostatistics and Bioinformatics, Medical University of Gdańsk

Introduction

Neutrophils play an increasingly recognized role in progression of cancer, including breast cancer. However, their low RNA content leads to difficulty in distinguishing these cells from other leukocytes. Methods to identify and characterize circulating neutrophils in liquid biopsies are therefore needed to understand their contribution to cancer biology.

Aim

This study aimed to develop and validate a computational framework for neutrophil identification in scRNA-seq liquid biopsy data and to characterize transcriptomic differences between circulating neutrophils from breast cancer patients and non-malignant controls.

Methods and materials

Buffy coats were isolated from 15 blood samples: 9 from breast cancer patients (3 luminal B and 6 triple-negative breast cancer (TNBC)) and 6 from non-malignant controls. Single-cell RNA sequencing was performed. Neutrophils were identified using a curated panel of 17 core and 11 booster neutrophil markers, with 5 exclusion markers and UCell-based scoring. Differential expression and gene ontology analyses assessed neutrophil heterogeneity, focusing on TNBC. Unsupervised clustering was performed to assess similarity in transcriptomic profile of luminal B, TNBC and control blood neutrophils.

Discussion

TNBC neutrophils exhibited upregulation of mitochondrial respiration-related genes and enhanced migration. Clustering revealed transcriptomic overlap between luminal B and TNBC neutrophils, forming clusters distinct from controls. The framework enables detection of circulating neutrophils despite low RNA content. The upregulation of mitochondrial respiration-related genes may indicate increased energy demand associated with enhanced migration. The main limitations of the study are the low number of identified neutrophils coupled with a modest number of enrolled patients.

Conclusion

This study provides a validated scRNA-seq-based framework for precise neutrophil identification in liquid biopsies and demonstrates that circulating neutrophils in TNBC and luminal B breast cancer have distinct transcriptional profiles compared with controls. These findings highlight cancer-induced reprogramming of circulating neutrophils and support the potential of neutrophil transcriptomic signatures as accessible biomarkers in TNBC.

BIOTECHNOLOGY

IDENTIFICATION OF HUB GENES AND SIGNALING PATHWAYS IN REMISSION-STAGE JUVENILE IDIOPATHIC ARTHRITIS BY BIOINFORMATICS ANALYSIS ID: 702

Balaussa Seitkhan, Arailym Abilbayeva, Elmira Bitanova

Asfendiyarov Kazakh National Medical University, Almaty, Kazakhstan

Introduction

Juvenile idiopathic arthritis (JIA) comprises a heterogeneous group of chronic inflammatory joint disorders in children under 16, often resulting in disability, growth impairment, and systemic complications. Achieving clinical remission on medication (CRM) is a key treatment goal in JIA. However, transcriptomic data indicate that drug-induced remission may not restore immunological normalcy, necessitating biomarkers to identify this state and predict long-term stability.

Aim

To identify hub genes and signaling pathways characterizing the persistent immune imbalance in the granulocyte transcriptome of patients with polyarticular JIA in CRM.

Methods and materials

Transcriptomic data from granulocytes (GSE41831) of 12 patients with polyarticular JIA in CRM on combination therapy and 13 healthy children were analyzed. Differentially expressed genes (DEGs) were identified using GEO2R with thresholds of adjusted p-value < 0.05 and $|\text{Log FC}| \geq 0.5$. Functional enrichment analysis was performed using Enrichr through GO, KEGG and Reactome databases. A protein-protein interaction (PPI) network was constructed using STRING and visualized in Cytoscape, with hub genes identified via the CytoHubba plugin with the maximal clique centrality (MCC) algorithm.

Discussion

A total of 232 DEGs were identified from 54,675 analyzed genes, of which 99 downregulated, 133 upregulated. Functional enrichment analysis clustered into two major functional categories: reorganization of the actin cytoskeleton and dysregulation of amino acid metabolism alongside pro-inflammatory signaling. These processes align with the activated state of granulocytes, indicating persistent cellular activity in CRM. The PPI network comprised 126 nodes and 498 edges. The MCC algorithm identified 10 hub genes, among which HSP90AB1 and HSP90AA1 were the most prominent, suggesting they act as key regulators of the observed molecular imbalance.

Conclusion

Despite achieving clinical remission, patients with polyarticular JIA exhibit a persistent, activated transcriptomic profile in their granulocytes. The elevated expression of HSP90AB1 and HSP90AA1 may represent these genes as candidate biomarkers for subclinical immune imbalance and potential therapeutic targets to achieve deeper remission.



INCREASING THE ACCESSIBILITY OF MEDICAL SERVICES USING IOTM DEVICES BASED ON SDR TECHNOLOGY

ID: 675

Edvinas Norvilas¹, Kamilė Kairiūkštytė², Laimonas Kairiūkštis³

¹ KTU, Kaunas, Lithuania

² LSMU, Kaunas, Lithuania

³ LIK, Kaunas, Lithuania

Introduction

The integration of the Internet of Things in healthcare has transformed personalized care of patients by enabling real-time, remote health monitoring without the need of consistent visits by healthcare specialist. This digital health model is particularly helpful for chronically ill patients, who faces often challenges in chronic disease management.

Aim

The aim of project is to design a novel, non-invasive, easily deployable, flexible IoTM device based on SDRs. The proposed system also allows us to modify the power level of transceiver model, change the operating frequency, use self-design antennas and change the number of subcarriers in real-time. The proposed system can potentially fulfill the needs of future in-home health activity monitoring and is a viable alternative for monitoring public health and well-being.

Methods and materials

This study is conducted based on the articles obtained through scientific databases of TaylorandFrancis, SpringerLink, IEEE and Wiley Online Library. The search has been done using the combination of keywords SDR, personalized medicine, IoT, healthcare, non – invasive.

Discussion

Software defined Radio is widely applicable for non-invasive measurement of health-related health indicators, such as pulse, respiratory rate, and electrocardiogram. The application of this technology to laboratory tests such as blood typing is also being considered. During the Covid pandemic, people also considered what technology could replace the sensors currently used, so that it would be cheap, easy to install, and would not require contact with the patient. This is precisely what SDR technology provides, and therefore it can be used for remote health-care of elderly or chronically ill patients, recording their movements and other vital signs, thus avoiding frequent visits to medical specialists.

Conclusion

Delays in receiving medical services can lead to severe disease complications. The implementation of SDR as a non-invasive technology for real-time health data monitoring presents a viable solution to this problem, enabling proactive care and timely intervention.

POSTER SESSION

**BEYOND THE BRAIN: SSRIS ON AN OFF-TARGET
ENDOTHELIAL MISSION ID: 839****Jakub Jarczewski, Patryk Mucha, Sylwester Dumała, Marta Tomczyk**

Department of Biochemistry, Medical University of Gdańsk, Gdańsk, Poland

Introduction

Major depressive disorder is increasingly prevalent, and selective serotonin reuptake inhibitors (SSRIs) remain first-line pharmacotherapy. Beyond their canonical neuronal mechanism, attention has turned to potential off-target effects in peripheral tissues. Because endothelial cells express serotonergic receptors and may also express serotonin transport machinery, SSRIs could directly modulate vascular pathways.

Aim

This study investigated the effects of selected SSRIs, including sertraline, fluoxetine, and paroxetine, on bioenergetics, redox status, extracellular purine handling, and endothelial activation markers in human microvascular endothelial cells (HMEC-1).

Methods and materials

HMEC-1 cells were cultured in dedicated medium, then treated for 24 h with 1 μ M sertraline, fluoxetine, or paroxetine. Intracellular nucleotide levels were quantified by high-pressure liquid chromatography (HPLC). Extracellular adenine nucleotide catabolism (ecto-adenosine deaminase/CD39/CD73) was assessed by sequential incubation with adenosine, adenosine triphosphate (ATP), and adenosine monophosphate (AMP) (50 μ M), with time-course sampling and HPLC-based activity calculation normalized to protein concentration. Reactive oxygen species (ROS) were measured using a fluorometric intracellular ROS kit, while increasing vascular cell adhesion molecule-1 (VCAM-1) and intercellular adhesion molecule-1 (ICAM-1) expression was analyzed by immunofluorescence with microscopy-based quantification.

Discussion

SSRIs alter metabolism and redox status of HMEC-1 endothelial cells in a drug-specific manner. All tested SSRIs shifted adenylate balance toward high-energy states, increasing ATP/ADP ratio and energy charge without changing total ATP. Sertraline and fluoxetine additionally decreased NADH and attenuated ROS generation. Only sertraline reduced extracellular ATP degradation, shifting purine availability toward adenosine – potentially endothelium-protective via the CD39/CD73 axis. Fluoxetine decreased ICAM-1, while paroxetine increased VCAM-1, suggesting drug-specific immunomodulatory effects.

Conclusion

Collectively, these findings suggest that SSRIs can modulate endothelial energy/redox balance and purinergic signaling in a drug-dependent manner, supporting their further mechanistic and translational studies in other vascular models.



ENHANCEMENT OF EPIGALLOCATECHIN GALLATE YIELD FROM CAMELLIA SINENSIS AS A POTENTIAL ANTISENESCENT AGENT ID: 913

Krume Bogeovski, Viktorija Maksimova, Biljana Lazarova

Department of Pharmacy, Faculty of Medical Sciences, Goce Delcev University, Shtip, Republic of North Macedonia

Introduction

Epigallocatechin gallate is a bioactive polyphenol derived from *Camellia sinensis* and is widely recognized for its antioxidant and cytoprotective properties. Oxidative stress plays a central role in cellular aging, chronic inflammation, and the development of cardiovascular, metabolic, and neurodegenerative diseases. EGCG has been shown in previous studies to modulate redox-sensitive signaling pathways involved in these processes. However, conventional extraction methods produce suboptimal yields due to incomplete release of catechins from plant cell walls, limiting the efficiency of biomedical applications.

Aim

To optimize enzyme-assisted extraction conditions and improve EGCG yield from *Camellia sinensis* leaves compared to standard solvent extraction methods.

Methods and materials

Dried *Camellia sinensis* leaves were subjected to enzyme-assisted extraction using pectinase under varying concentrations, temperatures, pH conditions, and incubation times. Several extraction media were tested, including water, acetate buffer, glycerol, and phosphate buffer. EGCG content was quantified using spectrophotometric UV/VIS analysis.

Discussion

Extraction efficiency was significantly influenced by the solvent system. Although acetate buffer supported pectinase activity, it led to catechin degradation, indicated by absorbance peaks associated with oxidative byproducts. Glycerol preserved catechin integrity, but showed limited efficiency. Phosphate buffer provided the optimal balance between enzyme activity, compound stability, and yield. A positive correlation between pectinase concentration and EGCG recovery was observed.

Conclusion

Phosphate buffer-assisted, enzyme-based extraction represents a promising strategy for maximizing EGCG yield. Further optimization may support scalable production and facilitate further research into its potential preventive applications in oxidative stress-related disorders.

POSTER SESSION

CASE REPORT OF A HYDATID CYST IN THE ANTERIOR MEDIASTINUM ID: 912

**Jacek Szulc¹, Katarzyna Rodak², Magdalena Mnichowska-Polanowska³,
Arkadiusz Waloryszak¹, Konrad Ptaszyński², Tomasz Grodzki¹, Małgorzata Wojtyś¹**

¹ Department of Thoracic Surgery and Transplantation, Pomeranian Medical University in Szczecin, Szczecin, Poland

² Department of Pathology, Regional Hospital SPWSZ in Szczecin, Szczecin, Poland

³ Department of Microbiology Immunology and Laboratory Medicine, Pomeranian Medical University in Szczecin, Szczecin, Poland

Introduction

Human echinococcosis is a parasitic disease caused by accidental ingestion of tapeworm eggs. Cystic echinococcosis (CE) is one of its main forms caused by infection with *Echinococcus granulosus*. In most cases, it causes an intrahepatic lesion, which remains asymptomatic until it causes complications or reaches a significant size. According to the latest report of the European Centre for Disease Prevention and Control in 2022 there were 731 cases of echinococcosis in EU countries.

Methods and materials

We report a case of a 69-year-old male patient, admitted to the hospital due to intermittent chest pain. Medical history of the patient revealed that in 1966 he underwent a left posterolateral thoracotomy due to CE in the left lung. Since that operation he hasn't had any symptoms suggestive of active echinococcosis. Chest computed tomography due to the recent chest pain revealed a well-defined, cystic, hypodense lesion in the left anterior mediastinum, measuring approximately 58 mm × 62 mm × 77 mm. The cyst was surgically removed by thoracotomy with excision of the old scar and removal of the left fifth rib. The operation had to be performed carefully in order to avoid rupture of the cyst and contamination. Frozen section revealed protoscolices with suckers and hooklet rings and a brood capsule containing protoscolices. This led to a diagnosis of cystic echinococcosis, which was confirmed by serological testing. The postoperative course was uneventful and the patient was later transferred to the Department of Infectious Diseases.

Discussion

Hydatid cyst located in the anterior mediastinum is extremely rare, since it accounts for 0.5-2.6% of all cases of hydatid cysts. In the presented case the history of patients past treatment for CE was of major importance in the diagnostic process.

Conclusion

The presented case highlights the importance of a thorough diagnostic workup in cases of mediastinal cystic lesions and the importance of multidisciplinary cooperation.



SAWAMURA THORACOPLASTY - A FORGOTTEN SINGLE-STEP SURGICAL PROCEDURE FOR MANAGEMENT OF COMPLEX PLEURAL EMPYEMA ID: 911

**Kostas Kostopanagiotou¹, Jacek Szulc², Kostas Papagiannopoulos³,
Małgorzata Wojtyś²**

¹ Thoracic Surgery Department, Attikon University Hospital of Athens, Athens, Greece

² Department of Thoracic Surgery and Transplantation, Pomeranian Medical University, Szczecin, Poland

³ Thoracic Surgery Department, St. James's University Hospital, Leeds, United Kingdom

Introduction

Traditional treatment of complex chronic pleural empyema may require thoracoplasty with rib(s) resection. Such procedures involve several stages and result in deformation of the thoracic cage. Moreover, the postoperative care requires involvement of an experienced community care team and high patient compliance.

Aim

We describe a forgotten technique for the management of complex empyema known as Sawamura thoracoplasty or Kinchu method. With this method, the ribs are preserved but stripped of periosteum and surrounding soft tissues, which are directed to collapse deep into the pleural cavity, thereby collapsing the pleural space.

Methods and materials

We present three male patients (60-, 75- and 55-year-old) with complex pleural empyema who were successfully treated using Sawamura technique. In two cases serratus anterior flap was used to repair a bronchopleural fistula and in one case a vacuum therapy for subcutaneous wound was introduced. After the procedure, the patients spent an average of 5 days in the intensive care unit. There was no need for repeated operation and no infectious complications.

Discussion

Sawamura technique proves an attractive alternative to traditional management of complex pleural empyema. This is a single-step procedure, which is an important advantage in patients with low compliance and in practices with limited resources. Another advantage of the Sawamura thoracoplasty is a relatively good cosmetic result.

Conclusion

We hope that our report will help raise awareness of this technique.

POSTER SESSION

**RECURRENCE OF NON-MELANOMA SKIN CANCERS
IN THE HEAD AND NECK AREA – A SINGLE-CENTER
RETROSPECTIVE ANALYSIS ID: 891**

**Monika Wojarska¹, Karol Mitas², Paulina Bernecka², Maria Gac², Amelia Glinko,
Samira Kierat, Gabriela Ratajczyk, Marija Turek, Adrianna Włoch, Jerzy Jankau**

¹ Plastic Surgery Department, Medical University of Gdańsk, Gdańsk, Poland

² Student Scientific Circle of Plastic Surgery, Faculty of Medicine, Medical University of Gdańsk, Gdańsk, Poland

Introduction

Non-melanoma skin cancers (NMSCs) in the head and neck area represent a therapeutic challenge due to complex anatomy, functional considerations, and the high prevalence in high-risk anatomical zones. Local recurrence remains a clinically relevant problem, yet real-world data on recurrence patterns and associated risk factors in facial NMSCs is limited.

Aim

To assess recurrence rates of facial skin cancers following surgical excision and to explore clinical, anatomical, and histopathological factors associated with recurrence.

Methods and materials

This retrospective cohort study included consecutive facial NMSC excised at a single institution. Clinical and pathological data were extracted from medical records. The primary outcome was histologically confirmed local recurrence. Categorical variables were analyzed using Fisher's exact test, and continuous variables using the Mann–Whitney U test. Logistic regression was performed to explore factors associated with recurrence.

Discussion

A total of 346 lesions were analyzed, with recurrence status available for 344 tumors. The overall recurrence rate was 27%. BCC was the most common tumor type. Recurrences occurred more frequently in anatomically high-risk areas, particularly the temple and nose.

Infiltrative BCC subtypes demonstrated higher recurrence rates compared with nodular and superficial subtypes. The median age for patients with recurrent tumors was lower than of those without recurrence. A history of prior skin radiotherapy was associated with higher odds of recurrence. Surgical margin width and tumor size were not significantly associated with recurrence. Multivariate models showed limited discriminatory ability, indicating that recurrence risk is influenced by additional unmeasured factors.

Conclusion

The recurrence of non-melanoma skin cancers in the head and neck area remains frequent in routine clinical practice, particularly in high-risk anatomical regions and aggressive histological subtypes. These findings highlight the need for careful long-term follow-up and support further prospective studies to refine recurrence risk evaluation and optimize NMSCs treatment strategies.



THE IMPACT OF NEW GENERATION NICOTINE PRODUCTS ON DEVELOPMENT OF PERIODONTAL DISEASES ID: 851

Aleksandra Łagudza¹, Olga Myślica¹, Magdalena Górską-Ponikowska²

¹ Medical University of Gdańsk, Gdańsk, Poland

² Katedra i Zakład Chemii Medycznej, Medical University of Gdańsk, Gdańsk, Poland

Introduction

Nicotine pouches are a new and very popular but come with real danger.

Aim

The objective of the conducted literature was to answer the question if nicotine pouches are harmful and to check if users, medical professionals and medical students are aware of the risk that comes with regular usage.

Methods and materials

The literature review included original articles, case reports and questionnaires found by using data bases such as PubMed and ReaserchGate, dated from 2008 to 2024. Key words used in research were nicotine pouches, leucoplakia and gingivitis.

Discussion

Cross analysis of the reviewed papers was difficult due to the fact that they focused on different age. A significant amount of literature focused on young people, which indicates that this group is mostly affected by the influence of all new kinds of nicotine products. The results show that leucoplakia often develops in the place of putting the nicotine pouch close to the gingival membrane. Moreover, it is commonly observed that the medical environment still lacks awareness about how dangerous nicotine pouches really are and that they do not constitute a safe substitute for cigarettes. Researchers mostly focused on young people and people who are changing their customer behaviour in terms of nicotine usage. No information of the effect of the nicotine pouches on people who never smoked before was found and there is very few research so far on the histopathological changes of the mucosal membrane caused by nicotine pouches usage.

Conclusion

It is advised to put more focus on education that targets mostly young people and explains the real consequences and the impact of the nicotine pouches usage on the oral health. The researchers stress the need of concluding more studies with the biopsy of the mucosa and histopathological examinations.

POSTER SESSION

PREVENTION OF CONGENITAL DEFECTS IN MATERNAL PHENYLKETONURIA: THE VITAL ROLE OF PRECONCEPTION CARE / CASE REPORT ID: 849

Maja Hajdasz, Marzena Strahl

Medical University of Gdańsk, Gdańsk, Poland

Introduction

Maternal phenylketonuria (MPKU) is a rare condition in obstetrics and requires close monitoring. It is caused by mutations in the PAH gene, resulting in a lack of production of the enzyme phenylalanine hydroxylase, which leads to excessively high levels of phenylalanine in the blood. Phenylalanine is a substance that crosses the placenta and enters the fetal bloodstream, where it has a teratogenic effect. Therefore, the key and only way to control pregnancy with phenylketonuria is through an appropriate diet for the mother.

Aim

The aim of this study is to present the key importance of preconception and prenatal care in order to prevent complications in the newborn resulting from high concentrations of phenylalanine in the pregnant woman's blood.

Methods and materials

The study used a case study method, with anonymized patient consent and contemporary scientific publications. The study is retrospective in nature.

Discussion

The newborn was found to have many severe defects in the fields of neonatology, neurology, cardiology, pulmonology, and physiotherapy. The newborn was born at 38 weeks of pregnancy, weighing 2150 g, with a head circumference of 29 cm. Obstetric care was provided to the pregnant woman from the 23rd week of pregnancy. The pregnant woman did not monitor her phenylalanine levels, did not follow a diet, and smoked during pregnancy. Microcephaly with a reduced corpus callosum and facial dysmorphic features was diagnosed. Imaging studies confirmed multiple heart defects and resulting changes affecting the lungs. Hypertension was noted, particularly in the upper girdle area. Analysis of scientific publications shows these to be characteristic defects in newborns with unstable maternal phenylketonuria during pregnancy.

Conclusion

Analysis of medical records and test results indicates the need to consider increased education for patients with this disease during the preconception and prenatal periods. Pregnant women should receive holistic care from specialists in dietetics, obstetrics, and pediatrics.



SAUNA BATHING AS A POTENTIAL PROTECTIVE FACTOR AGAINST ALZHEIMER'S DISEASE: A SYSTEMATIC REVIEW

ID: 843

Ola Mahdi, Shandelle Aguilera Euceda

Medical University of Warmia and Masuria, Faculty of Medicine, Olsztyn, Poland

Introduction

Alzheimer's disease (AD) is a progressive neurodegenerative disorder and a leading cause of dementia worldwide. Increasing focus has been placed on modifiable lifestyle factors that may reduce disease risk. Sauna bathing, widely practiced in Nordic countries, has been associated with cardiovascular and neurological benefits, potentially through improved vascular function, reduced inflammation, and enhanced heat shock protein activity. Although observational studies suggest that regular sauna use may lower the risk of dementia and AD, the evidence has not been comprehensively synthesized. This systematic review evaluates the association between sauna bathing and cognitive outcomes in human populations.

Aim

To systematically review existing human studies to evaluate whether sauna bathing is associated with a reduced risk of dementia and Alzheimer's disease.

Methods and materials

This review was conducted in accordance with PRISMA guidelines. A systematic search of PubMed/MEDLINE, Embase, and Web of Science was performed up to 2025. Five prospective cohort studies, comprising over 12,000 participants, met the inclusion criteria. Eligible studies assessed sauna exposure in relation to dementia or AD outcomes. Data extracted included study design, participant characteristics, sauna frequency, and adjusted risk estimates. Study quality was evaluated using the Newcastle–Ottawa Scale.

Discussion

Most prospective cohort studies, mainly from Finland, suggest that frequent sauna use may lower the risk of dementia and Alzheimer's disease, with the strongest benefits seen in those using saunas four to seven times per week. These findings may reflect improved cardiovascular function, reduced inflammation, and enhanced heat shock protein activity. While the studies accounted for factors like age, physical activity, and socioeconomic status, their focus on Finnish populations limits generalizability, and more research in diverse populations is needed to confirm these effects.

Conclusion

Frequent sauna bathing is associated with a reduced risk of dementia and Alzheimer's disease. However, causality cannot be established, and further large-scale studies in diverse populations are needed.

POSTER SESSION

LEUKAEMIA CUTIS AS THE FIRST MANIFESTATION OF NPM1- AND FLT3-ITD-MUTATED ACUTE MYELOID LEUKAEMIA: A CASE REPORT ID: 840

Anna Stasiewicz, Paulina Klimek-Trojan, Natalia Zdanowska, Agnieszka Owczarczyk

Clinic and Department of Dermatology, Sexually Transmitted Diseases and Clinical Immunology, School of Medicine, University of Warmia and Mazury, Olsztyn, Poland

Introduction

Skin infiltration by leukemic cells, defined as leukaemia cutis (LC), develops in approximately 5-10% of patients with acute myeloid leukaemia (AML). Although LC typically follows or occurs simultaneously with the diagnosis of hematologic malignancy, it may be the primary manifestation in a minority of cases (2-3%), generally associated with advanced disease, and unfavourable prognosis [2]. Certain genetic aberrations, particularly NPM1, FLT3-TKD, and FLT3-ITD mutations, have been reported to correlate with LC development.

Aim

To discuss the clinical presentation and challenges in recognizing cutaneous lesions as the initial manifestation of systemic leukaemia, and their association with specific mutations.

Methods and materials

A 65-year-old man presented to the Dermatology Clinic with a 6-week history of disseminated, painless skin lesions accompanied by fatigue and night sweats. Physical examination revealed multiple well-demarcated, erythematous-brown papules and nodules on the face, neck, trunk, and extremities. Diagnostic workup included laboratory examination, peripheral blood smear, histopathology evaluation of skin lesions, and bone marrow biopsy with immunophenotyping. Molecular studies identified NPM1 and FLT3-ITD mutations, establishing the diagnosis of AML. The patient was referred to the Haematology Department for further management.

Discussion

The clinical presentation of LC varies widely. Skin lesions include papules, plaques, nodules, macules and ulcers, posing a diagnostic challenge in distinguishing it from other dermatological conditions. Both NPM1 and FLT3-ITD mutations have been identified in LC with mixed prognostic implications – NPM1 alone suggests a favourable prognosis, whereas FLT3-ITD is associated with poor outcomes and extramedullary involvement.

Conclusion

AML diagnosis may be preceded by nonspecific skin lesions, whose rapidly progressive and disseminated character should prompt blood, skin, and bone marrow evaluation. A comprehensive approach enables early diagnosis and targeted treatment initiation, which is particularly significant considering the poor outcomes associated with this presentation. Since cutaneous lesions in AML may be related to specific mutations, genetic testing is an essential diagnostic tool in patients with LC.



NEW FRONTIERS IN SCIENCE COMMUNICATION: A PILOT RESEARCH ON GMO AWARENESS AT UNIVERSITY OF GDAŃSK ID: 830

Zuzanna Wysocka¹, Katarzyna Rosiak², Aleksandra Czumaj³

¹ Student Scientific Circle of the Department of Biochemistry, Medical University of Gdańsk, Gdańsk, Poland

² Faculty of Pharmacy, Medical University of Gdańsk, Gdańsk, Poland

³ Department of Pharmaceutical Biochemistry, Medical University of Gdańsk, Gdańsk, Poland

Introduction

Genetically modified organisms (GMOs) are the subject of an ongoing, complex public debate, often influenced by misinformation and unequal access to reliable scientific knowledge. As we explore “New Frontiers in Science and Medicine,” the ability to distinguish between biotechnological myths and evidence-based facts is becoming a vital component of public health literacy. The academic environment, as a center for future professionals and decision-makers, plays an important role in shaping societal attitudes toward genetic engineering.

Aim

The main purpose of the study was to assess self-reported knowledge and to identify information sources related to GMOs among the academic community.

Methods and materials

This pilot study was conducted using an original online questionnaire distributed among 108 volunteers from the University of Gdańsk.

Discussion

The initial results show that the vast majority of respondents (96%) are familiar with the term GMOs, but only 19.3% perceive their knowledge on this subject as sufficient. Nearly half of the participants (46.3%) indicate that the main reason for poor knowledge is limited access to reliable information sources. A clear majority of respondents (64.8%) believe that information concerning the impact of GMOs on public health should be more widely available, and they express the most trust in scientists as a reliable source of information.

Conclusion

The results suggest that the controversy surrounding GMOs stems mainly from limited access to trustworthy information, even within the academic environment. Improving public understanding of the specific purposes and long-term impacts of GMOs is essential to bridge the knowledge gap. Enhancing educational initiatives and promoting reliable, evidence-based sources may significantly contribute to increased public trust, facilitating the acceptance of future “New Frontiers” in medical biotechnology.

POSTER SESSION

ELECTROCHEMICAL IMPEDANCE SPECTROSCOPY (EIS) AS A TOOL FOR CONTINUOUS MEASUREMENT OF SEPSIS MARKERS ID: 712

Mikołaj Walkowicz, Szymon Bierzanowski

Medical University of Gdańsk, Gdańsk, Poland

Introduction

During sepsis, both pro-inflammatory and immunosuppressive mediators are released into the bloodstream. Numerous studies have demonstrated correlations between the concentrations of specific compounds and the development of sepsis in patients. Recently, increasing attention has been paid to the need to measure a broader panel of biomarkers and to account for temporal trends in their levels. In this context, electrochemical impedance spectroscopy (EIS) appears to be a particularly promising approach.

Aim

Our goal will be to present an overview of currently available technical solutions used to measure the concentration of cytokines and other mediators of sepsis in real time using the EIS method. We will also draw attention to this selection of markers that could be most optimal for predicting the onset of sepsis.

Methods and materials

A comprehensive literature review was conducted in publicly available medical journal databases (Google Scholar and PubMed). In addition, we also analysed review papers discussing the feasibility of continuous monitoring of the concentration of specific biomarkers in vivo in general.

Discussion

The use of impedance allows for extremely accurate determination of individual substances in blood. When it comes to choosing a set of markers, we believe that it should be based on a wide spectrum of substances that allow for the detection of both the hyperinflammatory and immunosuppressive states associated with sepsis (eg TNF- α , IL-1 β , IL-6, IL-10) and allow for the identification of non-bacterial causes of sepsis (e.g. IP-10 or sTREM-1) and markers of general organ failure (eg. lactate).

Conclusion

EIS is a highly promising technique that allows for real-time measurement of the concentration of many biomarkers in the human body. Although certain technical challenges remain, further development of this method may significantly improve the detection and monitoring of sepsis-related biomarkers.



FEAR OF DENTAL TREATMENT AS A PUBLIC HEALTH PROBLEM - SOCIAL AND ECONOMIC CONSEQUENCES

ID: 740

Olga Myślicka, Aleksandra Łagudza, Weronika Ciećko, Ewa Bandurska

Gdański Uniwersytet Medyczny, Gdańsk, Poland

Introduction

Dentophobia is defined as an intense fear associated with visiting the dentist. Fear of dental treatment is a complex phenomenon that extends beyond individual patient experiences, affecting the functioning of healthcare systems and patients' quality of life. Understanding it is essential for developing appropriate intervention strategies.

Aim

The aim of this study was to analyze the social and economic consequences of dentophobia and to identify possible actions in order to reduce its prevalence and impact on healthcare costs.

Methods and materials

A non-systematic literature review was conducted using the PubMed and ScienceDirect databases. The reviewed literature included publications from 2009 to 2025 and encompassed all age groups. The keywords for research were: dentophobia, dental fear and anxiety, dental health expenditure, and costs of dental treatment.

Discussion

Dental fear affects 15.3% of adults and 23.9% of children and is more prevalent among women than men. It can be caused by previous negative experiences, environmental factors, genetic predisposition, level of education, and general sensitivity. Socioeconomic factors may also constitute a barrier—one in three Poles reports having forgone out-of-pocket dental treatment due to its cost. Avoidance of dental visits can lead to deterioration of oral health and contribute to systemic diseases, resulting in the need for more expensive and invasive procedures and possible intensification of anxiety. According to a World Health Organization report, the economic burden of oral diseases in 2019 was estimated at USD 710 billion, including USD 387 billion in direct costs and USD 323 billion in indirect costs related to loss of professional productivity. Dental prevention is considered cost-effective, as early dental interventions lead to fewer future visits and lower treatment costs.

Conclusion

Fear of dental care is a widespread threat to health across all age groups. An integrated, personalized approach is crucial, with particular emphasis on communication strategies that take into account patient predispositions.

POSTER SESSION

WHEN AML PRESENTS OUTSIDE THE MARROW: A CASE OF MEDIASTINAL MYELOID SARCOMA WITH PICALM-MLLT10 FUSION ID: 682**Yin Qi Lee, Piotr Strzałka**

Medical University of Łódź, Łódź, Poland

Introduction

Myeloid sarcoma (MS) is a rare extramedullary manifestation of acute myeloid leukemia (AML). MS can occur as an isolated entity or synchronous with marrow involvement¹. While MS can manifest in various locations, a mediastinal involvement is uncommon².

Furthermore, PICALM-MLLT10 fusion is a rare recurrent translocation commonly seen in acute lymphoblastic leukemias and is associated with immature phenotypes, extramedullary disease and poor prognosis; in contrast, an association with AML is exceedingly rare^{3,4}.

Aim

We report a case of MS synchronous with AML harboring PICALM-MLLT10 fusion, highlighting its diagnostic difficulty, aggressive clinical course and poor prognosis.

Methods and materials

A 25-year-old man presented with progressive general and respiratory symptoms, and was later found to have a mediastinal mass causing superior-vena-cava-syndrome. Histopathological and immunohistochemical assessment confirmed MS. Subsequent workup of the marrow revealed AML with complex karyotype, PICALM-MLLT10, and additional adverse-risk mutations, classifying the disease as high cytogenetic-molecular risk according to ELN2022. Despite induction with DAC regimen, the patient showed primary refractory disease, requiring a second induction with CLAG-M regimen to achieve remission. The patient subsequently underwent myeloablative conditioning followed by allogeneic hematopoietic cells transplantation (allo-HCT). Although complete remission and donor chimerism were achieved, the clinical course was complicated by graft-versus-host-disease and extramedullary relapse. Further treatment with azacitidine, venetoclax, donor lymphocytes infusion and radiotherapy resulted in partial disease control. Unfortunately, the patient deceased several months later due to CNS involvement.

Discussion

This case illustrates the clinical significance of PICALM-MLLT10 fusion. The patient was treated according to PALG-AML1/2016 protocol. In high-risk patients, studies have reported improved remission rates through DAC regimen compared to conventional DA5-7. Similarly, in terms of salvage therapy, CLAG-M represents an effective alternative to FLAG-IDA, demonstrating favorable outcomes when followed by allo-HCT^{3,8–11}.

Conclusion

Nevertheless, the management in this case remained challenging, underscoring the need for further study in MS patients with AML harboring PICALM-MLLT10.



TARGETING BURNOUT IN HEALTHCARE PERSONNEL: DATA-DRIVEN MACHINE LEARNING SIMULATIONS OF BURNOUT INTERVENTIONS ID: 650

Paulina Suchecka

Gdański Uniwersytet Medyczny, Gdańsk, Poland

Introduction

Burnout is a high-burden phenomenon affecting approximately half of medical personnel, causing detrimental effects to mental health of healthcare workers, with downstream consequences for quality of systemic patient care.

Aim

To identify risk and protective factors of burnout in literature and to evaluate burnout interventions by predicting their efficacy.

Methods and materials

Following a PubMed literature review, 6 suitable meta-analyses identifying effect sizes of burnout factors were selected. Multilevel causal assumptions of risk factors informed by literature were explicitly encoded with a Directed Acyclic Graph (DAG) to enhance transparency. Gradient-boosted decision trees (XGBoost) were trained with effect sizes of 13 individual risk or protective burnout determinants and factor prevalence data informed by literature in a synthetic population of $n=3000$. Machine learning simulations predicted burnout decrease post-intervention targeting one or groups of factors. To investigate variations in burnout risk and intervention efficacy under unfavorable personal determinants (age, gender, economic status etc) compared to baseline population, further fairness simulations were performed in XGBoost.

Discussion

XGBoost achieved high discriminative power ($\text{ROC-AUC}=0.949$), demonstrating that models informed by population-specific data hold promise for designing tailor-made solutions. Burnout risk is mediated by interdependent occupational and psychosocial determinants, thus multicomponent interventions are most effective in reducing burnout. Individual-level interventions, e.g. a healthy lifestyle, were outperformed by systemic change, e.g. eradicating workplace violence predicted to result in a 25 percentage point drop of burnout incidence from baseline. It must be noted that unmodifiable personal factors are potent burnout risk determinants and agents of undermining intervention effects in at-risk populations. Thus, interventions have a limited capability to override unfavorable individual circumstances. Moreover, 'burnout gaps' between at-risk and baseline individuals were found to be exacerbated by some interventions.

Conclusion

Evaluating burnout interventions in medical personnel with the XGBoost predictive model provides a framework for data-based policymaking, underlining the importance of systemic solutions and equitable outcomes.



POSTER SESSION

GLUTATHIONE PEROXIDASE 4 EXPRESSION AND NEURONAL INJURY DURING EARLY ADULT AGING IN THE MURINE CORTEX ID: 626

Barbara Siewert¹, Luise Schröger²

¹ Medical University of Gdańsk, Gdańsk, Poland

² Institut für Schlaganfall- und Demenzforschung (ISD), Ludwig-Maximilians-Universität, Munich, Germany

Introduction

Ferroptosis is an iron-dependent form of cell death that has been implicated in cerebral small vessel disease, a major contributor to dementia, memory impairment, and stroke. Glutathione peroxidase 4 (Gpx4) is an antioxidant enzyme that protects from lipid peroxidation and is a leading inhibitor of ferroptosis.

Aim

This study investigated age-related differences in neuronal injury and selected ferroptosis-associated markers by comparing 3-month-old and 8-month-old mice.

Methods and materials

Brains were collected following perfusion and dissection, sectioned and stained for NeuN, DAPI, Gpx4. Confocal microscopy images were analyzed using Fiji (Image J). Pyknotic areas, characterized by abnormal structure depicting neuronal injury, were identified and quantified as a percentage of total cortical area in each group. In order to assess molecular changes, Gpx4 mRNA expression was measured using qPCR. RNA was extracted from brain hemispheres, followed by cDNA synthesis and qPCR analysis.

Discussion

In our study no statistically significant differences were found in total cortical pyknotic area, Gpx4 mRNA expression, or Gpx4 protein fluorescence intensity between 3- and 8-month-old mice. However, trend towards a higher total pyknotic cortical area was observed in the 3-month-old group. These findings suggest that, within the examined age range, antioxidant defence mechanisms mediated by Gpx4 are preserved and overall cortical neuronal integrity remains intact. While the role of ferroptosis has been implicated in neurodegenerative and vascular-related brain disorders, its contribution may become more prominent at later ages or under pathological conditions such as chronic hypoperfusion or ischemic stress.

Conclusion

Although no significant age-dependent differences were observed, this study establishes a coherent methodological framework for assessing ferroptosis-related changes in the murine cortex. This work underscores the importance of reporting negative findings in early-stage neuroscientific research.



ORAL AND TUMOR BACTERIA IN GEMCITABINE RESISTANCE IN PANCREATIC CANCER ID: 844

Shandelle Aguilera Euceda, Ola Mahdi

Medical Univerisity of Warmia and masuria, faculty of Medicine, Olsztyn, Poland

Introduction

Pancreatic ductal adenocarcinoma is known to be one of the deadliest cancers, and gemcitabine chemotherapy is still very much used in Europe, including Poland. Unfortunately, many patients develop resistance which limits the treatment success. However, resistance to gemcitabine develops frequently and is often unpredictable. In recent years attention has shifted from the tumor cell intrinsic mechanisms towards the tumor microenvironment including the presence of bacteria in pancreatic tumors.

Aim

This review aims to summarize current evidence on how oral and intratumoral bacteria contribute to gemcitabine resistance in PDAC and explain its possible clinical significance with attention to implications for European and Polish clinical practice.

Methods and materials

Literature searches were made in PubMed studies from 2015 to 2025. The studies examined cytidine deaminase activity, experimental models used and observed effects on chemotherapy response, preclinical, translational or clinical evidence of interactions between intratumoral bacteria and gemcitabine in PDAC.

Discussion

Many experimental studies have found that certain bacteria inside pancreatic tumors (mainly Gammaproteobacteria with the long form of cytidine deaminase) can break down gemcitabine into an inactive form. It was seen in mice that having these bacteria in the tumor made the chemotherapy less effective but when giving antibiotics the drug's activity was restored. Analyses of human PDAC samples also show a high presence of bacterial DNA, and this supports the idea that this mechanism could happen in human patients. Newer research shows interesting evidence that oral bacteria linked to pancreatic cancer might also be able to degrade the gemcitabine, meaning that the source of resistance might not be only limited to the tumor itself.

Conclusion

Even though we still don't have many clinical studies directly linking bacteria to patient survival, these current researches suggest that response to gemcitabine might depend not only on tumor genetics but also on the bacteria present in and around the tumor.

**POSTER SESSION****NAD⁺ TO THE RESCUE: RESTORING BIOENERGETICS IN NEURONS AFFECTED BY HUNTINGTON'S DISEASE ID: 914****Sylwester Dumała, Patryk Mucha, Marta Tomczyk**

Medical University of Gdańsk, Gdańsk, Poland

Introduction

Huntington's disease (HD) is a rare neurodegenerative disorder linked to the formation of insoluble mutant huntingtin aggregates (mHTT) in the brain and peripheral tissues. Experimental works suggest that disease progression may be driven in part by impaired energy metabolism. In our earlier studies, we observed a reduced nicotinamide adenine dinucleotide (NAD⁺) pool in skeletal muscle from HD mouse models, and also in HTT knock-out cardiomyocytes, suggesting that metabolic decline may result not only from mHTT aggregation but also from loss of normal HTT function.

Aim

This project examined energy metabolism in a neuronal HD model and evaluated whether restoring NAD⁺ could improve cellular bioenergetics.

Methods and materials

We used striatal cell lines derived from Hdh111/111 knock-in mice (STHdhQ111/Q111; HD model) and from Hdh7/7 knock-in mice (STHdhQ7/Q7; control). Cells were cultured at 33°C in 5% CO₂. HD cells were additionally treated for 24 hours with nicotinamide riboside (NR; 500 μM). Intracellular nucleotide levels were quantified by high pressure liquid chromatography (HPLC), mitochondrial function was assessed with a Seahorse metabolic analyzer, and reactive oxygen species (ROS) were measured using a fluorometric assay.

Discussion

Overall, the HD neuronal model exhibited disrupted bioenergetics, mitochondrial dysfunction, and elevated oxidative stress. Boosting NAD⁺ with NR partially alleviated these disturbances, but further studies are needed to clarify the mechanisms behind the observed changes. Given NAD⁺ roles in DNA repair, oxidative stress responses, and metabolism, targeting NAD⁺ pathways may represent a promising strategy to mitigate HD-related neurodegeneration.

Conclusion

The neuronal model of Huntington's disease showed disrupted bioenergetics, mitochondrial dysfunction, and elevated oxidative stress. Boosting NAD⁺ with nicotinamide riboside (NR) partially improved these abnormalities, though further mechanistic studies are needed to clarify the effects. Given NAD⁺ roles in DNA repair, oxidative stress responses, and metabolism, targeting NAD⁺-dependent pathways may be a promising strategy to mitigate HD-related neurodegeneration.



ACUTE MESENTERIC ISCHEMIA IN A YOUNG PATIENT ID: 825

Ugnė Staškutė, Gintarė Šiaudikytė, Dalia Gervienė

Lithuanian University of Health Sciences, Kaunas, Lithuania

Introduction

Acute mesenteric ischemia (AMI) is an uncommon but life-threatening cause of acute abdominal pain. It usually affects older patients with cardiovascular disease. In younger patients without risk factors, diagnosis is often delayed due to nonspecific symptoms and normal initial tests. We present a case of AMI in a 36-year-old patient, highlighting diagnostic challenges and the importance of early imaging.

Aim

To emphasize the importance of early CT imaging in the diagnosis of acute mesenteric ischemia in young patients without classical risk factors.

Methods and materials

A 36-year-old male presented to the emergency department with sudden onset abdominal pain. He had no prior medical history and no known cardiovascular or thromboembolic risk factors. Physical examination revealed a soft abdomen with tenderness but no peritoneal signs. Initial labs, including inflammatory markers and serum lactate, were within normal limits. Abdominal ultrasound showed no abnormalities. The patient was admitted for observation. Over the next several hours, his pain worsened despite conservative management. A contrast-enhanced CT scan was performed, revealing signs of acute small bowel ischemia. The patient was taken urgently to surgery. Intraoperatively, ischemic segments of the small intestine were identified and resected, followed by primary anastomosis. The postoperative course was uneventful. He was discharged in good condition after treatment.

Discussion

This case demonstrates that AMI can occur in young patients without classical risk factors. Early signs may be subtle, and labs may be normal. Severe pain disproportionate to examination findings should raise suspicion. Prompt CT imaging is crucial to avoid delays and guide timely surgical intervention.

Conclusion

AMI should be considered in any patient with unexplained, severe abdominal pain, regardless of age. Early recognition and urgent surgery are key to improving outcomes.

POSTER SESSION

DUAL-ENERGY CT IN DIFFERENTIATION OF HEMORRHAGE AND CONTRAST STAINING AFTER MECHANICAL THROMBECTOMY: A CASE REPORT ID: 807

Ignas Mažonavičius, Ugnė Pūkaitė, Faustina Glinskytė

Lithuanian University of Health Sciences, Kaunas, Lithuania, Saulius Lukoševičius

Introduction

Mechanical thrombectomy (MTE) is an established treatment for acute ischemic stroke. However, early postprocedural CT interpretation may be challenging, as contrast staining can mimic intracranial hemorrhage on conventional imaging. Dual-energy computed tomography (DECT) allows material differentiation and improves diagnostic confidence in such cases.

Aim

To demonstrate the usefulness of DECT in distinguishing post-thrombectomy contrast material from intracranial hemorrhage.

Methods and materials

An 80-year-old female presented with acute neurological deficits consistent with cerebral stroke. Non-contrast and contrast-enhanced CT of the brain was performed. Imaging revealed acute ischemic changes in the right middle cerebral artery (MCA) territory involving the caudate head and lentiform nucleus, without evidence of intracranial hemorrhage. CT angiography demonstrated focal occlusion (~2.4 mm) in an M2 branch of the right MCA. Mechanical thrombectomy of two M2 branches was performed with complete reperfusion (TICI 3). Follow-up CT showed new hyperdense areas in the right cerebral hemisphere, raising suspicion of hemorrhage. After 24 hours, DECT was performed with iodine and water reconstructions.

Discussion

On DECT, hyperdense inclusions persisted in the iodine images and were nearly absent on water images, findings consistent with residual contrast material rather than hemorrhage. This allowed confident exclusion of intracranial bleeding, directly influencing further patient management. DECT proved superior to conventional CT in post-interventional stroke assessment.

Conclusion

DECT is a valuable tool in the differentiation of contrast staining and intracranial hemorrhage following mechanical thrombectomy. Its use improves diagnostic accuracy and supports safer clinical decision-making in acute stroke care.



DETERMINANTS OF LEISHMANIASIS KNOWLEDGE AMONG HEALTHCARE PROFESSIONALS IN AN ENDEMIC MOROCCAN REGION ID: 812

Mohammed-Yassine Takzima, Mohamed Echchakery, Mohamed Hafidi, Loubna El fels

Laboratory of Water Sciences, Microbial Biotechnologies, and Natural Resources Sustainability (AQUABIOTECH), Unit of Microbial Biotechnologies, Agrosciences, and Environment (BIOMAGE) - CNRST Labeled Research Unit N°4, Faculty of Sciences-Semlalia, University Cadi Ayyad., Marrakech, Morocco

Introduction

Leishmaniasis remains a major zoonotic public health challenge in Morocco, particularly in endemic regions where healthcare professionals play a pivotal role in early detection, prevention, and disease control. However, disparities in knowledge among health professionals may compromise surveillance effectiveness.

Aim

This study aimed to assess the level of knowledge regarding leishmaniasis among healthcare professionals in the Marrakech–Safi region and to identify key determinants influencing awareness within a One Health perspective.

Methods and materials

A cross-sectional descriptive and analytical study was conducted between December 2024 and April 2025 among 514 healthcare professionals, including nurses, physicians, midwives, and health technicians working in public health facilities. Data were collected using a self-administered, expert-validated online questionnaire covering socio-professional characteristics and leishmaniasis-related knowledge. Knowledge was assessed using a 16-point score and categorized as good or poor. Binary logistic regression analysis was performed to identify predictors of adequate knowledge, with statistical significance set at $p < 0.05$.

Discussion

Overall, 67.9% of participants demonstrated good knowledge of leishmaniasis. Significant disparities were observed across geographic areas and professional profiles. Healthcare professionals practicing in highly endemic provinces were significantly more knowledgeable. Higher academic level, longer professional experience, and prior university-level training on leishmaniasis were independently associated with better knowledge.

Conclusion

Although overall knowledge was moderate to high, notable inequalities persist among healthcare professionals. Targeted continuing education and improved integration of leishmaniasis content into academic curricula are essential to strengthen control strategies. Adopting a broader One Health approach may enhance surveillance, early diagnosis, and prevention efforts in endemic settings.



MEDICAL
UNIVERSITY
OF GDAŃSK