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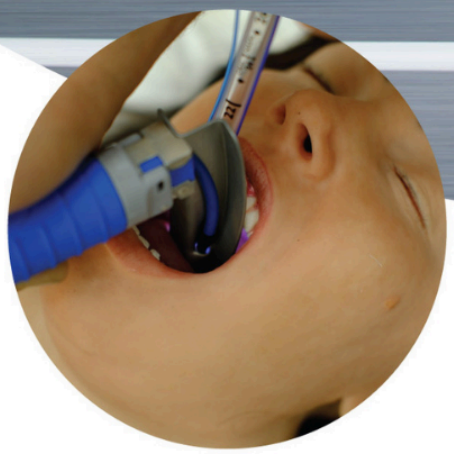

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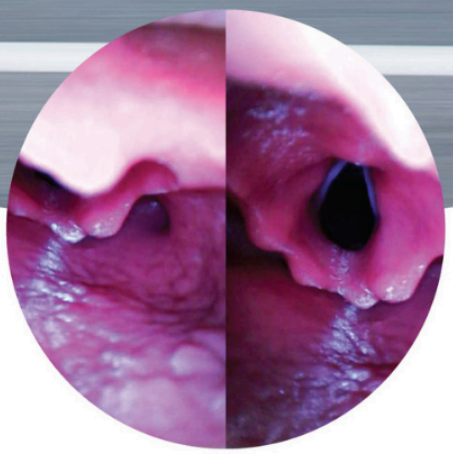

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Projekt pt. International Conference of Young Medical Researchers dofinansowany z budżetu Państwa w ramach programu Ministerstwa Edukacji i Nauki “Doskonała Nauka”, numer projektu: DNK/SP/550953/2022

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Basic Sciences Session

1. CONGENITAL ANIRIDIA: A CASE REPORT

Authors: Emilija Narvydaitė[1] (narvydaite.emilija@gmail.com)

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Introduction: Congenital aniridia is a rare congenital disorder characterized by varying degrees of iris hypoplasia or absence of it. About 90% of cases of this pathology are associated with mutations in the autosomal dominantly inherited PAX6 gene (11p13).

Case description: A 2-month-old male infant was examined for horizontal nystagmus and absence of gaze fixation observed since birth. In addition, the patient's eye color had been black and unchanged since birth. On examination of the patient's eyes, the irises of both eyes were absent, the lens margin and the ligaments of Zinn were visible. Horizontal nystagmus occurred. Both eyes movements were uncoordinated, the infant was more responsive to sound, there was no fixation of gaze. After the diagnosis of congenital aniridia, the patient was referred to a pediatric neurologist and later to a geneticist for consultation. Genealogically, it was a sporadic case of aniridia. After the diagnosis of congenital aniridia, study of the vision genes set by a next-generation sequencing was ordered. The sequencing of the PAX6 gene was normal. This was followed by study of sequences coding for several-dozen genes by a next-generation sequencing. Genes whose changes are associated with hereditary visual impairment were analyzed. Next-generation sequencing data revealed a heterozygous >11.6 Mb deletion in the 11p13-11p15.3 genetic region involving the ELP4 gene, pathogenic variants of which are associated with aniridia type II of autosomal dominant inheritance (OMIM 617141). This clinical case demonstrates that congenital aniridia can occur in the presence of alterations in the ELP4 gene when the PAX6 gene sequence is normal.

Conclusions: The wide range of possible molecular defects makes congenital aniridia a significant challenge. It is important to carry out detailed genetic studies to assess the role of rare non-PAX6 genes in the pathogenesis of this disease.

2. Correlation between CA 19.9 Elevation and endometric cancer in patient with Caroli disease: A Case Report

Authors: Katarzyna Fleischer-Stępniewska[1], Aleksandra Obszańska[2] (aleksandra.obszanska@student.umw.edu.pl), Karolina Kubala[2]

Tutors: Katarzyna Fleischer-Stępniewska

Affiliation: 1: Department and Clinic of Infectious Diseases, Liver Diseases and Acquired Immune Deficiencies, J. Gromkowski Provincial Specialist Hospital, Wrocław; 2: Students Scientific Club of Infectious Diseases, Wroclaw Medical University

Introduction: Cancer antigen 19-9 is a tumor marker primarily associated with pancreatic and biliary tract malignancies. However, its elevation has been observed in various cancers, providing diagnostic and prognostic insights. We present a unique case of a female patient whose CA 19-9 levels surged, later revealing an unexpected correlation with endometrial cancer. This case highlights the importance of considering unusual tumor marker fluctuations and exploring potential underlying malignancies, even in patients with other conditions possible to present resemble symptoms.

Case description: We present the case of a 72-year-old woman diagnosed with Caroli disease. Previously, the patient underwent surgical removal of a benign lung tumor in October 2020. Additionally, she had a medical history of colon diverticulosis, with a recent exacerbation in spring 2020, biliary gastritis successfully treated with H. pylori eradication therapy, hypertension, and chronic skin pruritus. Since spring, the patient has displayed abnormal liver enzyme levels, with magnetic resonance cholangiopancreatography (MRCP) revealing left lobe bile duct dilation and a gallbladder polyp. Concurrently, laboratory investigations demonstrated an elevated CA 19-9 level, which initially declined post-UDCA and Cholesil administration. However, a rapid rebound ensued, with CA 19-9 levels escalating above 700 U/ml in June 2021. Notably, a significant reduction in CA 19-9 levels was observed following the surgical excision of endometrial cancer in October 2021.

Conclusions: This case highlights the complexity of managing patients with ongoing various conditions and how they can manifest in tests . It underscores the importance of interdisciplinary collaboration and ongoing monitoring to optimize patient quality of life. Further research is warranted to elucidate the underlying mechanisms and optimal treatment strategies for such multifaceted presentations.

3. An unusual case of a patient with short stature.

Authors: Karolina Pełka[1] (karolina.pelka45@gmail.com), Wiktoria Buzun[1], Aleksandra Złotowska[1], Oliwia Klimek[1]

Tutors: dr n. med. Katarzyna Zawadzka[2]

Affiliation: 1: Students Scientific Club of Endocrinology, Wroclaw Medical University; 2: Department and Clinic of Endocrinology, Diabetology and Isotope Treatment, Wroclaw Medical University

Introduction: Among the hormonal causes of short stature, the following disease entities related to the ineffectiveness of endogenous growth hormone (GH) deserve attention. This type of disorder may be caused by the biologically inactive GH molecule or insensitivity of its specific receptors. Kowarski syndrome is a genetically conditioned rare form of somatotropin hypopituitarism (SNP). It is associated with the presence of a mutation of the GH1 gene (17q22-q24), leading to the synthesis of a biologically inactive GH molecule, which results in reduced concentration of insulin-like growth factors (IGFs). Due to its rarity and unusual clinical presentations, this syndrome challenges the diagnostic process.

Case description: A 31-year-old patient diagnosed with carbohydrate metabolism disorders and SNP that was treated in childhood with recombinant somatotropin (rhGH) came to the Endocrinology Clinic to expand the diagnostics. The patient reported chronic fatigue and falling asleep during the day that raised the suspicion of diabetes, nevertheless it was excluded during hospital diagnostics. Due to reduced IGF-1 levels and history of SNP treatment in the childhood it was planned to use in the therapy rhGH as part of the National Program of Severe Growth Hormone Deficiency Treatment in Adults and Adolescents after Completion of Growth Promoting Therapy. According to the Program it was Insulin Tolerance Test performed (ITT) and it found hyper-stimulation (over 30 times) of growth hormone secretion. Furthermore, densitometry showed reduced bone density in the section lumbar spine (L1-L4), while the examination carried out in the "total location body" showed values within the norm for a given age group.

Conclusions: The entire clinical picture of the patient, especially the results of ITT, normal GH level reduced IGF-1 concentration and good response to the rhGH in childhood may indicated Kowarski syndrome. Further diagnostics, including genetic testing to the final diagnosis, are planned. The presented clinical case highlights the importance of considering rare, such as Kowarski syndrome genetic causes of short stature in the diagnosis of patients presenting an atypical course of disease.

4. Severe cases of hyperparathyroidism. A Clinical Report.

Authors: Natalia Libergal (libergal.natalia@gmail.com), Krzysztof Ciucias, Natalia Janczyszyn, Aleksandra Oparska

Tutors: dr n. med. Katarzyna Zawadzka

Affiliation: Clinical Department of Endocrinology, Diabetes and Isotope Therapy, Wroclaw Medical University; Students Scientific Club of Endocrinology, Wroclaw Medical University

Introduction: Primary hyperparathyroidism is caused mostly by parathyroid adenomas (a single gland or less frequently a multiple gland disorder). Hyperparathyroidism leads to reduced absorption of phosphorus in the kidneys and increased release of calcium by osteolysis. Hypercalcaemia is accompanied by weakness, bone pain, depression and impaired renal function such as kidney stones and polyuria. It can cause bone changes, such as focal tissue loss - osteitis fibrosa cystica). We have selected two case reports which illustrate the difficulties associated with early diagnosis of the parathyroid adenoma and its treatment.

Case description: The first patient is a 51-year-old woman who visited her family doctor (in April 2023) because of a worsening swelling under the right lower limb and bone pains. After the initial diagnosis and x-ray examination of the limb, which described a tumor of the third metatarsal bone (giant cell tumor susp.), the patient was referred to an orthopedist and the decision about surgery was quickly made. The post-operative period was complicated by a bone infection and the patient required a prolonged antibiotic therapy. The patient underwent another surgeries (Sep, Nov 2023) with collection of materials for histopathological examination. Due to results indicating the presence of a brown tumor, the diagnostics were extended (December 2023) to include calcium and parathyroid hormone tests in the blood serum (calcium concentration 14 mg/dl, parathyroid hormone > 1500). Additionally, chronic kidney disease G3b and kidney stones were diagnosed, moreover blood pressure control has deteriorated. After initial treatment - fluid therapy and forced diuresis, the patient was admitted to the Department of Endocrinology. MIBI scintigraphy revealed an adenoma of the right lower parathyroid gland. The patient was successfully operated on 12.02.2024. After the procedure, „hungry bone" syndrome was diagnosed, and the patient still requires 6g of calcium carbonate per day.

The second case is a 63-year-old patient who was diagnosed by her family doctor because of the bone pain and right kidney stones. The densitometry allowed to diagnose osteoporosis so the anti-resorptive drugs, calcium and vitamin D supplements were prescribed (Aug 2022). The patient was consultated with an endocrinologist. After obtaining results of calcium (14,8 mg/dl, Oct 2022), parathyroid hormone (PTH, 284 pg/ml) and vitamin D3 (45 ng/ml) levels the primary hyperparathyroidism caused by right upper parathyroid adenoma was diagnosed. The patient was referred for parathyroidectomy (Nov 2022).

Conclusions: A review of the cases shows enormous complications of hyperparathyroidism which can affect patients' lives. It is important to remember that the calcium level in serum should be ordered and measured routinely even by the family doctors- it allows us to catch hyperparathyroidism at an early stage before the complications occur. Parathyroidectomy is recommended not only in patients with symptoms but also in cases of asymptomatic disease when patients are at risk of progression or have evidence of organic complications.

5. Bloch-Sulzberger syndrome: a case report

Authors: Erika Abromavičiūtė[1,2] (erika.abromaviciute@gmail.com)

Tutors: Daiva Buikienė[3]

Affiliation: 1: Lithuanian University of Health Sciences; 2: Hospital of Lithuanian University of Health Sciences Kaunas Clinics, 3 Family Clinic ,,Signata"

Introduction: Pigmentary retention disease, also known as Bloch-Sulzberger syndrome, is a rare genetic disorder inherited dominantly through the X chromosome. This condition is marked by distinct skin alterations, and can affect various organ systems. Typically, the diagnosis is more prevalent in females, as the disease tends to be fatal in males. This article introduces a patient who was clinically diagnosed with Pigmentary Retention Disease during infancy, with the pathogenic mutation in the IKGKB gene

Case description: The family doctor assessed the neonate patient. During the adaptation phase, the infant exhibited skin rashes with an unclear etiology, primarily along Blaschko lines on the inflammatory skin background, presenting various types of rash elements such as papules, nodules, pustules filled with opaque material, and erosions. The ultrasound examination of internal organs revealed parenchymal abdominal organs devoid of visible anomalies. Concomitantly, heightened levels of thyrotropin (TTH) and somatotropic hormone (STH) were documented. The patient was monitored for retinal detachment, diagnosed with pigmentary retention disease, and was under the care of pediatric dermatologists, endocrinologists, and geneticists. Due to a mutation in the IKGKB gene, pigmentary retention disease was identified as Bloch-Sulzberger syndrome - a rare genetic disorder inherited in an X-linked dominant manner. Clinical features encompass distinctive skin alterations, nail dysplasia, alopecia, dental anomalies, along with retinal and central nervous system neovascularization predisposing to visual impairment and neonatal stroke. The cutaneous lesions were managed with antiseptic baths, low-potency topical corticosteroids, and emollients. It was observed that the condition improved in a cyclical pattern, with a new rash episode recurring every seventh day. For patients under the age three with Bloch-Sulzberger syndrome, there is a high likelihood of experiencing blindness due to retinal detachment. The patient underwent evaluation at the University Hospital Basel in Switzerland for refinement of the diagnosis pertaining to background retinopathy and retinal vascular alterations. Retinal fluorescein angiography was conducted, followed by laser retinal photocoagulation procedures. At the age of 1.5 years the patient walks independently, the patient has no pathological reflexes. The hair is brittle, with the presence of a dermatological rash in the occipital region, accompanied by residual brown macules in other anatomical regions, indicative of previous skin rashes. At the age of three, the patient walks, speaks in sentences, has 8 deciduous teeth and does nor exhibit any skin rashes. The patient is being monitored for potential developmental delay by a team of specialist physicians and regularly attends medical appointments.

Conclusions: In conclusion, the presented case underscores the clinical intricacy and diagnostic challenges inherent in Pigmentary Retention Disease, emphasizing the need for thorough genetic evaluation and ongoing specialized medical management.

6. Advancements in Melanoma Treatment Employing miRNA

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Introduction: MicroRNAs (miRNAs) are essential in the pathogenesis and resistance pathways of melanoma. Enhancements in miRNA delivery approaches have increased the effectiveness of miRNA-centered therapies. The combined use of miRNAs with compounds like pembrolizumab has shown combined benefits, emphasizing the significance of miRNAs in tailored melanoma treatment strategies.

Methodology: Following PRISMA and ESMO guidelines, we searched PubMed and ResearchGate for studies published from 2014 to 2024, filtering by language, recency, and relevance. From 210 records, 20 articles were chosen based on strict PICOS criteria.

Results: This review highlights the critical role of microRNAs (miRNAs) in the development and resistance pathways of melanoma, focusing on their impact on tumor growth and how they help tumors resist treatment. MiRNAs carried by exosomes are shown to play a major role in promoting cancer growth and spreading it to other parts of the body, while the miR-34 family, regulated by the p53 protein, is known for its ability to suppress tumor growth. New methods of delivering miRNAs, such as using chemicals and nanoparticles, have significantly improved the success of treatments centered around miRNAs. Adjusting miRNA levels offers an effective way to overcome resistance to conventional treatments, with targeting the androgen receptor pathway presenting a new strategy to reduce melanoma spread. Combining miRNA strategies with pembrolizumab and other immune-blocking treatments has shown to greatly increase their effectiveness, and the use of nanoparticles to deliver miRNAs points to progress in creating more personalized cancer treatments. The use of miRNA in treatment marks a significant move towards customizing melanoma care, calling for more focused research to enhance the use of miRNAs in treating melanoma.

Conclusions: Exosomal miRNAs promote melanoma, while miR-34 suppresses it, highlighting their complex roles. Improved miRNA delivery methods, especially targeting the androgen receptor, enhance treatment. Combining miRNAs with immunotherapies like pembrolizumab shows promise for personalized care, underscoring the importance of further research.

7. The role of lungs' microbiota in chronic respiratory diseases

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Tutors: Helena Moreira

Affiliation: Student scientific circle Flow cytometry and Biomedical Research, Department of Pharmacy with Department of medical analysis, Medical University Piastów Śląskich in Wrocław, Poland,

Introduction: The most common chronic respiratory diseases are: asthma and COPD.The qualitative and quantitative composition of the respiratory microbiota is influenced by various stimulants such as: e-cigarettes, cigarettes, diet or using antibiotics prescribed and used as prescribed by the doctor. In the years 2010-2019 there was an increase in the incidents of asthma from 11,7-19,7% and increase in mortality from about 6,7 to 15,7%. COPD has an upward trend of incidents approximately from 19,4 to 22,3% and mortality from about 5 to 22,4%. According to WHO (World Health Organisation), about 224-309 millions of people suffer asthma (from 2019) in the world. Moreover every single year approximietly 450 thousand people die because of these diseases. COPD is a chronic disease which has occured in approximately 200-225 millions people (according to data from 2019) of which about 2,90-3,57 millions died. Asthma is a chronic disease related to the characteristics of the respiratory system. It is manifested by apperance of bronchial secretion, usually resulting from an allergic reaction or hypersensitivity to allergic factors breathing difficulties, chronic inflammation of the respiratory tract and wheezing. It also causes huge disscomfort for the patients during physical activity or especially in stressful situation. COPD is a disease characterized by limited flow of the air due to airway or alveoral abnormalities, usually caused by long-term exposure to harmful gases and molecules. The latest reaserches have shown that the microbiota of respiratory system can have huge influence on the treatment process.

Methodology: The results of studies conducted on mouse models have shown that a slight reduction in exposure to bacteria (mice afther antibiotic theraphy, staying in a sterile environment), is associated with a greater amount of IgE, eosinophils in the respiratory tract and cytokines TH2 cytokines in the blood (eg. IL-4, IL-5, IL-13). Increased abundance of Streptococcus pneumoniae, Moraxella catarrhalis, Haemophilus influenzae during an ongoing viral infection (especially RV-C or respiratory syncytial virus [RSV] infection) is associated with the risk of recurrenc wheezing. Furthermore, using antibiotics was connected with increased likelihood of developing lung cancer which indicates a potential role of dysbiosis in cancerogenesis was also reported. The correlation between lung cancer and the incidence of bacteria Mycobacterium tuberculosis. Research suggests that the tubercle bacilli (M tuberculosis) can contribute to lung cancer by causing inflammation. In lung adenocarcinoma and squamous cell carcinoma, the number of bacteria of the following species increased: Capnocytophaga, Selenomonas, Veillonella, Megasphaera, Prevotella.

Results: Escalation of symptoms can be potentially related to prevention and therapy. Composition of the microbiota is different depending on the part of the respiratory system. For example, the oral cavity contains bacteria from the group: Firmicutes, Proteobacteria, Actinobacterica and Fusobacteria, Bacteroidota. Healthy lung microflora contains bacteria from the group: Actinobacteria, Bacteroidetes, Firmicutes and Proteobacteria. People with COPD have different quantitative and qualitative composition of bacteria in the respiratory microflora: Veillonella, Haemophilus, Streptococcus, Prevotella, Neisseria and Moraxella, are dominant types in those patients. Humidity, proper temperature, pH value, mucus production or access to the oxygen and carbon dioxide provides ideal conditions for microorganisms. Bacteria that have a major impact on the course of asthma include: Streptococcus (Streptococcus pneumoniae), Moraxella (Moraxella catarrhalis) and Haemophilus (Haemophilus influenzae). The presence of these bacteria often correlated with the occurrence of wheezing, and some of them are related to asthma and COPD. Moraxella and Haemophilus occur within inflammatory conditions. Lactobacillus, Dolosigranulum (lactic acid-producing bacteria) and Corynebacterium have been observed in pediatric patients who are healthy but suffer from stable or moderate asthma.

Conclusions: Further studies are needed to fully assess the impact of lung microbiota on the course of lung chronic diseases. Nevertheless presented literature shows serious potential for further research in this direction.

8. Diagnostic difficulties in connective tissue diseases - Systemic Lupus Erythematosus case study

Authors: Angelika Dyszy (angelika.dyszy0@gmail.com), Gabriela Małecka, Jakub Gałkowski

Tutors: Anna Rostropowicz-Honka MD, PhD

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

Introduction: Connective tissue diseases are disorders involving damage to any type of connective tissue in the body.

Depending on the type it can manifest as a multisystem disease, although sometimes the symptoms of the condition may be limited to a single organ. An example of a chronic connective tissue disease is systemic lupus erythematosus (SLE). This autoimmune condition can appear in various symptoms. As a result, clinical disease activity can differ among the patients and include distinct organs and systems. It causes diagnostic difficulties and postponed treatment for the patients.

Case description: A 36-year-old woman started displaying periodical symptoms from multiple organ systems about two years ago. First prominent signs were tachycardia, electrocardiogram changes and nonspecific chest pain, which resulted in hospitalization. There were multiple tests performed, which

excluded overt organic heart disease. After chronic stabilization with beta-blocker patient reported remission.

The woman has been experiencing recurring, itching skin lesions around navel and thighs since October 2022. Lesions were not photosensitive and each time resolved spontaneously.

Since March 2023, the patient has been complaining of periodical pain in the right hypochondriac, pale stools and dark urine. The woman has been displaying jaundice with increased alkaline phosphatase and gamma-glutamyl transpeptidase levels, also she has been reporting tiredness and shortened menstrual cycles. The symptoms eventually led to hospitalization to diagnose liver dysfunction.

Ultrasound examination revealed fluid in the rectouterine pouch and right pleural cavity, perihepatic fluid, dilation of inferior vena cava and hepatic veins. The liver was slightly enlarged, mostly around the left lobe region.

There were increased levels of natriuretic peptides. Echocardiography showed dilation of both atria and slight regurgitation of all heart valves.

Gastroscopy examination was normal, except erythematous gastropathy. The only abnormalities found on the magnetic resonance cholangio-pancreatography were: dilatation of the hepatic veins and inferior vena cava, prominent features of periportal edema and mild splenomegaly. Presence of fluid in the right pleural cavity was confirmed.

During the diagnostic process other hepatic pathologies and hepatotropic viral infections were excluded.

SLE was suspected based on the identification of diagnostic criteria elements - positive anti-ds-DNA and anti-nuclear antibodies and also large amount of peripleural fluid.

Increased level of total serum bilirubin and conjugated bilirubin level brings suspicion of coexisting Gilbert's syndrome and congestive hepatopathy secondary to the chronic heart disease.

Conclusions: Appearance of separate, nonspecific symptoms prolonged the diagnostic process and lowered the patient's quality of life. Further progression of symptoms resulted in the development of previously invisible abnormalities in the tests. Holistic view of the patient and cooperation between doctors of various specialties led to the proper diagnosis. Common multidimensional clinical presentation of those conditions can lead to obstacles in the differential process. Practitioners should be aware that deepening the diagnostic process and comprehensive examination is crucial to correctly diagnose systemic diseases.

Cardiology Session

9. Hyponatremia in takotsubo syndrome is associated with less in-hospital increase in left ventricular ejection fraction and higher long-term mortality. First report in the literature.

Authors: Konrad Stępień[1,2], Maja Wojtylak[3], Oliwia Andrasz[3] (oliwiaandrasz@gmail.com), Katarzyna Majka[3], Jarosław Zalewski[1]

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Introduction: Takotsubo syndrome (TTS) is an acute reversible cardiomyopathy that can be triggered by physical, emotional or combined stressors. In the literature there are several cases in which the onset of TTS was associated with hyponatremia. However, the clinical relevance and long-term mortality in a group of hyponatremic TTS patients have not been investigated yet.

Aim: The main objective of our study was to investigate how hyponatremia occurring in patients with TTS syndrome affects their prognosis. While there are several reports in the literature on the involvement of hyponatremia in the onset of TTS syndrome, our study is the first one to reveal its clinical implications.

Materials and Methods: In that retrospective observational study among 7771 patients with acute myocardial infarction hospitalized between 2012-2019 TTS was diagnosed in 100 patients (1.3%). Hyponatremia on admission was defined as sodium level <135 mmol/L. We collected the data on the clinical presentation and TTS course, comorbidities, other laboratory parameters, including myocardial necrosis markers. The long-term all-cause mortality was also assessed in the whole group.

Results: Admission hyponatremia occurred in 14 (14%) of TTS patients. Hyponatremic patients showed higher incidence of prior stroke (7.1 vs 0%, P=0.046) and heart failure (50 vs 12.8%, P=0.001). Moreover, they more often demonstrated ST-segment elevation myocardial infarction (78.6 vs 48.8%, P=0.033) and apical TTS type (100 vs 81.4%, P=0.021). During the index hospitalization hyponatremic TTS patients showed lower improvement in left ventricular ejection fraction (0 [0-5] vs 10 [0-20] %, P=0.039) and its lower values on discharge (40 [35-45] vs 50 [42-55] %, P=0.032). Within median observation of 53 months higher all-cause mortality was found in hyponatremic TTS patients (35.7 vs 15.1%, P=0.038). By Cox proportional hazard regression hyponatremia on admission was identified as an independent predictor of long-term mortality (P<0.001).

Conclusions: As demonstrated for the first time admission hyponatremia stated in every seventh TTS patient is indicative of a worse overall outcome, including lower in-hospital left ventricular ejection fraction improvement and higher long-term all-cause mortality.

10. How the pseudotumor turned out to be the real pseudoaneurysm.

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Introduction: Heart aneurysm, caused by a rupture of the free wall of the heart is a rare complication of the extensive infarction of the left ventricle. Although this complication appears in less than 0.1% of all patients with myocardial infarction, it is responsible for even 25% of deaths in this group. Pseudoaneurysm forms when the bleeding to the pericardium is obstructed by the preexisting pericardial adhesions.

Case description: The 65-year-old man with sarcoidosis in remission (diagnosed in 2013) reported to Pulmonary Clinic for annual control. The Patient was in good condition, without any abnormalities found in physical examination. Chest X-ray showed the round shadow about 7x6cm in the lower field of left lung, partially covered by heart silhouette. Due to suspicion of a neoplasm, the patient was admitted to the Pulmonary Ward for further diagnostic evaluation.. Computed tomography(CT) revealed that the RTG finding was the massive pseudoaneurysm 74x48x73mm of the cardiac posterior wall. Transthoracic echocardiogram(TTE) visualized hypokinesia of the base and posterior wall in addition to middle segment akinesia and its perforation. Moreover, a thrombus measuring 2x2cm was noted. Global ejection fraction was preserved (50%). Coronary angiography revealed a dominant right coronary artery (RCA) with 70% stenosis and noncritical changes in the left anterior descending artery. FFR confirmed significance of the abnormality in the RCA. Finally, after thorough evaluation by the Heart Team, the patient was classified to repair of left ventricular pseudoaneurysm with coronary artery bypass grafting.

Conclusions: In this case the patient didn not exhibit symptoms of heart failure or angina that would suggest cardiological etiology of the X-ray finding. Thanks to multimodality imaging techniques it was possible to visualize disruption of the heart wall and differentiate pseudoaneurysm from true aneurysm, which had crucial therapeutic implications, as patients with pseudoaneurysm need to undergo urgent cardiac surgery due to the high risk of a rupture.

11. Familial hypercholesterolemia and early-onset coronary artery disease

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Introduction: Familial hypercholesterolemia (FH) is a relatively common, but underdiagnosed autosomal dominant disorder, affecting 1 in 250 individuals. It is characterized by lifelong elevated low-density lipoprotein cholesterol (LDL-C) levels and, if untreated, leads to premature atherosclerosis and increased risk of cardiovascular disease. Men and women with untreated FH have a 30-50% increased risk of a fatal or non-fatal cardiac event by the age of 45 and 55 years, respectively.

Case description: A 52-year-old female patient presents with general weakness, exercise intolerance, and heart palpitations. These complaints have been persisting for a long time and patient has been regularly examined as part of a primary prevention program (last time in June 2022), and has no history of cardiovascular disease, cerebrovascular and/or peripheral vascular disease. She denies smoking or other chronic illnesses. Patient was diagnosed with hypercholesterolemia at the age of 49: total cholesterol (T-C) ~ 11 mmol/l, LDL-C 7.57 mmol/l. Patient was prescribed atorvastatin, which she did not take regularly until September 2022. Due to the high blood cholesterol levels, the patient was referred for further investigation of FH, considering her family history: high LDL-C in the patient's sister (aged 47 years) and in the patient's daughter (aged 29 years). No visually visible xanthomas were observed in patient. According to the Dutch Lipid Clinic's FH criteria system, FH is probable (6 points). On

November 11th, 2022, bilateral atherosclerotic plaques in the common carotid artery were found, as well as increased arterial stiffness. Cardioechoscopy showed diastolic dysfunction and slight signs of pulmonary hypertension. In repeated lipidogram (in November 2022): T-C 6,18 mmol/l, LDL-Ch 3,77 mmol/l. During ultrasound examination, tendinopathy of both Achilles tendons was present. Due to the case of probable FH and failure to achieve target LDL-C with atorvastatin, the patient was treated with a combination of atorvastatin and ezetimibe. Veloergometry was uninformative, but computerized vascular angiography showed high coronary artery calcification. Due to consistent angina pectoris and very high cardiovascular risk, the patient underwent coronary angiography on March 29th, 2023, and was diagnosed with severe coronary artery disease (CAD). Patient was offered coronary artery bypass grafting surgery, but ultimately refused.

Conclusions: Familial hypercholesterolaemia (FH) is a genetic disorder increasing the likelihood of developing CAD at a younger age. Early suspicion of CAD is essential for timely diagnosis and treatment. In suspected CAD, the early risk of coronary atherosclerosis requires anti-lipid therapy to prevent premature death due to myocardial infarction, while in advanced disease, surgery remains the preferred treatment strategy.

12. THE ROLE OF ORAL MICROBIOTA IN CARDIOVASCULAR DISEASE. LITERATURE REVIEW.

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Introduction: Cardiovascular disease remains a leading cause of morbidity and mortality worldwide. Growing evidence suggests a link between oral and intestinal microbiota and cardiovascular risk. However, the intricate mechanisms connecting oral dysbiosis to cardiovascular outcomes remain incompletely understood.

Methodology: A review of the literature was performed according to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) criteria. The search was performed in the PUBMED database. The review included studies meeting the following criteria: articles written in English, no older than 5 years. The search used the keywords: 'oral microbiome AND cardiovascular events'. The review included 8 articles.

Results: The literature review highlights the significant influence of oral and gut microbiota on cardiovascular disease (CVD) risk. The oral microbiome can alter food compounds, producing metabolites with either protective or harmful effects on CVD. The oral microbiome can alter food compounds, producing metabolites with either protective or harmful effects on CVD. Probiotic interventions offer potential in CVD treatment and prevention by modifying microbiota. Oral dysbiosis, linked to periodontal disease, correlates with CVD development, especially among smokers. Elevated levels of Porphyromonas, Prevotella, Treponema, and Veillonella spp. in smokers' oral microbiota are associated with adverse cardiovascular outcomes, likely due to their involvement in chronic inflammation and dietary modulation. Salivary microbiota composition differs significantly between patients with and without atherosclerotic cardiovascular disease (ACVD). Patients with ACVD exhibit increased Streptococcus, Rothia, Holomonas, and Corynebacterium spp., found not only in the oral cavity but also in atherosclerotic plaques. Pathogenic periodontal bacteria, notably Porphyromonas gingivalis, are elevated in ACVD patients, potentially linking obesity-induced inflammation to increased CVD risk. Furthermore, the presence of Saccharibacteria phylum in the periodontal microbiome is associated with secondary cardiovascular events in coronary artery bypass surgery patients, indicating its potential as a biomarker for secondary CVD. Oral bacteria also participate in enterosalivary nitrate-nitrite-nitric oxide metabolism, crucial for cardiovascular health, affecting blood pressure and arterial stiffness. Additionally, the oral microbiota may contribute to intracranial aneurysm (IA) formation, with Porphyromonas gingivalis, Aggregatibacter actimycetemcomitans, and Streptococcus mutans associated with increased IA risk, independent of traditional risk factors.

Conclusions: The oral microbiota may play a role in cardiovascular disease risk, adverse outcomes, or prognosis. Modulation of the oral microbiome by interventions such as probiotics is promising for new opportunities in the prevention of cardiovascular disease. However, further studies are needed to elucidate the precise mechanisms of these associations and to investigate the potential of the oral microbiota as a biomarker for cardiovascular disease risk and prognosis.

13. Biomarkers in cardiovascular disease

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Introduction: Cardiovascular disease (CVD) in our modern society is a leading cause of death in the population all around the globe. According to the World Health Organization (WHO) CVDs cause approximately 17.9 million deaths each year with this number still growing. With greater understanding of mechanisms behind CVD we look for new and improved ways of quick, easy and accurate diagnostic methods, one of the most promising are biomarkers. Purpose of this review is to present current knowledge about clinical use of biomarkers in diagnostics of CVDs as well as highlight in our opinion some of the more promising markers and methods of their measurement that are yet to find their way into everyday medicine.

Methodology: We searched for articles via PubMed and UpToDate using the following keywords: “biomarkers”, “cardiovascular disease”, “cardiovascular biomarkers”, “biomarkers heart disease”. Additionally, Google scholar was utilized to increase the sensitivity of our search. From numerous papers 10 articles centered on novel diagnostic techniques were considered in the review. We limited the search only to articles published from 2019 to 2024.

Results: The primary biomarkers currently used in the diagnosis of CVD include cardiac troponins, NT-proBNP, cytokines, creatine kinase, among others. Determination of cardiac troponin levels is the gold standard for the diagnosis of myocardial damage, but the increase in their concentrations is not detected until 4-8 h after infarction, and they are therefore used to diagnose the late phase of infarction. Elevated BNP concentrations are present in patients with heart failure. The negative diagnostic value of BNP is particularly emphasized, which means that the finding of normal values with high probability excludes heart failure. NT-proBNP is used as a diagnostic and prognostic factor in CVD, where its levels increase and slightly by age and sex. CK-MB testing is performed as part of the diagnosis of acute coronary syndrome. Increased CK-MB activity appears 3-4 h after the onset of chest pain. A limitation of its reliability is the possibility of increased activity of this enzyme in skeletal muscle disease and damage. Anti-inflammatory as well as pro-inflammatory cytokines will be elevated in patients with coronary artery disease, but it should be noted that their specificity is not as high as we would like. Given the inadequacies of the markers currently in use we should focus on finding more specific and sensitive markers that allow earlier detection of these diseases and avoidance of acute cardiovascular incidents. The search for genetic biomarkers that can carry information about whether a patient belongs to a risk group, enabling early coverage with prevention, seems promising. In our research, we found several potential markers that we consider very

promising, such as biomarkers related to ferroptosis, endothelial dysfunction and obesity. We intend to focus on these in the present study.

Conclusions: The implementation of validated biomarkers may lead to improved clinical outcomes for patients and more targeted therapeutic interventions, although consideration of factors such as cost-effectiveness, accessibility, and reproducibility is essential. These conclusions underscore the significant role of biomarkers in the diagnosis and treatment of cardiovascular diseases and the need for further research in this area.

14. Cardiogenic shock with a background of acute mitral regurge- how to survive the critical phase of a disease?

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Introduction: Cardiogenic shock is a manifestation of acute heart failure with the worst prognosis. One of its causes is the valvular disease' progression. Despite the development of modern medicine, cardiogenic shock still remains a huge therapeutic challenge requiring multidisciplinary treatment.

Case description: A 57-year-old man after one month before anterior and lateral wall STEMI complicated by SCA was transferred to the Cardiac Intensive Care Unit due to signs of cardiogenic shock. Echocardiography revealed severe mitral valve regurgitation. Regardless of therapy escalation (increasing doses of inotropic support), the patient's condition worsened. The patient was qualified for mechanical circulatory support (Impella 5.5) and was entered on the urgent transplant list. After implantation of the Impella 5.5 pump, the patient's condition initially stabilized, the doses of inotropic support were reduced, and it was decided to perform percutaneous repair of the mitral valve using the edge-to-edge method using the MitraClip system. Twelve days after Impella 5.5 implantation the system clotting occurred. The device was urgently explanted and after finding a suitable donor, an orthotopic heart transplant was performed. The procedure went without complications. For 12 months observation the patient has remained in good condition.

Conclusions: Cardiogenic shock is a huge challenge for modern medicine. It often requires mechanical circulatory support with multidirectional treatment anticipating potential complications of therapy. Such treatment allows the patient to get through the acute phase of the disease and prepare for the target therapy.

15. Quadriscupid Aortic Valve- an unusual anatomical variation in a 60-year-old patient: A Clinical Report

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Introduction: Congenital aortic valve malformations usually present as a bicuspid (BAV), quadricuspid (QAV), pentacuspid (PAV), or unicuspid (UAV). The most common congenital typ - BAV, occurs when the valve has only two leaflets (bicuspid) as opposed to the three symmetrical cusps generally observed. QAV is a congenital heart anomaly in which the aortic valve has four leflets of various size possibilities. This cardiac valvular abnormality is rarely identified, with an estimated incidence rate of 0.013% to 0.043%. It may be presented as an isolated cardiac malformation, but in some cases there are other heart defects, such as coronary abnormalities (mainly ostial anomalies), atrial septal defect or ventricular septal defect. Diagnosis by transthoracic echocardiography is difficult.

Case description: A 60-year-old patient came to the hospital for an angio-CT examination of the heart due to deterioration of exercise tolerance, shortness of breath on exertion and easy fatigability for about 5 months. There were no abnormalities in the ECG recording. In the ECHO examination - the dimensions of the atrials and ventriculars are normal, the global contractility of the left ventricular muscle is normal, there are no local contractility disorders, and the gradient through the aortic valve is moderate. Cardiac CT angiogram revealed a four-leaflet aortic valve with slight regurgitation. There were no significant stenoses in the coronary arteries or hemodynamically significant leaks in the heart.

Conclusions: The most common consequence of QAV is regurgitation that increases with age (valves in children usually function properly - the clinical defect usually becomes apparent after the 5th decade of life) and increased risk of endocarditis. The presence of QAV, although rare, may also be associated with other cardiac malformations, which may require proper surgical correction. It is particularly important to consider the diagnosis of QAV and other valvular defects in middle-aged patients presenting with impaired exercise tolerance. A quick and accurate diagnosis can significantly shorten the hospitalization and treatment time of such patients.

16. Surgical pulmonary embolectomy as a treatment for pulmonary embolism.

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Introduction: Acute pulmonary embolism is the most serious complication of venous thromboembolism. The incident rate is estimated to be 100-200 per 100,000 people per year. In high-risk embolism, the probability of early death is about 15%. Treatment includes: anticoagulants, thrombolysis, percutaneous embolectomy and surgical pulmonary embolectomy. In Poland, 199 pulmonary embolectomies were performed between 2011 and 2018, with a mortality rate of 18%. Early diagnosis and appropriate intervention are key to improving prognosis. The aim of this study is to present the effectiveness of pulmonary embolectomy as a method of treating pulmonary embolism using the example of three patients hospitalized at DCChS Medinet.

Case description: The first patient was a 29-year-old woman who was diagnosed with thrombus in the pulmonary trunk and pulmonary arteries. Thrombolytic treatment was attempted, but proved ineffective. Further deterioration of the patient's condition was an indication for cardiac surgery. The second patient was a 66-year-old woman whose imaging studies showed massive thrombi in the trunk, pulmonary arteries, right atrium and right ventricle. Due to recent neurosurgery, the decision to perform a surgical pulmonary embolectomy was made. The last patient was a 59-year-old man whose angio-CT scan showed massive thrombus in the pulmonary arteries. Pulmonary thrombectomy was attempted, but due to the presence of a ballooning thrombus in the pulmonary trunk, the procedure was abandoned and the patient was transferred to the cardiac surgery department. In all patients, surgery was performed as an emergency procedure. A median sternotomy was performed, the pericardial sac was opened, the major vessels were cannulated and extracorporeal circulation was started. An embolectomy of the pulmonary arteries was performed and embolic materials were removed under visual guidance. The arteries were then sutured, extracorporeal circulation was terminated and decannulated. In all the cases described, the cardiac intervention was successful, and there were no deaths during the hospital stay.

Conclusions: Pulmonary embolectomy is an effective method of treating acute pulmonary embolism. Unfortunately, it is often used as a last resort when patients are in severe condition, which definitely worsens the patient's prognosis and increases perioperative mortality.

17. Analysis of Minimally Invasive Surgical Treatment of Aortic Valve Defects at the Lower Silesian Heart Disease Centre MEDINET in Wrocław: An Original Study

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Introduction: Aortic stenosis is the most frequent cause of valve surgeries in both the USA and Europe, with aortic valve replacement being the most commonly performed procedure. In recent years, there has been an upsurge in the use of minimally invasive techniques. As opposed to traditional surgery, an increasing number of valve replacement procedures are now performed using minimally invasive techniques.

Aim: This study aims to evaluate the outcomes of aortic valve replacement surgery using minimally invasive techniques at the Lower Silesian Heart Diseases Centre MEDINET in Wrocław between 2018 and 2023.

Materials and Methods: The retrospective analysis involved 118 patients who underwent minimally invasive surgery for aortic valve defects at the same centre during the same period. Statistical analysis was carried out using appropriate tests in Statistica® 13.3 software.

Results: Of the 118 patients, 48 (40.68%) had mixed aortic valve defects, 68 (57.63%) had isolated stenosis, while 2 (1.69%) had isolated aortic regurgitation. Access was gained through a J-type haemisternotomy in 113 (95.76%) cases and through a minithoracotomy in the right anterior axillary line in 5 (4.24%) cases. In 101 (85.59%) cases, a biological valve was utilized for the procedure, while a mechanical valve was used in 17 (14.41%) cases. The average extracorporeal circulation time was 121 minutes (median [25th - 75th percentile]: 108 [96-131]), and the aortic cross-clamping time was 79 minutes (72 [64-87]). The average duration of stay in the intensive care unit was 3 days (2 [2-3]), and the length of hospital stay was 10 days (8 [7-10]). The 30-day survival rate was 100%.

Conclusions: Further analysis of the centre's findings will compare the long-term follow-up of patients who underwent aortic valve replacement surgery with minimally invasive access to those who underwent the same surgery with access via total median sternotomy. This will enable a more comprehensive evaluation of the data.

18. Tetralogy of Fallot Pulmonary Prosthesis Replacement - case report.

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Introduction: Tetralogy of Fallot is a congenital malformation characterized by ventricular septal defect, right ventricular outflow tract obstruction, overriding aorta, and right ventricular hypertrophy. It is the most common cyanotic congenital heart defect in children and adults. In cases of atresia or significant hypoplasia of the pulmonary trunk, the implantation of a vascular prosthesis is necessary. A homograft, a xenograft, or an artificial vessel without a valve could be implemented. The xenograft Contegra, composed of a bovine jugular vein, introduced in 1999, is successfully used for reconstructing the right ventricular outflow tract.

Case description: A 15-year-old patient was admitted for surgical treatment due to acute endocarditis and pulmonary valve stenosis - status post-implantation of Contegra vascular prosthesis in the pulmonary position. Congenital heart defect in the form of Tetralogy of Fallot with pulmonary trunk atresia was treated palliatively in the early years of life with the creation of a systemic-pulmonary shunt on the right side and subsequently on the left side. In 2013, a total correction was conducted with the implantation of a Contegra xenograft in the pulmonary position. On February first, 2024, an exchange of the prosthesis was performed with the implantation of a 23 mm homograft in the pulmonary position under extracorporeal circulation.

Conclusions: Recently, the dynamic development of cardiac surgery has ensured a significant increase in postoperative survival of patients with Tetralogy of Fallot (30-year survival rates ranging from 68.5% to 90.5%). The availability of a wide range of materials and types of vascular prostheses allows for the selection of an optimal strategy. The challenge in the treatment process of patients with pulmonary trunk atresia or hypoplasia remains the calcification of grafts implanted in the pulmonary position.

19. The prothrombotic state in patients with type 2 diabetes mellitus and ischemic heart failure: an association with endothelial dysfunction.

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Introduction: Heart failure (HF) is associated with a substantial prothrombotic state and an increased risk of thromboembolism, regardless of the presence of atrial fibrillation (AF). Although oral anticoagulation in HF with known AF is recommended, there is no conclusive evidence supporting clinical benefits of chronic anticoagulation in HF subjects without AF. Other factors enhancing prothrombotic state, often concomitant with HF, are type 2 diabetes mellitus (T2D) and coronary artery disease (CAD). T2D as well as CAD are associated with a prothrombotic potential due to multiple mechanisms including endothelial dysfunction and oxidative stress.

Aim: This study aimed to investigate whether the prothrombotic state in patients with T2D, CAD, and HF, depends on the left ventricular ejection fraction (LVEF) or endothelial function.

Materials and Methods: We assessed 54 patients with stable chronic HF, CAD, and T2D. Based on the echocardiography examination 28 of them were those with HF with reduced ejection fraction (HFrEF) and 26 of them were classified as HF with preserved ejection fraction (HFpEF) according to current guidelines. Fibrin clot density reflected by clot permeability (Ks) and thrombin generation were evaluated. Endothelial function was determined in flow-mediated (FMD) and nitroglycerin-mediated dilatation (NMD) tests of the brachial artery.

Results: Subjects in both groups were comparable in terms of cardiovascular risk factors except for lower glomerular filtration rate (GFR) by 18.1%. HFrEF patients had lower Ks by 20.3%, along with higher endogenous thrombin potential (ETP) by 18.9% and maximum thrombin level (Peak) by 24,1% as compared with

HFpEF. While there were no differences in FMD and NMD between subjects, we found negative correlations of NMD with ETP and Peak (r=-0.448, P=0.001; r=-0.304, P=0.034, respectively). Moreover, the GFR and LVEF were also significantly associated with both thrombogram parameters (<0.01 for all). By the multivariate analysis of the whole population, NMD, LVEF, low-density lipoprotein and GFR were independent predictors of ETP (R2=0.530, P<0.001) while NMD, LVEF, and GFR predicted Peak levels (R2=0.327, P=0.002).

Conclusions: We showed for the first time that patients with ischemic etiology of HFrEF and T2D presented altered fibrin clot properties and enhanced thrombin generation compared to HFpEF subjects. It might be hypothesized that endothelial dysfunction induced by T2D could intensify hypercoagulability in patients with HF.

20. Communication between the physician and the patient during percutaneous coronary intervention

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Introduction: Percutaneous coronary intervention (PCI) represents a significant advancement in the management of coronary artery disease. This minimally invasive procedure, aimed at restoring blood flow to the heart muscle, has revolutionized the therapeutic landscape by providing patients with a safer alternative and shorter recovery times compared to traditional open-heart surgeries. At the same time, the patient is conscious during the PCI. As the procedure continues to advance in complexity and technology, effective communication between physicians and patients has become crucial in enhancing treatment outcomes and satisfaction.

Aim: This research aims to examine physician-patient communication during PCI ,with a focus on its impact on patient well-being, identification of communication barriers and determination of the best practices.

Materials and Methods: To explore the perspectives of patients regarding the procedure, we gathered anonymous surveys from 37 patients at the cardiology department.The survey consisted of three sections with a total of twenty questions. These questions were directed towards assessing the emotional domain and non-verbal communication facets during medical procedures. Among the questions, there were those assessing the patient's stress level on a scale of 0-10, discussions with the doctor before and after the procedure, as well as questions regarding the patient's observation of medical staff and eye contact.

Results: Among the 37 patients who responded to the survey, the average age was 66. The majority of respondents were men (56,8%). While 29.4% faced emergency interventions, a larger portion, 70.6%, had their procedures scheduled.A majority of 59.46% of patients rated communication during the procedure as very important, whereas 48.15% considered it important. Pre-procedural conversations were deemed advisable by 94.59% of respondents, indicating a strong preference for prior engagement with healthcare providers. Post-procedural discussions were favored by 81.08% of the participants, suggesting a desire for communication. 86.49% of the patients reported not paying attention to the physician's behavior, and 97.3% did not perceive any emotional expressions among the medical staff. The survey also explored procedural stress levels, utilizing a 0 to 10 scale, where the value 7 was most frequently reported by 18.92% of the respondents.The overall average stress level was calculated at 4.26, with a median value of 5. The study revealed that women experience more stress during PCI than men (5,38 compared to 3,32) and the level of the stress does not depend on the urgency of the procedure.

Conclusions: Our studies confirm that patients expect to be informed about the PCI procedure beforehand and discuss it afterwards, highlighting the need for healthcare providers to ensure patients feel secure and well-informed. A significant portion of patients don’t focus on staff behavior during the procedure, suggesting verbal communication outweighs non-verbal in patient experience.The overall stress level is moderate, with women experiencing more stress than men, irrespective of the procedure's urgency. This indicates the need for communication approaches tailored to the diverse concerns and emotional needs of different patient groups.

In conclusion, this research underlines the critical role of effective communication in enhancing patient well-being, satisfaction, and treatment outcomes during PCI.

Pathology & Forensic Medicine Session

21. Modelling of lipopolysaccharide-induced stress response in expandable lung-like epithelia

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Introduction: Lungs are complex organs exposed to various pathogenic stimuli. Lipopolysaccharide (LPS) is an endotoxin found in the cell walls of Gram-negative bacteria. LPS can trigger lung inflammation, leading to respiratory distress, development of interstitial fibrosis and respiratory failure. Alterations of lung architecture are associated with abnormal function or regeneration of pneumocytes type I and II that normally constitute the lung alveoli. Transition of pneumocytes from epithelial to mesenchymal phenotype (EMT) leads to accumulation of extracellular matrix, and altered functions of alveolar compartment.

Endoplasmic reticulum (ER) represents a key cellular signaling hub, responding to various intrinsic and extrinsic factors, that compromise the protein synthesis and folding. If misfolded proteins accumulate in the ER, the Unfolded Protein Response (UPR) signaling pathway is triggered, leading to primarily expression of chaperon genes. If overactivated, UPR induce alterations of cell morphology, and ultimately cell death.

Recently, we have introduced a model of embryonic stem cells-derived expandable lung-like epithelia (ELEPs) that express markers of lung progenitors and hold the capacity to differentiate to distal lung phenotypes. Here we used ELEPs to study effects of LPS on ER stress machinery and EMT plasticity of cell phenotype.

Aim: Here we wish to establish an in vitro model of LPS-induced cell stress response in ELEP and investigate the role of UPR and EMT.

Materials and Methods: ELEP cells were derived from hESCs as described by us previously (Kotasova et al. 2022): hESCs were directed towards foregut endoderm using Activin signaling. Subsequently, the foregut endoderm was guided towards lung-specific differentiation via FGF, BMP, and Wnt signaling pathways. The specificity of lung phenotype was confirmed by TTF1 expression by flow cytometry and Western blot analysis.

For investigation of LPS effects, ELEPs were propagated either in conventional 2D monolayer or 3D culture in hanging drops, and treated with varying concentrations of LPS, Tunicamycin and TUDCA in the culture media. ELEPs were then analyzed using PCR, Western blot, and immunofluorescence microscopy.

Results: LPS induced ER stress in ELEPs cultured in noth the 2D and 3D setup. PCR and Western blot results indicated induction of ER stress and EMT by elevated levels of UPR downstream target BiP and CHOP, and Slug and Snail, respectively. Interestingly, ELEPs upregulated levels of E- and N-cadherins upon tunicamycin and formed larger and growing spheroids in 3D.

Conclusions: ELEPs provide a suitable epithelial model for investigation of cell stress induced products of pulmonary bacterial infections. LPS induced ER stress in ELEP cells leading to deregulated expression of adhesion molecules and EMT-associated morphological changes.

Acknowledgements:

This work was supported by Czech Science Foundation, grant no. GA23-06675S and by funds of Faculty of Medicine, Masaryk University, grant. no. MUNI/A/1598/2023.

22. Investigation of Endoplasmic Reticulum Stress and Unfolded Protein Response in Patient Derived Pancreatic Adenocarcinoma Cells

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Introduction: Pancreatic adenocarcinoma (PDAC) is one of the most prevalent cancer types in the world. Due to poor diagnosis, 65-70% of patients that are initially diagnosed reported to have advanced stage of the disease (stage III-IV). The lack of precise biomarkers, late diagnosis, and ineffective treatments contribute to a low survival rate, typically ranging from 5-7% over 5 years and often less than 1-2 years. Therefore, ER stress and Unfolded Protein Response (UPR) research on PDAC cells provides a different aspect on the treatment potential of PDAC. UPR can be triggered by the substantial need for protein production and proper folding in rapidly proliferating PDAC cells, resulting in the accumulation of misfolded proteins within the ER. Here we focused on the changes in expression of E- and N-cadherins, canonical markers of ER stress (BIP, CHOP) and ER-associated proteins with putative role in PDAC carcinogenesis (TUSC3).

Aim: Our project's aim is to investigate the ER stress in PDAC patient cells to provide novel molecular markers diagnostics, follow-up and targeting.

Materials and Methods: Primary tumor cells expanded in vitro from resected PDAC tumors were cultured in DMEM enriched by 10% FBS in 37°C and humidified atmosphere. Cell viability was determined by MTT assay. Protein biomarkers associated with ER stress in PDAC samples were analyzed by Western Blot using antibodies specific for Binding immunoglobulin protein (BIP), CCAT-enhancer-binding protein homologous protein (CHOP), Tumor Suppressor Candidate 3 (TUSC3), Transforming growth factor-β (TGF-β), E-cadherin, N-cadherin and Epidermal growth factor receptor (EGFR). Tunicamycin (TN) at sub-lethal concentrations (0.5 and 1 mM), determined by MTT assay, was used to induce ER-stress by inhibition of n-glycosylation. Tauroursodeoxycholic acid (TUDCA) and Salubrinal (SAL) with 500 nM concentrations were combined with TN.

Results: We demonstrated activation of canonical UPR signaling, when BIP and CHOP expressions were increased upon treatment in TN, TUDCA+TN and SAL+TN groups. TUSC3 was decreased in only TN groups. E-cadherin expression was decreased in all groups except TUDCA. N-cadherin expressions were contradictory in our observations. A slight increase in EGFR expression was observed in TN 0.5 and TN 1 mM groups, and it was increased more in TUDCA+TN and SAL+TN groups. There were no observable changes in TGF-β expression between the groups.

Conclusions: In summary, our results suggest that; TN 0.5 and 1 mM concentrations are optimal to observe the difference of ER stress. TUDCA (500nM) demonstrated a significant decrease in expression of canonical ER stress markers. Downregulation of E-cadherin and upregulation of N-cadherin lead to increased invasion potential of tumor cells through epithelial-to-mesenchymal transition. Furthermore, downregulation of TUSC3 is linked with increased proliferation, migration and invasion in cancer cell lines.

In summary, we show that induction of ER-stress might promote EMT in PDAC primary cells and contribute to the invasiveness of tumor cells.

23. The outcomes of autodermoplasty in severe skin burns

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Introduction: Skin burns represent a significant public health concern, often resulting in extensive tissue damage and functional impairment. Autodermoplasty, or the use of autologous skin grafts, has emerged as a promising approach for severe burn wound management.(1). However, there is a need for a comprehensive assessment of the outcomes associated with autodermoplasty in the treatment of skin burns.(2).

Methodology: A systematic search of major electronic databases (ClinicalKey, PubMed, Cochrane Library) was conducted to identify relevant studies. Studies investigating autodermoplasty as a treatment modality for skin burns were included. Data regarding patient demographics, burn characteristics, grafting techniques, graft take rates, wound healing outcomes, functional recovery, and complications were extracted. A total of 9 studies met the inclusion criteria and were included in the review. Methodological quality assessment was performed using predefined criteria. Meta-analyses were conducted where feasible to estimate pooled effect sizes.

Results: Autodermoplasty demonstrated favorable outcomes in terms of graft take rates, wound healing, and functional recovery. (3,5). The overall success with higher rates was observed in partial thickness burns compared to full-thickness burns. Functional outcomes, including range of motion and sensory recovery, were generally satisfactory, although variations were noted depending on the extent and location of the burn. (4,6,7). Complications such as graft failure, infection, and hypertrophic scarring were reported, albeit at relatively low rates. (8,9).

Conclusions: Autodermoplasty represents a valuable therapeutic option for the management of skin burns, offering favorable outcomes in terms of graft survival, wound healing, and functional recovery. While complications may occur, they are generally manageable and do not outweigh the benefits of autologous skin grafting. This systematic review underscores the importance of autodermoplasty as a cornerstone in the treatment of skin burns, highlighting the need for further research to optimize grafting techniques and refine patient selection criteria. These findings have implications for clinical practice, emphasizing the importance of evidence-based approaches in burn wound management.

24. "The deceased can save and educate the living" - on the importance of education about donation and transplantation programs.

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Introduction: The education and research project focuses on two main problems: cadaver donation at Medical Universities' dissecting rooms, and the shortage of organs for transplantation. The increase in the number of students at Medical Universities highlights the need for an anatomy course, with access to donor cadaver slides. Unfortunately, the low prevalence of the donor program leads to a shortage of learning materials. In addition, the deficiency of organs for transplantation is becoming an increasingly pressing problem, as the number of people waiting for transplants grows and the availability of organs remains low, partly due to a lack of public awareness of the possibility of becoming a donor.

Aim: Investigation of the awareness of Wroclaw residents regarding cadaver donation and organ transplantation from both living and deceased donors and examination whether education can influence greater participation in these programs.

Materials and Methods: From September to December 2023, surveys were conducted in three high schools and three senior clubs in Wrocław to assess knowledge on donation and transplantation, followed by educational sessions. After a month, participants in the project completed a survey regarding their retained knowledge and changes in attitude towards the issues discussed. The survey questions were based on articles from medical scientific databases.

Results: The survey before the seminar on donation and transplantation had 142 participants (79 high school students and 63 seniors). After a month, 132 people (10 fewer seniors) completed the survey. The results were divided into questions about transplantation and donation, taking into account age groups. Seniors: 86% knew about the existence of a transplantation program in Poland, and 80% knew that a heart could be transplanted. Before the lesson, only 10% knew about the legal regulations on organ harvesting after death; after the lesson, 50% already answered this question correctly. The vast majority of seniors (86%) were willing to donate organs. Among high school students, knowledge of legal regulations on transplantation increased (from 8.86% to 26.6%). Fewer of them were willing to donate organs compared to seniors (64.5%). Body donation to the medical school received less attention. Respondents knew that such a program existed, but were unsure of what exactly happens to the body after the donation period ends. Among seniors, willingness to donate a body to the medical school increased by 20%. Unwilling respondents were driven by their lack of knowledge on the subject and preference for a traditional funeral. High school students were most reluctant, with only 5% determined to donate. Unlike seniors, they saw no need to talk about donation, believing the issue of death to be too forward-looking.

Conclusions: The subject of donation and transplantation is extremely important, and there is a real need to conduct campaigns to inform people about these programs. Cadaver donation for the purpose of science at medical universities is controversial, but accurate study of anatomy is not possible without preparations from donor cadavers. Through publicity campaigns such as the initiative described above, we can help increase the number of cadaver donors and organ donors.

25. Recent advances in molecular pathomechanism of holoprosencephaly

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Introduction: Holoprosencephaly (HPE) is a congenital craniofacial disorder. It is the result of a structural disruption in the development of the neural tube, leading to a failure in the separation of the lobes. HPE is mainly caused by pathogenic variants in genes associated with transduction of Sonic Hedgehog (SHH). The vast majority of reported non-aneuploidy HPE cases are not genetically diagnosed. In recent years, new research into

single-gene mutations leading to HPE has been reported, allowing us to hypothesise that mutations in cohesin-related genes may lead to HPE. Disruption of Cripto, a TDGF1 ortholog, in mice results in HPE, highlighting a role of GPI biosynthesis genes in the pathophysiology of HPE. There are some reports of new variants of genes already known to cause HPE and variants in genes encoding structural and functional proteins of monocilium, an essential element of the SHH transduction pathway, which can lead to HPE.

Methodology: We have analysed all papers registered in PubMed and Google Scholar from January 2015 to December 2023 available upon searching the term “holoprosencephaly”. Papers concerning diagnosis of one-gene HPE cases and molecular pathomechanism were included. Aforementioned criteria allowed us to use 113 papers from 564 available.

Results: Several studies have identified mutations in cohesin complex genes in individuals with HPE. Pathogenic variants in several ciliopathy-associated genes have been implicated in the pathogenesis of HPE, highlighting the strong link between ciliary dysfunction and midline malformations. The molecular mechanisms underlying ciliopathy-associated HPE are diverse and involve perturbations in key developmental signalling pathways and cellular processes. It is suggested that the HPE phenotype in patients with TGIF1 variants may result from excessive Gli3 expression in the SHH pathway rather than disruption of Nodal expression in the NODAL pathway, although it remains possible that concomitant disruption of NODAL may influence the phenotypic outcome. Disruption of the NOTCH pathway is implicated in some cases of HPE. SHH and NOTCH activities overlap in the anterior hypothalamus, the SHH pathway is active prior to NOTCH, but NOTCH activity then maintains SHH activity. Pathogenic FGF8 variants have been found in symptomatic patients with HPE and in asymptomatic carriers, suggesting its role as a risk factor for HPE.

Conclusions: At present there are no cohesin complexes that are commonly tested for in individuals with holoprosencephaly. It is suggested that cohesinopathy genes should be more regularly included in gene panels for HPE and other midline brain defects, which are increasingly reported features in the phenotypic spectrum of cohesinopathies. Ongoing research efforts to elucidate the pathophysiological mechanisms underlying ciliary dysfunction in HPE offer opportunities for the development of novel therapeutic modalities targeting specific molecular targets. Continued interdisciplinary collaboration and genetic research efforts are essential to unravel the complexities of ciliopathy-associated HPE and to advance precision medicine approaches for affected individuals. Routine searching for pathogenic variants in other newly-discovered pathway elements in patients with HPE should increase the diagnostic success in non-aneuploidy HPE cases.

Gynecology and Obstetrics Session

26. Male Hormonal Contraception: What Do We Know So Far?

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Introduction: For many years, efforts have been made to identify substances that could be recognized as male hormonal contraception. This paper focuses on summarising the current achievements in research on male hormonal contraception and presenting the most promising directions for its development.

Methodology: In this article, a systematic review approach was employed to synthesise information from over 55 articles. Sources used to create this review paper were researched via online databases such as PubMed and Scopus.

Results: This review paper describes the development of research on male hormonal contraception over the years and summarises the key achievements and milestones in this field. Compounds that have shown to have too many adverse effects, inconvenient forms of administration, and insufficient effectiveness in sperm suppression are discussed. This category includes gonadotropin-releasing hormone antagonists and agonists, testosterone and its esters, as well as combinations of progestins with testosterone. The paper also gathers information on compounds such as 7α-methyl-19-nortestosterone, 7α,11β-Dimethyl-19-nortestosterone 17β-undecanoate, 11β-Methyl-19-nortestosterone 17β-dodecylcarbonate, and the combination of segesterone acetate with testosterone in gel form, which are still under investigation for use in the development of male hormonal contraception.

Conclusions: The paper summarises the history of research on male hormonal contraception and presents various substances that have the potential to achieve its status. Among the compounds studied so far, the most promising ones are oral 7α,11β-Dimethyl-19-nortestosterone 17β-undecanoate, 11β-Methyl-19-nortestosterone 17β-dodecylcarbonate, and the skin-applied gel, which consists of segesterone acetate combined with testosterone, due to their convenient application, minimal adverse effects, and high efficacy in sperm suppression. However, further research on these compounds, involving a greater number of patients, as well as assessing their long-term effects on human health is still needed.

27. Hormonal changes after menopause and their impact on sexual life. A comprehensive review

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Introduction: This review examines the existing literature on postmenopausal hormonal changes and their impact on women's sexual lives, and highlights the importance of understanding this relationship in the context of women's health. Sexual dysfunction occurs in almost 65-90% of menopausal women and affects most aspects of their lives.

Methodology: This review focuses on the analysis of previously published articles and provides an overview of the findings presented. The articles used for our review were retrieved from PubMed, Google Scholar, Mendeley and ResearchGate.

Results: The paper summarizes the most important factors and reveals the relationship between postmenopausal hormonal changes and their negative impact on women's sex lives.

Conclusions: There is a connection between post-menopausal hormonal changes and their effect on women's sexual activity. It is important to consider the various sexual problems that women in this age group may experience, including sexual dysfunction, mood disorders, loss of desire, and pain during intercourse. Therefore, it is important to adopt a comprehensive approach to the care of postmenopausal women. This approach should consider not only the hormonal aspects but also the psychosocial and physical aspects, in order to provide them with the necessary support and treatment.

28. Uterine Artery Embolization as a Treatment of Bleeding Uterine Myomas for Patients of Reproductive Age: A Comprehensive Review

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Introduction: Uterine myomas, also known as fibroids or leiomyomas, are benign growths commonly found in women of childbearing age, leading to increased morbidity and a negative impact on quality of life. While surgery remains the primary treatment option, uterine artery embolization (UAE) has gained popularity as a less invasive alternative. UAE has demonstrated efficacy in reducing the size of fibroid tumors and managing symptoms, but further investigation is needed to determine if one treatment method is definitively superior. This review aims to assess the potential benefits and drawbacks of UAE as a treatment option for uterine myomas compared to surgical interventions.

Methodology: A systematic review of scientific literature from 2019-2024 was conducted using PubMed database according to PRISMA rules.

Results: UAE has short-term advantages over surgery, including fewer blood loss, shorter hospital stay, and quicker resumption of work. Reduction in fibroid volume measured by magnetic resonance imaging is significant, and most women reported improvement in symptoms. UAE offers a less invasive alternative to surgery with comparable health-related quality of life results, lower anxiety rates, and patient satisfaction with UAE is high. However, reduction and loss in ovarian function can be seen with the UAE, as well as lower pregnancy and live birth rates, increased risk of postpartum hemorrhage. The enduring psychological impact of hysterectomy is of great significance to numerous women and should not be overlooked. There is a higher reintervention rate after UAE compared to surgery; in certain circumstances, surgical intervention is still necessary, thus reducing the initial cost benefit over surgery. Posttreatment pain intensity is higher after UAE than after surgery.

Conclusions: Although the UAE presents immediate advantages and presents a less intrusive alternative for addressing uterine myomas, there are reservations regarding its long-term effects on ovarian function and fertility, necessitating additional research. Assessing the pros and cons of UAE in comparison to surgical approaches is essential for making informed decisions and improving patient outcomes.

29. Vulvodynia, Vaginismus and Dyspareunia as a significant challenges to women's sexual health and general well-being.

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Introduction: Sexual pain disorders such as vuvlodynia, vaginismus and dyspareunia pose serious problems for sexual health. In this review paper we are going to summarise facts based on the work of other studies to shed light on this problem closer.

Methodology: This review paper used to analyze the available scientific papers about the topic of sexual pain disorders. A systematic search of relevant studies was conducted using: the book “Seksualne zespoły bólowe” Sławomir Jakima, Ewa Baszak-Radomańska. The studies used in this article were found through PubMed, Embase and Google Scholar databases.

Results: Female sexual dysfunction is an important health concern which is influenced by medical and psychosocial factors. The origins, progression, and challenges associated with sexual pain are multifaceted. As a result, treatment approaches encompass a range of strategies, including medical interventions, pelvic floor rehabilitation, psychological therapies, and combined multimodal approaches.

Conclusions: Pain may be experienced in different ways and at different times during or after intercourse. Further research is necessary in finding solutions to clinical consequences of these issues. It is crucial to spread awareness about these conditions and to inform people about treatment options. “Non-sexual” approach to sexual pain will lead to improved understanding and treatment of important and currently neglected women's health problems.

30. Exploring the immunological properties of breast milk in maternal overweight and obesity

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Introduction: Maternal obesity, affecting many pregnant women globally, not only poses immediate health risks but also modulates breast milk composition. Obesity is linked to inflammation and oxidative stress, impacting breast milk’s immune properties. This presentation will explore the intricate relationship between maternal metabolic disorders, such as obesity and overweight, and breast milk’s immunological components.

Methodology: We conducted a thorough search for original and review articles published until October 2023 in the PUBMED/Scopus database. This search included several terms related to human breast milk, immunological properties, overweight and obesity. The selection of immunological factors for analysis was based on the most recent scientific publications addressing this topic.

Results: Maternal metabolic disorders have discernible effects on the composition of immune-related components in breast milk, such as immunoglobulins, lactoferrin, leptin, ghrelin, adiponectin, C-reactive protein, growth factors, extracellular vesicles, and lymphocytes. These changes in breast milk composition can significantly impact the newborn’s immune system, with potential long-term health implications beyond the immediate postnatal period.

Conclusions: Maternal metabolic health is a critical factor in shaping the health trajectory of the neonate through breastfeeding, although the full advantages of breastfeeding for children of mothers with obesity remain uncertain. Ongoing research aims to understand and unravel these links.

31. The mechanism of action of emergency contraception - facts and myths.

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Introduction: This review deals with the topic of emergency contraception which is a controversial issue in society and is surrounded by many myths. The main aim of the paper was to gather reliable information about this method of contraception, including its mechanisms of action and possible side effects.

Methodology: A literature review approach was used to analyse the available scientific papers. The research of relevant studies was conducted using: PubMed, Embase and Google Scholar databases.

Results: The analysis presents available methods of emergency contraception and summarizes key information on their mechanisms of action. Moreover, issues of efficacy and potential side effects are addressed, and the most common myths are discussed, such as the abortifacient effect of the substances, disruption of the menstrual cycle or possible carcinogenicity of the drugs.

Conclusions: Emergency contraception methods are well-known and thoroughly researched medications. When used correctly, they safely inhibit fertilization and prevent unplanned pregnancy. The misinformation surrounding them is often the result of lack of knowledge or ignorance and the repetition of scientifically unfounded beliefs.

Public Health Session

32. Assessment of Self-Efficacy and Adherence to Treatment Control in Patients with Diabetes Mellitus.

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Introduction: This study delves into investigating the self-management activities of individuals with diabetes and their self-efficacy, emphasizing the exploration of the relationship between these two factors.

Aim: The primary objective of this study is to explore the self-management activities and self-efficacy of individuals with diabetes and to establish a correlation between their self-management practices and self-efficacy in diabetes control.

Materials and Methods: Utilizing a robust qualitative research method, this thesis examines the self-management practices and self-efficacy of individuals diagnosed with both Type 1 and Type 2 diabetes. The study employs meticulous methodologies to thoroughly evaluate the potential correlation between self-management and self-efficacy in diabetes patients.

Results: The study's results unveil compelling insights into the relationship between diabetes self-management activities and patients' self-efficacy. These findings shed light on critical aspects of diabetes care, providing valuable information on potential factors influencing successful self-management and the mechanisms contributing to enhanced self-efficacy in individuals with Type 1 and Type 2 diabetes.

Conclusions: The study concludes by summarizing the key discoveries and emphasizing the broader implications for public health and preventive measures for diabetes management.

33. Effects of Nurses' Shift Work on their Sleep Quality

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Introduction: The nursing profession is usually characterized by irregular shift work which poses significant challenges to nurses' sleep quality and overall well-being. This study investigates the effects of different shift schedules on nurses' sleep quality, aiming to understand the specific factors contributing to sleep disturbances and potential implications for their health and job performance.

Aim: The aim of this study is to investigate the specific ways in which different shifts (day, night, twenty-four hour shifts) affect nurses' sleep quality. This could involve examining differences in sleep duration, sleep efficiency, sleep disturbances, and overall sleep satisfaction among nurses working various shifts and to compare the sleep quality of nurses working different types of shifts.

Materials and Methods: A questionnaire survey method was chosen for the research, this thesis examines the sleep quality in different shifts working nurses comparing the quality of sleep to their working schedule and how it affects their well-being.

Results: The study's findings reveal revelations regarding the poorer sleep quality among those working night shifts compared to day shifts. Assessment of nurses' subjective perceptions of sleep quality, including overall satisfaction with sleep, feelings of restfulness upon waking, and perceived sleep disturbances. Results indicate lower subjective sleep quality among nurses working night shifts. Study reveals associations between inadequate sleep and increased risk of fatigue-related errors, mood disturbances, and physical health problems.

Conclusions: In conclusion, the study underscores the importance of addressing the impact of nurses' shift work on their sleep quality.

34. Effects of cocoa consumption on colorectal colon cancer cell populations.

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Introduction: Colon cancer is currently a major public health problem. The number of diagnoses of this cancer is forecast to rise continually in the coming years, and the number of patients might even double in the next years. It is key to find appropriate prevention methods and a treatment system that effectively inhibits the growth of colon cancer cell populations. In the last few years, research has focused more and more attention on the importance of natural ingredients that we can find in food, in the diet prevention or diet therapy of cancer. Diet in treatment of colon cancer is special importance. It is negatively affected by the Western Diet, which is unfortunately growing in popularity in developing countries. This diet is characterized by high consumption of highly processed foods and rich in saturated fatty acids. The dietary style influences the risk of growing colon cancer. Of the bioactive substances that are sourced from food, polyphenols stand out among others. Sources of polyphenols are mainly fruit and vegetables, but also teas and nuts. These chemical compounds affect many functions in the human body, including anticancer effects. The effect of cocoa on colorectal cancer cells is a particular subject of research in the last few years.

Methodology: For the preparation of the review article, research articles published on Pubmed and Google Scholar platforms were selected. Preference was given to a selection of articles published in the last few years.

Results: In a study conducted on rats, it was observed that the consumption of dark chocolate reduced the number of abnormal cell proliferation in colon crypts, which are the starting point for the progression of colon cancer. In addition, it was reported that the consumption of dark chocolate, among other things, reduced COX-2 transcript levels in rats. The next research involved investigating the effects of polyphenols extracted from cocoa on cells of the Caco-2 line. The cells were treated with cocoa extracts (fortified with procyanidins) at 50 mcg/ml, resulting in a 70% inhibition of cell growth in the G2/M phase. The extract was also observed to decrease the activity of ornithine decarboxylase, the activity of which affects the growth of colon cancer cell populations. In a study by Weyant et al, it was evidenced in mice that (+)-catechins can inhibit the induction of colon cancer. Adding (+)-catechins to the diet in an amount equal to 8 mg/kg (+)-catechin reduced colon cancer induction by 75%.

Conclusions: The research published to date on the effect of cocoa on colon cancer cells is not enough to be possible to make a definitive thesis. An additional limitation is that the subject is about cocoa consumption, which is not found in a large portion of food products. In vivo, studies have not been carried out because of the difficulty involved in structuring such a diet in patients with colorectal cancer. However, cocoa may be much more effective in the prevention of colon cancer, as its effect in this respect appears after prolonged and regular consumption at adequate levels. Further study is needed to be able to confidently conclude the effect of cocoa consumption on colorectal cancer cells or for its prevention.

35. Sudden deafness - main causes

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Introduction: Sudden hearing loss is a comprehensive term involving various disorders. However, it typically refers to Sudden Sensorineural Hearing Loss (SSNHL). It is defined as a sudden loss of hearing (partial or total) exceeding 30 dB or occurring at more than three consecutive audiometric frequencies within a 72-hour period. The aim of this review paper is to determine the primary factors leading to sudden deafness and to identify the most common symptoms.

Methodology: PubMed was utilized to identify articles addressing the described issue. Articles were searched using the following keywords: "Sudden deafness", "Causes of sudden deafness". The obtained results were narrowed down based on the publication dates of articles from 2016 to 2024.

Results: Sudden deafness occurs more frequently in adults than in children, with the highest incidence among adults aged 40-70 years. The most common causes are idiopathic, followed by infectious causes such as Lyme disease, and vascular causes such as stroke. In the majority of cases, hearing loss is unilateral. Studies show that sudden hearing loss can also occur in the course of multiple sclerosis or due to abnormalities in genes related to inflammation or oxidative stress.

Conclusions: Sudden deafness is a very serious problem. It can be a reversible process or lead to partial or permanent hearing loss and disability for the patient. Rapid diagnosis and initiation of treatment are crucial, addressing both symptomatic and causal aspects, especially in the case of infections. Sudden deafness in a patient should not be underestimated, as in some cases, it may indicate a stroke.

36. The Influence of Nutrition, Dietary Habits, and Dietary Supplements on Libido

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Introduction: Libido can be described as a natural hunger. Thus, not surprising is the relation between nutrition, dietary habits, dietary supplements and sexual desire. In this paper the detailed review elucidating the association between diet and sexual function is provided. Existing literature reveals that consumption of specific dietary supplements including vitamins (vit. D, A, E, C and B complex), fatty acids, elements (Zinc, Magnesium, Boron), minerals, fruits and vegetables, herbs or spices as well as beverages can enhance sexual desire. Although not to be forgotten is the fact that food can exhibit both a favourable and a negative impact on both male and female sexuality as well as cause numerous side effects. The impact on libido is not only limited to what we consume, but also the quantity of intake is to be acknowledged. Moreover, cultural and societal factors exert profound influence on shaping dietary habits and individual's perception of their sexuality, highlighting a necessity of a broader contextual understanding. This paper aims to provide an accessible collection of the most important factors concerning consumption and its influence on the development of sexual quality of life.

Methodology: We conducted a systematic examination of research literature dating from 1984 to 2023. Due to limited sources of information we decided to search for papers starting from 1984, also to compare how the approach to the influence of a widely understood diet on libido has developed over time. The research provides information of how consumption of nutrition components impact libido including types of nutrients, their quantity and positive or negative influence.

Results: Libido can be influenced by dietary supplements and dietary habits. Minerals (zinc, magnesium, boron), vitamins (D,A,E,C and B complex), amino acids (L-arginine, L-carnitine) and omega-3 fatty acids, plant derives (Ashwagandha, Red Ginseng) may enhance sexual desire. But one can not forget that they are just a part of a broader picture. Libido depends on our mental and physical health, which is strictly correlated with individual diet and lifestyle (amount of coffee and alcohol intake, sharing meals, level of stress, weight). Losing weight in obese women leads to an increase of libido. Furthermore Yohimbine, Spanish fly, mad honey and Bufo toad not only are unconfirmed to possess stimulating libido function but are proven to elevate the risk of severe side effects.

Conclusions: Libido is still a subject requiring further research as it remains an area of ongoing debates. Not much research is done to clarify unknown areas, in fact much research provides inconsistent data. Libido being a subjective assessment, which depends on an enormous amount of aspects is hard to be measured. Nevertheless people are consistently seeking methods for improving their sexual quality of life, which justifies scientific exploration in this field.

Haematology & Oncology Session

37. Lobular Capillary Hemangioma of Unknown Etiology: a Case Report

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Introduction: A lobular capillary hemangioma (pyogenic granuloma) is an acquired benign vascular tumor that can arise in the mucous membranes or skin. Conjunctival pyogenic granuloma is usually observed during the healing process after trauma or operation. We present a case of conjunctival lobular capillary hemangioma of unclear etiology.

Case description: A 44-year-old man went expeditiously to the Emergency room regarding a red, swollen, and painful upper eyelid of his right eye. These complaints had occurred a few days earlier. There was no history of conjunctival traumas, operations, or other conditions that could have contributed to the occurrence of this lesion, such as dry eye syndrome, chalazion, trichiasis. During examination, the upper eyelid was inverted and a greyish-pink vascularised lesion of approximately 10×10 mm was seen in the lateral corner. There was purulent secretion on the eyelids and in the conjunctival sac. Hemangioma was suspected. Treatment with topical antibiotics - Sol. Levofloxacini 0,5%, 4 times a day was prescribed. After 4 days the lesion was removed by surgical excision and histologically examined. The histopathological results were obtained: a tumor composed of confluent small vascular cavities with a swollen stroma in between. The diagnosis of lobular capillary hemangioma (pyogenic granuloma) was confirmed.

Conclusions: The etiopathogenesis of lobular capillary hemangioma is not yet fully understood. It is important to properly assess and consider the diagnosis of pyogenic granuloma even in the absence of a history of conjunctival trauma, operation, or other currently known risk factors. Surgical treatment tactics help to reduce the likelihood of recurrence of pyogenic granuloma.

38. The role of the oral microbiome in the pathogenesis of oropharyngeal cancers. A Comprehensive Review.

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Introduction: The microbiome is currently considered to be a unique isolated ecosystem that closely interacts with the host organism. Due to this interaction, the qualitative and quantitative composition of the microbiome might affect many pathologic and physiologic processes, including malignant solid tumors. However, the existence and significance of dysbiosis in oral/oropharyngeal cancer is yet to be clearly established.

Methodology: According to a variety of literature data, bacteria colonizing the oral mucosa can induce production of inflammatory cytokines, cell proliferation, and inhibition of apoptosis, cellular invasion, and migration thorough host cell genomic alterationsIn this regard, the role of the bacterial factor as one of the main factors in the development of tumors of the oral mucosa is currently being discussed.

Some works that are taking into consideration in this systematic review have also shown that such species as Prevotella sp., Fusobacterium sp., Porphyromonas gingivalis. play important role in cancer proliferation and has strong correlation with cancers of oropharyngeal zone.

Results: This review was made according to some studies that are documented and published in PubMed, in which Russian Society of Clinical Oncology, the Department of Oral and Maxillofacial-Head and Neck Oncology of the Ninth People's Hospital (Shanghai, China), the University of Chicago Medical Center seeks to examine the relationships between bacterial microbiomes and cancer proliferation of the oropharyngeal zone.

Conclusions: In conclusion, all this studies has been shown a high percentage of anaerobic bacteria in the direct cancer site in patients with oropharyngeal zone cancers, than in the health parts of cancer patients or healthy control group.

39. Successful Personalized Treatment Option for Stage IV Pancreatic Carcinoma

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Introduction: Pancreatic cancer is a leading cause of cancer-related mortality worldwide, affecting individuals across the globe. Exploring and developing more efficacious treatment modalities is a critical need with a five-year survival rate of less than 5%. This case report elucidates a successful and unique personalized treatment approach for stage IV pancreatic carcinoma, resulting in disease remission. The treatment method has been found to be effective in addressing the advanced stage of the disease.

Case description: A 56-year-old female presented with persistent left-sided abdominal pain persisting for three months. Three localized CT scans revealed an abnormal mass measuring 6 x 3.4 cm in the pancreatic head, accompanied by infiltration of the proximal part of the arteria lienalis. Additionally, there were pathological findings indicating peripancreatic and regional lymph node involvement, suggestive of pathological involvement of paraaortic and right iliac lymph nodes, along with peritoneal carcinomatosis (cT4N1M1). The patient underwent ten courses of neoadjuvant FOLFIRINOX chemotherapy followed by pancreatic distal resection and HIPEC, resulting in a successful surgical intervention. After a 19-month follow-up, three localizations CT scans showed negative disease dynamics, indicating progression. However, a pathological mass measuring 4.3 x 2.1 cm was identified in the stomach antrum, suggesting a recurrence of the disease. Biopsy confirmed neoplastic malignancy, leading to the decision to administer four courses of neoadjuvant chemotherapy using FOLFIRINOX. Following this, subtotal resection of the stomach was performed, revealing middle differentiation adenocarcinoma infiltrating the stomach wall, indicating a pancreatic carcinoma implantation metastasis. After surgery, the patient received six courses of pseudoadjuvant FOLFIRINOX chemotherapy, which was successful. At six months post-surgery, no signs of recurrence were observed. Presently, three years following the initial tumor diagnosis, the patient remains stable with no complaints.

Conclusions: Typically, systemic treatment is the approach for metastatic disease, commonly involving first-line chemotherapy such as FOLFIRINOX or alternative regimens like gemcitabine. Surgical intervention is not a common consideration for stage IV pancreatic carcinoma. However, this clinical case underscores the significance of individualized treatment decisions, tailored to each patient's overall health status and the specific characteristics of

disease dissemination. It highlights the necessity of personalized treatment strategies in optimizing patient outcomes.

40. Sinusoidal Obstruction Syndrome - the persistent problem of pediatric hematooncology

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Introduction: Sinusoidal Obstruction Syndrome (SOS) is a clinical presentation of an infrequent liver condition characterized by damage to small hepatic vessels, particularly the sinusoidal endothelium. The most apparent complications of the syndrome are liver damage, intrahepatic congestion, and portal hypertension. SOS is quintessentially associated with allogeneic stem cell transplantation. However, it can also occur in other settings with exposure to toxicity of certain substances, mainly chemotherapy, particularly the alkylating agents and the platinum coordination complexes.

Case description: The patient is a two-year-old boy who has been diagnosed with T-cell acute lymphoblastic leukemia. Due to a poor prednisone response, the patient was assigned to the high-risk treatment group, which involves intense chemotherapy that resulted in remission. However, during regular follow-up, the patient's liver condition and parameters rapidly worsened. Subsequently, throughout a few days, ascites and hepatomegaly occurred, resulting in the dramatic deterioration of the patient's condition. Furthermore, the presence of hyperbilirubinemia up to 2.20mg/dl and thrombocytopenia with a platelet count as low as 8000/μL, which were unresponsive to the blood transfusions, were a significant factor in the diagnosis of SOS. USG-doppler imaging and a CT scan revealed further symptoms of SOS, notably portal vein deviations and lack of contrast in intrahepatic veins. Early administration of the targeted medicine (defibrotide) resulted in a significant improvement in the patient's liver condition and well-being. The improvement enabled the sustainment of leukemia therapy.

Conclusions: This case highlights the necessity of early identification and immediate response to improve the chances of SOS patient's survival. This conclusion is even more apparent, taking into consideration that this complication has a death rate of more than 80% in severe cases, typically resulting in multi-organ failure. It is worth underlining that typical risk factors may not occur, especially in oncologic patients who are at a higher risk for developing rare therapeutic problems and severe adverse reactions to the employed treatment. The combination of clinical presentation and imaging modalities lends itself to the early initiation of suitable treatment that improves a patient's survival rate.

41. Enhancing Targeted Therapy in Endocrine Cancers: Innovations in Radionuclide Treatment and Theranostic Approaches

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Introduction: Radionuclide therapy, utilizing advancements in molecular biology and nanotechnology, offers a targeted treatment for endocrine cancers, minimizing harm to healthy tissue. Used for the treatment of neuroendocrine cancers by binding to somatostatin receptor subtype 2, which is overexpressed on the tumor surface of the tumour cell. The integration of theranostics, combining diagnostic imaging with therapeutic intervention, further improves outcomes and patient monitoring, marking a shift towards personalized oncology treatments.

Methodology: Our investigation into the latest advancements in radionuclide therapy for treating endocrine cancers involved analyzing 23 articles written in English, from 2017 to 2023.

Results: Recent advancements in radionuclide therapy have improved endocrine cancer treatments. High-LET alpha particles, beta particles, and Auger electrons target tumors with precision, reducing side efects and improving outcomes. Innovations in radiopharmaceuticals and the advent of theranostics offer personalized, more efficient, and safer treatment options. Enhanced drug delivery systems via nanotechnology further improve safety and efficacy, promising a future of customized and less invasive cancer care.

Conclusions: The evolution of radionuclide therapy for endocrine cancers represents a change towards precision medicine, showing the importance of a multidisciplinary approach in oncology. The strategic application of alpha, beta, and Auger electrons minimizes damage to healthy tissues, while innovations such as peptide receptor radionuclide therapy (PRRT) and theranostics promote a personalized approach to treatment. As research continues, the development of new radiopharmaceuticals and theranostic methods promises even more accurate, effective, and patient-centric treatments, heralding a future of increasingly customized and less invasive cancer care.

42. Description of Two Cases of Left Atrial Myxomas: A Clinical Report

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Introduction: Myxomas are the most prevalent form of benign cardiac tumors and primarily affect women between the ages of 56 and 60 years. Although they can occur in any part of the heart, they most commonly appear in the left atrium. Early diagnosis can be challenging due to the absence of specific symptoms. However, as they grow, they can cause systemic embolism or obstruction of blood flow in the heart. Echocardiography is a valuable tool for diagnosing cardiac tumors and can reveal a heterogeneous structure with areas of reduced echogenicity.

Case description: In the first case, a 68-year-old woman was hospitalized due to an ischemic stroke with impaired consciousness and memory. Diagnostic evaluation revealed a left atrial myxoma (3.5x5cm) ballooning in the mitral orifice, which was surgically removed with the use of cardiopulmonary bypass. The second case involved an 85-year-old woman who was admitted for iatrogenic bradycardia and vascular dizziness, which made standing difficult. Upon examination, she was diagnosed with a left atrial myxoma (2x2.3 cm) and underwent surgical removal under extracorporeal circulation. In both cases, the surgical procedure was successful, resulting in symptom resolution and an improved quality of life.

Conclusions: Diagnosing cardiac tumors can be challenging due to the presence of ambiguous indicators and symptoms. If a myxoma is suspected on echocardiography and clinical symptoms are observed, immediate surgical intervention is necessary. The cases presented in this report highlight the importance of complete removal of the tumor with a margin of healthy tissue to achieve complete recovery. Although myxomas have the potential to recur after resection, complete removal of the tumor is still the most effective method for treating this condition.

43. Influence of perineural invasion in early progression of disease in patients with different types of pancreatic cancer

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Introduction: Perineural invasion (PNI) is defined as a presence of cancer cells in part of peripheral nerve sheath. PNI constitutes one of a possible cancer spread route and often develops independently of vascular or lymphatic invasion. PNI is included in histopathological report of surgical specimens of cancer. The importance of PNI in cancer differs depending on localization and histological type. Pancreatic ductal adenocarcinoma is not only the most common histological type of pancreatic cancer, but also is connected with poor prognosis. In 2021 the ductal adenocarcinoma of pancreas caused 4,5% of deaths connected with cancer in man and 5,7% in woman in Poland. Studies have shown that the invasion of perineurium in pancreatic ductal adenocarcinoma is associated with early metastasis and worst outcome.

Aim: The study aims to present the influence of presence of PNI in surgical specimens on early metastasis of different types of pancreatic cancer in patients with radical pancreatic surgery.

Materials and Methods: Based on medical records, data on 30 patients were collected (14 were men and 16 were woman). The patients, whom mean age was 64,39 years, underwent the surgical treatment of pancreatic cancer in the years 2021-2023 at the Department of Surgery in Oncological Center (DCOPiH).

Results: Of the 30 patients treated from pancreatic tumors: 15 were diagnosed with ductal adenocarcinoma, 12 with neuroendocrine tumor (NET) and 3 with other histological types. The perineural invasion were detected in 13 patients (43,33%). Nerves were infiltrated in 12 specimens of ductal adenocarcinoma (80,00% of all patients diagnosed with ductal adenocarcinoma), 0 specimens of neuroendocrine tumor and 1 specimens of other pancreatic cancer types (33,33%). The early metastasis (defined as the progression of the disease in other organs during the first year after surgery) occurs in 8 patients (6 with ductal adenocarcinoma and 2 with NET) and in 5 cases were associated with PNI.

Conclusions: The studies has shown that PNI makes a potential impact in early metastasis of pancreatic ductal adenocarcinoma. The other prognostic factors (as angioinvasion, tumor size, lymph node infiltration and grade) were investigated, but in our studies, the PNI was associated in early metastasis in greater number of cases than any other factor. Because of limited research group the final conclusion should be done after further investigations on greater patients group to confirm our hypothesis.

44. A Christmas tree-shaped atrial myxoma causing transient ischemic attacks.

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Introduction: Cardiac myxoma is a well-known primary cardiac tumor usually located in the left atrium. Cardiac myxomas most commonly appear on echocardiography as a pedunculated tumor attached to the interatrial septum, with a smooth outline that does not disturb bordering structures. We present a unique case of a myxoma with an extremely irregular and branching structure and highly vascular phenotype that gave it the appearance of a lit Christmas tree on echocardiography.

Case description: A 55-year-old woman was admitted to the hospital after two consecutive episodes of transient ischemic attacks (TIA) that occurred within 36 hours before admission. Her past medical history did not include any previous complaints or diseases, nor did she have a significant family history. Physical examination, laboratory tests, and electrocardiography were normal. Transthoracic echocardiography showed a large, extremely mobile mass in the left atrium. Transesophageal echocardiography (TEE) further demonstrated irregular branching morphology of this tumor. Color Doppler recorded with a low flow velocity scale showed multiple color dots indicating significant tumor vascularity. It gave the tumor the appearance of a colorfully lit Christmas tree moving in the wind. Urgent coronary angiography excluded coronary artery disease but showed a pathological branch of the right coronary artery (RCA) vascularizing the mass in the left atrium. The Heart Team decided to perform urgent surgical resection of the tumor. A gelatinous, extremely fragile, pedunculated, and easily fragmentable mass was excised during cardiac surgery. Subsequent histopathology confirmed that it was a cardiac myxoma with no signs of malignancy. Five-year follow-up was uneventful, and the patient did not report any recurrent symptoms.

Conclusions: Typically, cardiac myxomas have smooth surfaces and pedunculated structures. The current case shows an extremely fragile and mobile subtype associated with multiple TIA episodes. Urgent echocardiography, including TEE and low-velocity color Doppler imaging, was able to fully characterize the mass and detect multiple small vessels, whose presence was then confirmed by coronary angiography and histopathological exam. Extensive vascularization often suggests a malignant nature of the tumor due to abnormal neovascularization and demonstrates greater enhancement than the adjacent myocardium, but as documented here, it may also exist in benign tumors. The irregular fragile structure of this myxoma was associated with two recent TIA episodes in an otherwise healthy patient with no cardiovascular risk factors. The case shows that prompt diagnostic workup is essential in patients with TIA. Myxomas should be excised without delay, however, excision should be performed with the highest urgency in irregular tumors that have already led to embolic complications. Evidence of tumor vascularization may also lead to alterations in the resection strategy.

45. Overview of Mohs Surgery in Melanoma Treatment

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Introduction: Melanoma, known for its aggressiveness, requires surgeries that are both precise and effective. Mohs Micrographic Surgery (MMS) stands out in the field of skin cancer treatment for its ability to accurately remove tumors and instantly check the tissue, making it a key method in fighting melanoma.

Methodology: This review analyzed 20 significant studies on using MMS for melanoma, chosen from major databases like PubMed and the Cochrane Library. The focus was on studies related to the MMS procedure, patient results, and the latest in tissue examination technologies, to provide a clear view of how MMS is changing melanoma treatment.

Results: MMS has shown to be more effective in ensuring clean surgical edges and lowering the risk of cancer returning than

traditional surgery methods. For instance, it has kept the return of basal cell carcinoma to less than 1% over five years, much better than the traditional approach. With squamous cell carcinoma, it's managed a 3-5% recurrence rate over the same period. This accuracy not only means fewer follow-up surgeries but also better looks and function for patients, with over 90% satisfaction.

Integrating MMS with new treatments like immunotherapy for late-stage melanoma has also seen positive results, notably in longer survival times. Advances in technology have made detecting cancer cells during surgery more accurate and quicker, which helps avoid mistakes and makes the surgery more efficient.

Conclusions: MMS is crucial in melanoma surgery for its high success rates and low risk of recurrence. Future research should improve tissue analysis methods and explore how MMS can work best with newer treatments, aiming to further better patient results in melanoma care.

Infectious Diseases Session (held in Polish)

46. A new look into an eye. Serum-derived remedium for various corneal diseases.

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Introduction: The physiological function of tears is one of the most crucial properties of the protective apparatus of the eye. It includes moisturizing, lubrication, and physical and antibacterial protection of the cornea and the conjunctiva. The homeostatically regulated composition and volume of the tear film may suffer changes due to autoimmune diseases, mechanical injuries, or muscular functional disorders. This leads to patients experiencing symptoms perceived as burning, itching, or irritation, which decrease their comfort of life. When synthetic tear substitutes fail, autologous serum eye drops can be implemented. In practice this therapy is used to cure dry eye disease, Sjögren's syndrome, lagophthalmos, and different types of corneal lacerations.

Methodology: The aim of this work is to evaluate the effectiveness and possible applications of autologous serum eye drops. A systematic review of literature concerning the subject has been concluded. Existing autologous serum eye drops providing centres in Poland were analysed using online available data.

Results: Despite clinical practice dating back to 1984, this form of therapy is still not well understood, and it remains rarely utilised owing to limited availability, and little awareness within the medical community. However, the positive effects of autologous eye drops far outweigh the common lack of standardisation of production and uncertainty as to the occurring side effects.

Conclusions: The review summarises past and present views on autologous serum eye drops and approaches the current situation of this idea in modern medicine. Application of own blood, which is a crucial component of homeostasis, can be used to restore wellness of the ocular surface, as well as promising findings of other researchers are the key inspiration for further development of this method of therapy.

47. The potential protective effect of eosinophils in the respiratory viral infection of human lung vascular endothelium

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Introduction: Respiratory viruses may cause infections of the upper and lower airways and heavy exacerbations of chronic respiratory diseases, such as asthma. Recent studies have shown a possible role of eosinophils in eliminating viruses. Eosinophils are equipped with various toolkits that make them capable of recognizing, responding, and coordinating an antiviral response, especially to RNA viruses. Thay may produce type I and type II interferons that contribute to the induction of an antiviral state. The role of eosinophils in modulating the antiviral response of the lung vascular endothelium during viral infections is unknown.

Aim: To assess if eosinophils may display antiviral properties and support the vascular endothelium in immune responses against viral infection.

Materials and Methods: Eosinophils were isolated from the peripheral blood of healthy individuals via density gradient centrifugation followed by negative immunomagnetic selection using anti-CD16 antibody-coated magnetic beads. For the antiviral activation of eosinophils, we used an in vitro model with TLRs agonists: poly I:C and R848, which are able to activate TLR3 and TLR7/8 receptors. Eosinophils were incubated with TLR-agonists for 24 hours and then analysis of mRNA expression of several markers of antiviral response using real time pcr was performed. Protein concentrations was assessed by ELISA assay. In a second step, we incubated human lung microvascular endothelial cells (HMVEC-L) with supernatants obtained from activated eosinophils and assessed an anti-inflammatory and antiviral responses.

Results: After 24 hours of eosinophil incubation with TLR agonists, there was a mRNA up-regulation, firstly of interferons, and proteins of intracellular mechanisms of antiviral immunity – 2'-5'-oligoadenylate synthetase 1 (OAS-1), protein kinase R (PKR) and interferon-induced GTP-binding protein Mx-1 (MX-1). Eosinophils after stimulation produced RANTES, IL-6, and IFN-β. In the second step, endothelial cells incubated with eosinophil-derived supernatants had higher mRNA expression of IFN- β, OAS-1, and PKR, and they themselves produced IFN-β, IL-6, and RANTES.

Conclusions: Activated eosinophils display a potential of the support of the lung vascular endothelium during viral infection and therefore they may play a significant role in antiviral response of the lung endothelium.

48. CHALLENGES OF ANTIMICROBIAL RESISTANCE IN HELICOBACTER PYLORI. LITERATURE REVIEW.

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Introduction: Helicobacter pylori (H. pylori) stands as a significant etiological factor in chronic gastritis, peptic ulcer disease, and gastric cancer. Global resistance rates to key antibiotics exceed 15%, complicating treatment strategies.

Methodology: A systematic review of the literature was conducted using the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) criteria. The search was conducted in the PUBMED database. The review included studies meeting the following criteria: articles written in English, no more than 5 years old. The keywords used in the search are: 'Helicobacter pylori AND resistance AND challenges'. In total, 164 articles were found. After taking into account the exclusion criteria, 23 articles were included in the review.

Results: Geographical variations in antimicrobial resistance challenge the formulation of universal treatment guidelines. Moreover, the lack of widely adopted antimicrobial susceptibility tests hampers accurate prevalence assessment and treatment development. Certain demographic groups exhibit higher resistance prevalence, emphasizing the dynamic nature of H. pylori resistance and the necessity for continuous monitoring. The rising resistance, especially to clarithromycin and metronidazole, along with multi- and hetero-resistant strains, underscores the urgency of addressing resistance issues. Enhanced antimicrobial susceptibility testing before antibiotic therapy initiation is recommended to tailor treatment to individual patients, but gastrointestinal symptoms may impede completion of antibiotic courses. Exploration of alternative strategies, including probiotics, phage therapy, vaccines, and metal-based nanoparticles, is underway. Probiotics show promise in hindering H. pylori adhesion,

while phage therapy and vaccines remain in the research phase. Metal nanoparticles exhibit non-specific bacteriotoxicity, potentially impeding antimicrobial resistance development. Biofilm formation by H. pylori exacerbates resistance by shielding bacteria from antibiotics and facilitating genetic exchange. Projects targeting biofilm antagonism aim to reduce resistance and enhance H. pylori eradication. Antimicrobial peptides (AMPs) emerge as a promising alternative to antibiotics, demonstrating efficacy against antibiotic-resistant strains both in vitro and in vivo. AMPs may serve as targeted therapy against H. pylori biofilms, offering potential solutions to combat resistance. Despite rising resistance, quadruple or triple therapies excluding clarithromycin, as well as vonaprazone-based regimens, show promise in managing H. pylori infection. These developments provide hope for improved treatment strategies amidst the growing challenge of antimicrobial resistance.

Conclusions: H. pylori is an important contributor to chronic gastritis, peptic ulcer disease and gastric cancer, with high levels of resistance worldwide. The increasing resistance of H. pylori highlights the need to find new therapeutic approaches and strategies to blunt the development of resistance and optimize treatment outcomes.

49. The importance of excluding infectious background in patients with nontypical Interstitial Lung Diseases symptoms

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Introduction: Interstitial Lung Diseases (ILD) include a wide-ranging and diverse spectrum of non-infectious and non-cancerous pulmonary disorders, both with identifiable causes and those of unknown origin. There is a great variety of ILD to be included in differential diagnosis, for example: Idiopathic Pulmonary Fibrosis (IPF), sarcoidosis, Cryptogenic Organizing Pneumonia (COP) or pneumoconiosis.

Case description: A female patient was admitted to the pulmonary ward for diagnostic evaluation of pathological changes in the lung interstitium that were discovered during another hospitalization for pulmonary embolism.

High Resolution Computer Tomography (HRCT) showed signs of ground glass opacities (GGO), thickening of intralobular septa and mosaic attenuation. There were no signs of proliferative changes shown in performed Bronchofiberscopy (FOB). Bronchoalveolar Lavage (BAL) fluid was cultured, the culture was positive for Klebsiella pneumoniae. Patient was diagnosed with ILD. Treatment with Methylprednisolone and Amoxicillin was instituted. Within 3 months, the patient was readmitted to the pulmonary ward for reassessment after treatment. Performed HRCT, in comparison to the previous one, showed complete regression of lung parenchymal changes. Residual post-inflammatory changes and minimal fibrosis were found. Second FOB was not performed, due to regression in HRCT.

Based on clinical presentation and spirometry after infection treatment, patient was diagnosed with chronic obstructive lung disease (COPD), discharged from hospital, and followed-up in an outpatient clinic.

Conclusions: Despite BAL fluid culture not being a standard diagnostic test for ILD, it is a procedure worth considering in certain cases. Excluding infectious background in patients with an atypical clinical presentation and imaging results may be crucial for making the correct diagnosis. Moreover, the possible contribution of infectious agents to the onset of specific ILDs still remains a topic of concern and requires further clarification.

50. Patient with miliary tuberculosis and HIV infection - why is it important to undergo antiretroviral treatment?

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Introduction: Tuberculosis stands out as the most prevalent bacterial opportunistic infection among patients in advanced stages of AIDS, particularly those not receiving antiretroviral treatment. The patient who was discussed by us was admitted to the infectious diseases ward due to disseminated tuberculosis affecting various organs, including the lungs, abdominal lymph nodes, kidneys, spleen, prostate gland, and brain.

Case description: Twenty years ago, the patient was diagnosed with HIV infection and underwent treatment with a standard antiretroviral drug regimen. However, discontinuation of ART medication over several years led to a weakened immune system, resulting in the development of pulmonary tuberculosis. Although initially effectively treated with anti-tuberculosis drugs, it recurred in a severe miliary form. The patient's condition upon admission was critical. Subsequent hospitalization revealed additional diagnoses of CMV infection and chronic HCV infection. Anti-tuberculosis treatment and ART were initiated, resulting in an improvement in the patient's condition. A year after the M. tuberculosis infection, a follow-up examination of kidney parameters indicated permanent damage. Furthermore, neurological symptoms reported by the patient may suggest irreversible brain changes due to tuberculosis.

Conclusions: This case highlights the crucial importance of strict adherence to medical recommendations and consistent intake of ART medications in managing acquired immunodeficiency in HIV infection. In cases of HIV/TB coinfection, efficient diagnosis of the infection and timely initiation of anti-tuberculosis treatment, followed by ART a few weeks later, are essential. Severe opportunistic infections in HIV-infected patients can lead to chronic kidney disease, which should be considered when planning ART continuation.

51. Deciphering Whipple's Disease Complexity: Case Study Insights and Research Implications

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Introduction: In this combined article, we present a comprehensive investigation int Whipple's disease based on the case of a 54-year-old patient with a complex medical history.

Case description: The patient's admission for suspected Whipple's disease followed a protracted course of episodic epigastric pain, nausea, vomiting, and constipation, amidst a backdrop of chronic pancreatitis, deep vein thrombosis, and diabetes mellitus. The diagnostic evaluation revealed duodenitis with stenosis found during GFS. Additionally, imaging studies revealed pancreatic calcifications, biliary duct dilatation, and histopathological evaluation confirmed the diagnosis. Treatment encompassed antibiotic therapy, electrolyte correction, and dietary modifications, resulting in notable clinical improvement. However, endoscopic decompression of the biliary tract proved impossible due to inflammatory infiltration of the duodenum, including the papilla of Vater.

Conclusions: This integrated case study and review article underscores the diagnostic intricacies and therapeutic considerations inherent in managing Whipple's disease, particularly in the context of recurrent episodes of acute pancreatitis leading to chronic, consequently to inflammatory papillary stenosis, and advocates for a multidisciplinary approach to optimize patient care and outcomes.

52. Awareness about HPV among Polish men who have sex with men

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Introduction: Human papillomavirus (HPV) is a significant epidemiological challenge, particularly among men who have sex with men (MSM). Men within this group are prone to HPV infection, especially those living with HIV. Risky sexual behaviors such as engaging in sexual activities with multiple partners and early sexual initiation, also contribute to HPV infection. Condom use and circumcision are considered factors reducing the risk of HPV infection. Complications of HPV infection in men include genital warts, precancerous lesions, invasive cancers of the penis, anus, head and neck. HPV vaccination prevents from acquiring HPV infection.

Aim: This study aims to assess HPV awareness and attitude towards preventive vaccination among the Polish MSM population. Understanding where respondents gather knowledge about sexual health and factors that encourage them to undergo HPV vaccination would enable more effective promotion of this form of prevention and dissemination of knowledge about HPV in this group.

Materials and Methods: The study involved 63 participants who were provided with a link to a webpage, where they completed the questionnaire designed for the study. Questions covered topics such as sociodemographic factors, lifestyle, sources used by respondents to acquire knowledge about sexual health, awareness about HPV and vaccination against it.

Results: Respondents most commonly obtained information about sexual health from various Internet sources, physicians and acquaintances. Most of the respondents found out about HPV from physicians (41.3%), while 12.7% had never heard of this virus. Regarding complications 61.9% were aware of genital warts, 36.5% of hand and foot warts, 52.4% of cancers, while 28.6% had not known any possible complications. 66.7% of respondents were aware of the long-term and asymptomatic course of HPV infection, and 46.0% knew that most people would be infected during their lifetime. 63.5% of respondents declared knowledge of risk factors. 15.9% of study participants had been vaccinated against HPV in the past. The most common reasons for not being vaccinated were: lack of knowledge about the possibility of receiving such vaccination (47.2%), high cost of vaccination (27.8%), and lack of knowledge about the existence of such a virus (22.2%). Residents of rural areas and cities with fewer than 500,000 inhabitants, individuals with higher education, and those who heard about HPV from a physician demonstrated greater HPV awareness. Vaccinated individuals showed more awareness than unvaccinated individuals, including knowledge of HPV infection complications (genital warts - 100.0% vs. 58.3%, cancers - 90.0% vs. 47.2%) and more heard about the virus from a physician compared to unvaccinated individuals (90.0% vs. 36.1%).

Conclusions: Analyzing the survey results leads to the conclusion that greater awareness of HPV encourages getting vaccinated against it. Educating the MSM population about the consequences of HPV infections and their prevention can increase the percentage of vaccinated individuals and better protect this group from complications, including cancers. Most vaccinated individuals cited a physician as the source of their knowledge about HPV, suggesting its significant role and greater effectiveness in promoting vaccinations. However, it is also worth focusing on other ways of raising HPV awareness, for example through social media, which is widely accessible.

53. New form of HIV- treatment: a survey study among patients undergoing long-acting injectable antiretroviral therapy.

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Introduction: Despite many national education campaigns on HIV infection and AIDS, for many patients, being diagnosed HIV-positive is still a source of shame and humiliation in their communities, often including their closest friends and family. Although patients are usually well informed about their disease, the general knowledge in Poland about HIV infection is quite low. Some patients admit that they have skipped doses of medication for fear of the reaction of their relatives. Long-acting injectable (LAI) antiretroviral therapy (ART) is a novel HIV treatment option for people with HIV. For patients, the issue of the convenience of such treatment is also important: many prefer to receive an injection once every two months rather than having to remember to take tablets every day. Most importantly, almost all of them admit that it helps them forget their illness.

Aim: The aim was to analyze the feedback from patients who decided to switch to injection therapy.

Materials and Methods: More than 50 patients (of which 97% were men) treated with injection therapy in Wrocław were surveyed. They were asked about the side effects of both oral antiretroviral therapy they had previously been receiving and the new injection therapy, as well as how their quality of life had changed and their concerns about the new form of treatment.

Results: 90% of respondents learned about the possibility of injection therapy from their doctor. The most frequently cited reasons for switching to injectables were convenience (77%), the opportunity to forget about their disease (30%), and fear of disclosing their HIV status due to the pills (22%). 85% of patients do not associate the new form of therapy with any difficulties, even commuting to the clinic. Half of the respondents do not experience any side effects, with 45% reporting pain after injection, 15% difficulty walking and only 2.5% general weakness or fever. 52% of patients feel that the change in therapy has not affected their quality of life in any way, and 47% feel that their quality of life has improved. Almost 95% of patients are not concerned about side effects associated with long treatment. In total, more than 97% of respondents are satisfied with the new form of treatment, with the remainder rating the change as neutral.

Conclusions: Long-acting injectable (LAI) antiretroviral therapy appears to be a more convenient form of therapy than taking pills daily for most patients who opt for it. Patients who have previously skipped doses for fear of revealing their HIV status appreciate the option of taking injections once every 2 months. For many patients, taking the pills every day has been a reminder of their disease, and the injections have brought mental relief. At the same time, few treated patients experience or even fear adverse reactions. In summary, the vast majority of patients are satisfied with the switch to long- acting injectable antiretroviral therapy.

54. Retrobulbar neuritis in a patient with suspected neuroborreliosis: A Case Report

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Introduction: This case presents a patient with signs, which could be an atypical, rare manifestation of neuroborreliosis, but despite a possibly matching clinical picture and numerous investigations, the results clearly excluded a correlation with borreliosis. 70 years old man was admitted to the Neurological Ward of Clinical University Hospital in Wrocław on 14.12.2023. The aim of admission was visual acuity disorder and discomfort behind left eyeball. These symptoms lasted for 4 weeks before the admission to the hospital. Ophthalmic appointment showed left optic nerve disc edema. MRI of the head was performed on 4.12.2023 and revealed minor upscaling and elevated signal from left ophthalmic nerve in the retrobulbar section. The patient has had reduced mobilitiy in left thoracic limb for one year. Cervical spondylosis with spinal canal stenosis was present. Also, the man reported a tick bite one year ago.

Case description: On the day of the admission lumbar puncture was performed and the cerebro-spinal fluid was collected (it was clear, colorless, with elevated level of protein - 50 mg/dL, with the norm up to 45 mg/dL). Methylprednisolone therapy was administered. The IgM Borrelia antibody test in the serum on December 15, 2023 showed a positive result (164.7 AU/ml, normal range up to 18), and the CSF test was negative (1.892 AU/ml, normal range 0-2.5). In addition, IgG in the serum was negative (6.573 AU/ml, normal range 0-10). Complete blood count was performed in which leukocytosis including elevated number of monocytes, neutrophiles and immature granulocytes was diagnosed. On the day of receiving the IgM antibodies test results, intravenous ceftriaxone administration has started due to the possibility of neuroborreliosis. It lasted for 7 days. Also, the methylprednisolone therapy continued at a dose of 0,5g 3 times per day up to December 16th. On 18.12.2024 MRI of cervical spine was performed. It revealed advanced degenerative changes in the intervertebral discs with presence of intracanal herniations, which leads to significant narrowing of the central canal on the level of C3/C4 vertebrae, as well as bilateral stenosis at the C5/C6 and C6/C7, which most likely causes compression of the nerve roots. On December 19 the patient underwent visual evoked potential test but it didn’t show any abnormal results and during an ophthalmological consultation on the same day no papilledema was found. During neurological consultation, the possibility of disseminated demyelination process was ruled out. The patient was discharged home on December 21 with the diagnosis of idiopathic or vascular retrobulbar neuritis with instructions to take cefuroxime for 7 days, and further observation after receiving the laboratory tests results. The Western blot blood-serum borrelia antibodies test returned positive result.

Conclusions: Retrobulbar neuritis is not a common neuroborreliosis symptom, but it doesn’t exclude the possibility of its occurrence. However the positive result of IgM antibodies in patient’s blood and in the Western blot examination, increased protein level in general CSF analysis, but negative result of IgM antibodies in the CSF provides no basis for its diagnosis. The laboratory results indicating the occurrence of borreliosis in the patient with neurological and ophthalmological symptoms should be treated as false-positive.

55. Reactivation of HBV infection after topical steroid treatment

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Introduction: Chronic hepatitis B reactivation is intricately linked to the interplay between viral factors and the host immune response. When immune surveillance is compromised, HBV infection can reactivate and the virus can replicate uncontrollably. Treatment modalities such as chemotherapy, corticosteroids, immunomodulatory agents and biological agents can impair immune function, increasing the risk of HBV infection reactivation. Increased viral replication triggers an inflammatory cascade in the liver, contributing to liver inflammation and potential liver damage.

Case description: We present the case of a 37-year-old man previously diagnosed with chronic hepatitis B infection 2 years before, who presented to the Infectious Diseases Oytpatient Clinic on the 14th of February, 2024, exhibiting laboratory findings indicative of HBV infection reactivation. To date, replication had remained low (2,096-3,302 IU/ml). Additionally, elastography was performed twice, once in November 2022 and again in July 2023, revealing features of fibrosis at the F2 level according to the Metavir scale. In November 2023, the patient exhibited severe psoriasis-like changes for the first time, affecting over 60% of the body. Since December 2023, the patient has been treated with topical steroids and dithranol. Despite the treatment, the changes persisted, leading to admission to the Dermatology Clinic on January 23, 2024. Scattered after-inflammatory changes were observed on the trunk and upper and lower extremities, along with psoriatic plaques on both shins. Phototherapy nb-UVB 311 nm along with topical steroids (betamethasone) and calcipotriol was initiated with a good therapeutic effect. Three weeks later, the patient presented to the Infectious Diseases Outpatient Clinic with elevated liver parameters (ALT 403 U/l, AST 149 U/l, bilirubin 1.8 g/dL) and HBV DNA at a level of 4,357,115 IU/ml. Tenofovir therapy was implemented and follow-up in the clinic was recommended to monitor viral load.

Conclusions: A connection between reactivation with hepatitis B virus (HBV) and the use of topical steroids cannot be excluded. Oral corticosteroid therapy has been demonstrated to possess immunosuppressive properties and may trigger the reactivation of HBV. There isn't ample evidence to suggest that local steroids exhibit similar effects. However, the use of topical preparations is difficult to control (mainly in the amount and frequency of application and duration of treatment). The overall clinical picture, especially the described temporal coincidence, suggests that topical steroids may have been responsible for reactivation of HBV infection in this case. Further studies are needed to determine the effect of topical steroids on the immune system.

Neurology & Radiology Session

56. SINGLE-ROOTED TEETH QUANTITATIVE EVALUATION OF SHAPES IN RADIOGRAPHIC IMAGES USING PROGRAM PACKAGE "SHAPE VER.1.3"

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Introduction: In 1998 “SHAPE ver.1.3” was developed by Assoc. Prof. Hiroyoshi Iwata for assessment of various biological shapes. One of the examples to evaluate contour was made with the root shape of Japanese radish (1). In this package a quantitative evaluation of various shapes is based on Elliptic Fourier Descriptors and Principal Components (PC).

Aim: This study aim was to assess the suitability of program package "SHAPE ver.1.3" to evaluate shapes and sizes of radiographic single-rooted tooth images.

Materials and Methods: 20 dental radiographs of the 44th tooth were made. 10 of them were taken at the 90 degree angle of a X-ray tube head and other 10 at 30 degree angle. Dental radiographs were processed by using "Adobe Photoshop" programs. Images were uploaded to SHAPE ver.1.3 software package following programs: ChainCoder, CHC2NEF, PrinComp, PrinPrint. Eventually, we compared teeth shape to a regular circle, whose parameters are: eigenvalue = 6.91E-008, proportion (%) = 100, cumulative (%) = 100 (2).

Results: Principal Components analysis were applied and six harmonics were calculated of each 90 degree angle radiographic tooth image. Eigenvalue and proportions mean results were calculated: PC1= 1.21E-004, Proportion(%)= 81.61, Cumulative(%)= 81.61. PC2= 1.53E-005, Proportion(%)= 10.28, Cumulative(%)= 91.90. PC3= 7.44E-006, Proportion(%)= 5.00, Cumulative(%)= 96.90. PC4= 4.60E-006, Proportion(%)= 3.09, Cumulative(%)= 100.00. The same was made with a 30 degree angle radiographic image. Principal Components analysis were applied and six harmonics were calculated. Eigenvalue and proportions mean results were calculated: PC1= 4.51E-005, Proportion(%)= 59.92, Cumulative(%)= 59.92. PC2= 1.91E-005, Proportion(%)= 25.44, Cumulative(%)= 85.36. PC3= 6.59E-006, Proportion(%)= 8.76, Cumulative(%)= 94.13 PC4= 4.41E-006, Proportion(%)= 5.86, Cumulative(%)= 100.00.

Conclusions: The minimum amount of PC that can be used to evaluate the shapes of single-rooted teeth is 4 units. Program package “SHAPE ver.1.3” is suitable to digitize single-rooted tooth contour in radiographic images. 90 degree angle radiographic teeth images first harmonic made up - 81.61 % and 30 degree angle radiographic teeth images made up - 59.92 %. Teeth countors in 90 degree angle radiographic images are more similar to regular circles compared to the teeth contours in 30 degree angle radiographic images.

57. SINGLE-ROOTED AND DOUBLE-ROOTED TEETH QUANTITATIVE EVALUATION OF SHAPES IN RADIOGRAPHIC IMAGES USING PROGRAM PACKAGE "SHAPE VER.1.3"

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Introduction: In 1998 “SHAPE ver.1.3” was developed by Assoc. Prof. Hiroyoshi Iwata for assessment of various biological shapes. One of the examples to evaluate contour was made with the root shape of Japanese radish (1). Our university scientist used this program for histology images analysis made by radiofrequency ablation (2). In the dentistry field, algorithms and methods are used for teeth contour evaluation and teeth recognition (3).

Aim: This study aim was to assess the suitability of program package "SHAPE ver.1.3" for making a comparison of a single-rooted and double-rooted teeth shape in radiographic images.

Materials and Methods: 10 dental radiographs of the 46th tooth (double-rooted) and 10 of the 43rd tooth (single-rooted) teeth were made. Dental radiographs were processed by using "Adobe Photoshop" programs. Images were uploaded to SHAPE ver.1.3 software package following programs: ChainCoder, CHC2NEF, PrinComp, PrinPrint.

Results: Principal Components analysis (PCA) were applied and six harmonics were calculated of each single rooted 43rd tooth radiographic image. Eigenvalue and proportions mean results were calculated: PC1= 8.42E-005, Proportion(%)= 58.47, Cumulative(%)= 58.47. PC2= 3.34E-005, Proportion(%)= 23.24, Cumulative(%)= 81.72. PC3= 1.84E-005, Proportion(%)= 12.78, Cumulative(%)= 94.51. PC4= 7.90E-006, Proportion(%)= 5.48, Cumulative(%)= 100.00. 46th tooth PCA was calculated and six harmonics were calculated of each double-rooted 46th tooth radiographic image. Eigenvalue and proportions mean results were calculated: PC1= 1.27E-003, Proportion(%)= 88.45, Cumulative(%)= 88.45. PC2= 1.06E-004, Proportion(%)= 7.39, Cumulative(%)= 95.84. PC3= 4.37E-005, Proportion(%)= 3.04, Cumulative(%)= 98.88. PC4= 1.60E-005, Proportion(%)= 1.11, Cumulative(%)= 100.00.

Conclusions: The minimum amount of principal components that can be used to evaluate the shapes of 43rd and 46th teeth is 4 units. Program package “SHAPE ver.1.3” is suitable to compare 43rd and 46th teeth shapes in radiographic images. Single-rooted teeth radiographic images 1st harmonic made up - 58.47% and double-rooted teeth radiographic images - 88.45 %. These results show that double-rooted teeth are more digitally informative than single-rooted teeth.

58. MRI in diagnosing TGA.

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Introduction: Transient Global Amnesia (TGA) is a rare neurological disorder. Common symptoms of TGA include sudden memory loss without other signs of cognitive or neurological disorders, with complete remission typically occurring within 24 hours. The memory loss is usually characterized by anterograde and partial retrograde amnesia. The majority of patients suffering

from TGA are between 50-70 years old. Typically, patients suddenly forget the content of recent conversations and may ask the same questions repeatedly. The etiology of TGA is unknown, but several hypotheses about the pathomechanisms responsible for the occurrence of this disorder exist. These include epileptic phenomena or paroxysmal neuronal discharges, ischemic stroke or hypoxia, focal ischemia, migraine with aura, focal non-ischemic energetic disorders, or venous thrombosis. These conditions may lead to functional and transient changes in the functioning of the hippocampus. CT brain and conventional MRI brain sequences (T2 and FLAIR) may show no abnormalities. Occasionally, there may be punctiform foci of hypersignal on T2 weighted and FLAIR images. On DWI/ADC, small punctate regions of abnormally restricted diffusion in the CA1 area of the hippocampus can be detected. The sensitivity of MR DWI progressively increases over time, within 48 to 72 hours. These changes are most often unilateral and singular. Treatment is generally not required. The differential diagnosis list includes strategic ischemic stroke of hippocampus, transient epileptic amnesia, psychogenic amnesia, drug-related amnesia, post-traumatic amnesia, limbic encephalitis, and hypoglycemia.

Case description: A 46-year-old male presented with the sudden onset of transient memory loss, with preserved self orientation. Neurological examination showed no other abnormalities than anterograde amnesia. CT, CT- angiography, transcranial Doppler and Doppler ultrasound of carotid and vertebral arteries revealed no abnormalities. EEG showed abnormal delta-theta oscillations in both frontotemporal areas. Complete remission of the amnesia occurred within 8 hours. MRI was performed 24 hours after the onset of symptoms, showing a characteristic image of TGA. A follow-up MRI was performed after 7 days, showing complete remission of previously visible brain lesion.

Conclusions: Conclusively, the diagnosis of TGA relies on its clinical features. MRI plays a crucial role in excluding alternative diagnoses of global amnesia. Recognition of the characteristic MRI image is essential for radiologists to confirm an accurate diagnosis and differentiate it from ischemic or other pathologies.

59. Usefulness of skin ultrasound in prediction of response to adalimumab in HS patients

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Introduction: Hidradenitis suppurativa is a recurrent, debilitating inflammatory dermatosis with a complex pathogenesis. The disease is characterized by the creation of painful, deeply localized purulent nodules, abscessess and tunnels located predominantly in the intertrigenous areas. Due to the limited treatment options for HS, the disease poses a therapeutic challenge for dermatologists and is frequently unsatisfactory for patients. Ultrasound has been applied in the assessment of HS severity, which allows real-time analysis of morphological and physiological aspects of the skin as well as non-invasive, objective monitoring of the severity of inflammation. In addition, scientific studies show that skin ultrasonography makes it possible to detect dermoepidermal tunnels (characteristic for the disease), which influences the optimization of surgical and medical approaches and individualized treatment of the patient.

Aim: To evaluate the correlation between hyperechogenic parallel lines along the tunnel, so-called "railway signs," and the response to adalimumab, a prospective observational study using ultrasound was performed from January 2020 to April 2021.

Materials and Methods: The study included 63 adult patients with 102 HS skin lesions, which were diagnosed as dermoepidermal tunnels by ultrasound. All patients received adalimumab as part of immunomodulatory treatment, initially 160 mg and subsequently 80 mg every 2 weeks. Follow up with dermatological examnation were performed at the 12th and 24th week.

Results: The railway sign was confirmed in a total of 67 lesions. Inflammatory tunnels with a positive "railway sign" showed a worse response to the administered adalimumab, with complete lesion resolution of 2.9% and 4.4% at weeks 12 and 24, respectively. In contrast, lesions without the presence of a "railway sign," resolved completely in 64.7% of cases at week 12, and 88.2% at week 24. All the inflammatory tunnels which did not respond to medication were subsequently operated on with full resolution. The histopathological examination revealed remnants of epithelial cells within the tunnels with positive "railways sign" and exluded the presence of hair shafts.

Conclusions: The results of this study indicate that the presence of "railway signs" within the dermoepidermal tunnels is associated with a poorer response to adalimumab and should be operated early. Moreover, the use of ultrasound in HS offers the possibility of improving the outcome of the therapeutic process in patients burdened with HS, as well as earlier surgical removal of lesions less responsive to drug treatment.

60. The other face of vitamin B12 deficiency- an unusual case of demyelinating disease

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Introduction: Demyelination is a pathological process in which damage occurs to the myelin sheaths within the nervous system. Vascular, metabolic, inflammatory, and genetic diseases can all result in the development of demyelination. Vitamin B12 (cobalamin) deficiency is a rare cause of demyelination, typically presenting as subacute combined degeneration of the spinal cord. The objective of this study is to present an unusual case of vitamin B12 deficiency characterized by initial symptoms of lower limb paresis and impaired proprioception and vibration sense.

Case description: We present a case of a 43-year-old male admitted to the Department of Neurology due to sudden paresis of the lower limbs and loss of proprioceptive sensation, resulting in gait disturbance. Lumbar puncture and electromyography were performed. Neuroimaging studies revealed demyelination lesions in the Th7-Th8 and Th8-Th9 segments of the spinal cord. Laboratory investigations revealed a marginally low level of serum vitamin B12 and the presence of anti-intrinsic factor antibodies. Based on the clinical presentation and conducted examinations, Addison-Biermer's disease was diagnosed. The patient regained his ability to walk after several administrations of intramuscular injections of vitamin B12.

Conclusions: Demyelinating diseases necessitate an interdisciplinary approach. Neurological symptoms associated with cobalamin deficiency pose a significant diagnostic challenge. Vitamin B12 deficiencies should be suspected in every patient with unexplained myelopathy or atypical neurological symptoms.

61. Unusual painless acute upper limb ischemia in the course of diabetic neuropathy: A clinical report

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Introduction: Acute limb ischemia (ALI) is an emergency condition lasting less than 14 days, in which sudden blockade of the artery

threatens the limb viability. Thus accurate diagnosis and therapy can protect from amputation of the affected limb or even patient's death. The two main etiologies of ALI are embolism and thrombosis in atherosclerotic arteries. The classic medical manifestations of ALI are referred to as 6P: pain, pulselessness, pallor, paresthesia, paralysis, poikilothermia. Only in 20% of cases the disease process affects the upper limb; whereas in the majority the lower limb.

Comparing clinical presentation to the Rutherford Acute Limb Ischemia Classification, attending physicians can assess if the ischemia is reversible and instigate appropriate therapy. Therapeutic option is revascularization but if the ischemia is irreversible, primary amputation must be obtained.

We present a rare case of acute limb ischemia with atypical painless presentation in a 70-year-old woman with unregulated diabetes.

Case description: A 70-year-old woman presented to the emergency department with loss of effort tolerance, fatigue, dyspnea after a short walk, and peripheral oedema. The clinical examination of the left hand revealed ischemia of the fingers and bullous lesions on the dorsal side that were painless.

Patient suffers from a variety of comorbid conditions such as: unregulated diabetes mellitus type 2, arterial hypertension, atrial fibrillation, asthma, hyperlipidemia and has a history of ischemic stroke.

In the previous few days she underwent embolectomy twice because of acute critical ischemia of the upper limb.

The clinic performed a variety of diagnostic steps. Doppler ultrasonography revealed loss of blood flow in the cubital fossa. Echocardiography showed changes on the aortic valve and pulmonary hypertension. Ophthalmological examination and abdominal ultrasonography were also performed.

During hospitalization oedema of left upper extremity enlarged. A decision was made to perform amputation on the level of the forearm. The surgery procedure went without complication.

After the surgery the patient fell into circular decompensation. She was stabilized and recovered fully from the surgery. The patient was referred to the surgical ambulatory for removal of stitches. Her diabetes was well controlled on empagliflozin, semaglutide, metformin and gliclazide.

Conclusions: Considering past cardiovascular incidents [ischemic stroke] and atrial fibrillation our patient was at high risk of embolism formation which caused the limb ischemia. Acute blockage of the limb arteries is more often associated with lower extremity. In our case, the upper extremity was the one affected and furthermore the patient reported no pain which can be explained as the result of diabetic neuropathy. While dealing with a complicated diabetic patient, health care providers should remember that symptoms of acute ischemia such as very strong pain can be masked. Therefore patients may report to the hospital with advanced ischemia when surgical treatment such as embolectomy is insufficient and the only therapeutic option is an amputation.

62. The interplay between Melanoma and Parkinson's disease:a systematic literature review

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Introduction: Parkinson's disease (PD) manifests as a neurodegenerative condition marked by the degeneration of dopaminergic neurons within the substantia nigra pars compacta, resulting in diminished dopamine levels. Numerous epidemiological studies have provided support for a potential association between Parkinson's disease (PD) and cancer.(1) The majority of these studies indicate that individuals with PD exhibit a reduced risk of developing various types of cancer compared to the general population. However, patients diagnosed with Parkinson's disease have notably elevated susceptibility to developing melanoma. (2)

Methodology: The systematic review was conducted according to PRISMA requirements. Major electronic databases, including Clinical Key, PubMed and Cochrane Library were used to perform the search. Inclusion criteria: research articles published less than 10 years ago, full-text articles written in English language. Exclusion criteria: repetitive articles, clinical cases. After application of selected criteria, 14 studies were selected for full-text analysis, 7 of them were included in this review.

Results: The correlation between melanin irregularities and skin cancers like melanoma, juxtaposed with abnormalities in neuromelanin linked to neurodegenerative diseases such as PD, suggests a potential dual role for melanin and neuromelanin in the susceptibility to both PD and melanoma. (3) While the exact mechanisms are yet to be fully elucidated, insights can be gleaned from current research findings. (4). Recent studies suggest that formation of neuromelanin may possess neuroprotective properties by aiding in the scavenging of toxic dopaquinone and sequestering metal ions within human nigral neurons. Several studies have suggested a potential association between levodopa and increased risk of developing melanoma. However, this correlation remains a subject of controversy within the scientific community. (5)

Numerous reports have highlighted instances where melanoma occurs at a higher rate in patients with Parkinson's disease, even before the onset of PD symptoms or initiation of dopaminergic therapy. Mutations in various genes and proteins are shared between Parkinson's disease and melanoma, offering connections between the two conditions. (6). These include factors involved in cellular detoxification, melanin biosynthesis, oxidative stress response, and cellular trafficking pathways. (7). Additionally, defects in cellular processes like autophagy and protein homeostasis may also contribute to the co-occurrence of these diseases. (8)

Conclusions: Epidemiological studies have consistently shown a higher prevalence of melanoma among individuals with Parkinson's disease (PD) and vice versa. Importantly, this elevated risk of melanoma in PD patients does not seem to be solely reliant on dopaminergic therapy.

63. Embolic Stroke of Unknown Source: Unraveling a Lethal Enigma

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Introduction: Accurate cardiological diagnosis in Embolic Stroke of Undetermined Source (ESUS) cases is increasingly emphasized. The paper presents an example of a 48-year-old woman who suffered two ESUS-like ischemic strokes.

Case description: The first ischemic stroke of the left hemisphere was treated with thrombolytic therapy (rtPA) and mechanical thrombectomy (MT) in 2020. Oral contraceptives and obesity were stated as the risk factors, in secondary prevention, antiplatelet drugs and change of contraceptive method were implemented. The second stroke proceeded with acute onset weakness in the left limbs and facial asymmetry due to right middle cerebral artery stenosis. After rtPA and MT treatment, substantial recovery was facilitated, notwithstanding the detection of a pseudoaneurysm and

arterial dissection during the procedural course. Subsequent neuroimaging showed subacute ischemic lesions in the right insula and frontal lobe, alongside prior ischemic infarctions in the contralateral insula. Further investigations unveiled predisposing factors for recurrent ischemic incidents, including non-calcified atherosclerotic plaques in the cerebral arteries, mild ventricular septal hypertrophy and trace valvular regurgitation, diminished haemoglobin and electrolyte levels and positive anticardiolipin antibodies, indicative of a prothrombotic diathesis. Right-left shunt (RLS) tests were performed again, this time showing the presence of a persistent foramen ovale (PFO), and four months later, an occluder was implanted.

Conclusions: This case illustrates that after the first stroke, due to a negative diagnostic result for PFO, only potential risk factors for stroke were modified in ESUS patient. After the second stroke, some diagnostic ineptitude showed a potential mechanism for the appearance of large emboli (combined anti-cardiolipin syndrome and PFO), and more aggressive prevention was applied. The accompanying review component navigates through diagnostic criteria and therapeutic modalities pertinent to ESUS, advocating for tailored therapeutic approaches to abate the risk of recurrent strokes in predisposed cohorts.

64. Evaluation of the value of the combined use of diffusion-weighted and perfusion-weighted magnetic resonance imaging in the differential diagnosis of pituitary tumors.

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Introduction: The purpose of this study was to assess whether the utilization of both Diffusion-Weighted Imaging (DWI) and Perfusion-Weighted Imaging (PWI) during the same scanning procedure will enhance the effectiveness of the differentiation process of pituitary tumors.

Aim: Analysis was based on 88 patients diagnosed with sellar and parasellar tumors who underwent MRI examinations with the DWI sequence and with the DSC PWI (Dynamic-Susceptibility-Contrast Perfusion-Weighted Imaging) magnetic resonance perfusion sequence between October 2007 and April 2023 at a single medical center.

Materials and Methods: The following relative PWI parameters were assessed: cerebral blood volume (CBV), peak height (PH) and percentage of signal intensity recovery (PSR) were calculated based on these parameters. These were relative values because the absolute value measured within the tumors were divided by the absolute values of normal-appearing white matter. For DWI, absolute ADC values were measured as mean ADC and min ADC. Relative mean and min ADC values (mean rADC and min rADC) were derived by comparing absolute values to those of normal-appearing white matter.

Results: Post-hoc tests revealed correlations in diffusion and perfusion values for meningiomas and invasive adenomas (ADC, rCBV, rCBVmax), meningiomas and craniopharyngiomas (rADC, rCBV, rPH, rCBVmax). Although post-hoc tests did not show that DWI can differentiate solid adenomas from meningiomas, ROC analysis revealed that such a possibility exists. The ADC parameter differentiates meningiomas and solid non-functional adenomas with a sensitivity of 100% and low specificity of 32% (AUC=0.675). The rPHmax parameter distinguishes these tumors with a specificity of 88% and a sensitivity of 60% (AUC=0.740). Meanwhile, when both parameters are used simultaneously, there is a noticeable increase in AUC (0.818), along with an increase in specificity (76%), while sensitivity remains at 88%. rCBV ensures differentiation of meningiomas and invasive adenomas with an AUC of 0.79, a specificity of 94%, and a sensitivity of 59%. Using ADC or rADC parameters decreases sensitivity but consistently demonstrates higher specificity (82%) compared to the rCBV parameter. Using these parameters together resulted in an increase in specificity (91%) but also a decrease in sensitivity and AUC.

Conclusions: We conclude that performing PWI in certain cases and DWI in others is worthwhile. We believe that conducting both studies simultaneously and analyzing them together does not offer significant benefits compared to analyzing one sequence at a time for a particular tumor.

65. Correlations between optic nerve involvement and cortical brain atrophy in multiple sclerosis patients

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Introduction: Multiple sclerosis (MS) is a chronic and progressive neurological disorder affecting the central nervous system, including the brain and spinal cord. It is characterized by inflammation, demyelination, and atrophy of brain structures. MS exhibits considerable variation in symptoms and disease progression among affected individuals. Notably, involvement of the optic nerve during the course of MS can contribute to significant neurodegeneration, potentially influencing the volumes of brain structures.

Aim: The aim of our investigation is to determine whether patients with multiple sclerosis and optic nerve lesions demonstrate more prominent degeneration of gray matter (GM) volume compared to patients with MS but without involvement of the optic nerves. Our assessment focuses on total GM volume and cortical thickness in various regions defined within standard brain parcellation, separately for each hemisphere.

Materials and Methods: In our study, two specific groups were selected from subjects from 2886 studies on patients with multiple sclerosis conducted on 3T Philips Ingenia MRI unit at the University Clinical Hospital in Wrocław from 2007 to the present day. A group of 33 patients, comprising 73% females and 27% males, who had demyelinating lesions within their optic nerves, was selected. A control cohort of 56 patients (79% females, 21% males), diagnosed with multiple sclerosis but without any medical records indicating alterations within the optic nerves, was established. Volumetric processing was conducted using the FreeSurfer software, an open-source program that excels in analyzing and visualizing structural and functional aspects of the brain. This software enables parcellation using two of the most renowned atlases: the Desikan-Killiany-Tourville Atlas (DKT Atlas) and the Destrieux Atlas, thereby providing invaluable insights into brain anatomy and pathology.

Results: A statistically significant difference in gray matter volume was observed between patients with optic nerve involvement and those without. Particularly, evident differences were observed in the precuneus region, as identified by the DKT Atlas. Another parameters indicated statistically significant differences in cortical thickness in both precunei and the following gyri: caudalmiddlefrontal, inferiorparietal, rostralmiddlefrontal, superiorfrontal, superiorparietal, and supramarginal for the left hemisphere; and inferiorparietal and superiorparietal for the right hemisphere, according to the DKT atlas. Incorporating

corresponding analyses with the second atlas, we acknowledge that some of these structures consistently overlap for both hemispheres.

Conclusions: In conclusion, statistically significant differences in cortical thickness and gray matter volume exist between individuals with MS and those with MS and a history of optic nerve demyelination. Further investigation is essential to explore the influence of MS subtype and extent of optic nerve demyelination.

66. Lower limb paraparesis in a 45-year-old patient - a diagnostic challenge

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Introduction: Paraparesis is a rare medical condition characterized by weakness in the lower extremities, often accompanied by impaired motor function. It is typically associated with the obstruction of the spinal cord, caused by the accumulation of degenerated proteins and macrophages. The underlying pathology of paraparesis stems from an inflammatory process triggered by the leakage of substances from the spinal cord beyond its protective sheath. This inflammatory response contributes to the progressive impairment of motor function and sensory perception in the affected areas.There are two distinct forms of paraparesis. The first form presents acutely and is marked by a sudden onset of symptoms, often due to the rapid release of spinal cord proteins leading to cord obstruction. The second form of paraparesis develops gradually over time and is characterized by the presence of macrophages in the spinal canal. This gradual progression is typically associated with an ongoing immune response to spinal cord proteins, further contributing to the deterioration of motor function and overall neurological health.

Case description: A 45-year-old patient was admitted to the Neurology Department for planned diagnostic assessment due to paraparesis of the lower limbs. According to the patient's report, symptoms appeared suddenly in 2018 in the form of contraction of the adductor muscles of the thighs, resulting in crossing of the lower limbs. Since then, the patient's condition has remained without significant progression. In 2020, the patient was hospitalized in the Neurology Department in Pszczyna, but the etiology of the symptoms was not established. Imaging studies, including magnetic resonance imaging of the head and entire spine, did not reveal significant pathology. Lumbar puncture was performed, which also did not yield significant results, as well as tests for Lyme disease, which were negative. Attempts were made to treat the patient pharmacologically and with injections of botulinum toxin type A, but without significant therapeutic effect. Currently, the patient suffers from severe pain in the lumbar spine and hip joints, radiating to the lower limbs. The patient moves with the use of elbow crutches. The patient underwent two discectomy surgeries of the lumbar spine (L4/L5) on both sides in 2012 and 2016, and suffers from hypertension. In the neurological examination, the patient demonstrated normal auto- and allopsychic orientation, no signs of meningeal irritation, and exaggerated tendon reflexes in the lower limbs. Imaging studies showed minor degenerative changes in the thoracic spine and lumbar spondylosis, especially at the L4-L5 level. Advanced coxarthrosis with avascular necrosis of the femoral head was diagnosed, requiring orthopedic consultation for evaluation of the possibility of hip joint endoprosthesis.

Conclusions: Based on the diagnostic assessment and evaluation by physicians, it was concluded that the main symptoms of the patient are due to severe bilateral coxarthrosis with avascular necrosis of the femoral head, rather than neurological causes. Therefore, further orthopedic treatment was recommended. The diagnostic process played a crucial role in determining the correct cause of the patient's symptoms, with particular emphasis on imaging studies such as magnetic resonance imaging, which allowed for a thorough evaluation of the hip joints and femoral head.

67. Progressive polyneuropathy with cerebellar ataxia - in search of a diagnosis

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Introduction: Gluten ataxia (GA) is an autoimmune disease in which gluten consumption damages the cerebellum, leading to difficulties in controlling gait, muscle coordination, and reduced precision in voluntary movement control. GA is the most common cause of sporadic ataxia (25%). The average age of onset is 48 years. It presents with cerebellar ataxia, sometimes accompanied by sensory ataxia, mainly affecting the lower limbs and gait. Gastrointestinal symptoms are usually absent, observed in only 10% of individuals. Therefore, diagnosing gluten ataxia requires screening tests for antibodies associated with celiac disease. Gluten neuropathy is defined as sporadic neuropathy with no clear etiological causes but with serological evidence of gluten sensitivity, including antibodies against tissue transglutaminase, gliadin, or endomysium. The most common type of neuropathy is symmetrical sensorimotor axonal peripheral neuropathy. The mechanism of nerve damage results from inflammation induced by anti-gliadin antibodies, leading to axonal degeneration. Vitamin deficiency due to poor absorption does not play a role, as most patients do not have enteropathy. Diagnostic methods for gluten neuropathy include the presence of anti-gliadin antibodies without any other visible etiological cause of neuropathy.

Case description: A 43-year-old patient presented to the Neurology Department for further investigation of gait disturbances and muscle wasting. His medical history was unremarkable. The patient has been consuming alcohol regularly several times a week for the past few years. Initial symptoms of paraesthesia in both lower limbs at distal segments appeared in 2019, followed by muscle wasting in the hands with finger contractures and worsening function of the right upper limb. Disease progression occurred in 2022 with exacerbated gait disturbances, spinal pain, and central dizziness. MRI of the brain with contrast revealed cerebellar atrophy. Nerve conduction studies demonstrated features of sensorimotor axonal-demyelinating polyneuropathy. After excluding all potential causes (infectious, paraneoplastic, nutritional), screening tests for celiac disease were performed, yielding positive results. The patient was immediately initiated on a strict gluten-free diet.

Conclusions: Over the past few decades, there has been a shift in the clinical presentation of celiac disease from malabsorption-related to autoimmune involvement affecting multiple systems with various clinical manifestations in response to gluten exposure. It is crucial to recognize the neurological features of celiac disease to prompt appropriate clinical suspicion for gluten sensitivity screening, aiming to expedite diagnosis and minimize patient suffering. Early diagnosis can lead to symptom normalization or improvement, whereas prolonged undiagnosed cases may result in permanent neurological damage with atrophy and loss of neurons, which unfortunately cannot be reversed. Therefore, accurate and prompt diagnosis plays a pivotal role in this condition. For patients presenting with neurological symptoms, adherence to a strict gluten-free diet is paramount, as even trace amounts of gluten can perpetuate neurological changes.

68. Comparative Analysis of Manual and Artificial Intelligence-Assisted Tractography in Diffusion Tensor Imaging

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Introduction: Three-dimensional tract reconstruction (tractography), a method based on diffusion tensor imaging (DTI), is a powerful technique capable of in vivo analysis of white matter pathways. This technique allows segmentation of white matter fiber tracts, enabling detailed analysis of individual bundles and identification of regions with abnormal morphology, crucial for assessment of white matter integrity during the disease course. At present, there are three main methods of white matter track segmentation - manual, clustering-based, and automatic approaches.

Aim: Given the emergence of various models and fiber tracking techniques, and the ongoing improvement of artificial intelligence-assisted methods, there is a need for a comprehensive comparison between manual measurement methods and those facilitated by artificial intelligence. Thus, the goal of this study was to compare manual measurement methods performed by raters, who were trained in DTI tractography, under the supervision of experienced neuroradiologists with measurements obtained through artificial intelligence-assisted software.

Materials and Methods: Thirty healthy volunteers underwent brain MRI examination on a Philips Ingenia 3T MRI unit using a 32-channel head coil. All data were analyzed by three independent raters manually in Philips Intellispace FiberTrack using the multiple-ROI approach, and by artificial-inteligence-supported software - TragSeg. Within each subject, the following tracts were examined: left and right cortico-spinal tract (CST left and CST right), left and right arcuate fasciculus (AF left and AF right), left and right inferior fronto-occipital fasciculus (IFOF left and IFOF right), left and right uncinate fasciculus (left UF and right UF) and entire corpus callosum (CC). Fractional anisotropy (FA) analysis was based on absolute and relative mean FA measurements, which were acquired in relation to FA in corpus callosum. Inter-readers and between-methods agreements were assessed with intraclass correlation coefficient (ICC).

Results: Substantial inter-readers agreement (ICC) was detected for all tracts (FA = 0.94-0.97). When AI was counted as an additional reader, substantial and moderate agreement were found (left and right CST, right AF, left UF FA = 0.91-0.86; AF left, IFOF left and right, UF right and CC, FA = 0.80-0.62). Comparison of methods revealed mostly slight agreement, moderate agreement was found for three tracts (CST left and right, UF left; FA = 0,66-0,8 and fair for two tracts (UF right and CC; FA = 0,48-0,53). Profound analysis of relative values revealed a lack of correlation between the obtained values (Wilcoxon Signed Rank Test; $p<0,01$).

Conclusions: Comparison of both absolute and relative FA values obtained from manual method and AI-supported software, revealed substantial inter-readers agreement of absolute values, but poor between-methods agreement for both absolute and relative values. Based on these results, the FA values obtained with different methods of DTI analysis should not be compared, even after conducting normalization techniques.

69. Correlations between different ADC measurements methods within the lesions of the pituitary region, encompassing mean, minimal absolute and relative values.

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Introduction: Central nervous system (CNS) tumors pose a significant clinical challenge as they can cause initially nonspecific symptoms, such as headaches, vision disturbances, balance problems, and a wide range of other neurological conditions. It is estimated that tumors within the sellar and parasellar regions comprise 10-15% of primary CNS neoplasms. MRI is currently recommended as the preferred imaging modality for those regions. Advanced methods such as diffusion-weighted imaging (DWI), perfusion-weighted imaging (PWI), and magnetic resonance spectroscopy (MRS) are used to enhance the differential diagnosis of tumors. DWI enables measurement of Brownian motion of water molecules within the voxel, it is essential for diagnosis, enables assessment of tumor aggressiveness and its density, which affects the choice of therapeutic method.

Aim: The primary objective is to outline the benefits and limitations of the currently employed manual apparent diffusion coefficient (ADC) measurement methods within the lesions of sellar region, particularly emphasizing mean and minimal absolute values, along with the corresponding relative values. The appropriate measurement approach may help to achieve consistent results and enhance the diagnostic process.

Materials and Methods: This study was conducted on 238 patients diagnosed with sellar and parasellar tumors, who underwent MRI examination, with DWI sequence in their protocol. Using dedicated software, the ADC map was generated. The mean ADC was obtained by outlining the entire tumor as a region of interest (ROI), excluding hemorrhages and cysts. The minimal (min) ADC was measured by placing a 30mm2 ROI within the lesion, at the location with the lowest value. Subsequently, relative measurements were performed, similarly for both mean ADC and min ADC, resulting in mean rADC and min rADC, respectively. To calculate the relative measurements, the values within the tumor were divided by the values in normal appearing white matter of the temporal lobe.

Results: The assessed correlation between absolute and relative values measured using the same methodology is high and amounts to 0.985537 for mean ADC and mean rADC.

Similarly, the association between min ADC and min rADC is high and amounts to 0.98729. The correlations between mean and minimal values are lower than previous results, both for absolute and relative measurements, and are as follows 0.899197 for mean ADC and min ADC and 0.88335 for mean rADC and min rADC.

Conclusions: This study indicates a high correlation between absolute and relative values for different ADC measurement methods, suggesting the possibility of utilizing a faster and more precise method (min ADC/min rADC) for pathologies of the pituitary region, especially within a single medical center.

Pediatrics Session

70. Cochlear implantation: how and when to qualify pediatric patients.

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Introduction: Hearing impairment in children is a significant issue worldwide, including Poland, as it hinders their proper development. Early hearing prosthetics ensure language and social development comparable to their healthy peers. Proper diagnosis is essential to achieve this goal. In Poland, the Universal Newborn Hearing Screening Program allows for the rapid detection of children with hearing impairment and early therapeutic intervention. A cochlear implant is an electronic device surgically implanted in the inner ear to transmit and process sounds into electrical signals, which are then directly conveyed to the auditory nerve. Patient qualification, surgery, and rehabilitation are carried out in highly specialized centers with the involvement of multiple specialists.

Methodology: This paper aims to discuss the issue of hearing impairment and the possibilities of treatment through cochlear implantation. The literature search strategy was carried out using the PubMed base based on the keyword combination: Sensorineural Hearing Loss, Cochlear Implant, Pediatric Cochlear Implantation, Speech Development, Telefitting. The references of the publications of interest were also screened for relevant papers. There were no limitations in regard to the publication date.

Results: The primary indications for cochlear implantation include bilateral deafness, bilateral residual hearing, bilateral profound sensorineural hearing loss and a lack of speech development despite appropriately fitted hearing aids and intensive rehabilitation for a minimum of 3-6 months. Extended indications encompass bilateral cochlear implantations and implantations in cases of unilateral deafness. Another crucial criterion is the absence of medical and radiological contraindications to cochlear implantation. To determine this, a high-resolution computerized tomography (HRCT) scan of the temporal bones and/or magnetic resonance imaging (MRI) of the head is performed before the planned surgery. Criteria for cochlear implant qualification also take into account the child's or parents' sufficiently high motivation to cooperate and appropriate expectations regarding treatment outcomes. The qualification committee makes the final decision based on previous examinations and observations. After being qualified for cochlear implant surgery, the patient undergoes preparation so that implantation can occur before the child reaches 12 months of age.

It is important to understand the parents' expectations, their education, involvement, and logistical possibilities related to the family's place of residence. A study assessed parents' expectations regarding communication, speech hearing, and speech development of their children based on a survey before implantation and 1, 2, and 3 years after implantation. The results indicated that preoperative expectations were met or exceeded in each time frame in a given category. Parents' satisfaction with cochlear implants is also influenced by factors related to their place of residence. Studies in Poland have shown that as many as 74% of respondents live more than 100 km away from the implantation center, and 52% of families need more than 3 hours to reach the implantation center. Consequently, 56% of respondents express a willingness to use the services of a center located closer to their place of residence. One of the solutions to this problem is remote fitting and adaptation of the speech processor, known as telefitting. It involves specialists from implanting facilities using the Internet to organize a teleconference, enabling both audio and visual communication with the patient and supporting staff in collaborating clinics across the country. Additionally, remote desktop software allows taking control of a distant computer, facilitating measurements and adjustments to the speech processor.

Conclusions: The implant program, including patient qualification, treatment, and rehabilitation, is a complex and lengthy process that offers children with bilateral deafness a chance for proper speech development.

71. Juvenile-Onset Recurrent Respiratory Papillomatosis (JoRRP) with onset before the age of 1 year on the example of a 4-year-old patient

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Introduction: Recurrent laryngeal papillomatosis is a rare condition, yet the most common benign neoplastic disease of the respiratory system in children. Its etiological factor is the human papillomavirus (HPV), which is most commonly transmitted during childbirth. The disease manifests with the appearance of cauliflower-like changes in the respiratory tract, including the larynx, which cause dyspnea and phonation disorders. Surgical interventions are mainly used in the treatment process, but in recent years, the importance of vaccination against HPV has also been emphasized. The prognosis for JoRRP is particularly unfavorable in patients who develop the condition before the age of 1 year.

Case description: The case of a 4-year-old patient is described in the paper, who was first diagnosed with papillomatous changes at 8 months of age. During many hospitalizations, recurrent symptoms were reported, including voiceless crying, hoarseness, inspiratory stridor, and even dyspnea. The patient with JoRRP underwent 9 direct laryngoscopies with papillotomy (both scheduled and emergency) from diagnosis to the present moment. Each time, symptoms improved after the procedure, but recurred with the regrowth of papillomas. The patient received the HPV vaccine 2 months before the last direct laryngoscopy. Examination did not show signs of lesion regrowth.

Conclusions: Currently, symptomatic methods such as papillotomy procedures are mainly used in the treatment of recurrent respiratory papillomatosis. However, they are associated with the risk of complications such as the formation of adhesions of the anterior larynx, restricting the movement of the vocal folds, as observed in the described patient. Therefore, increasing attention is being paid to the possibility of effectively treating the causal infection through vaccination against the HPV virus.

72. The significance of screening tests for hearing and auditory processing in school-aged children: a case study.

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Introduction: Hearing is a sense that is divided into a peripheral part that collects sensory information from the environment and a central part that processes this information. Therefore, the diagnosis of this organ should encompass both processes. CAPD

(Central Auditory Processing Disorder) is a disorder of higher auditory functions with a normal state of the peripheral auditory organ. The first symptoms of this disorder usually become apparent in the early grades of elementary school when difficulties such as maintaining auditory attention, understanding speech in noise, or locating the source of sound begin to be noticed. The diagnosis of the disorder is mainly based on conducting tests of higher auditory functions, and therapy involves auditory training and monitoring the improvement of auditory perception.

Case description: In this paper, a case of a boy enrolled in the screening program for hearing and auditory processing conducted by the Institute of Physiology and Pathology of Hearing is presented. The implemented screening program for peripheral hearing was expanded to include questionnaire surveys and tests assessing auditory processing. In the peripheral hearing screening, the patient obtained a normal result, however, the diagnosis regarding CAPD: the SAB (Scale of Auditory Behaviors) questionnaire, interview, and the results of tests assessing auditory processing processes qualified the child for further diagnosis. During subsequent visits with the boy, the absence of peripheral hearing disorders was confirmed, and central auditory processing disorders were confirmed, and appropriate rehabilitation interventions were proposed.

Conclusions: In Poland, newborns are covered by a nationwide screening program for hearing. Hearing disorders, especially in children at the speech development stage, require prompt diagnosis and treatment. The significance of screening programs for hearing, covering various age groups, is very high. However, it should be emphasized that diagnosis should encompass both the peripheral and central aspects.

73. Hearing Loss in Children

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Introduction: Hearing loss, ranked as the fourth highest cause of disability globally, affects approximately 5% of the population, with one in five children being impacted, totaling 34 million children worldwide. It poses significant challenges, particularly for youngsters, due to its adverse effects on overall development. These effects influence speech and language skills, education, and cognitive perception. Research indicates that half of all hearing loss cases in children could be either prevented or significantly mitigated through early detection and prompt therapeutic management. Early identification is crucial, typically through hearing screening within the first three months of a newborn. Studies have demonstrated that children with hearing loss experience decreased well-being and self-esteem, along with a heightened risk of depression and anxiety. Early identification of hearing loss leads to more favorable language outcomes for children, as evidenced by research findings. Universal newborn hearing screening (UNHS) has been considered the gold standard since 1968 and coupled with access to appropriate diagnostic and therapeutic services, it plays a crucial role in ensuring optimal outcomes for affected children. If the hearing impairment is identified early enough with following fast intervention children can develop speech and language abilities on par with other with normal hearing.

Methodology: We conducted a systematic examination of research literature including the topics of hearing loss in the children population, its causes, treatment and rehabilitation strategies. We also reviewed information about how hearing difficulties affect mental health, social skills and overall quality of life, as well as how rehabilitation can provide much needed help from the earliest stages. The research provides information about how such pathologies are currently diagnosed and treated leaving space for improvement to achieve better results. including novel treatment options such as cell therapy, brain organoids and genetical therapeutics.

Results: Correctly chosen method of treatment is crucially important for the development of children in the context of hearing, speech and social skills. Moreover, social skills, mental health status and even substance abuse are strongly correlated to the enviroment the patient is in, frequency of rehabilitation and its presence in general.

Conclusions: Although hearing loss is a greatly studied condition, a lot of attention still needs to be paid to the importance of its effects on the mental and social statuses, prioritizing rehabilitation and providing special programmes to provide care for such patients. Parents, teachers, otolaryngology nurses, rehabilitation specialists need to be well-informed on these topics to improve the environment children find themselves to be in. Apart from classical treatment solutions (air conducting devices, cochlear implants), promising results lay in the newest cell therapy methods and otic organoids, which are currently in clinical trials on animals.

74. Macroscale versus microscale – do global changes influence diagnostic processes in children?

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Introduction: The clinically silent course of chronic kidney disease (CKD) delays diagnosis, especially in unusual conditions. Knowledge about the etiology of CKD among pediatric patients, combined with novel diagnostic tools, should eliminate such retardation.

Aim: Assessment of clinical data of patients with CKD diagnosed at the Department of Pediatric Nephrology, Medical University of Wrocław, in years 2014-2023.

Materials and Methods: Clinical data of 189 CDK patients under 18 years were included. Etiology and stage of CKD were analyzed according to patients' age (<2 years of age and >2). Patients' data was compared in two 5-year periods: 2013-2018 and 2019-2023.

Results: The number of children with CKD in 2014-2018 was 45% higher than in the following period, the number of patients < 2y was 30% higher than in 2019-2023. Among children >2y, eGFR was calculated based on the Schwartz formula. 76% of patients were diagnosed in the early stages of CKD (stage 1 – 22,5%, stage 2 – 31%, stage 3 – 22,5%), advanced stages of CKD at diagnosis concerned almost a quarter of patients (stage 4 – 10%, stage 5 – 14%). Contrarily, in 2019-2023 advanced stages of CDK were relatively more common at diagnosis (stage 4 – 21%, stage 5 – 23%), whereas early diagnosis of CKD was put only in 56% of children (stage 1 – 17%, stage 2 – 19%, stage 3 – 19%). Structural abnormalities were the dominant cause of CKD in 2014-2018, as opposed to genetic diseases, being the major causative factor of CKD in 2019-2023.

Conclusions: The progress in diagnostics eases the identification of genetic diseases as a significant factor of CKD in children.

The pandemic and migratory conditions may have affected the diagnosis of CKD in children and the number of patients admitted in 2019-2023.

75. Intentional poisonings in children and adolescents up to 18 years in 2021-2022 at the Wojewódzki Szpital Specjalistyczny im. J. Gromkowskiego in Wrocław. Analysis of the waiting time for psychiatric consultation after poisoning and the number of consultations conducted.

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Introduction: The problem of the "loneliness epidemic" among children and adolescents is increasingly discussed in the media, intensified in recent years by the need for self-isolation during the COVID-19 pandemic. According to statistics on suicide attempts, in 2021 and 2022, there were sudden increases in the number of suicides and suicide attempts among the pediatric population: in 2020, 843 attempts, including 107 suicides, in 2021, 1,496 attempts, including 127 suicides, and in 2022: 2,093 suicide attempts, including 156 suicides - an increase of over 40%. Among suicide attempts made using pharmacological agents, one of the most frequently used substances is over-the-counter painkillers. This provokes a discussion about the high availability of these drugs and general public knowledge about the effects of an overdose.

Aim: Analysis and comparison of the causes of poisonings among children and adolescents up to 18 years in 2021-2022. The work focuses mainly on intentional poisonings, most of which were suicide attempts. The waiting time for a psychiatric consultation after poisoning and the number of such consultations were also analyzed.

Materials and Methods: A database was used, created based on the main diagnoses and disease histories of patients admitted to the specialist hospital J. Gromkowski in Wrocław in 2021-2022. A total of 193 cases were analyzed, 95 from 2021 and 98 from 2022. The purpose of poisoning, substance, age, gender, waiting time for a psychiatric consultation, and number of psychiatric consultations were compared.

Results: For suicide attempts purpose, easily available medicines and narcotics were most often used. The data clearly show that suicide attempts dominate in girls. The drugs most often used for this purpose are paracetamol and ibuprofen. Ethanol was the most common substance that sent people to hospital after poisoning, but suicidal intent was found in only 13% of ethanol poisonings. In 2021, suicide poisoning accounted for 13% of all suicides, and only 1 case involved the use of ethanol alone. A year later, suicide poisonings accounted for 36.5%, only 5 of these were committed using ethanol and one of those involved ethanol alone. Multidrug poisonings accounted for 7% of poisonings in 2021, rising to 27% of all poisonings in 2022. The paper analyses the number and waiting time for psychiatric consultations after poisoning. In 2021 the longest waiting time was 4 days. In 2022 the average waiting time was 2 days. On the day of admission, 15% of the requested consultations took place.

Conclusions: An increasing trend was observed in the number of suicide attempts in groups of children and adolescents over the years 2021 and 2022. The presented data showed that the number of suicide attempts using drugs among the studied group is constantly increasing. The substance that has been used most often for poisoning purposes is paracetamol. It can be concluded that the pandemic and the related social isolation contributed to an increase in suicide attempts, the effects of which may be observed in the coming years. It is very important to ensure easy and long-term access to psychiatric help, especially for pediatric patients, as well as education on depressive disorders and their treatment.

76. The dark side of the insulin pump-what are the dangers for young diabetics?

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Introduction: Type 1 diabetes is a medical condition predisposing individuals to the development of infections, which may manifest atypically and more aggressively. This impacts the quality of life for patients and leads to higher mortality compared to the general population. The use of personal insulin pumps by diabetic patients, involving the maintenance of subcutaneous needle insertion, is a factor increasing the risk of skin and systemic infections.

Aim: The aim of this study was to analyze microorganisms isolated from the skin around the insertion site and colonizing the tip of insulin pump catheters in children with type 1 diabetes.

Materials and Methods: Material was collected from 67 patients in two ways: swabs from the skin around the insertion site (under the adhesive patch) and aseptically obtained subcutaneous tip of the catheter during replacement. The materials were microbiologically examined (swab cultures, catheter tip sonication). All cultured microorganisms were identified using mass spectrometry.

Results: Nineteen species of bacteria were isolated from the skin around the insertion site, mostly representing normal flora (coagulase-negative staphylococci, corynebacteria, and micrococci), but also Staphylococcus aureus (3/67 = 4.5%), and other environmental bacteria (Paeniclostridium, Acinetobacter, Shewanella, Pseudomonas). Fifteen bacterial species were identified in the insulin pump catheter tip, mainly normal flora and periodically skin-colonizing species (Dietzia, Bacillus, Kocuria, Acinetobacter, Enterococcus). Staphylococcus aureus was isolated from the catheter tip in 15% of cases. Only about 20% of skin swabs were negative, indicating an elevated risk of pump insertion site colonization. Fifty-two percent of catheter tips were sterile, suggesting adherence to hygiene and disinfection practices by those changing the insertion (mainly parents), as well as the positive impact of short catheter duration in the skin (max. 72h).

Conclusions: Some identified bacteria (S. aureus, E. faecalis, Kocuria rhizophila) are potentially more virulent, posing a risk of infections, especially in individuals with diabetes where basic immune response mechanisms may be impaired. Staphylococcus aureus, a leading pathogen in skin and soft tissue infections, should not be isolated around the insertion site. Moreover, the disruption of skin integrity by the pump catheter serves as a gateway for pathogens to enter the bloodstream, potentially causing distant disease foci. Insulin pumps undoubtedly represent a convenient breakthrough in diabetes treatment; however, it is crucial to educate both diabetic children and their parents about the consequences of improper usage and maintenance of these devices. Despite their modernity, insulin pumps require proper care and hygiene; otherwise, they may serve as gateways for highly virulent pathogens.

Pharmacy Session

77. Exosomes in cancer diagnostics

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Introduction: Exosomes are a subtype of small extracellular vesicles, typically ranging in size from 30 to 150 nanometers depending on the subpopulation. Due to their many functions, they are being extensively studied as a source of biomarkers of potential use in cancer diagnosis. Exosomes secreted by tumors act as carriers of tumor-derived DNA, RNA, proteins, lipids, glycanes, metabolites, and surface molecules that define their origin. Cancer cells often utilize exosomal cell-to-cell communication to promote their progression. From the clinical point of view, a major advantage of exosomes is their stability in biofluids, enabling their isolation even in the early stages of the disease. Hence, exosome-based diagnostics may have broad clinical applications and is rapidly developing. This work focuses on reviewing the progress in application of exosomes in cancer diagnosis.

Methodology: To analyze this issue, scientific articles from Google Scholar databased covering the years 2019-2024 were reviewed. A bibliographic search was conducted from February 2024 to March 2024, using the following keywords: "exosomes", "cancer", "cancer diagnosis". The described methodology made it possible to find up-to-date reliable information in the form of review articles. This approach provided a comprehensive overview of the existing research items concerning the subject.

Results: The promising role of exosomes in cancer diagnosis is mainly based on the cargo they carry. Specifically, the condition presence of particular biomolecules inside exosomes indicates the presence of cancer. Exosomes serve as a reservoir of cancer-derived biomarkers, including genetic mutations, oncogenic proteins, non-coding RNAs and cancer-specific molecules, and the exact composition of this cargo represents phase of cancer initiation, stage of its progression, and response to therapeutic intervention. Another promising feature is a non-invasive nature of exosomes-based diagnostics since they can be isolated from blood or urine samples, allowing for continuous diagnosis and monitoring of cancer progression.

The high cost, invasiveness, and low sensitivity of some current cancer diagnosis methods drive scientists to search for new ones, with exosomes being an ideal subject of study. Technological advances in exosome-based cancer diagnostic and prognostic methods are reported worldwide. One of the novel approaches to cancer diagnostics based on the knowledge about exosomes biology and role is a liquid biopsy, which is considered one of the least invasive, highly specific, and sensitive methods. This work consolidates key findings in the area of exosome-based cancer diagnostics and presents future perspectives for its clinical implementation.

Conclusions: In recent years, significant progress has been made in cancer diagnostics based on subpopulation of extracellular vesicles represented by exosomes. The importance of liquid biopsy and knowledge related to non-invasive diagnostics is constantly increasing. Exosomes can play a promising role due to their cargo, surface proteins, and presence in biofluids. Based on the previously mentioned features, the modern cancer diagnostic technologies should primarily be based on utilization of these vesicles and their cargo analyses.

78. Aflatoxins as a cause of hepatocellular carcinoma

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Introduction: Aflatoxin contamination in food crops is a major global health concern, particularly in regions with high exposure levels. This study delves into the intricate link between aflatoxin exposure and the development of hepatocellular carcinoma (HCC), focusing on the carcinogenic effects of aflatoxin B1 and its contribution to liver cancer incidence.

Methodology: Employing a multidisciplinary approach, this study integrates findings from research, bioinformatics, epidemiology, laboratory studies, and policy analyses to tackle aflatoxin contamination's challenge and its implications for liver cancer prevention and control. It evaluates 22 articles published in English from 2016 to 2023, adhering to PRISMA guidelines, selecting articles for in-depth examination based on specific criteria after an initial screening.

Results: The investigation highlights the significant health risks posed by aflatoxins, particularly in areas where dietary practices and food storage contribute to heightened exposure. It calls for comprehensive interventions to reduce exposure, such as improving food safety protocols and launching public health campaigns, to lower liver cancer rates. Bioinformatics studies have mapped the genetic and molecular mechanisms by which aflatoxins lead to liver cancer, offering insights into potential treatments and preventive measures. Given that HCC is the most prevalent form of primary liver cancer worldwide, addressing aflatoxin exposure emerges as a vital public health endeavor.

Conclusions: The pursuit of research, public awareness campaigns, and policy-making is essential in combating the link between aflatoxins and HCC, thus protecting public health. Collaborative efforts across various sectors are imperative to advance towards a future where aflatoxin-induced diseases are significantly diminished, and safe, nutritious food is accessible to all.

79. Optimizing herpes simplex virus treatment: a comparative analysis of antiviral therapies and special population considerations

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Introduction: HSV infections require tailored treatment strategies based on recent guidelines from WHO, CDC, and NCBI. Antiviral therapy (e.g., acyclovir, valacyclovir, famciclovir) remains crucial, with suppressive therapy preferred for frequent outbreaks. Treatment decisions should consider patient preferences, adherence, and cost, often favoring cost-effective options like acyclovir. Immunocompromised and pregnant individuals need customized management, highlighting the importance of antiviral therapy.

Methodology: Analysis was based on 25 medical articles collected over a period of 5 years.

Results: Antiviral medications like acyclovir, valacyclovir, and famciclovir are pivotal in treating herpes simplex virus (HSV) infections, inhibiting viral replication and aleviating symptoms during outbreaks. Recent randomized controlled trials provide robust evidence supporting their efficacy, showing significant reductions in viral shedding, symptoms, and lesion healing time compared to placebo. Comparative studies confirm the comparable efficacy of these medications in managing HSV symptoms, with lower doses proving equally effective. For individuals with frequent or severe outbreaks, suppressive therapy is recommended over episodic treatment. By continuously suppressing viral replication, suppressive therapy not only reduces outbreak frequency and severity but also improves quality of life and minimizes transmission risk to sexual partners.

Conclusions: In summary, managing HSV infections requires tailored treatment guided by recent WHO, CDC, and NCBI guidelines. Antiviral therapy, including aciclovir, valacyclovir, and famciclovir, effectively reduces viral replication and symptoms during outbreaks, supported by evidence from randomized controlled trials. Comparative studies show similar efficacy among medications, with lower doses potentially offering comparable benefits. Suppressive therapy is preferred for frequent or severe outbreaks, providing sustained viral suppression and improving quality of life while minimizing transmission risk. Patient-centered care, considering preferences and costs, is crucial, especially for immunocompromised and pregnant individuals who require customized management. Healthcare providers must stay updated on guidelines to optimize care for HSV infections, aiming to alleviate symptoms, reduce transmission risks, and enhance patient well-being.

80. Evaluating the Efficacy and Safety of Omalizumab in the Treatment of Bullous Pemphigoid

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Introduction: Bullous pemphigoid (BP) presents therapeutic challenges as a severe autoimmune blistering disease. Omalizumab, an anti-IgE monoclonal antibody, shows promise in BP treatment. Studies highlight rapid remission rates, dose-dependent outcomes, and favorable safety profiles. Predictive biomarkers and comparative analyses suggest personalized therapy benefits. Omalizumab emerges as valuable for refractory cases, underscoring the need for dosage optimization and long-term effects exploration in BP management.

Methodology: This review systematically searched 21 articles across PubMed, Scopus, and the Cochrane Library for recent studies on managing BP with omalizumab. It focused on treatment strategies, monitoring, and prevention, aiming to distill current knowledge and trends for optimizing therapeutic outcomes while ensuring patient safety.

Results: Omalizumab demonstrates efficacy and safety in treating BP. Notable findings include a 77% complete remission rate in a study of 100 BP patients, with a median time to remission of 3 months, indicating rapid disease control. Higher doses correlate with faster outcomes, suggesting dose optimization potential. The treatment's safety profile is favorable, with minimal adverse events. Baseline anti-BP180-NC16A IgE levels predict treatment response, enabling personalized therapy. Comparative analyses with rituximab highlight omalizumab's benefits in recurrence rates and time until recurrence, underlining the importance of tailored treatments. Recent studies support omalizumab as effective for recalcitrant BP, particularly where traditional therapies fail, emphasizing its role in BP management and the need for further dosing optimization and long-term effects research.

Conclusions: Omalizumab presents a promising avenue for managing BP, offering rapid remission rates and favorable safety profiles. Personalized therapy and further research are pivotal for optimizing its efficacy, especially in refractory cases.

81. Neuroprotective properties of Camellia sinensis - effect of green tea in Alzheimer's disease

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Introduction: Tea is one of the most consumed drinks in the world. Camellia sinensis is a plant from the Theaceae (Camelliaceae) family from which leaves tea is made. Many versions of this beverage can be distinguished, depending on technological, preparatory, and cultural factors. Black tea and green tea are the most popular and commonly consumed types. Abundant in polyphenolic compounds, green tea has been proven to exhibit anti-inflammatory, anticarcinogenic and neuroprotective effects due to its significant antioxidative properties, among others. Alzheimer's disease (AD) is one of the most frequently occurring diseases in the elderly. Its progression is associated with dementia and characterized by advancing neurodegeneration caused by the formation of extracellular β-amyloid (Aβ) protein filaments and intra-neuronal aggregates of tau protein and their deposition within the brain. The presented review explores the existing literature regarding the neuroprotective properties of green tea in Alzheimer's disease, pointing at the potential possibility of delaying and inhibiting the disease's progression.

Methodology: A systematic review approach was implemented, enabling the presented paper's information synthesis from available literature. It allowed the authors to provide a comprehensive overview of the methodologies used in the existing research. The search was conducted with the use of online databases such as PubMed, Scopus, Google Scholar.

Results: The polyphenolic compounds found in green tea extracts such as catechins (e.g. epigallocatechin gallate - EGCG), flavonoids (e.g. myricetin glycosides), phenolic acids (e.g. chlorogenic acid) exhibited a significant antioxidative properties, among others. Their activity involved inhibition of the reactive oxygen species (ROS) formation, therefore decreasing the risk of mitochondrial dysfunction and apoptosis that may lead to neurodegeneration. In addition, it was found that epigallocatechin gallate can influence the β-amyloid accumulation, decreasing its concentration and enabling the clearance of tau protein epitopes in neurons. Mice models with AD, fed with EGCG, showed a substantial reduction in the Aβ accumulation in the hippocampus and frontal cortex. It was also reported that EGCG inhibited the IL-1β, IL-6 and TNFα expression, decreasing neuroinflammation as well as modulating mitogen-activated protein kinase signaling (MAPK) and suppressing Aβ-induced neurotoxicity. Additionally, it was observed that L-Theanine (an amino acid present in Camellia sinensis) could improve hippocampal long-term potentiation in mice, influencing their memory. L-Theanine's molecular action could be related to the regulation of hippocampal synaptic efficacy through the D1/5-PKA pathway. The transgenic and AD mice models used in the conducted studies showed a significant reduction in Aβ levels and an improvement in cognitive functions.

Conclusions: The antioxidative compounds present in green tea can inhibit the molecular mechanisms responsible for neurodegeneration and the Alzheimer's disease progression. Ingestion and supplementation of green tea extracts could prove beneficial in patients with the risk of and ongoing dementia. Additionally to the neuroprotective effect and potential AD's

progression delay action, the anticarcinogenic and anti-inflammatory properties of Camellia sinensis have been observed. However, further research and more in vivo studies involving humans should be conducted.

82. Chemopreventive activity of naphthyridine derivatives.

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Introduction: The increasing incidence of cancer diseases and developing resistance to standard chemotherapy regimens remains a current problem, and the search for new anticancer drugs is still an important goal of research around the world. Naphthyridines are heterocyclic compounds with documented anticancer activity. In previous studies, naphthyridines had shown significant cytotoxic effects on a wide range of cancer cell lines in vitro, based on multidirectional mechanisms - inhibition of topoisomerase II, intercalation into DNA, induction of apoptosis and interference with procytotoxic pathways.

Aim: The purpose of the study was to determine the anticancer activity of three naphthyridine derivatives – Naph-1, Naph-2, Naph-3 – comprising cell viability suppression, along with the determination of the concentration required, and inducing the formation of reactive oxygen species.

Materials and Methods: A study of the chemopreventive activity of naphthyridines has been conducted on MDAH-2774, SKOV-3, MCF-7, A549 cancer cell lines and on CHO-K1 nontumoral cells. The cytotoxic activity was assessed using Presto Blue assay after 72 hours of cells incubation with tested compounds at the 5 different concentrations), with determination of IC50 (half-maximal inhibitory concentration) values. The effect on the level of intracellular reactive oxygen species was tested with DCF-DA assay.

Results: Compounds Naph-1 and Naph-3 exerted significant cytotoxic effect on ovarian cancer (MDAH-2774), breast cancer (MCF-7) and cisplatin-resistant ovarian cancer (SKOV-3) cell lines. The strongest effect was observed for Naph-3 on the MDAH-2774 cancer cells with IC50 value of 36.05 μM. The effect on A549 lung cancer cells was noticeable only for Naph-3 at high concentration of 200 μM . Naph-2 showed the lowest potential to reduce cancer cells viability. No compound affected the generation of reactive oxygen species.

Conclusions: Further detailed studies should be conducted on the effects of Naph-1 and Naph-3 on the viability and apoptosis of the MDAH-2774 cells to determine its relevance in the treatment of ovarian cancer. Naph-2 did not show enough potential as new anticancer agent.

83. Synthesis, purification and conjugation of cadmium-telluride quantum dots (CdTe QDs) with antibodies for protein sensing applications – preliminary study

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Introduction: Quantum dots (QDs), spherical fluorescence-emitting nanocrystals sized between 2 and 10 nm, attract increasing attention in biomedical studies. QDs present unique optical and electronic properties, and their highly reactive surface enables them to be conjugated to various biomolecules, such as antibodies, for diagnostic or therapeutic purposes. Due to their bright and stable fluorescence, ease of modification, and resistance to photobleaching, use of QDs would allow to overcome numerous limitations, which reduce the utility of organic dyes or fluorescent proteins formerly applied for molecular labeling.

Aim: The aim of this work was to construct biosensors based on cadmium-telluride (CdTe) QDs conjugated with antibodies for detection of specific cellular proteins. In this preliminary study, an antibody against β-actin – a component of cellular cytoskeleton most often employed as a positive control in cell culture based studies – was used.

Materials and Methods: CdTe QDs capped with L-cysteine were synthesized with the use of bottom-up method using CdCl2 and Na2TeO3 as precursors, based on the protocol reported by Wang et al. with slight modifications. The obtained QDs emitting various colors of fluorescence ranging from green to red were purified by precipitation with methanol (1:3 v:v), centrifuged, dried, weighed, and dissolved in PBS. Their presence was confirmed via electron microscopy imaging. Then, green-emitting QDs were conjugated with anti-β-actin rabbit anti-human antibody (5 μg/ml) with the use of EDAC and N-hydroxysulfosuccinimide. The formed structures were centrifuged and the supernatant containing unreacted chemicals was discarded. Absorbance spectra were recorded for both single QDs and antibody (Ab)-QDs, while fluorescence was measured for single QDs, Ab-QDs, supernatant obtained after Ab-QDs centrifugation and PBS as a negative control.

Results: In this study, green-emitting CdTe QDs in concentration of 2 mg/ml were used to construct conjugates with anti-β-actin antibodies. The as-prepared QDs and Ab-QDs complexes shown maximum fluorescence emission within a range of 500-550 nm among from five ranges checked covering VIS spectrum after irradiation with UV light. The fluorescence value of Ab-QDs was lower (162,31 u) in comparison to pure QDs (231,21 u), while fluorescence measured for the supernatant was negligible (6,7 u) with PBS as reference.

Conclusions: The presented method allowed for construction of CdTe QD-based antibody-containing biosensors, presenting bright green fluorescence emission. Their functionality and applicability in detecting cellular proteins will be examined at further stages of the planned experiment, however, the sole methods of their synthesis, purification and conjugation seem to be suitable for obtaining such conjugates.

Psychiatry Session

84. Evaluation of anxiety and depression in patient with migraine

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Introduction: Migraine is one of the most common, chronic neurological disease, with a rising prevalence of around 1.1 billion people worldwide. Anxiety and depression are two of the most frequently mentioned comorbidities, with widely varying levels of severity and prevalence in research studies. Both the anxiety and depression experienced by people with migraine can be interpreted in two ways: as a consequence of the disease and as factors that may trigger an attack. It is clear that assessing and improving mental health, not just the management of physical symptoms, is important for providing holistic care.

Aim: To analyze the prevalence of anxiety and depression among patients with migraine.

Materials and Methods: The quantitative research was conducted between November 2023 and January 2024. The study involved 370 migraine patients. Respondents completed an on-line questionnaire. All participants were over 18 years of age, consented to take part in the study, and had a diagnosis of migraine. The survey instrument included socio-demographic, anxiety and depression-related questions. Statistical analysis of the data was carried out using Microsoft Office Excel 2010 and SPSS 24.0 software packages, with statistical significance considered at $p<0.05$.

Results: The majority of respondents 95.4% (n=353) were women, only 4.6% (n=17) were men, the average age was 37.46±9.92 years. Most of the respondents 51.1% (n=189) had a university degree, while at least 22.7% (n=84) had a vocational degree or lower. The majority 73.2% (n=271) of migraine sufferers were married or in a partnership. The overall mean score for the anxiety and depression subscales is 5.42±3.11 (<6 points), indicating that the risk of these conditions is not high among migraineurs. The majority of patients had a mild level of anxiety and depression in 42.7% (n=158) and a severe level of anxiety and depression in 15.9% (n=59). Both anxiety and depression are present in 41.9% (n=155) of migraine patients. The frequency of anxiety and depression is independent of socio-demographic factors ($p>0.05$). The severity of anxiety and depressive symptoms depends on the age of the patients with migraine: the younger the participants are, the more severe their anxiety ($r=-0.166$; $p=0.001$) and depressive symptoms ($r=-0.206$; $p<0.001$).

Conclusions: Migraine is prevalent among people with different levels of education and relationship status, and is more common among young women. Nearly half of the respondents experience anxiety and depression of various levels of intensity. Around a quarter of sufferers experience severe feelings of anxiety and depression. The prevalence of these conditions has no correlation with socio-demographic data. The level of severity of both conditions is age-dependent, with the younger the person, the more pronounced the symptoms of anxiety and depression they experience.

85. Psychedelics and gut microbiome - a review

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Introduction: All research up to date has shown that psychedelic drugs profoundly alter human behavior through agonism at the 5-HT2A receptors. Psychedelic substances as serotonergic agents are known to exert potent effects as both central as well as peripheral agents due to their effects. How this works is by both direct as well as indirect stimulation of the vagus nerve - directly influencing cortical neuroplasticity and therefore affecting mental health outcomes, and indirectly via alterations of gut microbiome. The gut microbiome can be defined as an ecosystem of organisms which inhabit the human gastrointestinal tract, contributing significantly to health, digestion, immunity, mood, cognition. However, the details of mechanisms of action of psychedelic substances and especially their interactions with gut microbiome remain not completely ellucidated. We therefore aimed to conduct a thorough and systematic literature review on the association between the gut microbiome and psychedelic substances, based on the most recent research.

Methodology: As part of our research, we conducted a systematic review on Scopus and PubMed databases following the PRISM Equator Network research tool. Articles used were those originally written in English language, without limitations as to time but prioritizing most recent research works (i.e. those within the past 5 years), including systematic reviews, literature reviews, narrative reviews, scoping reviews, articles, primary research and we excluded gray literature. Key words used were “gut microbiome” AND “psychedelics”, “gut flora” AND “psychedelics” and “microbiome” AND “psychedelics”.

Results: A number of studies, both on animals as well as translational research show deep insights into mechanisms of action of psychedelic substances on the gut microbiome, as well as present hypotheses for the aforementioned. Kyzar et al showed that synapse related gene expression and alterations in neural circuits are highly interrelated, these alterations being most strikingly novel functional associations among varying neuronal populations. The crux of the animal studies research focuses on induction of specific synapse-associated genes, allowing for elucidation of the altered functional connectivity. A lot within this area remains to be explored as the authors highlight the potential questions to dive into such as (but not limited to): what role do association neurons and non-neuronal cells such as glia play in the processes, as well as fMRI neuroimaging employed as the primary mode of gaining visual understanding of the processes at play remains a promising tool. Császár-Nagy et al presented a hypothesis about the psychosomatic mechanism of serotonergic psychedelics where serotonergic psychedelics affect gut microbes producing a temporary increase of 5-HT by the host enterochromaffin cells (ECs). The increased 5-HT production - taken up and distributed by platelets, may work as a hormone-like regulatory signal that can transiently make the BBB more permeable to the gut-derived 5-HT. Part of the hypothesis is that this produces special network disintegration in the CNS - allowing the patient access to suppressed fear information, with the effect of an emotional reset, with amygdala playing a key role. Qu et al showed in an animal study that MDMA has resilience enhancing effects in mice subjected to chronic stress.

Conclusions: Our review outlines critical study findings on the psychedelic substances effect on the gut microbiome, and their interplay as it relates to the serotonergic mechanisms of action - all of which remains yet to be further explored, as it shows promising potential for advancement of both psychiatry and pharmacologic medicine in treatment of complex somatic psychiatric issues.

86. DOCTORS' EXPERIENCES OF DELIVERING BAD NEWS TO ONCOLOGY PATIENTS

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Introduction: Breaking bad news is an essential aspect of medical practice, particularly prevalent among oncologists who regularly interact with patients facing challenging diagnoses. The manner in which such news is delivered significantly influences patients' perceptions of their illness. However, the process of conveying distressing information can impose psychological strain on medical professionals, often exacerbated by insufficient training in communication skills tailored to this delicate task.

Aim: The aim of this study is to assess the preparedness of Lithuanian physicians in communicating bad news to oncology patients and gauge physicians' self-perceived proficiency in delivering such news and their evaluations of methodologies commonly advocated in the literature for this purpose.

Materials and Methods: An anonymous online questionnaire survey was carried out in March-April 2023 with 83 physicians and residents from different specialties, of whom 67 were physicians and 16 residents. The questionnaire consisted of 20 questions divided into several blocks: general information, physicians' experiences in reporting bad news, questions about the methodologies proposed in the literature (ABCDE, BREAKS, SPIKES). Statistical analysis was performed with Microsoft Excel and R Commander. The results were considered statistically significant at $p<0.05$.

Results: The survey results indicate a predominant female representation (79.1%) among respondents, with the highest respondent concentration in Panevėžys (31.34%) and Kaunas (29.85%) and the lowest in Vilnius (19.4%) and other counties. The average work experience among respondents is 19 years, with family doctors, oncologists, internal medicine doctors, and anaesthesiologists-resuscitators being the most represented specialties. Regarding communication of bad news, a majority of respondents (70.15%) report doing so to oncology patients less than 5 times a month, with the most challenging aspects being discussing prognosis and end-of-life issues (52.24%) and maintaining patient hope while telling the truth (49.25%). Despite the difficulty, a significant proportion (91.04%) express a desire for training in delivering bad news, particularly regarding oncology patients. There are notable associations between workplace setting and the desire for training in bad news communication, with outpatient physicians showing more interest ($p=0.0243$). Similarly, respondents from Vilnius, Kaunas, and Panevėžys counties express higher interest in such training ($p=0.005787$). The majority of respondents (64.18%) find proposed methodologies for delivering bad news very useful in clinical practice, with a small minority (4.48%) deeming them more useless than useful. Moreover, a significant portion (55.22%) believes all proposed methodologies would be beneficial in their clinical practice.

Conclusions: Overall, the findings underscore the importance of training in delivering bad news, especially in oncology settings, and highlight the receptiveness of healthcare professionals to structured methodologies for improving communication skills in this challenging area.

87. Attitudes of Vilnius University students towards people with schizophrenia

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Introduction: Schizophrenia is a complex mental disorder characterized by a range of cognitive, emotional, and behavioural symptoms. Stigma and misconceptions surrounding schizophrenia persist, impacting the lives of individuals affected by the condition.

Aim: To determine and compare whether attitudes towards people with schizophrenia differ between medical and non-medical students at Vilnius University.

Materials and Methods: An anonymous online questionnaire was conducted in March 2024 with 221 Vilnius University students from different faculties. Out of them 123 were medical students and 98 were non-medical students. Questionnaire consisted of socio-demographic questions, 4 questions describing their encounters with individuals diagnosed with schizophrenia in their personal life and 16 questions describing the respondents' attitudes towards the characteristics of schizophrenic individuals. Statistical analysis was carried out with Microsoft Excel and R Commander. The results were considered statistically significant at $p<0.05$.

Results: Of the respondents, 71.95 (n=159) % were female and 28.05 (n=62) % were male. The average age of the respondents was 22.71 ± 2.26. Statistically significantly more medical students than non-medical students claim that they understand schizophrenia as a disease ($X2=5,849$, $df=1$, $p<0.05$). There were no significant differences between medical and non-medical students in their tendency to interact with people with schizophrenia in their personal life. However, medical students were statistically significantly more likely to acknowledge, that split personality disorder can be prevalent among schizophrenic people ($X2=13,176$, $df=2$, $p<0.05$). Medical students were also more inclined to think that schizophrenia is characterised by hearing voices that do not actually exist and a tendency towards social isolation ($X2=15,776$, $df=2$, $p<0.05$). Both medical and non-medical students agree that schizophrenic patients are not likely to have intellectual developmental disorder and that their condition can be stabilised in hospital ($X2=6,7086$, $df=2$, $p<0.05$). Non-medical students were more likely to believe that most schizophrenic patients are a danger to themselves and others, prone to aggressiveness and are likely to exhibit erratic behaviour ($X2=14,934$, $df=4$, $p<0.05$).

Conclusions: Overall, medical students demonstrated better understanding of schizophrenia as a disease, while non-medical students showed higher perception of danger and unpredictable behaviour in a schizophrenic patient. Both groups agreed on certain aspects, but targeted interventions are needed to address misconceptions and foster empathy towards individuals with schizophrenia.

88. Is Stigmatization of Schizophrenia still relevant? a literature review

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Introduction: Stigmatization of mental illness takes a toll on patients, and amongst the most stigmatized mental illnesses is schizophrenia. Research shows, that over 50 % of patients with schizophrenia experience some form of stigmatization (e.g. being treated unfairly by family members or facing discrimination at

workplace), which may lead to decreased quality of life, increased anxiety, and intensity of symptoms. There are a few strategies that help tackle stigmatization, like contact interventions, which consist of introduction of people with mental illness to wider population or education interventions, which share facts about mental illness.

Methodology: The search for scientific articles was performed in PubMed and Google Scholar databases using the keywords (and their combinations) – schizophrenia, stigmatization, discrimination, prevention. After title and abstract analysis, the literature review included full-text scientific articles written in English with content relevant to the topic.

Results: Stigmatization can take a form of stereotypes; one study shows that schizophrenia receives a notably more negative perceptions compared to depression or anxiety. Articles also highlight the most common stereotypes of schizophrenia, which are that they are a danger to others, unpredictable and hard to talk to. Media also spreads misinformation and negative depictions. One article discussed portrayal of schizophrenic patients in contemporary movies, it concluded that among the prominent stereotypes upheld in movies was the linkage of schizophrenia with unpredictable behaviour and violence. Research also shows that patients with schizophrenia often experience discrimination in workplace, including rejection during the recruitment process, intolerance in case of absence from work, harassment, etc. Stigmatization exacerbates the symptoms of mental illness. A systematic review demonstrated that, stigma was found to cause higher depression, more social anxiety, more secrecy and withdrawal as coping strategies, lower quality of life, lower self-efficacy and self-esteem, lower social functioning, less support, and less treatment compliance. Stigma can also result in delayed medical care, which can also intensify mental health issues, resulting in poorer outcomes and a reduced quality of life. Literature also demonstrates that both contact interventions and educational interventions have small-to-medium immediate effects upon stigmatization of individuals with mental illness.

Conclusions: The stigmatization of schizophrenia significantly worsens public perceptions and adversely affects those living with the condition, leading to discrimination, exacerbated mental health issues, and delayed access to treatment. Research underscores the efficacy of educational and contact interventions in reducing stigma, highlighting the critical need for targeted efforts to dismantle misconceptions and promote a more inclusive and supportive societal approach to mental health.

89. The Significance of Targeted Treatment and Treatment Correction in Managing Dual Diagnosis of Paranoid Schizophrenia and Intellectual Disability

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Introduction: Globally, schizophrenia is diagnosed in 1 in 300 people (0.32%), so it is not as common as many other mental disorders. Additionally, people with intellectual disabilities (ID) have been found to be more likely to suffer from schizophrenia spectrum disorders than the population with normal IQ. Each manifestation of this dual diagnosis of paranoid schizophrenia and ID is unique, and this case report aims to highlight the clinical picture of it and the critical role of monitoring the conditions and making appropriate treatment adjustments to optimize patient outcomes.

Case description: Patient is 22-year-old man, who has spent four years in prison since 2020. The patient's journey through mental health challenges began in 2022, marked by episodes of psychosis characterized by paranoia and confusion. His mental state deteriorated rapidly, leading to aggressive behavior and alarming delusions. These included beliefs that he was a famous serial killer and that his parents weren't real. These episodes led to hospitalization and treatment within the correctional system. The patient's condition improved with treatment. Nevertheless, the administration of prescribed medication in prison may not have been guaranteed, leading to a progressive deterioration in the patient's condition. His encounters with the criminal justice system further complicated his mental health journey, creating a cycle of instability and rehospitalization. The patient diligently followed his prescribed medication and treatment plan upon leaving prison. However, his behavior remained inadequate, and his condition continued to worsen significantly, necessitating his readmission to a psychiatric unit. Characteristic of this case is the patient's erratic behavior and difficulty in establishing meaningful communication. He often exhibits suspicion and defensiveness, making it challenging to conduct thorough assessments. Despite moments of apparent lucidity, his overall mental state remains chaotic, with fluctuations between periods of relative stability and acute psychosis. One notable aspect is his fixation on military involvement, expressing a belief that he needs to fight in Ukraine. This grandiose and unrealistic thinking underscores the severity of his illness and the challenges in managing symptoms effectively. This case highlights the complex interplay between mental illness and involvement with the criminal justice system. It underscores the importance of comprehensive and consistent treatment in addressing the needs of individuals with overlapping psychiatric and forensic concerns. Despite the challenges, there are opportunities for stabilization and improvement with a tailored and holistic approach to care. In addition to the challenges posed by schizophrenia, this patient's journey is further complicated by a coexisting intellectual disability, which adds complexity to his treatment and management. Effective treatment relies on regularly monitoring the condition and adapting treatment as necessary, along with integrating combinations of psychoeducation and psychosocial interventions.

Conclusions: Typically, patients with schizophrenia receive treatment involving both first-generation and second-generation antipsychotics. In this case, the patient was administered Sol. Haloperidol to manage psychotic symptoms, Sol. Diazepam for controlling psychomotor agitation, along with oral medications including Olanzapine, Aripiprazole and Trihexyphenidyl. Despite consistent adherence to treatment, the patient's symptoms persisted and worsened over time. Consequently, medication doses were incrementally increased to achieve improved clinical effectiveness.

90. The prevalence of bipolar disorder and autoimmune disease

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Introduction: According to recent research, inflammation may play a major part in mood disorders. Peripheral proinflammatory mediators have been shown to be elevated in bipolar disorder (BD) and other mood disorders, and BD risk is higher in those with systemic autoimmune diseases. These processes may enhance the blood-brain barrier's permeability, making the brain more susceptible to brain-reactive autoantibodies and other immune components that can result in mental symptoms.

Methodology: This review aims to present recent findings regarding the associations between bipolar disorder and autoimmune disease. PRISMA criteria were followed in conducting a systematic review of the literature. Inclusion criteria: research articles published less than 5 years ago, full-text articles in the English language, prospective studies. Exclusion criteria: research articles are older than 10 year and were not written in English, clinical cases. Articles from the past 5 years were searched from PubMed and Google scholar with keywords “bipolar disorder”, “autoimmune disease”. Of the 117, only those with specifically

findings were selected. 9 of the 13 papers that met the selection criteria and were chosen for full-text analysis are included in this review.

Results: A number of studies found the associations between BD and autoimmune disease.

Recent research suggests that mental illnesses like depression, bipolar disorder, schizophrenia, and autism spectrum disorder are all influenced by similar mechanisms. A genetic predisposition, infections, or autoimmune may account for the immunological activation, and inflammation may contribute to the pathogenesis of BD. Over a twelve-year period, data on the prevalence of autoimmune disorders and infections were gathered from Norwegian national health registries and autoimmune disease was more frequent in BD compared to schizophrenia (p = 0.004) and HC (p = 0.00)]. According to the 2021 meta-analysis, patients with autoimmune diseases had a considerably higher frequency of bipolar disorder than those without the condition [mean difference (MD) =1.54, 95% confidence interval (CI): 1.28-1.86, P<0.00001]. Futhermore, BD has been linked to exposure to neurotropic infections as a potential risk factor. A study in the Dutch Bipolar (DB) used ELISA to examine the seroprevalence and titer levels of IgG antibodies against a variety of herpesviruses as well as Toxoplasma gondii (T. gondii) in the plasma of 760 bipolar patients, 144 first-degree matched relatives, and 132 controls from the Dutch Bipolar (DB) Cohort. According to this study, exposure to T. gondii may put some subpopulations at risk for BD. Numerous studies on inflammatory cytokines, including as TNF-α, IL-6, and IL-1β, have been published in the literature, supporting the immunological inflammation theory about the etiology of BD.

Conclusions: The exact pathophysiology of bipolar disorder is yet unknown. The theory that immune system factors, such as IgG antibodies against herpesviruses and Toxoplasma gondii may play a role in the emergence of severe mental illness is supported by recently discovered data.

91. Comparison of the effectiveness of Ketamine and Electroconvulsive Therapy in treating treatment-resistant depression: systematic literature review

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Introduction: It has been repeatedly demonstrated that ketamine rapidly and effectively reduces depression in people who are resistant to therapy (TRD). Is ketamine as safe and effective as the electroconvulsive treatment (ECT) that is now available is a crucial question(1),(2).

Methodology: This review aims to present recent findings regarding ECT and ketamine as a potential treatment option for depression.

PRISMA criteria were followed in conducting a systematic review of the literature. Inclusion criteria: research articles published less than 5 years ago, full-text articles in the English language, prospective studies. Exclusion criteria: research articles are older than 10 year and were not written in English, clinical cases. Articles from the past 5 years were searched from PubMed and Google scholar with keywords “electroconvulsive therapy”, “depression”, “ketamine”. Of the 48, only those with specifically findings regarding as ECT and ketamine as a potential treatment option for patients with depression were selected. 7 of the 20 papers that met the selection criteria and were chosen for full-text analysis are included in this review.

Results: Current available literature does not yet provide convincing evidence to consider ketamine as an equally effective treatment alternative to ECT in patients with TRD (treatment resistant depression). Also, randomized controlled trials shows that ketamine itself does not improve the efficiency of treatment with ECT. Out of 1,035 MDD (major depressive disorder) patients who got ECT, 17 RCTs (randomized controlled trials) (n = 1,035) compared ketamine on its own or in combination with other anesthetic medicines (n = 557) with other anesthetic agents (n = 478). It was found that ketamine did not prove to be more effective than any other anesthetics post-ECT (3), (4). Review of six clinical trials shows that the overall pooled Hedges g standardized mean differences (SMDs) for depression symptoms for ECT when compared with ketamine was −0.69 (95% CI, −0.89 to −0.48; Cochran Q, P = .15; I2 = 39%), suggesting an efficacy advantage for ECT compared with ketamine for depression severity(5). Another study included patients who were divided into two groups. Bitemporal ECT was performed on sixteen patients, and 0.5 mg/kg of ketamine was infused intravenously into sixteen individuals. The ketamine group had a better cognitive state (albeit not significantly better; P > 0.5) (6). Additionally, study-defined response (RR, 1.27; 95% CI, 1.06-1.53; I2 = 0%; 3 RCTs) and remission (RR, 1.43; 95% CI, 1.12-1.82; I2 = 0%; 2 RCTs) rates were better for ECT than for ketamine. Regarding the number of sessions required for response and remission as well as cognitive results, there were no discernible differences between the groups (7).

Conclusions: Despite its strong short-term efficacy in clinical trials, ketamine has become the first rapid-acting antidepressant; yet, long-term safety and efficacy of this medication are cause for caution.

92. Ketamine versus transcranial magnetic stimulation in treating treatment resistant depression

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Introduction: In recent decades, numerous innovative treatments for treatment resistant depression (TRD) have been invented, most notably low-dose ketamine infusion and repeated transcranial magnetic stimulation (rTMS)(1). The purpose of this research is to compare the effect of severe depression symptoms of patients undergoing low – dose ketamine infusion versus rTMS therapy.

Methodology: This review aims to present findings regarding the comparison of ketamine and rTMS therapies. PRISMA criteria were followed in conducting a systematic review of the literature. Inclusion criteria: research articles published less than 5 years ago, full-text articles in the English language, prospective studies. Exclusion criteria: research articles are older than 10 year and were not written in English, clinical cases. Articles from the past 5 years were searched from PubMed and Google scholar with keywords “transcranial magnetic stimulation”, “ketamine”. Of the 107, only those with specifically findings were selected. 7 of the 13 papers that met the selection criteria and were chosen for full-text analysis are included in this review.

Results: The currently available literature does not yet provide convincing evidence that TMS or ketamine are better option than one or the other. One study compared the antidepressant and anti suicidal effects based on the data of two randomized double-blind, placebo-controlled trials to compare low-dose ketamine infusion and rTMS, including high-frequency (10 Hz) stimulation and intermittent theta-burst stimulation (iTBS). Suicidal symptoms were more effectively treated by low-dose ketamine infusion and iTBS than other groups (p<0,001), however the effect of a single dose ketamine did not last over a month while rTMS effect may persist for up to 3 months(2). In another retrospective study twelve patients received eight sessions of injectable ketamine twice a week, while twelve patients received thirty sessions of intermittent theta-burst stimulation (iTBS) of the left dorsolateral prefrontal cortex (DLPFC)(3). Between the TRD patients undergoing intramuscular ketamine therapy and the patients getting rTMS, no

discernible alterations were found (all p > 0.05)(3). A retrospective review of medical records analyzed 148 patients completing at least 5 weeks of treatment with ketamine infusion (N=51); intranasal esketamine (N=35); or rTMS (N=62); all three treatments showed comparable effectiveness (4). Following studies mostly suggest combining TMS and ketamine for a better therapeutic effect(5). Retrospective review of combination therapy showed statistically significant reduction in Clinical Global Impression of Severity scale (CGI-S) values for 28 patients following combination TMS with ketamine (CTK) (4.46 ± 0.54) indicates a synergistic effect(6). Another case series of 21 patients who had failed to respond to TMS and received IV ketamine infusions showed significant MADRS score decrease pre- to post-treatment [t(20) = 7.212, p < .001] which leads to discussion of potential combination of ketamine with other modalities to increase its effects(7).

Conclusions: Studies highlight the potential synergistic benefits of combining both TMS and ketamine. Further research into combination therapies is warranted to optimize treatment outcomes for individuals struggling with TRD.

93. Association between cannabis use in young adults and psychosis: a systematic review

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Introduction: Cannabis remains the most prevalent drug worldwide, with an estimated 219 million users in 2021 (or 4.3% of all adult people worldwide). Globally, one in every 17 persons reported using drugs in 2021, which is 23% higher than ten years prior. According to the World Drug Report in 2021 5,3% of 15-16 year olds globally reported using cannabis within the previous year. Psychosis remains a major public health concern as a potential side effect of cannabis use. Numerous studies indicate that individuals who use cannabis regularly run a higher chance of developing psychosis. Most importantly, greater cannabis usage is linked to increased psychological symptoms in people under the age of 25, particularly in those who are already predisposed to or vulnerable to such effects, that beeing, a family history of psychosis.

Methodology: The data search was performed using Pub-Med, Google Scholar databases according to PRISMA guidelines. Keywords used: ,,psychosis'', ,,cannabis use''. Inclusion criteria: articles published less than 5 years ago, full-text articles in the English language. Single case reports, abstracts, research articles older than 10 years were excluded. Selection criteria were applied, and 75 studies were selected for full-text analysis, 5 of them were included in this review. The authors evaluated the abstracts and titles before choosing the full articles for evaluation and analysis in accordance with the qualifying standards.

Results: It is increasingly acknowledged that cannabis usage is a modifiable risk factor for a number of harmful impacts on human health, including mental illness. The most compelling evidence of risk is linked to early and persistent use in children and young adults, which is connected with the development of a psychotic condition. Studies show that anxiousness was the primary manifestation for 23% of those who were "cannabis only" patients. Study by Robinson et al. evaluated the risk of psychosis development in general population according to cannabis use frequency. It went up to RR:1.35 (95% CI 1.22–1.48) for "weekly" and RR:1.76 (95% CI 1.29–2.13) for "daily/near-daily" use from RR:1.01 (95% CI 0.95–1.07) for "yearly" and RR:1.11 (95% CI 1.03–1.20) for monthly use. Another study indicates that there is a correlation between younger age at initial cannabis use and earlier age at psychosis onset (HR, 1.40; 95% CI, 1.06 to 1.83), even after factoring in length of use and gender. Study also indicated that those who started using cannabis before the age of 15 were more likely than people who started using it before the age of 18 to have schizophrenia symptoms at age 26 (OR, 4.50; 95% CI, 1.11 to 18.21) (OR, 1.65; 95% CI, 0.65 to 4.18). Also, a four-fold increase in the occurrence of psychotic disorders has been linked to psychotic experiences during childhood and adolescence.

Conclusions: Numerous research have provided evidence of a direct correlation between cannabis usage and a higher risk of psychosis. More frequent and earlier cannabis use, especially in youth and early adulthood, increases the risk.

94. Comorbidities in adult ADHD – A systematic review

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Introduction: ADHD is a neurodevelopmental condition marked by hyperactivity, lack of attention, and impulsiveness. As first diagnosis or persistence of symptoms is also observed in adulthood, previously thought to be a disorder only occurring in childhood and resolved by adolescence, it now includes adults too. Adult ADHD is linked to subpar day-to-day functioning and usually goes together with other psychiatric disorders such as substance abuse, depressive or bipolar disorders. This tends to be the reason, why these patients usually show worse functioning in everyday life and why ADHD can be deceptive. It can often be misdiagnosed as anxiety, depression or even schizophrenia spectrum disorders. Moreover, associations with some inflammatory and autoimmune medical conditions are recently being reported. Two of the most significant ones being atopic immunological diseases (AID) asthma and atopic eczema.

Methodology: The systematic review of the literature was carried out using Pub-Med, Google Scholar databases following PRISMA guidelines. Keywords used: 'ADHD', 'Adult', 'Comorbidities'. Inclusion criteria: articles published over the past 6 years, full-text articles in the English language. Exclusion criteria: single case reports, abstracts, research articles older than 10 years. Out of 94 studies, 21 met the criteria for full-text analysis, 5 of them were included in this review.

Results: A substantial progress in our comprehension of the biology of ADHD has been made. Meta-analyses verify that individuals with ADHD had marginally higher odds than controls of developing AID, mostly asthma, atopic eczema, rheumatoid arthritis or even type 1 diabetes. Even though these relationships vary throughout studies, the data are consistent with a relationship between the peripheral immune system and ADHD. In addition to that, a cross-sectional study in Israel has found a notable correlation between ADHD and asthma. Nevertheless, the diagnosis of ADHD is still limited to clinical factors and ADHD in adults is highly under-diagnosed. One of the main reasons for this, is preexisting psychiatric comorbidities, which often mask the symptoms of ADHD. Studies show that comorbid psychiatric problems are more common in ADHD patients than in non-ADHD subjects. For example, addiction to substances is quite prevalent, stemming from impulsivity, emotional dysregulation, or attempts at self-medication. Besides, an observation has been made, that adults with ADHD may use a variety of coping mechanisms to hide their symptoms. For example, inattention symptoms covered up as anxiety symptoms or compulsiveness, whereas hyperactivity is less visible. When it comes to functioning in everyday life, these patients seem to face significant challenges. In British research of several thousand young adults, a connection was found between ADHD and poorer education, employment or training numbers (NEET: OR=3.71, 95% CI=2.06 to 6.67, p=1x10-05) and increased receival of state benefits (OR=2.72, 95% CI=1.62 to 4.57, p=2x10-04).

Conclusions: ADHD seems to be linked with immune system, however further studies and trials must be carried out to further particularize this connection. Until then, ADHD continues to be

disorder only diagnosed based on clinical signs. This process is aggravated by common psychiatric comorbidities which mimic the symptoms of ADHD and coping mechanisms which develop with time. For this reason, patients appear to have difficulties performing daily tasks as the poorer education and employment is observed.

95. The link between Age Related Hearing Loss and Depression - a literature review

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Introduction: Hearing loss is one of the most common health issues among aging adults. This chronic and progressive sensory deficit gradually leads to reduced social engagement among patients, subsequently resulting in various neuropsychiatric disorders, mainly late-life depression and cognitive decline. There exist well-established therapeutic options for hearing loss, including hearing aids, auditory rehabilitation and cochlear implants. In this paper, the author will review recent literature concerning the link between age-related hearing loss and depression, as well as explore potential treatment options for patients experiencing the comorbidity of hearing impairment and depression.

Methodology: A search on PubMed was performed using the keywords "age-related hearing loss" and "depression," with a filter applied to include publications from the last 5 years. This search yielded 97 papers, from which 7 were chosen as primary sources for the subsequent discussion. The selection of articles was influenced by the number of citations.

Results: Several mechanisms may contribute to the relationship between presbyacusis and depression. Social isolation resulting from hearing impairment can lead to loneliness and reduced social engagement, predisposing individuals to depression.

and a diminished quality of life. Conversely, the emotional strain associated with depression may worsen cognitive decline and exacerbate communication challenges among individuals affected by presbycusis. Moreover, the same neuropathological mechanisms related to older age can lead to both hearing loss and mental health decline.

Although hearing aids have been proven effective in improving speech comprehension, studies show presbyacusis to be a severely undertreated condition, even in countries of economic welfare.

Conclusions: Age-related hearing loss and late-life depression appear to be a tragic positive feedback loop. Healthcare professionals should routinely screen older adults with hearing loss for depressive symptoms and provide appropriate interventions, addressing both sensory and mental health needs in this population.

Sexology Session (held in Polish)

96. Sexuality in the office of the primary care physician: sexological interview and medical examination from the patient's perspective

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Introduction: Disturbances of sexual wellbeing coexist with numerous health problems. In fact, sexual dysfunctions can be one of the first symptoms of systemic morbidities including cardiovascular diseases, depression and diabetes. Taking sexual history from the general practitioners could therefore be helpful in the diagnostic process. Some of the data collected so far suggest that most patients expect doctors to ask about sexual health, on the other hand, many doctors consider sexual history taking to be unnecessary or even inappropriate.

Aim: The aim of this study was to investigate how patients perceive sexual history taking by general practitioners (GPs), and what are their preferences and expectations.

Materials and Methods: To explore patients' perspectives, we created an online survey including questions about sexual health, past experiences, expectations and preferences regarding sexual history taking. The survey was anonymous and voluntary. We received a total of 216 responses. The statistical analysis of the data was performed using Excel.

Results: The conducted research shows that 91% of the respondents have never discussed sexual health with their primary care physician. The respondents' overall attitudes towards obtaining a sexual history from the primary care physician were described as: neutral by 43%, positive by 35%, negative by 6%, and 16% were unable to answer the question. Only 21% of the respondents considered the frequency of questions about sexual health by the primary care physician to be adequate, while nearly half of the respondents (47%) believed that such questions should be asked more often. There were no gender or age group differences in attitudes towards GPs taking a sexual history. There was a variation in attitudes towards sexual history taking according to place of residence (chi-squared test with Yates' correction, $p < 0.005$), but neutral or positive attitudes were most common in all groups. The data we collected showed that women were more likely than men to have a preference for the gender of the doctor (chi-squared test, $p = 0.0007$): 35% of women prefer the sexual history to be taken by a doctor of the same gender. Among men, this percentage was 16%.

Conclusions: Physicians often refrain from taking a sexual history interview because they believe it may be uncomfortable for the patient. However, previous research, including the findings of our own study, shows that the majority of patients have a neutral or positive attitude towards to being asked questions about their sexual health by their primary care physician. Most of them also recognize the importance of gathering a sexual history.

97. The importance of anatomical variability for women's sexual function - a review of current information.

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Introduction: Knowledge of the structure of the female reproductive organs and their function in arousal and sexual intercourse has vastly increased in recent decades. Our understanding of sexual functioning and orgasm in females was drastically transformed in light of new evidence discovered in the fields of anatomy and physiology. Nevertheless, some controversies remain; especially those concerning the existence of the so-called "G-spot", but also, more broadly, about the meaning of morphology in overall sexual performance and sexual dysfunctions.

Methodology: We examined available research papers, that were published from the year 2000 until 2024, which provided data relating to the anatomy of female reproductive organs, morphological variability of female reproductive organs, the biological basis of female orgasm and sexual functioning, the relationship between the anatomical structure of female reproductive organs and sexual functioning, and the anatomical causes of female sexual dysfunctions.

Results: Some of the studies demonstrate the influence of anatomical variability on sexual functions. Parameters that are presumably significant in this matter include: the clitoris-urethra distance, the thickness of the urethrovaginal space, the distance between the clitoris and the vaginal lumen, as well as the dimensions of the genital hiatus. However, data from studies are inconsistent and some publications suggest that there is no relationship between the examined morphological characteristics and sexual functions. Similarly, the existence of an erogenous zone located on the anterior wall of the vagina, known as the G-spot, seems to be a matter of debate. It has been suggested that the term 'G-spot' should be replaced with the term 'clitourethrovaginal complex (CUV)', as it is thought that interactions between different structures, rather than one specific structure, are crucial to sexual function. Another widely discussed topic in the field of female sexual dysfunction is dyspareunia, a persistent or recurrent genital pain that occurs just before, during or after intercourse and is likely to affect two-thirds of women in their lifetime. The anatomical causes of dyspareunia include weakness of the coccygeus and levator ani muscles and injury to the pudendal nerve. Pathology of the internal pelvic structures, such as the cervix and bladder, may be the cause of deep dyspareunia, while increased sensory innervation of the vulva is considered to be the cause of entry dyspareunia. Discomfort and pain during intercourse have a significant impact on sexual function.

Conclusions: The influence of women's anthropometric characteristics on their sexual functions cannot be unequivocally determined. It is also difficult to establish the importance of individual structures in relation to women's sexual functions. For many years, cultural factors have affected the perception of the anatomical and physiological basis of the female orgasm, which has not favored evidence-based scientific discourse and objective premises.

98. Knowledge of pre- and post-exposure prophylaxis for HIV infection among young adults.

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Introduction: Human immunodeficiency virus (HIV) infection and the subsequent risk of developing AIDS remains a major public health concern, particularly among sexually active individuals. However, use of available therapies such as pre-exposure prophylaxis (PrEP) and post-exposure prophylaxis (PEP) has been shown to reduce the risk of HIV infection by 86%.

Aim: The aim of this study is to determine whether certain factors such as gender, place of residence, sexual orientation, type and frequency of sexual activity, previous use of PrEP and PEP, and subjective level of knowledge about these therapies, have an impact on the actual level of knowledge of survey's participants about HIV infection and PrEP and PEP therapies. The study then identifies the direction of the correlations found in the results.

Materials and Methods: The online survey was completed by participants aged between 18 and 30 years (n=314). The authorial questionnaire contained cross-sectional questions about HIV (4 questions), PrEP (8 questions), and PEP (5 questions). The survey was conducted between February 17th and March 17th, 2024. The data collected were analyzed using statistical methods using Statistica.

Results: The survey results showed that the mean average score was 45.00%. The Kruskal-Wallis ANOVA test used to analyse the data revealed a significant statistical difference in the percentage of points scored depending on various factors. These included age ($p<0.0001$), type of education ($p<0.0001$), place of residence ($p=0.0001$) and subjective assessment of sexuality education knowledge ($p<0.0001$). In addition, the survey found significant statistical differences in the percentage of scores among participants who reported using PrEP therapy ($p=0.0219$), in the occurrence of sexual activity ($p=0.0210$), and among men who reported being gay ($p=0.0007$). The R-Spearman test showed a weak positive correlation ($R=0.2553$) between the number of residences and the survey score, and also between the age of the participants and the survey score ($R=0.2701$). There was also a moderate positive correlation ($R=0.3415$) between the survey score and subjective assessment of sexuality education knowledge.

Conclusions: The results of the survey showed that various factors, like age, type of education and place of residence have an impact on the level of knowledge about PrEP, PEP and HIV.

99. Long-term effects of abortion on patients' psychological and social well-being

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Introduction: Ermination of an unwanted pregnancy is a common procedure in contemporary medical practice. However, the impact of this procedure on the subsequent well-being of patients is an issue that requires in-depth analysis.

Methodology: This review study analysed the available literature on the effects of termination of an unwanted pregnancy on patients' wellbeing. Clinical trials and meta-analyses published between 2014 and 2024 were examined.

Results: No significant change in patient wellbeing was documented, taking into account all of the factors mentioned above.

Conclusions: The results of the literature review indicate the importance of psychological and social support for patients after termination of an unwanted pregnancy. The implementation of appropriate care strategies may contribute to improving the quality of life of these patients. Abortion does not have a significant and lasting impact on patients' lives and can therefore be considered a safe procedure. It is also important to remember that the availability of safe abortions performed by health professionals is crucial to the safety of this procedure, as severe complications can occur when abortions are performed at home.

100. The Influence of Neuroticism on Sexual Behavior: A Narrative Review

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Introduction: Neuroticism is a crucial personality trait that encompasses emotional instability and reflects an individual's perception of the world as threatening and out of their control. It is one of the five fundamental personality traits, along with extraversion, openness to experience, conscientiousness, and agreeableness. This study explores the relationship between neuroticism and various aspects of sexual well-being, including sexual communication, desires, and satisfaction.

Methodology: A comprehensive search for a narrative review was conducted on PubMed using MeSH terms, including for example: "neuroticism", "sexual behavior". 13 studies were included in the review after the screening process, employing both quantitative and qualitative methodologies. Studies were assessed for quality using the CRAAP criteria (Currency, Relevance, Authority, Accuracy, Purpose). The summary way was used in order to outline the findings.

Results: Neuroticism has a strong negative impact on sexual satisfaction, being a competent sexual partner, fulfilling the partner's sexual needs, sexual communication, and frequency of intercourse. Individuals high in neuroticism were more likely to desire either notably less or way more frequency in sexual activity than their partners, engage in sexual coercion, unfaithfulness, risky sexual behaviour, and exhibit negative attitudes towards sexuality. The impact of neuroticism on sexual satisfaction, communication, and intercourse frequency decreased with relationship duration. Neuroticism was also linked to lower self-acceptance, inadequate and hostile sexual communication and many sexual dysfunctions associated with anxiety and stress such as lower sexual performance. Additionally, studies indicated that BDSM (bondage and discipline, dominance and submission, and sadomasochism) practitioners exhibited lower levels of neuroticism, while neuroticism was associated with erectile dysfunction. Studies also found that neuroticism was positively correlated with homosexuality among men.

Conclusions: This study provides valuable insights into the intricate relationship between neuroticism and sexual behaviour, highlighting the challenges that individuals with neurotic personalities face in sexual relationships. Additionally, it indicates how personality and in affect it's traits have impact on sexual life and satisfaction of it. Further research is warranted to explore this phenomenon more comprehensively and develop effective psychological interventions to address the sexual well-being of individuals with high levels of neuroticism. By understanding these

dynamics, we can take steps towards promoting healthier sexual relationships and overall well-being. Understanding these dynamics is crucial for promoting healthier sexual relationships and overall well-being.

101. ADHD and Autistic Traits among Transgender and Non-Binary Individuals: Insights from the Polish Population

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Introduction: Attention Deficit Hyperactivity Disorder (ADHD), autistic traits intertwine with transgender and non-binary identity, posing distinctive challenges. The marginalized status of these individuals, often young and at risk of stigmatization, necessitates comprehensive exploration for better health outcomes.

Aim: This study aims to explore the interplay of Attention Deficit Hyperactivity Disorder (ADHD), autistic traits, and transgender or non-binary identity in the Polish population. Our focus is on understanding the impact of these factors on the mental health of transgender and non-binary individuals, while identifying specific patterns and associations.

Materials and Methods: The study was conducted using an anonymous online survey, specifically targeting gender minority groups during the period from February 24th to February 28th, 2024. A total of 441 responses were obtained, of which 416 were considered in statistical analyses, accounting for the four most prevalent gender identities. These analyses involved the application of the Shapiro-Wilk test and Pearson's chi-square test on the selected participants.

The sample, with a median age of 22 (range: 19-25) years, comprised predominantly non-binary (AFAB - Assigned Female at Birth) individuals (36.06%), trans women (29.57%), trans men (24,76%) and non-binary (AMAB - Assigned Male at Birth) individuals (9.61%).

Results: Over half of the respondents do not have a diagnosis of ADHD and/or autism spectrum disorder, nor are they undergoing diagnostic procedures for them (58.17%). Autism spectrum disorder was identified as the most frequently occurring condition among those diagnosed, with a prevalence rate of 10.82%. Diagnoses, often made after age 18 (59.18% for autism spectrum disorder and 68.89% for ADHD) and post-discovery of gender identity (69.93%), showcase the delayed recognition of neurodevelopmental disorders. Specific symptoms correlated with education levels, professional roles, and self-suspected neurodevelopmental disorders. Gender dysphoria prevalence was high (91.83%), impacting mental well-being significantly, with transgender individuals reporting more profound effects ($p<0.00001$). Overall mental health ratings varied, with higher education and certain professional roles associated with better mental health ($p=0.048$ and $p<0.00001$, respectively). Treatment for neurodevelopmental disorders was perceived positively, indicating improvements in mental health.

Conclusions: This study provides valuable insights into the intricate relationships among Attention Deficit Hyperactivity Disorder (ADHD), autistic traits, and transgender or non-binary identity within the Polish population. Our findings underscore the delayed recognition of neurodevelopmental disorders, occurring primarily after the age of 18 and following the discovery of gender identity. The prevalence of gender dysphoria, particularly impactful on mental well-being, highlights the unique challenges faced by transgender and non-binary individuals.

102. The intersection of personality disorder traits and dysphoria in transgender patients.

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Introduction: Personality disorders are a type of mental condition characterized by persistent maladaptive patterns of behavior, cognition, and inner experience that occur in a variety of circumstances and differ from those accepted by the individual's culture. Evidence indicates that transgender people have a higher frequency of psychopathology and personality disorders than the general population. This study explores the existing literature on personality disorders in transgender individuals and the risk of mistakenly characterizing gender dysphoria symptoms as such, and vice versa.

Methodology: A literature review was performed based on PubMed, ResearchGate and Google Scholar databases.

Results: The review demonstrates the prevalence rate of personality disorders in transgender patients, including the most frequent ones, such as borderline, paranoid, schizoid, histrionic, and narcissistic in comparison with corresponding traits within the spectrum of gender dysphoria symptoms.

Conclusions: The presence of an overlap between gender dysphoria and personality disorder traits may be helpful in anticipating future challenges that might arise in the diagnostic process of personality disorders in patients with gender dysphoria. The report concludes by summarizing the collective findings, identifying gaps in current understanding, and suggesting directions for future research in this crucial area.

103. Medical student's knowledge of gender reassignment. A survey paper.

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Introduction: This paper presents the level of knowledge of medical students regarding many aspects of the process of gender transition.

Aim: The main objective of the survey is to explore students' awareness of gender transition and to assess their level of knowledge on the subject. The survey measured their knowledge in a number of ways and potential areas of lack of depth or clarity in education were identified.

Materials and Methods: An anonymous online survey was conducted between 19 February, 2024 and 28 March, 2024 among 121 medical students from various fields of medicine, genders, ages and places of residence. The survey consists of 39 questions, 31 of which are single and multiple choice test questions.

Results: According to the survey, 89.26% of students believe they have knowledge about gender reassignment, 46.28% know someone who has undergone gender reassignment and 19.83% of respondents believe that transgenderism is classified as a disorder.

Conclusions: The main conclusion of the survey emphasizes the importance of increasing awareness and understanding of transgender issues among students. The knowledge of medical students about gender reassignment is insufficient and the

psychological aspect is extremely overlooked. As students are likely to encounter transgender individuals, it is essential they demonstrate professionalism and knowledge in such situations.

Surgery Session (held in Polish)

104. Suspicion of stomach cancer in a patient with gastrointestinal perforation and diverticular disease – how complications during the examination led to the correct diagnosis.

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Introduction: A case report dedicated to a 77-year-old patient presenting the symptoms of "acute abdomen syndrome", who was urgently admitted to the General and Oncological Surgery Department at Wrocław Clinical Hospital with a probable gastrointestinal perforation suspected to have occurred during colonoscopy. During the physical examination, a rigid and tender abdomen was observed, with positive signs of peritoneal irritation. Peristalsis was almost inaudible. The patient was hemodynamically and respiratorily stable with preserved logical contact.

Case description: The patient had previously been hospitalized in the gastroenterology department due to significant weight loss (>5% in the last two months) and nonspecific abdominal pain. Ultrasonography revealed thickening of the gastric wall up to 17 mm. During gastroscopy, hypertrophic gastropathy or Menetrier's disease, and duodenal bulb inflammation were suspected due to severe oedema and thickening in the walls of these organs, but histopathological tests of samples taken during the examination did not indicate the presence of neoplastic changes. PET scan results also showed no abnormalities. Tumor markers remained negative, which did not provide doctors with a basis for a specific diagnosis. An attempt to perform a colonoscopy was made. During the procedure, the patient began to report severe pain, which was caused by damage to the gastrointestinal mucosa. An urgent abdominal CT scan confirmed iatrogenic perforation and significant thickening of the walls of the prepyloric, pyloric, and lower part of the gastric body (up to 1.5 cm), suggesting the presence of linitis plastica-type neoplastic changes and narrowing of the pylorus lumen. After referral to the surgical department and initial examination, the patient was directly transferred to the operating room for exploratory laparotomy. Intraoperatively, a small perforation was found on the mesenteric border of the sigmoid colon and numerous diverticula of the large intestine were present. Changes were detected throughout the entire colon and gastric mucosa, and samples were taken for further histopathological examination from the area of the gastrocolic ligament. A protective loop ileostomy was formed. Following the results, malignant gastric cancer was confirmed in the patient. Currently, the patient is undergoing chemotherapy and remains under the strict control of appropriate specialists.

Conclusions: Gastric cancer is one of the most common malignant tumors worldwide, with approximately 1.1 million new cases and around 800,000 deaths each year. At the time of diagnosis, the disease is often already advanced or has metastasized in most patients. In Poland, gastric cancer is most frequently diagnosed in an advanced and inoperable stage - only 8% are early-stage tumors. The described case of an elderly woman illustrates how a complication during a routine examination led to the correct diagnosis and referral of the patient for appropriate treatment, which realistically gave her a chance for improvement in health status.

105. Fishing Rod Struck by Lightning- A Stroke of Luck in Misfortune

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Introduction: Lightning strikes occur annually in approximately 240,000 people, with a mortality rate of 10%, placing them among the top three causes of environmental deaths. As a result of lightning strikes, asystole, CNS damage, prolonged respiratory paralysis, prolonged apnea, and sudden cardiac arrest (SCA) may occur. Cognitive dysfunction and burns may also occur.

Case description: A 16-year-old patient was admitted to the emergency department after being struck by lightning. The patient was fishing when a storm hit. While fleeing from the rain through tall grass, the boy held the fishing rod above his head, resulting in lightning strike and loss of consciousness. He arrived at the hospital conscious, alert, hemodynamically stable, and breathing well (BP 159/85 mmHg, HR 83/min). Following the incident, he experienced sensory disturbances in his feet. Laboratory tests revealed significantly elevated creatine kinase levels (423 U/l) in the blood, as well as proteinuria (1g/L) and hematuria. The patient had second-degree thermal burns on the right side of his body: torso, shoulder, upper limb, hip, lower limb, feet, and right-sided hearing impairment. Due to the possibility of serious injuries, multiple imaging tests were performed (CT of the head and face, chest X-ray, right hand and foot X-ray, and abdominal ultrasound). No abnormalities were found. Neurological tests, cardiology consultation (ECHO and 24h ECG), ophthalmic, and laryngological consultations were also conducted. Perforation of the tympanic membrane in the right ear's anterior-inferior quadrant was noted. Burns were treated in the pediatric surgery department for a week. Although the situation was potentially very dangerous, the patient did not suffer serious injuries, indicating that the lightning likely struck the fishing rod rather than directly hitting the patient.

Conclusions: Lightning strike can be a life-threatening situation. Rapid assistance to the victims is crucial, as well as a multidisciplinary approach and comprehensive diagnostics of the resulting changes.

106. Review of management methods for acquired tracheoesophageal fistulas in adults.

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Introduction: Acquired tracheoesophageal fistula is a rare, potentially life-threatening condition, which in adults can be caused by various factors. In the literature, tracheoesophageal fistulas are most commonly classified based on etiology: a) malignant tumors (caused by malignant tumors including their treatment such as radiotherapy), b) benign non-neoplastic including; 1. Post-intubation (caused by mechanical damage from the endotracheal tube cuff due to excessive pressure during prolonged mechanical ventilation combined with simultaneous use of a nasogastric tube), 2. Aspirated foreign bodies, 3. Traumatic - injuries, including tracheostomy, 4. Non-inflammatory -

mediastinitis, 5. Postoperative as a complication after segmental resection of the trachea or other procedures within the mediastinum. There are various methods of managing tracheoesophageal fistulas. The treatment goal is to reconstruct the patency and function of the trachea and esophagus, and to eliminate the aspiration of food content into the airways and its inflammatory consequences - aspiration pneumonia, and subsequently, sepsis. The aim of this study is to present, compare, and evaluate different methods of managing tracheoesophageal fistulas.

Methodology: A literature review was conducted using medical databases (PubMed) from 2018 to 2024. Depending on the method of managing tracheoesophageal fistulas, four groups of management methods were identified:

1. Transposition of a segment of the gastrointestinal tract (colon),

2. Transposition of a vascularized muscle flap,

3. Use of stent(s),

4. Other less commonly used methods, such as absorbable patch, thymus flap transposition, tissue glue application, vestibular occluders.

Results: From the literature, it is evident that the most frequently described method for managing tracheoesophageal fistulas involves fistula closure through midline neck incision and reinforcement with transposition of a vascularized muscle flap, which is associated with a reduced frequency of disease recurrence and complications. The second most common method is the application of a stent at the site of stenosis, which is used in both benign and malignant etiologies of the fistula. In the former, it serves as an interim measure to prepare the patient for definitive surgical treatment, while in the latter, it constitutes palliative care.

Conclusions: The conclusions drawn from the review confirms the effectiveness of transposition of a vascularized muscle flap as a treatment method for tracheoesophageal fistula. Simultaneously, the implementation of new, unconventional methods such as colon transposition, the use of an absorbable patch, vestibular occluders, or tissue glue for small fistulas (<5 mm) opens new perspectives in treating this potentially life-threatening disease. Attention is drawn to the necessity of adjusting therapy to the clinical situation, taking into consideration the application of new surgical methods.

107. Proton therapy in the treatment of head and neck cancers

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Introduction: Head and neck cancers rank as the seventh most common cancer worldwide, accounting for over 900,000 new cases annually, nearly half of which result in death. The most common treatment methods for head and neck cancers include radiotherapy, surgery, or a combination of both. Proton therapy has emerged in radiotherapy for cases where tumors are located near anatomically sensitive areas where the radiation dose must be strictly limited. The unique physical properties of proton therapy allow for the delivery of higher radiation doses while simultaneously reducing the radiation dose to surrounding tissues, resulting in fewer complications.

Methodology: The literature search strategy was carried out using the PubMed base based on the keyword combination: Proton Therapy, Proton Beam Therapy, Head and Neck Cancer, Cancer Proton Therapy, Toxicity. The references of the publications of interest were also screened for relevant papers. There were no limitations in regard to the publication date.

Results: A study conducted in Sweden among patients with tonsillar cancer demonstrated that delivering a higher dose through proton therapy compared to conventional radiotherapy yields better outcomes in controlling the local focus of the tumor and improves patient survival. Additionally, proton therapy delivers a lower dose to healthy structures adjacent to the tumor site, resulting in improved quality of life and a reduced risk of complications. An important finding of next study was the high rate of local control and survival in patients with inoperable mucosal melanoma treated with proton therapy, which resulted in a reduced toxicity rate compared to data on photon therapy. The study on proton therapy for nasal cavity and paranasal sinus mucosal melanoma showed a local tumor control rate of 75.8%, with 3-year survival rates of 46.1%. Compared to the standard approach in treating mucosal melanoma of the head and neck, which involves surgical treatment with postoperative radiotherapy and a 5-year survival rate ranging from 20% to 45%, proton therapy was found to provide sufficient local control in locally advanced cases. The main cause of death among the study participants was tumor-related mortality due to distant metastases, suggesting that local improvement with proton therapy alone is insufficient to inhibit distant metastases. Avoiding long-term adverse effects of radiotherapy is particularly important among young patients with HPV-positive oral and throat cancer, who have better disease control outcomes, resulting in longer survival even with the presence of radiation-related side effects and complications requiring prolonged treatment and compromising their quality of life. Therefore, a laboratory study was conducted by The University of Texas using squamous cell head and neck cancer cell lines. The study found that HPV-positive cell lines were more sensitive to proton therapy than HPV-negative lines, and DNA double-strand damage in HPV-positive cells was more durable. Hence, positive HPV testing in head and neck tumors may be a marker of sensitivity to proton therapy. The another study found no significant therapeutic difference between the two methods: intensity modulated radiation therapy (IMRT) and intensity-modulated proton therapy (IMPT). However, the use of IMPT resulted in a reduction in the number of gastric tubes during the acute phase of treatment, as well as at 3 and 12 months after IMPT completion, resulting in a reduction in severe weight loss and improvement in patient quality of life.

Conclusions: Proton therapy represents a promising alternative to conventional radiotherapy due to the reduced number of complications in healthy tissues by delivering a lower radiation dose outside the tumor area. This is particularly important in the young patient group, such as HPV-positive individuals with head and neck tumors, who have a better prognosis and longer survival, thus their quality of life after treatment is crucial. The paper cites numerous studies confirming the effectiveness and wide application of proton therapy. However, more research is needed to assess the long-term toxicity of proton therapy compared to conventional radiotherapy.

108. Are we helpless against VGI?

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Introduction: Endoleaks are the most common complication of endovascular surgery used to repair abdominal aortic aneurysms (AAA) by technique called endovascular aneurysm repair (EVAR). They can occur for a variety of reasons. Some can be induced by the graft itself, while others are caused by blood vessels emerging from the aneurysm sac. The most common type of endoleaks is type 2 (T2EL) and it is present when blood flows into the aneurysm sac from branches of the aorta or other stent vessels.

Indications for the treatment of T2EL are expansion of the sacs diameter or persistent endoleak. In general, endoleak

management consists of three main options: observation, endovascular therapy, and/or open surgery, but the last option is rarely used nowadays.

Methodology: This systematic review was based on available meta-analysis' and reviews of free databases (PubMed and Google Scholar). After analyzing and comparing the literature the following conclusions about type II endoleak treatment after EVAR were reached.

Results: In all studies reintervention criteria was more than 5 mm sac enlargement. The two most often used methods of treatment are transarterial embolisation (TAE) and direct puncture of the aneurysm sac (DSP) that have approximately 90% technical success. Despite the fact that both of the methods are equally safe, some studies show higher effectiveness of DSP. Other considered techniques include percutaneous transcaval embolisation, laparoscopic and open surgical repair although their application is less common. The complications of the treatment are mainly re-endoleak with persistent sac growth and single cases of an aneurysm rupture. The data show a similar risk of the aneurysm rupture in cases of T2EL conservative and surgical treatment which should also be taken into consideration.

Conclusions: Due to lack of long term effectiveness research certain requirements for the type II endoleak treatment are still missing. Considering the comparatively low risk of rupture and possible spontaneous resolution some authors advise conservative management of the T2EL. In case of necessary intervention, a surgeon's individual experience and tools availability are determinants of procedure type.

Urology Session

109. Congenital cause of right-sided hydronephrosis in an adolescent girl – a case report

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Introduction: Hydronephrosis is a condition in which the renal collecting system is abnormally dilated. Dilatation of the renal pelvis and calyces results in compression of the renal medulla and cortex, which in some cases can lead to progressive organ damage. The causes of this condition are divided into obstructive (e.g. ureteral stricture) and non-obstructive (e.g. vesicoureteral reflux). In the present study we describe a child with ureteropelvic junction obstruction (UPJO).

Case description: A 16-year-old girl presented to the Paediatric Surgery Outpatient Clinic with periodic right-sided lumbar pain of several years' duration. An ultrasound examination (USG) was performed and a diagnosis of right-sided hydronephrosis was made. Later renal scintigraphy showed features of partial ureteral obstruction at the level of the right ureteropelvic junction (RUPJ), but renal filtration capacity was preserved. It was decided to perform a magnetic resonance urography (MRU) to assess the anatomy and possible additional vascularisation. The girl was admitted to the Department of Paediatric Surgery in Zabrze. At that time she was asymptomatic.

MRU confirmed UPJO, dilated right renal pelvis with an anteroposterior diameter (APD) of 4.5 cm, slightly extrarenal, and calyces up to 2 cm wide. The remaining parts of the ureter were normal and nephrolithiasis was excluded. No upper urinary tract pathology was observed on the left side. The girl was qualified for elective laparoscopic pyeloplasty.

One month after the initial hospitalisation, the girl was urgently admitted to the Department because of worsening pain. At the time, there was no available date on the list of scheduled operations. It was decided to perform a cystoscopy and implant a Double-J stent. During the procedure, inflammation of the vesical trigone was observed and cystitis medication was prescribed: Furagin 50 mg p.o. 3 times a day and Elmiron 100 mg p.o. 3 times a day.

Another month later, the girl was admitted for elective laparoscopic pyeloplasty. The operation was performed using the Hynes-Anderson method. A vessel crossing the RUPJ was found. The renal pelvis was removed from underneath the vessel and an excess of pelvic tissue with the RUPJ was excised. The remaining part of the ureter was reattached to the pelvis in accordance with the method. The drain was removed on the second postoperative day. The girl was discharged without any complications.

Conclusions: In this case the crossing vessel was the cause of hydronephrosis. It was not described on imaging studies – the diagnosis was made intraoperatively. The crossing vessel was preserved – the blood supply to the kidney was not altered.

110. Case report: unusual early symptoms of prostate cancer

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Introduction: Prostate cancer is one of the most common cancers among men worldwide, particularly in men overs 65 years old. In its early stages, prostate cancer may not cause noticeable symptoms. This article introduces who was diagnosed with prostate cancer presenting with highly atypical symptoms in early stages.

Case description: On January 20th, 2022, a 35-year-old patient consulted their family physician due to the onset of lower back pain on the right side, which was more intense at rest and while lying down. After a few days, he arrived at the Emergency Department due to the pain and dyspnea. A D-dimer elevation was found, >20 (normal range 0-5µg/ml). Following a chest computed tomography angiography, the diagnosis of pulmonary embolism was excluded. Lumbar spine CT scan revealed a suspected small L2/L3 protrusion and initial degenerative changes. After inpatient treatment, they were discharged to continue medication with anti-inflammatory and pain relief drugs along with rehabilitation. After a few weeks, the patient returned to the Emergency Department complaining of pain between the shoulder blades spreading to the occiput and lumbar region, radiating to the legs, accompanied by leg numbness, weakened strength (3-4 on both sides), and positive Babinski reflex. Guillain-Barre syndrome was suspected, and the patient was admitted to the Neurology Department. Sensory disturbances in the legs progressed to paraplegia. Destructive lesions were found in the spinal canal on (L/S MRI) examinations, and three spinal cord surgeries were performed to eliminate the lesions and relieve stenosis on spinal cord. Histological examination of bone biopsy material revealed prostate adenocarcinoma metastases in the vertebrae and abdominal lymph nodes. Radiation therapy was initiated. Bleeding from the surgical wound on the back persisted, requiring wound revision and hematoma removal, but the wound did not heal. PSA dynamics: May 3: 192.6; May 19: 416; June 13: 702.81; June 23: 554.35; July 14: 637; August 3: 274.62 (normal range 0-2). Palliative hormone therapy and chemotherapy continued. The patient experienced sensory loss from the chest down to the legs - paraplegia, with loss of limb control. Several months later, the patient was examined by an oncologist, and abdominal, pelvic, and thoracic CT scans revealed multiple osteoblastic type metastatic lesions of various sizes in the right clavicle, rib cage, multiple vertebrae, ribs, pelvic bones, and femurs. A month later, a repeat CT scan of the brain showed metastatic changes in the clivus. During inpatient treatment, reccurent epileptic seizures have been observed. Persistent anemia, thrombocytopenia, and leukopenia were noted, necessitating a blood transfusion. The patient passed away 11 months after the onset of initial complaints.

Conclusions: In conclusion, the presented case underscores the clinical intricacy and diagnostic challenges inherent in prostate cancer, which can affect men at a very young age and in highly unusual early symptoms.

111. Is cancer treatment an end to intimacy? An analysis of the impact of urological cancer treatment on patients' sex life

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Introduction: The inability to participate in a sexual relationship is a common yet rarely addressed problem resulting from the treatment of men with cancer.

Changes in body image and anatomical damage can be associated with sexual dysfunction, especially after treatment for prostate, penile, or testicular cancer. Depending on the cancer, many variables need to be considered, such as whether a nerve-sparing operation was performed and whether ADT, radiation therapy, or chemotherapy was used. During orchidectomy, androgen supplementation is important. Patients' sex life before surgery, their age and their desire to preserve fertility are also of considerable importance. The stress of diagnosis and treatment can also affect sex life, as can acceptance of body changes after surgery.

Methodology: A scrupulous review of the literature describing sexual problems reported by patients treated for cancer, focusing primarily on problems arising from urological cancer therapy.

Results: Based on this and students' observations during clinical training, the key challenging issues were identified and answered by suggesting solutions described in the available literature.

Conclusions: Most data on the sexual quality of life of men undergoing anti-cancer treatment are for those men who have undergone prostate cancer.

Studies on patients treated for testicular cancer indicate that their sexual quality of life deteriorated depending on testosterone supplementation. The choice of cancer treatment had a significant impact on the frequency of subsequent sexual problems reported. These problems were due not only to anatomical or biochemical abnormalities but also to psychosocial conditions.

112. Nephroblastoma diagnosed during the fetal life of the child

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Introduction: This case report presents an unusual example of nephroblastoma that developed during the fetal life of the boy.

Case description: The report details development of Willms' tumor, that has grown into the kidney in the patient during fetal life, convalescence period after kidney removal and specificity of nephroblastoma and clinical manifestations observed, providing a thorough account of the unique nature of the case.

Conclusions: The case report concludes with a summary of the diagnostic and therapeutic challenges encountered and provides insight into the clinical management of nephroblastoma and shows that despite the seriousness of the case, the body is able to compensate for the lack of an organ and equalize the parameters.

113. Preoperative prediction factors for perineural invasion in prostate cancer patients who underwent radical prostatectomy

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Introduction: Perineural invasion (PNI) is an independent predictor of adverse outcomes in prostate cancer (PCa) patients post-radical prostatectomy (RP), despite conflicting findings in literature. Limited research has explored factors influencing PNI detection in RP specimens.

Aim: We aimed to identify preoperative factors associated with PNI occurrence in RP specimens.

Materials and Methods: We retrospectively analyzed 921 PCa patients who underwent RP at our institution from 2012 to 2022. Preoperative factors and histopathological PNI status were assessed. Patients were divided into PNI+ (n = 838) and PNI- (n = 83) groups. Statistical analysis included Chi-square and Mann-Whitney U tests.

Results: 91.0% of patients were PNI+ and 9.0% were PNI-. Preoperative variables were categorized into demographic, clinicopathological, and serum parameters. PCa incidence ($p = 0.001$) and family history of other cancers ($p = 0.001$) were correlated with PNI among demographic factors. All clinicopathological variables, including mean biopsy PSA ($p < 0.001$), mean preoperative PSA ($p < 0.001$), prostate gland volume ($p = 0.034$), and biopsy Gleason Grade Group ($p = 0.043$), showed correlation with PNI. However, no correlation was found with serum parameters except PSA.

Conclusions: Preoperative clinicopathological characteristics and certain demographic factors predict PNI status post-RP. Our findings suggest correlation of PNI with recognized prognostic factors and certain demographic variables. Blood parameters, except PSA, showed no correlation with PNI.

114. Management of Erectile Dysfunction in Patients with Hypertension: A Review of the Literature

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Introduction: This review explores the existing literature on the management of patients with erectile dysfunction, the relationship between hypertension and erectile dysfunction, as well as the influence of hypotensive medications, or lack thereof, on the severity of erectile dysfunction. Considering the collective prevalence of hypertension, it is essential to highlight these associations and the importance of understanding them in a public health context.

Methodology: Using a systematic review approach, this paper synthesizes information from 18 studies and provides a comprehensive overview of the methodologies used in the existing body of research.

Results: The review consolidates key findings, identifies patterns and associations in the relationship between hypertension and erectile dysfunction, and summarizes what is known about erectile

dysfunction caused by hypertension itself and by the use of antihypertensive medication, as well as pharmacological and non-pharmacological treatment options across studies.

Conclusions: The paper concludes by synthesizing the collective evidence, identifying gaps in current knowledge, and suggesting avenues for future research in this critical and impactful area.

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ISBN 978-83-942024-9-1

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