International Congress
of Young Medical Scientists

21st ICYMS

27th–29th May 2021

ABSTRACT BOOK

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Basic Life Science

Intermittent hypoxic exposure enhances nitric oxide synthesis and improves endothelial function

Eryk Wacka[1]

[1] Department of Applied and Clinical Physiology, Collegium Medicum University of Zielona Góra, Poland

Tutor:

The hypoxic exposure has a potential impact on endothelium thereby reducing atherosclerotic risk factors, retarding arterial wall ageing, delaying development of endothelial dysfunction and preserving vascular function. Furthermore, regular physical activity with hypoxia exposure increases reactive oxygen and nitrogen species production, and this could modify the lipid profile.

The study was designed to observe the effects of intermittent exposure to hypoxia (IHE) on nitric oxidebioavailability and its interaction with conventional CVD risk factors.

Blood samples were collected from physically active men (control n=6, IHE n=6) during a 6-day IHE cycle using hypoxicator GO2Altitude. IHE was held once a day, at least 2 hours after sports training. In order to determine the appropriate time intervals of hypoxic dose, the IHE test of hypoxia was made. It consisted of the measurement of the time for the blood saturation to drop to 85% and the time for the saturation to return to 95% in normoxia, with 12% oxygen content in the mask. On the basis of test results the duration of hypoxic intervals and the breaks between them were determined. Hypoxic dose was set at 3-8 minutes and the breaks were established to take 3-5 minutes.

IHE was found to significantly increase serum NO but to decrease 3-nitrotyrosine (3NT) concentrations. The changes in 3NT following hypoxia have proven to enhance NO bioavailability and endothelial function. The serum erythropoietin (EPO) level increased on 3rd day of IHE, then decreased on 5th day of IHE, and correlated with NO/H_2O_2ratio. There were no changes in haematological markers Ret, RBC, Hb and Htc, contrary to lipoproteins i.e. LDL and non-HDL which showed a decreasing trend in response to hypoxic exposure.

The study demonstrated that IHE combined with regular exercise activity reduced a risk of endothelial dysfunction and atherogenesis. Therefore, 6-day IHE seems to be a potential therapeutic and non-pharmacological method to reduce CVD risk.

Lifestyle exercise attenuates skeletal muscle ageing

Eryk Wacka[1]

[1] Department of Applied and Clinical Physiology, Collegium Medicum University of Zielona Góra, Poland

Tutor:

Introduction. Skeletal muscle ageing, called sarcopenia, is a process associated with a range of factors such as a reduced number of motor neurons and satellite cells, an impaired skeletal muscle regenerative capacity, hormone deficiencies, chronic inflammation, inadequate nutrition and lack of physical activity. However, the exact molecular and cellular mechanisms underlying the loss of muscle mass in the elderly are still largely unknown.

Aim of the study. The study was designed to evaluate the relationship between lifestyle exercise and sarcopenia and to demonstrate the effectiveness of daily exercise in the reduction of the circulating inflammatory markers compared to inactive older adults.

Material and methods. The study included eighty older adults of the U3A (females n=62, males n=18), aged 72.0 ± 5.3 years from the University of the Third Age (U3A). According to the gait speed measurement (6-min walk test, 6MWT), performed according to technical standards of European Respiratory Society and American Thoracic Society, the participants were classified into physically active and inactive groups. Peripheral blood morphology and lipoprotein-lipid profile were determined by using bioichemical analyzer Biomaxima (Poland). Serum inflammatory mediators were determined by ELISE immunoassay: interleukin 1 β (IL-1β), tumor necrosis factor α (TNFα), interleukin 6 (IL-6), C-reactive protein (CRP) and oxidised low-density lipoprotein (oxLDL).

Results. The result of the 6MWT was by 36% higher in active than inactive group. Cytokines and CRP levels tended to reach higher values in the inactive than active participants but remained within the reference range. However, a lower CRP concentration (2.62 ± 1.88 mg/L) was found in the elderly who demonstrated a superior gait speed >1.4 m/s when compared to the other active participants (4.19 ± 2.75 mg/L), which clearly indicates that lifestyle exercise diminishes the systemic inflammatory response.

Conclusion. In this study we demonstrated that major features of sarcopenia were driven by lifestyle exercise. Physical activity sustained throughout life attenuates the skeletal muscle aging by decreasing inflammation.

Beneficial effect of voluntary physical activity combined with administration of intestinal alkaline phosphatase on the course of experimental colitis in obese mice. Involvement of oxidative inflammatory pathways, adipokines and myokines.

Aleksandra Danielak[1]

[1] Department of Physiology, Jagiellonian University, Poland

Tutor: prof. dr. hab. Tomasz Brzozowski

INTRODUCTION

The prevalence of inflammatory bowel disease (IBD) is known to increase steadily in western countries. Excessive adipose tissue associated with obesity aggravates inflammation in IBD due to release of proinflammatory cytokines and impaired adipokines secretion, while physical exercise exerts anti-inflammatory activity mediated by protective myokines released from muscles. Intestinal alkaline phosphatase (IAP) plays a pivotal role in the regulation of intestinal mucosal permeability and helps to maintain intestinal barrier integrity.

AIM OF THE STUDY

We aimed to investigate the effects of voluntary physical activity combined with IAP administration on experimental colitis in mice fed a standard diet (SD) or high-fat diet (HFD) and to determine the molecular mechanisms underlying the beneficial action of this therapy.

MATERIAL & METHODS

Mice fed a SD or HFD were assigned to groups subjected or not to voluntary wheel running, which was combined or not with IAP administration. After 6 weeks of exercise the colitis was induced by intrarectal administration of 2,4,6-trinitribenzenesulfonic acid. Colonic blood flow (CBF), the expression of mRNA of proinflammatory cytokines and adipokines in colonic mucosa and mesenteric fat, as well as plasma irisin level were determined.

RESULTS

HFD significantly exacerbated colitis in sedentary mice fed HFD compared with those fed SD as manifested by reduced CBF and plasma irisin level, as well as increased colonic mRNA expression of proinflammatory cytokines IL-1β, TNF-α, IL-6. The CBF was significantly increased, while plasma irisin levels and expression of mRNA for IL-1β, TNF-α, IL-6 was downregulated in exercising HFD mice with colitis and IAP further potentiated beneficial influence of physical activity. The mRNA expression of adiponectin in adipose tissue was increased, while mRNA expression of leptin was decreased in HFD exercising mice comparing to sedentary animals.

CONCLUSIONS

Voluntary physical activity exerts therapeutical effect on the course of experimental colitis in obese mice by mechanisms involving increase in CBF, downregulation of proinflammatory biomarkers and upregulation of protective adiponectin and irisin. IAP acts synergistically with physical exercise to promote healing of experimental colitis, and this novel therapeutic approach deserves clinical confirmation.

Impact of cannabinoids on the size of nuclei in nicotine-administered mice lung- preliminary results.

Natalia Lehman[1], Jan Palmi[1], Monika Żybowska[1], Paweł Oszczędłowski[1], Justyna Nowaczek[1]

[1] Chair and Department of Histology and Embryology with Experimental Cytology Unit, Medical University of Lublin, Poland

Tutor: prof. Barbara Jodłowska-Jędrych, MD PhD

Author: Natalia Lehman

Co-authors: Jan Palmi, Monika Żybowska, Paweł Oszczędłowski, Justyna Nowaczek

Tutor: prof. Barbara Jodłowska-Jędrych, MD, PhD

INTRODUCTION
Current knowledge suggests that cannabinoids have protective effects against neoplasm. Size of the cell nucleus has been proven to indicate the risk of malignant transformation. We decided to look into the effect of some cannabinoid receptor type 1 (CB1) and Cannabinoid receptor type 2 (CB2) antagonists (AM630 and AM251) and agonists (JWH133 and oleamide) on lung cells of mice.
AIM OF THE STUDY
Our purpose was to investigate the impact of AM630, AM251, JWH133 and oleamide in different concentrations alongside with nicotine on the size of pneumocytes nuclei.
MATERIAL AND METHODS
36 male Swiss mice were placed in equal groups: one control and eight experimental. All of the mice received nicotine subcutaneously in a dose 0.1 mg/kg body weight by 14 days. Animals of experimental groups, apart from nicotine, received one of cannabinoids intraperitoneally. The administered cannabinoids were Oleamide (2.5 mg/kg bw and 5.0 mg/kg bw), JWH133 (0.5 mg/kg bw and 2.0 mg/kg bw), AM251 (0.25 mg/kg bw and 0.5 mg/kg bw) and AM630 (0.25 mg/kg bw and 2.0 mg/kg bw). Mice were decapitated and their lungs were collected, formalin-fixed, paraffin-embedded. 5 μm thick slides were prepared, stained Hematoxylin and Eosin (H+E) and evaluated under the light microscope. The size of nuclei was measured utilizing ImageJ. Statistica 13.0 was used for statistical analysis.
RESULTS
H+E staining shows differences in the cytological appearance of the lung. Cannabinoids had various effects on nuclei diameter. The smallest nuclei diameter was observed in the group where mice received AM251 in a dose 0.25 mg/kg bw compared to the control group. Slight decrease of size of nuclei was also observed in groups where Oleamide (2.5 mg/kg bw) and JWH133 (0.5 mg/kg bw) were administered.
CONCLUSIONS
These results suggest that some synthetic cannabinoids may have protective effects on nuclei of pneumocytes in nicotine-induced malignant transformation. Further studies should aim at discovering the possible mechanism.

Analysis of ORMDL3 variants and expression in the pathogenesis of asthma

Oliwia Koteluk[1], Joanna Nowakowska[1], Zuzanna Stefaniak[1], Żaneta Lemańska[1], Kacper Jóźwiak[1], Weronika Klawiter[1], Aleksandra Leszczyńska[1]

[1] Department of Pediatric Pulmonology, Allergy and Clinical Immunology, Poznan University of Medical Sciences, Molecular and Cell Biology Unit, Poland

Tutor: Aleksandra Szczpankiewicz, prof.

- Introduction

Asthma is the most common chronic respiratory disease in children. Multiple gene association studies revealed that *ORMDL3* gene is involved in asthma pathogenesis. It encodes transmembrane protein anchored in endoplasmic reticulum and related to calcium signalling.

- Aim of the study

To better understand the role of *ORMDL3* in pathogenesis of asthma, we aimed to analyse if two *ORMDL3* polymorphisms are associated with asthma in Polish population. Based on the previous studies showing that *ORMDL3* variants influence its expression, we also tested if ORMDL3 expression is altered in the asthmatic lung tissue in animal model.

- Material and methods

The genotyping of *ORMDL3* SNPs: rs3744246 and rs8076131 was performed using qPCR with TaqMan probes in 228 asthma patients and 198 healthy controls from Polish population. The expression of ORMDL3 protein was assessed by Western Blot method in lung tissue in an animal model, (10 asthmatic rats and 10 control rats). Statistical analysis was performed using SNPStats and Statistica. Research was supported by Students' Scientific Association at Poznan University of Medical Sciences, grant no 4113.

- Results

For analyzed SNPs, Hardy-Weinberg equilibum law was fullfield. The genotype frequencies were similar between asthmatic patients and controls. However, in codominant inheritance model the presence of C/T and T/T genotypes for rs3744246 and A/G and G/G genotypes for rs8076131 decreased risk of asthma as compared with C/C or A/A genotypes, respectively. However, those differences were not significant. In our preliminary protein expression analysis, we did not observe differences in ORMDL3 protein level in the lung tissue of asthmatic rats as compared to control rats in the animal model of asthma. Further research will be conducted.

- Conclusions

Lack of association between rs3744246 and rs8076131 *ORMDL3* variants with asthma may suggest it is not a predisposing factor in the Polish population. Lack of differences in protein expression in a pilot study requires further validation.

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Cardiology and Hypertension

Challenging Two-staged PCI in Multivessel Coronary Artery Disease and High Syntax: Feasible, yet Complicated

Aleksandra Gąsecka[1], Aleksandra Bury[1], Małgorzata Mierzejewska[1], Ewa Pedzich-Placha[1], Arkadiusz Pietrasik[1]

[1] 1st Chair and Department of Cardiology, MEDICAL UNIVERSITY OF WARSAW, Poland

Tutor:

Multivessel coronary artery disease poses a therapeutic challenge. Here, we present a case report of a 71-year-old man with three-vessel disease and high SYNTAX treated with successful two-staged PCI including one chronic total occlusion, following refusal to undergo CABG. The interventions were complicated with vascular access side aneurysm and exacerbation of chronic kidney disease, which were successfully in-hospital treated. The two-year-follow-up after the procedures was uneventful. This case demonstrates the potential feasibility, but also challenges associated with PCI in MVD with high SYNTAX score.

The influence of the presence of sleep apnea to cardiovascular risk in patients with hypertension.

Karolina Winiecka[1], Lucyna Woźnicka-Leśkiewicz[1], Marzena Bielas[1], Mariusz Bohn[1], Anna Posadzy-Małaczyńska[1]

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Authors:

Karolina Winiecka, Marzena Bielas, Mariusz Bohn

Tutors: PhD Lucyna Woźnicka-Leśkiewicz, PhD (Habil) Anna Posadzy-Małaczyńska

Introduction: Sleep apnea is a disease that is difficult to diagnose early and may increase the risk of organ complications. However, its diagnostic value in assessing cardiovascular risk is uncertain.

Aim of the study: The aim of the study was to demonstrate the correlation between the occurrence of sleep apnea and increased cardiovascular risk, taking into account conventional and unconventional risk factors in the group of patients suffering from arterial hypertension.

Materials and methods: Several tests have been conducted: sleep apnea using the polygraphic method, ABPM (ambulatory blood pressure monitoring), cfPWV (carotid-femoral pulse wave velocity), ABI (ankle-brachial index), body composition, and also the results of biochemical tests and data from an interview were collected from 35 patients classified into one of two groups: patients with or without hypertension. Data are reported as median values (quartiles), p values as assessed by the Mann-Whitney ANOVA test.

Results: In a study, 19 patients suffered from arterial hypertension (group A) and 15 patients had not hypertension (group B). There were no statistically significant differences between the groups in the anthropometric parameters, biochemical parameters, sleep apnea diagnosis, cardiovascular

risk and haemodynamic characteristics. The exception was the difference between cfPWV with statistical significance p=0.02: 9.15m/s (8.4;10.5), 8.1m/s (7.4;9.7), for groups A and B respectively.

Conclusions: In patients suffering from hypertension, arterial stiffness expressed as cfPWV was higher than in patients without hypertension, despite of achievement of comparable results in other assessed parameters of the clinical characteristics of the studied population.

The influence of the presence of sleep apnea to cardiovascular risk in patients with hypertension.

Karolina Winiecka[1], **Marzena Bielas**[1], **Mariusz Bohn**[1]

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Conclusions: In patients suffering from hypertension, arterial stiffness expressed as cfPWV was higher than in patients without hypertension, despite of achievement of comparable results in other assessed parameters of the clinical characteristics of the studied population.

Reliability of static and dynamic arterioles structures parameters measured by adaptive optics in retina of normo- and hypertensive patients

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[1] Department of Human Physiology and Pathophysiology, University of Warmia and Mazury, Faculty of Medicine, Poland

Tutor: dr hab. Haraźna Joanna prof. UWM

Introduction: Arterial hypertension can be caused by as well as result in pathological changes in microvasculature. Therefore the structure of microvessels is of interest in the studies of hypertension.

Aim of the study: Examination of the reliability of static and dynamic parameters obtained by Adaptive Optics (AO).

Materials and methods: AO rtx1 camera (Imagine Eyes/France), a non-invasive in vivo method for evaluation of retinal arteriolar structures, produces 40 images of retinal arterioles with by pixel-resolution of 0,8x0,8μm in 4s, which are then automatically averaged. However, in order to observe vessel dynamics, we analysed each one of 40 raw images separately. Measured static parameters were: external diameter, lumen diameter, Wall Cross-Section Area, Wall Thickness, and Wall to Lumen Ratio. While the dynamic parameters were the external and lumen diameter amplitudes, calculated as difference between maximal and minimal values, divided by the mean value.

To assess reliability the coefficient of variation (CV) and α-Cronbach coefficient (α-CC) were calculated for 3 models:

1. Intraobserver: A set of 40 images was obtained from 5 patients (2 hypertensive, 3 male, age 42±26 years). Images were analysed twice by the same observer at least one week apart.
2. Interobserver: A set of 40 images was obtained from 6 patients (1 hypertensive, 4 male, age 35±14 years). Images were analysed individually by two observers.
3. Test-retest: Two sets of 40 images were obtained from 5 patients (1 hypertensive, 3 male, age 26±4 years) during one visit.

In all models dynamic parameters and the mean of all static parameters were calculated for each set and then CV and α-CC were calculated for static and dynamic parameters between the sets.

All the measurements were performed in 1 eye/patient.

Results: All evaluated parameters proved to be reliable with CV < 10,2% and α-CC > 0,90.

Conclusions: AO allows for reliable static and dynamic measurement of arteriolar structure and can be used for the study of arteriolar wall dynamics in arterial hypertension.

Influence of gender on short- and long-term mortality in patients with ST-elevation myocardial infarction (STEMI) treated with primary percutaneous coronary intervention (pPCI)

Aleksandra Placzyńska[1], **Bartłomiej Piasecki**[1], **Michał Nicze**[1]

[1] Departament of Epidemiology, Medical University of Silesia, Poland

Tutor: Professor Paweł Buszman, PhD, MD, EMBA

Introduction: There are discrepant data on gender differences in the prognosis of patients with STEMI undergoing primary percutaneous coronary intervention (pPCI).

Aim of the study: The aim of this study was to assess the influence of gender on early and long-term mortality in patients with STEMI.

Material and Methods: This is a retrospective single-center registry of 1647 patients with STEMI treated with pPCI between 2010-2015 in the cardiology ward in American Heart of Poland, Dabrowa Gornicza, Poland. Patients were divided into two groups based on gender: men 1121 (68%) and women 526 (32%). Endpoints were: in-hospital, 30-day, 1- and 5-year mortality. Median follow-up was 5,95 years.

Results: Men were significantly younger than women (median age 62 vs. 68; $p<0,05$). Prevalence of smoking was higher in men (41,7% vs. 30,4%; $p<0,05$). Women had more often hypertension (68,6% vs. 61,9%; $p<0,05$), diabetes (30,4% vs. 19,2%; $p<0,05$), obesity (23,4% vs. 15%; $p<0,05$) and atrial fibrillation (12,2% vs. 6,6%; $p<0,05$). Prior myocardial infarction and prior PCI were more prevalent in men – 13,6% vs. 8,9%; $p<0,05$ and 12,8% vs. 8,4%; $p<0,05$, respectively. At discharge men had more optimal pharmacotherapy than women. Women showed higher in-hospital (7,6% vs. 2,7%; $p<0,005$), 30-day (12,5% vs. 6,6%; $p<0,05$), 1-year (19,8% vs. 10,6%; $p<0,05$) and 5-year (40,9% vs. 28,5%; $p<0,05$) mortality rates.

Conclusions: Female sex was associated with worse short- and long-term prognosis after STEMI treated with pPCI.

Are computer-simulated stent implantation and virtual reality reliable tools in planning intravascular treatment of aortic coarctation?

Alicja Jaszewska[1], **Nikola Topuzov**[1]

[1] Department of Descriptive and Clinical Anatomy, Students Scientific Group Anatomy Medical University of Warsaw, Poland

Tutor: Adam Koleśnik

Authors: Alicja Jaszewska, Nikola Topuzov
Tutor: Adam Koleśnik MD

Introduction

3D modelling is frequently used in interventional cardiology, but the method is still restricted by the time required to print a model and the price of materials and real stents. Our idea was to examine if bypassing the 3D printing and relying only on virtual models is a viable option to plan procedures of aortic coarctation stenting.

Aim

To assess the accuracy of predicted stent selection made relying solely on 3D models and virtual reality.

Material and methods

A group of 15 paediatric patients with aortic coarctation treated with intravascular stent implantation, who had a CT scan performed prior to the procedure, was chosen. Each tomography was processed in Materialise Mimics to produce a model of the narrowed aorta and surrounding structures. A range of possible stents were then chosen independently by 2 researchers and modelled into the aorta in Materialise 3-matic. The complete models were assessed in Mimics Viewer using virtual reality headset in order to choose an optimal stent, which was later compared with the device used to treat the patient.

Results

In 3 cases a stent with identical or approximate dimensions was chosen. In further 3 cases, the stent actually used in the procedure was taken into consideration, but researchers chose another. The overall diameter of the chosen stents was identical in 7 cases, in 7 the difference did not exceed 2 mm. The length of the stents was identical in 3 cases and in 9 the difference did not exceed 7 mm.

Conclusions

The method of computer modelling provided a satisfactory success rate of predicting the possible stents to use during procedure. The differences may be caused by our lack of experience in interventional cardiology, the lack of availability of certain stents in the Cardiovascular Interventions Laboratory and the lack of information about the diameter of the vascular access.

Left ventricular thrombus as the cause of coexistence of thromboembolic myocardial infarction and ischemic stroke in patient with newly diagnosed dilated cardiomyopathy.

Tomasz Cader[1]

[1] Department of Internal Medicine and Cardiology, Medical University of Warsaw, Warsaw, Poland, Students' Scientific Association by Department of Internal Medicine and Cardiology, Medical University of Warsaw, Warsaw, Poland, Poland

Tutor: Agnieszka Wójcik MD, PhD, Piotr Bienias MD, PhD

Background

Thromboembolic events due to intracardiac thrombus might cause life-threatening complications. They are also a clinical challenge, especially in young patients with no history of heart diseases.

Case report

34-year-old obese, cigarette smoking female with type 2 diabetes mellitus and no previous history of cardiac diseases was referred to our department due to ST-elevation myocardial infarction. The patient complained of a typical severe dull squeezing chest pain and dyspnoea. Urgent coronarography revealed acute thrombus in a large marginal branch, without atherosclerotic plaques. Successful aspirational thrombectomy was performed.

Typical dynamics in troponin levels were observed. Echocardiography showed general hypokinesis of the left ventricle (LV) with ejection fraction (EF) approx. 15-20% with signs of low cardiac output syndrome and moderately large thrombus in apical part of LV. The early post%u2011infarction period was uneventful.

At the 7th hospitalization day, the patient woke up with left sided hemiparesis (NIHSS 18 points). The patient was urgently transferred to the specialized neurological ward where she was successfully treated with mechanical thrombectomy of the right middle cerebral artery. Control CT and MRI of the brain showed unobstructed brain vessels. Afterwards the patient with NIHSS 3 points was transferred back to our unit.

Throughout the hospitalization the patient was rehabilitated, received typical pharmacological treatment including heparin. Cardiac MRI confirmed dilated cardiomyopathy (DCM) with severe hypokinesis of the left and right ventricle (LVEF 14%, RVEF 22%), signs of recent infero-lateral myocardial infarction, while no signs of previous infectious myocarditis or toxic damage were visualized.

Conclusion: This is a case of newly diagnosed and probably genetic-derived DCM complicated with LV thrombus which led to thromboembolic myocardial infarction (type 2) followed by ischemic stroke. Both thromboembolic events were successfully treated by specific thrombectomy.

Key word: left ventricular thrombus, myocardial infarction, ischemic stroke, aspirational thrombectomy, coronarography

Novel technologies in congenital heart defects - is a Leadless Pacemaker suitable in a Hypoplastic Right Heart Syndrome?

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[1] Poznan University of Medical Sciences, Poland

Tutor: Aleksandra Cieplucha

Autor: *Weiyi Xia. BSc, MPH*
Co-autor: *Patrycja Woźniak*
Tutor: *Ciepłucha A. MD, PhD*

Introduction: Hypoplastic right heart syndrome (HRHS) is a rare congenital heart defect that could lead to severe bradycardia. A leadless pacemaker, although not previously described in this population, could potentially be an option if transitional transvenous pacing is technically impossible.

Case report: A 27-year-old female with HRHS, resulting in pulmonary trunk hypoplasia. The patient had atrial (ASD) and ventricular septal defects (VSD) at birth. She was palliated at age 2 with a bi-directional Glenn procedure that connected her superior vena cava (SVC) directly to the right pulmonary artery. ASD and VSD were closed during the procedure. A recent follow-up holter electrocardiogram identified a sinus pauses of more than 6 seconds, a severe bradycardia with ventricular rates below 30 beats per minute. Although she was asymptomatic at the time, she is planning for pregnancy.

Implantation of a traditional transvenous pacemaker was infeasible due to the lack of intravascular access - typically the leads are advanced and fixed in the right heart via SVC. Epicardial systems were not considered due to the risk of lead fracture during pregnancy. Therefore, leadless pacing was chosen for our patient. The procedure was performed under local anesthesia. After confirming no shunting between right and left ventricle with ventriculography, the catheter device was advanced from the right femoral vein to the right ventricle. Despite multiple attempts to deploy the pacemaker in the right ventricle, optimal pacing was not achieved, which may be attributable to the reduced RV size and diffuse myocardial fibrosis that commonly present in congenital heart defects including HRHS.

Conclusion: Leadless pacing is an attractive alternative to traditional transvenous pacing, especially in patients with complex cardiac anatomy. While reports of successful implantation of leadless pacemakers in challenging congenital anatomy is rare, no report has discussed the reasons for implantation failure. Careful planning and use of multimodality imaging during the procedure may be helpful to enhance the rate of success. Novel technologies are necessary to improve outcomes in young patients.

Normative values for dorsal body position in ecg recordings in model animals

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Tutor: prof. dr hab. Agnieszka Noszczyk-Nowak

Introduction

Swine is a commonly used model animal for human medicine, its high analogies in the structure of the cardiovascular system, such as the size of the heart cavities or vessels, similar heart rate, and physiological reactions as well as other systems, make swine almost perfect model animals in biomedical research including electrophysiology. Electrocardiography is one of the elementary diagnostic methods used in human and veterinary cardiology. Procedures performed on swine require placing animals in different body positions depending on the situation such as lying on the back during surgery. The standard described body position for ECG in swine is lying on the right side. There was also some research on ECG in swine where animals were not under anesthesia and were suspended in a harness keeping them in a standing position.

Aim of the study

The aim of the planned experiment was to determine the normative values of the 12-lead ECG recordings in the dorsal position in swine as model animals.

Material and methods

The study was carried out on swine under general anesthesia with the same anesthesia protocol including medetomidine, midazolam, ketamine and propofol for each animal. Swine were placed in the positioner lying down on their backs. 29 Polish landrace pigs weighing in the range of 33 - 44 kg were tested with 12-lead electrography examination. Records were performed and analyzed with software support.

Results

On the basis of the obtained results, the normative values of the 12-lead ECG recordings were prepared and will be shown at the conference.

Conclusions

Normative value tables should be compatible with the position of the examined animal. ECG recordings vary in swine individually, therefore a lead with the best quality should be chosen in certain procedures and specimens for evaluation. Medetomidine includes among its side effects the induction of PQ interval prolongation which could affect the results.

Effect of branched endovascular aortic repair on platelet reactivity in patients with thoraco-abdominal aortic aneurysm

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Tutor: MD, PhD Aleksandra Gąsecka

INTRODUCTION

Endovascular aortic repair (EVAR) is a modern treatment option in elective and emergency aortic-aneurysm. However, the presence of the graft is associated with an increased risk of thrombosis, whereas double-antiplatelet therapy (aspirin and clopidogrel) after the operation may increase the risk of bleeding.

AIM OF THE STUDY

Assessment of the effect of branched EVAR on platelet reactivity in patients with thoraco-abdominal aortic aneurysm.

MATERIAL AND METHODS

The study population comprised of 50 patients undergoing elective or emergency branched EVAR (Zenith t-Branch®) of thoraco-abdominal aortic aneurysm (mean age 70.9±5.7 years, 66% male). Patients who required oral anticoagulation, with end-stage renal disease or severe liver dysfunction were excluded from the study. Blood samples were collected 3 times: before the operation, within 24-hours after and at hospital discharge. Platelet reactivity was assessed using impedance aggregometry (Multiplate®Analyzer) with arachidonic acid(ASPI), adenosine diphosphate(ADP) and thrombin receptor activating peptide(TRAP) as agonists. Clinical data regarding thrombotic and bleeding events were extracted from the hospital database.

RESULTS

There was a stepwise decrease in platelet reactivity after the operation, compared to baseline ($p<0.04$) in response to all agonists. There were no thrombotic events until discharge. After the operation, 23 patients required major red blood cell(RBC) concentrate transfusion (≥2 units). At admission, there was a negative correlation between platelets reactivity and the amount of RBC units transfused after the operation ($r<-0.32$, $p=0.03$ ASPI, $r<-0.35$, $p=0.02$ ADP). The only factor that differentiated patients who did and did not require major RBC transfusion was pre-operative platelet reactivity measured by ASPI test which predicted bleeding with 78% sensitivity and 59% specificity at cut-off >30AUC units.

CONCLUSIONS

Platelet reactivity decreases after branched EVAR of thoraco-abdominal aortic aneurysm. The pre-operative platelet reactivity measured with ASPI test at cut-off >30 AUC units is an independent and strong predictor of post-operative bleeding requiring transfusion of ≥2RBC units - it increases the odds of bleeding tenfold.

Analysis of select clinical parameters, comorbidities and mortality among patients with valvular heart disease with respect to differences between male and female patients

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Tutor: Prof. UJ dr n. med. Monika Komar

Introduction: Few studies have been conducted on the differences between the sexes in patients with valvular heart disease, in particular with regard to mortality, comorbidities and select clinical parameters.

Aim of the study: Assessment of the differences in the incidence of valvular heart disease between the sexes with the analysis of mortality, select clinical parameters and comorbidities.

Methods: The medical histories of 683 patients with valvular heart disease were subjected to a retrospective analysis. Follow-up was collected from 284 patients through a phone interview.

Results: The median age difference between female and male patients was statistically significant (73 y.o. and 68 y.o. respectively, $p<0,001$). The difference between male and female patients in the incidence of primary mitral regurgitation (6,8% and 11,1% respectively, $p<0,042$) and aortic regurgitation (6,1% for males and 1,1% for females, $p<0,02$) was statistically significant. The analysis of deaths showed that a larger number of female (19,6%) than male (13,1%) patients died, but the difference was not statistically significant ($p=0,14$). A larger number of male than female patients have gone through a coronary intervention such as PCI or CABG and the difference was statistically significant ($p<0,02$ and $p<0,001$ respectively). Analysis of past medical history revealed a statistically significant difference between males and females in : smoking on admission, history of smoking, myocardial infarction and intermittent claudication. Median predicted operative mortality measured in EuroSCORE was higher among female (4,1) than male patients (3,7), but the difference was not statistically significant ($p<0,149$).

Conclusions: : In the studied group significant differences in select clinical parameters and comorbidities were observed. The incidence of primary mitral regurgitation was higher in women and aortic regurgitation in men. Women were significantly older than men. At follow-up we observed that the difference in mortality was not statistically significant, however a larger number of female than male patients had died.

Predicting frailty status in hospitalised patients diagnosed with heart failure with reduced ejection fraction using parameters measured in clinical practice

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Tutor: Marta Kałużna-Oleksy, MD, PhD

Introduction:

Frailty syndrome is a strong predictor of disability, functional dependency, morbidity and mortality of the elderly. The adverse process is potentially modifiable giving a chance to respond with proper treatment thus a quick, simple method of detection could be exploitable.

Purpose:

The objective was to create a model based on routinely assessed clinical values to predict frailty-related risk of bad prognosis with acceptable sensitivity and specificity.

Methods:

Presence of frailty syndrome with Polish version of SHARE-Fi was assessed in 153 hospitalised patients with heart failure with reduced ejection fraction. To find parameters useful in predicting frailty values between patients of different frailty status were compared using ANOVA and Chi2 test. Then, to further assess their usefulness in predicting frailty status, ROC curve analysis with selecting best cut-off values for each parameter and exclusion of correlation between selected parameters were made. Out of 45 routinely assessed parameters, 5 revealed the highest ability to predict the risk of frailty. For every parameter with value suggesting frailty the patient got 1 point and the final score varied from 0 to 5. Evaluation of predicting capabilities were done. Patients with different scores were grouped: those at low (0-1 points), medium (2-3 points) and high risk (4-5 points) of frailty syndrome.

Results:

The group comprised 18,3% women, mean age of the whole group was 55,0±11,8 years, mean left ventricle ejection fraction 24,1±8,1%. The best cut-off values predicting frailty were as follows: age (≥50 years), systolic pressure on admission (<110mmHg), total cholesterol (<4,85mmol/l), bilirubin concentration (>15,5μmol/l), transferrin saturation (<22,4%). Considering patients with 0-1 points, 7,1% were frail, 2-3 points - 19,4%, 4-5 points - 69,8%.

Conclusions:

Assessment of clinical and biochemical parameters could be helpful in identifying higher risk of frailty syndrome in patients. Proposed model revealed that identifying a group of patients with higher risk of frailty-related problems using purely simple clinical parameters is possible. It could be tested on a larger population and modified.

The phenotype of hypertrophic cardiomyopathy and the electrocardiogram features of left ventricular hypertrophy

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Tutor: Prof. Katarzyna Mizia-Stec, MD, PhD

Introduction

Hypertrophic cardiomyopathy(HCM) is common genetic heart disorder(1:200-500). Most of patients are undiagnosed and sudden cardiac death(SCD) can be first symptom. Diagnosis is based on hypertrophy in imaging. Most of pts have left ventricular hypertrophy(LVH) ECG changes. Adequate ECG interpretation seems to be widely accessible screening tool for HCM.

The aim

The aim of study is to evaluate ECG changes characteristic for LVH in HCM. The study investigates correlation between TTE-HCM morphology and ECG criteria for LVH. The aim is also to calculate SCD risk score and analyse impact of ECG LVH criteria on SCD risk.

Methods & Materials

Database consists of HCM pts hospitalised in GCM(2017-2020). ECG records were analysed for LVH criteria. Phenotypic patterns were assessed in TTE. SCD risk score was calculated and 3 groups were separated:<4%, 4-6%, ≥6% of 5-year risk of death indicating need of ICD.

Results

53 pts (age:54,7±15; 62%M) were primarily diagnosed with HCM [4:amyloidosis(AL); 1:Fabry disease(FD)]. Most common comorbidities: dyslipidemias(80%), HT(65%), CAD(30%), diabetes (25%), obesity (35%). 10% of pts had MI, 15% AIS. 67% had family history(FH) of CVD, 35% FH-SCD, 30% FH-HCM. 50% of pts had ICD as prevention of SCD. 8-5 ECG criteria for LVH were fulfilled in 19%, 4-1 in 58% and 0 in 23% of pts. Positive Cornell Voltage($p<0,05$) had the greatest-44%-and amplitude of R in V5/V6($p<0,05$) the smallest-12%-occurrence. 92% exhibited LV overload features. 29 pts had low, 4 - intermediate and 15-high SCD risk score. Following phenotypes were indicated: IVS(77%), concentric(19%), apical(4%) hypertrophy dominance. LVOTO was observed in 50% and MVO in 2% of pts.

Conclusions

Age, sex, BMI, HT, dyslipidemias, nicotinism do not affect the presence of LVH features in ECG($p>0.05$) because HCM is genetic disease, independent of above factors. Pts with AL and FD did not fulfill LVH criteria in ECG. Fulfilling only 1 LVH criteria is irrelevant in the HCM diagnosis($p>0.05$), so further ECG analysis is needed.

Cardiac amyloidosis- a rare and diagnostic challenging condition

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Tutor: Michał Holecki, Prof, MD, PhD

Background: Cardiac amyloidosis (CA) is a rare systemic disease determined by the extracellular deposition of amyloid protein in the heart. The protein can accumulate in any part of the heart. The types of CA include the following types: light chain (AL), amyloidosis AA (Amyloid A) and transthyretin (ATTR). Unfortunately, there are no specific manifestations of cardiac amyloidosis. The aim of this study is to improve the disease awareness among clinicians.

Case report: We present a case of a 65-year-old woman admitted to the Department of Internal Medicine due to severe deterioration of exercise capacity, a bilateral reduction of physiological vesicular murmur, ascites and edema of lower extremities. The echocardiographic examination showed small dimensions of hearth cavities, the interventricular septum thickened to 22 mm, with the streaky brightening in the center, without significant valves disorders. The left ventricle ejection fracture was preserved (55%). During hospitalization, the patients was provided with furosemide, eplerenone, and a low-dose of bisoprolol which resulted in improvement of patient's condition, and a gradual regression of edema and the amount of fluid in pleural cavities. Due to an unclear clinical picture and the suspicion of amyloidosis the patient was referred to the cardiology department for further diagnosis, where magnetic resonance performed revealed left ventricle hypertrophy mainly concerning intraventricular septum, small ventricle dimensions and late gadolinium enhancement of the left ventricle muscle. The histopathological examination confirmed the diagnosis of a rare transthyretin type of amyloidosis (ATTR), however, unfortunately acute pericardial tamponade occurred which resulted in patient's death.

Conclusions: In the presented case, despite the repeated hospitalizations, the diagnosis of ATTR was established with a long delay of 9 months. This might have been caused by various symptoms and the need to exclude other diseases. It confirms that amyloidosis is both rarely included in the differential diagnosis.

Acute myocardial infraction in COVID-19 and Non-COVID-19 patients

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Acute myocardial infraction in COVID-19 and Non–COVID-19 patients

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Work's tutor: Prof. dr hab. n. med. Katarzyna Mizia-Stec

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Background:

Severe acute respiratory syndrome coronavirus 2 (Sars-Cov2) has affinity to cardiovascular system via ACE receptors, what may lead its major impact on the clinical course of acute myocardial infraction (AMI).

Aim:

The aim of the study was to compare in-hospital course and 3-month survival of AMI patients with and without Covid-19 infection in pandemic period.

Material and Methods:

Overall, 150 consecutive patients with AMI hospitalized at one tertiary reference cardiology center, between October 2020 and January 2021: 30 with COVID-19 (mean: age 74.5 years; 40% STEMI; 40% with radiologically confirmed pneumonia) and 120 without COVID-19 infection (mean: age 69.2 years; 31% STEMI; 5% with radiologically confirmed pneumonia) were enrolled into the

study. Analysis involved clinical characteristics, laboratory tests, results of imaging methods, in-hospital as well as 3-month survival rate.

Results:
COVID-19 patients were older (p=0.029), had significantly lower left ventricular ejection fraction (p=0.019), higher troponin I (p=0.006) and CK-MB (p=0.031) levels. Infected subjects presented higher level of d-dimer (12xnormal range), hsCRP (16x normal range) and IL-6 (260x normal range). In COVID-19 patients troponin I concentration positively correlated with hsCRP level, white blood cells count and neutrophils count. Primary PCI was performed in 68% COVID-19 and in 90% non-COVID-19 patients (p=0.03). Hospitalization was longer in COVID-19 subjects (p=0.003) and atrial fibrillation was more frequent in this group (p=0.014).

Both in-hospital mortality (33% vs 13%, p=0.004) as well as 3-month mortality (53% vs 20%, p=0.001) was higher in COVID-19 group.

Conclusion:

COVID-19 infection significantly modifies a clinical course of AMI. There is observed more severe myocardial damage related to inflammatory activation and less invasive reperfusion treatment, prolonged and complicated hospitalization and higher 3-month mortality rate.

Keywords: acute myocardial infraction, COVID-19, SARS-CoV2,

Association between stress and hypertension among the group of medicine students

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Tutor: prof. dr hab. Grzegorz Kopeć

Introduction: Stress is a natural feeling we experience every day- it's our body's reaction to stimuli known as stressors. It is widely said that stress may have a positive impact on our bodies to some extent (eustress) but at some point, it may be harmful and leads to psychological problems (distress). It has also been proven that stress leads to the development of hypertension.

Aim of the study: The study aimed to evaluate the stress level among the group of female and male medical students and to see whether or not it affects blood pressure values in students.

Materials and methods: We enrolled 152 medical students from fourth year of medicine in Jagiellonian University Medical College in Kraków including 91 female and 61 male respondents. The overall response rate was 80%. To assess the level of stress we used two independent stress questionnaires validated for the polish translation and environment: PMSS (Perceived Medical School Stress Instrument) and PSS-10 (Perceived Stress Scale).
Students were also given the Omron blood pressure monitors and they were asked to take blood pressure measurements twice a day on weekends.

Results: The mean level of stress among students was generally high at 19.4±6,66 in PSS10 score and 37,63±7,88 in PMSS score. Nonetheless univariate analysis has shown no correlation between stress scales (PMSS, PSS10) scores and blood pressure values.

Conclusions: During our study, we found out that the level of stress among the group of polish medical students is high. High-stress scores are likely to cause psychological problems and poor academic performance, therefore we think that support services should be made widely available to all medical students. It is also important to implement such solutions in order to help the students deal with stressors properly. In adulthood, such an ability would help them avoid the development of hypertension since it is one of results of the chronic stress.

21st ICYMS

Dentistry, Head and Neck

Knowledge and awareness of the COVID-19 pandemic among dentistry students at the Medical University of Warsaw

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Tutor:

Background: COVID-19 pandemic significantly affected the entire population.

Aim: This study aimed to analyse knowledge, awareness of SARS-CoV-2 virus and COVID-19 pandemic and their impact on dentistry students at the Medical University of Warsaw (MUW).

Material and methods: The questionnaire sent to all years dentistry students at MUW was filled online and consisted of 33 questions on coronavirus, COVID-19 pandemic, groups of increased risk, diagnostics, prevention, sources of information and the impact of the pandemic on students. The obtained data were analyzed using basic descriptive statistics, significance of dependencies and chi square test; $p<0.05$.

Results: Questionnaires were fully completed by 307 students aged 18 to 32 (mean 22.2±2.40 years), including 240 women and 67 men. Students answered correctly on 76% of questions on SARS-CoV-2 virus and COVID-19, 64% on diagnostics and 53% on prevention. The association between the student's knowledge and their year was statistically significant ($r=0.172$, $p<0.001$). Final year students achieved significantly higher scores of proper answers (56.8%), while first year students the lowest (50.3%). The age and gender of the students was also significantly associated with their awareness and attitudes ($r=0.150$, $p=0.131$ and $r=0.164$, $p<0.05$, respectively). Over half (60%) of participants felt anxious about the pandemic, and 68% felt a negative impact on their lives. Nearly 94% indicated medical staff as the at-risk group during COVID-19 pandemic, followed by seniors (93.5%) and dental staff (90.2%). Main sources of information included The Ministry of Health (51.8%) and WHO (50.8%) recommendations, TV (51.5%), and Facebook (46.9%).

Conclusions: The knowledge and awareness of the dentistry students about the COVID-19 pandemic is not sufficient. Only half of students follow the information on the COVID-19 on an ongoing basis. Students are concerned about the situation, and anxious. The guidelines should be sent to all students.

Keywords: COVID-19, pandemic, SARS-CoV-2 virus, dentistry student

The correlation of computed tomography and histopathological evaluation in laryngeal cancer cartilage invasion

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Tutor: prof. dr hab. n. med. Wojciech Golusiński

Introduction

Accurate evaluation of laryngeal cartilages is essential for staging, prognosis and treatment strategies in laryngeal cancer patients. In the event of cartilage infiltration there is no possibility of organ preservation treatment. Computed tomography (CT) is widely performed in assessing laryngeal cancer staging. However, studies investigating its diagnostic power were often based on limited population.

Aim of the study

Current study aimed in assessing the sensitivity, specificity, positive and negative predictive values and accuracy of CT in detecting cartilage invasion and in investigating the impact of the CT-to-surgery period on its reliability on a large population.

Material and Methods

We reviewed retrospectively the data of 233 patients who underwent total laryngectomy from 2007 to 2018 in Department of Head and Neck Surgery and Oncology in Greater Poland Cancer Centre and compared results of computed tomography and histopathological evaluation in terms of cartilage invasion and staging.

Results

Overall CT performance was assessed as following: sensitivity–68,8%, specificity–60,3%, positive predictive value–65,6%, negative predictive value–63,8%. But taking into consideration only patients operated during 14 days after CT scan those parameters changed to 82,1%, 57,5%, 57,5%, 82,1%, respectively. Radiological staging was accurate in only 52% of cases. Histopathological evaluation led to upraising of staging in 75 and lowering in 34 tumors.

Conclusions

To obtain the best CT accuracy, surgery should be performed as early as possible within 14 days. It is important to be aware of the limited ability of cartilage detection by CT and to consider additional imaging with magnetic resonance imaging (MRI) and ultrasonography in ambiguous cases.

The effectiveness of the blended-learning in conservative dentistry with endodontics on the basis of a survey among 4th-year students during the COVID-19 pandemic.

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Tutor: Prof. Anna Surdacka

Presenting author: Jakub Zdrojewski
Co-authors: Monika Nowak, Kacper Nijakowski, Anna Lehmann
Tutor: Prof. Anna Surdacka

Introduction

The COVID-19 pandemic has undoubtedly affected education at all levels, including medical and dental education.

Aim

To assess the effectiveness of the blended-learning in conservative dentistry with endodontics.

Material and methods

Theoretical classes were performed in a remote form (using the e-learning portal and Teams communicator) and practical classes with the participation of patients in the appropriate sanitary regime. The author's survey was conducted among 4th-year dental students. The online questionnaire consisted of 5 parts: self-evaluation, evaluation of theoretical e-learning classes, evaluation of practical clinical classes, evaluation of safety and evaluation of performed blended-learning.

Results

The majority of respondents declared that their learning effectiveness increased during the pandemic. Most surveyed students preferred remote learning in the asynchronous form (e-learning portals) compared to synchronous form (virtual meetings in real-time). All respondents described the provided personal protective equipment as sufficient or even as excessive.

Conclusions

Our students were very satisfied with the proposed blended-learning model and would like to continue it even after the pandemic has ended. Among the advantages, they particularly mentioned the increase in efficiency and the individualised pace of learning, while the main disadvantage was the limitation of social contacts. The appropriate use of modern technology can effectively revolutionise dental education.

Bruxism influence on volume and composition of gingival crevicular fluid - a pilot study

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Tutor: prof. Anna Surdacka, DDS, PhD

Introduction: Bruxism is a common occlusal parafunction that often leads to stomatognathic system overload. Inflammatory markers in periodontium are detectable in the gingival crevicular fluid. GCF production fluctuates due to a variety of factors.

Aim of the study: To assess the effect of tooth clenching or grinding and increased occlusal contacts on gingival crevicular fluid volume and IL-1β concentration.

Material and methods: The pilot study was carried out on 20 volunteers aged 21 to 28 in good general health. Participants were divided into study and control groups per 10 people each. The study consisted of anamnesis and clinical examination. Parafunction symptoms were the main object of the questions. Oral hygiene, periodontal status and significant bruxism evidence were diagnosed (API, SBI, PI, GI, PPD, TWI). Gingival crevicular fluid volume was measured with Periotron 8010. GCF was absorbed for 30 seconds in the gingival sulcus with methylcellulose PerioPaper strips. Twelve samples were collected from one patient - buccal and lingual surfaces of teeth 16, 11, 24, 36, 31, 44 were included. Laboratory examination of IL-1β concentration was performed. Data were analyzed using Statistica 13.3. The significance level was set at α=0.05.

Results: In patients with pathological tooth wear, increased secretion of gingival crevicular fluid in examined teeth was observed. Furthermore, in the same group, a tendency to increased concentration of pro-inflammatory IL-1β in GCF was found.

Conclusions: Due to occlusal overload, patients with bruxism are more prone to microinflammatory process in periodontium compared to non-bruxist subjects. Further studies in a broader group of patients are required to confirm this correlation.

Assessment of heart rate during intraoral impression taking in orthodontic patients of developmental age

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Tutor: prof., MD, PhD Teresa Matthews-Brzozowska

Introduction: Intraoral impressions are necessary to make diagnostic models, which are one of the elements required for orthodontic diagnosis. The moment of taking impressions can be a source of stress for patients of developmental age. The pulse rate during taking impressions may be helpful in assessing the level of stress in children. The normal heart rate in children depends on age. For children between the ages of 6 and 9 years, it is 70-110 beats per minute and from the age of 10 years, 60-100 beats per minute.
Aim of the study: The aim of the study was to assess the heart rate during taking intraoral impressions in orthodontic patients of developmental age.
Material and methods: 100 generally healthy children, both boys and girls aged 6-13 years, were studied. The study consisted of measuring heart rate with a pulse oximeter. The measurement was performed before and during taking orthodontic impressions, with alginate mass, separately for the maxilla and mandible. Additionally, saturation measurement was performed in all patients.
Results: In the majority of patients, heart rate values before were lower than during impressions taking.The heart rate tended to be higher at the time of upper arch impression taking compared to lower arch impression taking. Additionally, some patients had a vomiting reflex, crying, and dissatisfaction. In all patients saturation was normal.
Conclusions: Heart rate measurement can provide information about the child's stress level. The procedure of taking intraoral impressions is standard in orthodontics despite the possibility of scanning the dental arches.

Is stereoscopic vision necessary for dentistry students?

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Tutor: Piotr Maciejewicz MD, PhD

Introduction

Stereopsis is the ability to perceive depth and 3-dimensional structures. Stereoscopic vision is essential when performing the precise tasks that are performed daily by dentistry students and professionals. In recent years, augmented and virtual reality are becoming more and more popular in current dental practice as an educational, diagnostic or treatment tool.

Aim of the study

Our study aims to compare the subjective assessment of stereoscopic vision with objectively measured stereopsis of 3rd-year dentistry students of the Medical University of Warsaw.

Material and methods

The research compares stereoscopic vision examination and survey, conducted among 126 of 3rd-year dentistry students, 98 women and 28 men. In the survey, we collected the ophthalmology interview and asked about the subjective evaluation of stereopsis during daily activities and performing precise tasks. Additionally, we asked how students coped with the usage of augmented and virtual reality technology. We used the Stereo Fly Test to objectively determine the 3D vision among students.

Results

59% of students reported a refractive error, mainly myopia (82%). 8% of students have a medical history of strabismus, in one case concluded with strabismus surgery. In the Stereo Fly Test, 98% of participants were able to detect the depth difference in 400 seconds of arch, 90% in 200 seconds of arch, 80% in 100 and 55% in 40. Three students did not demonstrate any stereoscopic vision. On the contrary, 96% of students subjectively assessed their stereoscopic vision as very good or good in the survey. 57% of students used augmented and virtual reality, of which 97% rated the experience as good or very good.

Conclusions

In conclusion, the self-assessment of stereoscopic vision did not correlate with the objective examination of stereopsis. In major cases, the incomplete stereoscopic vision did not affect the precise tasks performing or augmented and virtual reality technology usage by 3rd-year dentistry students. We assume that the stereoscopic vision deficits could be compensated by previous, repetitive experience with the above-mentioned activities.

Assessment of the impact of distance learning on the knowledge, competences, skills and preparation for the profession of dental students in Poland.

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Tutor: prof. MD-PhD Teresa Matthews-Brzozowska

INTRODUCTION: The COVID-19 pandemic has become a cause of E-learning in primary, secondary schools and colleges in order to limit the spread of the virus and enable students to learn at home. E-learning is based on passing the knowledge through various online platforms, where students can listen to lectures and seminars, download the necessary materials, as well as take part in exercises

AIM:The aim of this study is to assess the level of satisfaction with E-learning for students of the 3rd, 4th and 5th faculties of medicine and dentistry in Poland. The responses will help to determine the effectiveness of such teaching in terms of knowledge, skills, and preparation for the profession, and also help to draw conclusions as to how such teaching could be improved in the direction of educating future dentists.

MATERIAL AND METHODS: The study used a self-administered questionnaire consisting of 33 questions: 6 questions based on a nominal scale, 3 descriptive and 24 based on a scale from 1 to 10, where 1 means very bad and 10 means very good. Questionnaires were distributed to dental students in Poland, and the results were submitted for statistical analysis.

RESULTS: A statistically significant relationship was obtained between E-learning and satisfaction and effectiveness with acquired knowledge, skills and preparation for the profession. The vast majority of students prefer hybrid teaching to E-learning mode. Among the positives of E-learning students mentioned the time saved for commuting to school, among the negatives, the lack of opportunity to acquire practical skills and difficulty in focusing. Additionally, most students would improve in E-learning the way content is delivered.

CONCLUSION: E-learning has influenced the quality of education of students of the Faculty of Medicine and Dentistry. The acquisition of practical skills is an important part of dental education and preparation for the profession.

Orthodontic treatment complications and its impact on patient's satisfaction with the treatment.

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Tutor: dr n. med. Przemysław Kopczyński

Introduction. The perception of orthodontic malocclusion may differ between an orthodontics and a patient. The aim of the present study was to identify specific features concerning treatment results associated with patient satisfaction in a group of patients who had undergone fixed appliance or aligners therapy.

Material and method. The study was carried out using a questionnaire containing 19 questions designed at the Department of Maxillofacial Orthopaedics and Orthodontics of Poznan University of Medical Sciences. A total number of participants was 299. The main criterium was completed orthodontic treatment using fixed appliance or aligners. 293 members filled the eligibility criteria, 6 were disqualified - 2 were treated by using removable appliance, the rest marked they had not remembered. A p value $p<0,05$ was considered statistically significant.

Results. Statistically significant correlation between patient's satisfaction was found for: midline deviation, protrusion of upper incisors, relapse, TMJ disfunction, unbalanced occlusion, gaps between the teeth, profile worsening, endodontic treatment need, not removing orthodontic composite. There was insignificant correlation between recession and overbite reduction.

Conclusion. Patient's satisfaction with the orthodontic treatment is a complex issue. Further research in this area would be needed.

PAX6 gene sequencing in patients with isolated aniridia

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Tutor: Anna Wawrocka

Introduction: Aniridia is a rare, panocular disorder characterized by variable degree of hypoplasia or the absence of iris tissue associated with additional ocular abnormalities. It is inherited in autosomal dominant manner. In most cases the disease is caused by mutations in the *PAX6* gene, however in up to 30% of aniridia patients, disease results from chromosomal rearrangements at 11p13 region. Aniridia can occur either as an isolated malformation or as a part of a syndrome like WAGR syndrome a contiguous genes deletion syndrome of 11p13 region (encompassing the *PAX6* and *WT1* genes).

Aim of the study: The purpose of the study is to identify a potential *PAX6* gene mutations which could be the cause of the isolated aniridia.

Material and methods: Eight patients affected with isolated aniridia were included in this study. To exclude the WAGR syndrome MLPA analysis was performed in the past. Blood samples were collected from the patients (and their families in familial cases), genomic DNA was extracted from peripheral blood leukocytes and from buccal cells. The amplifications of the eleven exons of the *PAX6* gene were performed. Bidirectional Sanger Sequencing was conducted for potential pathogenic variants identification and for segregation analysis of the identified variant in the family. The results were analyzed with the CodonCode Aligner software.

Results: Three patients had sporadic aniridia, and five familial. The potentially pathogenic variants in the *PAX6* gene were found in 5 out of 8 patients with aniridia. We found 5 point variants which have been described previously.

Conclusions: Point mutations in the *PAX6* gene are the most frequent cause of aniridia. The analysis of genetic background of the disease is essential for patients to evaluate the defect repetition risk in the offspring.

Aspirin provocation and desensitization in Samter's triad: a preliminary 10-patient series.

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Tutor: Małgorzata Leszczyńska, M.D., Ph.D.

Introduction

The trinity of recurring nasal polyps, bronchial asthma, and aspirin intolerance characterize the Samter's triad (ST). This clinical entity is an underdiagnosed non-allergic hypersensitivity reaction associated with the abnormal metabolism of arachidonic acid, which decreases anti-inflammatory prostaglandins and increases leukotriene synthesis. Patients most commonly present at the otolaryngology clinic with nasal obstruction and anosmia, and are frequently the recipients of multiple endoscopic sinus surgeries (ESS).

Aim

We aimed to trial aspirin desensitization therapy in a preliminary study group of 10 patients. ST diagnosis was confirmed with positive aspirin provocation challenge. The final outcome measure was the patient-reported assessment of quality of life.

Materials and methods

Ten patients with suspected ST underwent immunophenotyping and diagnostic provocative aspirin challenge at the Department of Otolaryngology in 2019. On an inpatient basis, all patients were administered a placebo and increasing doses of Polopiryna S (30, 120, and 300mg). Patient condition and resultant symptoms were carefully monitored. Patients exhibiting severe hypersensitivity symptoms were assigned desensitization therapy with Polopiryna S, 300mg daily.

Results

Seven patients were diagnosed with ST after positive symptoms (cough, rhinorrhea, epiphora, headache). Three of these 7 patients exhibited severe symptoms (mucosal edema, palpitations, dyspnea, nausea) that necessitated test cessation and the administration of antihistamines. Two of the 3 patients were assigned desensitization therapy. After 12 months, both patients reported better quality of life: improved olfaction, reduced symptoms of rhinosinusitis, and no headaches. Endoscopic examination confirmed no recurrence of nasal polyps.

Conclusion

Aspirin desensitization therapy improves quality of life but remains uncommon. Polyp recurrence, sinus infections, and the need for ESS are reduced. Desensitization is a ready alternative to pharmacotherapies with montelukast, zileuton, or omalizumab, agents that should be prescribed with caution. Desensitization doses are controversial, and maintenance doses are also not standardized. A larger ST cohort should be studied to determine the effectiveness of threshold desensitisation doses.

Relevance of Cone Beam Computed Tomography craniocervical and sagittal condylar guidance angle measurements among patients who reported breathing-related sleep disorders

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Tutor: Dr Bartosz Dalewski

Abstract:

Background: Berlin questionnaire is a screening tool used to identify potential patients with obstructive sleep apnea syndrome (OSAS). This includes presence and severity of snoring, frequency of daytime sleepiness, and the presence of obesity or hypertension. Moreover, head posture and cervical spine alignment might be affecting severity of symptoms reported by patients with sleep disorders.

Methods: We surveyed 97 patients, both sexes, cephalometric and panoramic views of Cone Beam Computed Tomography (CBCT) scans were extracted. I-CAT vision software was used for evaluation. Examined angles were measured by the same calibrated examiner. Craniocervical angle (NSL/OPT) and the sagittal condylar guidance (SCG) angle values were assessed and compared with Berlin questionnaire.

Results: Craniocervical (NSL/OPT) angle values were significantly associated with occurence of sleep disordered breathing.

Conclusion: Craniocervical angle may be a potential prognostic factor for obstructive sleep apnea syndrome (OSAS)

Comparative analysis of the stress level among dental students during the Covid-19 pandemic and before its outbreak

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Tutor: Associate professor Loster Jolanta, Associate professor Wieczorek Aneta

Introduction

Dental students are said to be a group of young people extremely exposed to stress. This phenomenon has been observed for decades, but since the outbreak of the COVID-19 pandemic the problem has significantly intesified. Students have to deal with the fear of SARS-COV-2 infection. They are also worried about the health of their family members. The pandemic has changed their educational pathway on many fields, which has a negative influence on the students ability to face the stress.

Aim of the study

The aim of this study was to discover whether the stress level among dental students during COVID-19 pandemic differs from the level noticed before the outbreak of the pandemic.

Material and methods

The survey was carried out during the exam period of winter 2021 among all 330 Polish students of Dental Program, Jagiellonian University Medical College. Two questionnaires were used: Dental Environmental Stress questionnaire (DES) and Perceived Stress Scale (PSS-10). The research was approved by bioethics committee. The results were assessed with statistical analysis software. The outcome was compared with the results of the analogical research conducted in 2018.

Results

A total of 251 students agreed to take part in the research, it was compared with the results from the group of 370 students. Dental students declared higher stress level in reference to the health of their relatives than before the pandemic.

Conclusions

The level of stress among dental students during the COVID-19 pandemic has increased in comparison with the situation from before the pandemic.

21st ICYMS

Gynecology and Obstetrics

How radical hemato-oncological treatment influences gynecological health of women in reproductive age? - a questionnaire study.

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Tutor: Prof. Lidia Gil, MD, PhD

Presenting author: Weronika Gronowska

Co-authors: Jagoda Loba, Monika Adamska MD

Tutor: Prof. Lidia Gil, MD, PhD

Introduction: Over the recent years, the number of cancer survivors after radical treatment due to hemato-oncological malignancies significantly increased. Female patients at reproductive age who underwent hemato-oncological treatment (HT) are at higher risk of gynecological and obstetric complications.

Aim of the study: To define the characteristic and frequency of gynecological and obstetric complications in female patients after radical hemato-oncological treatment.

Materials and methods: Study group consists of 63 female patients (age: 18-49 y.o.) from Department of Hematology and Bone Marrow Transplantation and after HT implemented between 2006-2021. Retrospective analysis was performed on the basis of medical records and the questionnaire concerning gynecological health state before, during and after HT (78 questions).

Results: Majority of women in a study group were diagnosed for Hodgkin lymphoma (n=33), non-Hodgkin lymphomas (n=15), acute lymphocytic leukemia (n=5) and acute myeloid leukemia (n=5). Implemented cytotoxic therapy consisted of chemotherapy (70%), radiotherapy (3%) and both (27%). Within chemotherapy autologous hematopoietic stem cell transplantation was performed in 16% and allogeneic hematopoietic stem cell transplantation (alloHSCT) in 13%. The patients during HT complained principally about amenorrhoea (36%), vaginal dryness (24%) and decreased libido (22%). Hormone replacement therapy during and after HT was used in 11% and 14% of cases respectively. Premature ovarian insufficiency (POI) after alloHSCT occured in 87% of patients and after other form of cytotoxic therapy in 22% (p=0,0006, Fisher's exact test). Moreover, the analysed group includes pregnant women: two during HT and seven after HT. The complications observed during pregnancies were: one premature delivery and two cases of cervical shortening. Nevertheless, all patients gave birth to live and healthy newborns. Seven patients breastfeeded successfully and two of them couldn't breast-feed due to implemented chemotherapy.

Conclusions: During HT majority of patients experienced gynecological complications. The cooperation between hematologist and gynecologist makes the basis of prevention and early detection of POI and preserving fertility in cancer survivors.

COVID-19 compromises in the medical practice and the consequential effect on endometriosis patients.

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Tutor: Ass. Prof. Sebastian Kwiatkowski

Introduction:
The COVID-19 pandemic, and required self-isolation to curb the spread of COVID-19, has complicated the medical management of patients suffering from endometriosis and their physical and mental wellbeing. Endometriosis, the main cause for chronic pelvic pain (CPP), is an extremely prevalent disease characterized by the presence of endometrial tissue in locations outside the uterine cavity that affects up to 10% of women in their reproductive age.
Aim of the study:
This study aimed to explore the effects of the global COVID-19 pandemic on patients suffering from endometriosis across multiple countries, and to investigate the different approaches to the medical management based on self-reported experiences.
Methods:
A cross-sectional survey was created in English. Simultaneously, the research team established academic affiliations with multiple centers around the globe. The questionnaire was then translated to fifteen different languages by individuals affiliated with these centers. The questionnaire was converted into a web form and distributed across different platforms, resulting in data gathered from 2964 participants with a self-reported endometriosis diagnosis.
Results:
A data analysis of 2964 participants suffering from self-reported endometriosis demonstrates a correlation between COVID-19 imposed compromises such as cancelation of medical appointments with the reported worsening of the mental state of the participants, as well as with the aggravation of their symptoms, as follows:
For the 1174 participants who had their medical appointments cancelled, 43,7% (n=513) reported that their symptoms had been aggravated and 49,3% (n=579) reported that their mental state had worsened. In comparison, of the 1180 participants who kept their appointments only 29,4% (n=347) stated that their symptoms had been aggravated, and 27,5% (n=325) stated their mental health has worsened. 610 participants did not have medical appointments scheduled, and these participants follow the same pattern as the participants who kept their appointments; as 29,0% (n=177) reported aggravation of symptoms and 28,2% (n=172) report that their mental state has been worsened.
Conclusions:
These findings demonstrate that COVID-19 has had a clinically significant negative effect on the mental and physical well-being of participants suffering from endometriosis based on their self reported experiences. Thus, it shows the importance and necessity of further assessment and reevaluation of the current management of this condition in medical practices worldwide.

The influence of modifiable and non-modifiable factors on patients suffering from endometriosis

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Tutor: Ass. Prof. Sebastian Kwiatkowski

Background and purpose:

Endometriosis is a chronic, inflammatory disease characterized by the presence of endometrial tissue in locations other than the uterine cavity. Delay in diagnosis is a major problem for the management of this disorder, and treatment is often not initiated until the disease has progressed for many years.

The purpose of this study is to investigate and provide a further discussion regarding the influence of different factors, both modifiable and non- modifible on endometriosis patients.

Methods:

Cross- sectional survey was formulated through a methodological design. The initial questionnaire was created in English and later translated to 15 other languages. It provided data from 2969 responders with a self-reported endometriosis diagnosis.

Results:

Data analysis of 1758 women diagnosed with a specific stage of the condition demonstrated multiple correlations between the stage of the disease and pain, symptoms severity and the necessity for medical attention. A significant correlation was found between restriction to perform simple activities and the severity of the condition, based on the number of lesions present and their depth of infiltration (defined by stage). Patients diagnosed with stage 4 of the disease suffer stronger effects on their daily activities. However, chronic pain reports were significantly more common in patients diagnosed with stage 2 of the disease (34.4%), a finding that was remarkably higher compared to the other stages, including stage 4, where results showed that only 25.6% suffer from chronic pain, suggesting a different symptomatic manifestation in these patients. Similarly, 5.1 % of the participants suffering from stage 2 endometriosis reported pain during sexual intercourses, the highest amongst all stages. Additionally, the lower the stage, the higher the probability of suffering pain during menstruation (stage 1 shows 26.5% versus only 10.5% in stage 4).

Conclusions:

This research identified opportunities for different interventions and emphasizes the growing need for a better understanding of this underdiagnosed condition, as well as the possibility to diagnose this prevalent condition on the basis of characteristic symptomatic presentation that is specific to each stage.

What do you really know about HPV? - Study of knowledge about the HPV virus among the medical students of Medical University of Łódź (UMED).

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Tutor: Maria Szubert, MD, PhD and Anna Nowak, MD

Introduction: HPV is the most common sexually transmitted virus, but awareness of the danger of HPV is still insufficient in public space.

Medical students is a group of people which will make future patients aware of medical issues.

Aim of the study: We checked the knowledge about HPV among the medical students in UMED. We checked also, how many future doctors are vaccinated against HPV.

We treat a group of students of UMED as a reference point for a broader analysis of knowledge about HPV. The collected information may help in conducting other research related to the subject of gynecology, infectious diseases or vaccinations. Conclusions can help improve the level of medical education.

Material and methods: Using an electronic, anonymous questionnaire, we checked the knowledge and level of vaccination of medical students. The test part of questionnaire was multiple-choice, which made it possible to better check the level of knowledge. The questionnaires were collected via Facebook.

Results: We have analyzed 205 results. The average test score was 8,00 out of 17 points. 41,46% were below average, 58,54% were equal or above average. The unvaccinated students scored higher (average test score was 8,14) than vaccinated students (average test score was 7,55). Males had a higher score (average test score was 8,05) than females (average test score was 7,99). Students who have never took part in gynecology classes had a lower results than students who attended (part-time or full-time classes). Students achieve higher scores proportionally to the higher year of study (average lowest results for 1st year, average highest results for 6th year). More detailed analyses about various aspects of the survey are still being conducted.

Conclusions: Student's knowledge is broad, but not complete. Gynecology classes cause positive, but insufficient effect on the education of future doctors.

The prevalence and risk factors of postpartum depression in women giving birth in 2019 - 2021

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Tutor: PhD Tomasz Wikarek

Abstract

Introduction: Postpartum depression as a serious psychiatric disorder is one of the most common complications after childbirth. It has a negative impact on both the mother and the child. Unfortunately, postpartum depression and its risk factors are still under-researched and under-diagnosed problems among women. In the picture of postpartum depression there are typical symptoms appearing in the course of clinical depressive episodes, which by limiting the woman's life activity and her loss of interest in the newborn, may lead to disturbances in their relationship and, consequently, to abnormal development of the child.

The aim: The aim of this study was to assess the prevalence of mood disorders in the perinatal period, including postpartum depression, and to analyze risk factors that may predispose to these disorders.

Materials and methods: The study group consisted of 316 women who gave birth between 2019 and 2021. The study was a questionnaire-based survey. Questions pertained to potential risk factors for mood disorders or postpartum depression. Sociodemographic data and information about the course of pregnancy and childbirth were also collected. Statistical analysis was composed using Statistica and Excel.

Results: Among the respondents, 5.3% declared doctor-diagnosed postpartum depression. 77.6% of the women experienced postpartum mood disorders (including crying and excessive sleepiness). Depression was diagnosed in 6.8% of the women who declared mood disorders.

Conclusions: Based on the results, the predisposing factors for mood disorders are lack of breastfeeding and experience of an unpleasant situation during childbirth. In addition, it was shown that women with higher education are more likely to suffer from postpartum depression.

Lifestyle as a risk factor for ovarian cancer

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Tutor: Gąsiorowska Emilia, MD, PhD

Introduction: Ovarian cancer is the fourth most common cause of death from cancer and the first from gynecological cancers among Polish women. There is no effective screening available. Multiple studies confirm the influence of lifestyle on developing cancer in general. Identification of lifestyle-based risk factors for ovarian cancer might facilitate the diagnosis and increase the survival rate.

Aim of the study: Identification of lifestyle-related risk factors of ovarian cancer based on the comparison between results of the survey and published research.

Material and methods: The surveys involved 45 patients with ovarian cancer and treated in the Department of Gynecologic Oncology. The questions concerned basic information (age, height, weight) and lifestyle prior to diagnosis (stress, sleep disorders, antidepressants usage, the amount of physical activity per week, smoking, alcohol drinking, type 2 diabetes, metformin usage, profession, its character - sedentary or physical, work shifts at night). Subsequently, statistical analysis was performed. The results were compared to current research.

Results: Lifestyle-related factors seem to have had an especially big impact on women with advanced cancer (FIGO III/IV). 57% of these patients didn't perform any regular physical activity. 49% of them reported strong or sustained stress prior to diagnosis. The median value of the amount of sleep in the FIGO IV patients was clearly the lowest (5,5 hours). 51% of all patients were overweight and 16% - obese. 16% took antidepressants but only 7% the metformin. 40% admitted to smoking cigarettes.

Conclusions: The conducted study confirms the influence of numerous lifestyle-related factors on the likelihood of ovarian cancer occurrence. Some factors such as stress, sleep disorders, or smoking can not only favor developing cancer but also aggravate the treatment process. However, excess weight, directly associated with physical activity or diet, can be easily changed. Women should be educated to raise awareness of ovarian cancer and a healthy lifestyle.

Experience of Polish women to common vaginal infections

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Tutor: dr Katarzyna Kawka-Paciorkowska

Introduction: •Vaginal symptoms are one of the leading causes for women to seek advice from obstertricians/gynaecologists. Basic knowledge regarding most common vaginal infections allows differentiation between vulvovaginal candidiasis (VVC) and bacterial vaginosis (BV), which leads to correct treatment.
Aim of study: To determine women's experience and knowledge of the 2 most common non-sexually trans-mitted vaginal infections - VVC and BV.
Materials and methods: An online survey was conducted on 429 women aged 16 to 64 years to determine the incidence and awareness of VVC and BV in Poland. Multiple-choice questions about experience and attitudes to infections enabled identification of the most believed factors.. Data were summarized using descriptive statistics.
Results: Majority of the women who took part were aware of both VVC (96,3%) and BV (89%) infection, 50,8 % reported having had VVC, whereas only 27,7% thought they had experienced BYV There was a significant confusion between symptoms exclusively related to each condition, alongside with no recognition of other important signs. Women thought that both infections were mainly caused by poor hygiene, sexual contact, ill health and antibiotic use. Over 95% preferred to seek help from gynaecologist. Rates of reported examination and testing by health provider.
Conclusions: Women seem very aware and knowledgeable about VVC, although it does not result in self-treatment with available OTC drugs. Even though awareness of BV is high, self-reported incidence is much lower than prevalence rates, suggesting misdiagnosis Increased education of these 2 conditions is needed to ensure correct action leading to diagnosis with appropriate treatment.

Fetal overgrowth - does a month of birth matter?

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Tutor: Ewa Wender-Ożegowska, MD, PhD, Prof.

Introduction

Fetal macrosomia, depending on definition, is the birth weight above the 90th (or 97th) centile for sex and gestational age or weight >4000g (or >4500g). It is strongly associated with adverse maternal and neonatal outcomes. Its pathophysiology is multifactorial. Maternal obesity, gestational diabetes mellitus and excessive weight gain during pregnancy are the main risk factors, but some reports suggest seasonal fluctuation of fetal weight.

Aim of the study

We aimed to determine the influence of a birth month on the rate of large for gestational age (LGA) newborns.

Methods

All births (n=24925) at University Gynecological Hospital in Poznań between February 2017 and January 2021 were analyzed. Exclusion criteria comprised maternal gestational and pregestational diabetes and preterm births, resulting in 18545 on-term births in non-diabetic mothers. We calculated 90th and 97th centile for gestational age and sex in the analyzed population.

Results

The prevalence of macrosomia in particular months was differentiated. LGA infants were born more often in March/April and July/August and least often in October. The prevalence of birth weight above the 90th centile was the highest in July (11.47%) and March (10.90%), while the lowest in October (8.65%). The birth weight rate above the 97th centile was the highest in April (3.77%) and August (3.65%), and the lowest in October (2.00%). Comparing to October, the odds of bearing LGA above the 90th centile was the highest for July (OR <95%CI>: 1.3673 <1.0865 to 1.7207>; p=0.0076) and above the 97th centile for April (OR <95%CI>: 1.9154 <1.2368 to 2.9665>; p=0.0036).

Conclusions

The number of LGA newborns differs significantly depending on the month of birth. The exact reasons need further investigation. We assume that seasonal changes in sunlight exposure and vitamin D serum concentrations may play a role in the pathomechanism of fetal macrosomia.

21st ICYMS

Internal Medicine

THE ROLE OF SKIN TESTING IN IODINATED CONTRAST MEDIA INDUCED HYPERSENSITIVITY

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Tutor: Prof. Violeta Kvedariene

Author: Monika Orvydaite (presenter)

Tutor: Prof. Violeta Kvedariene

INTRODUCTION: A huge variety of diagnostic tests are performed using iodinated contrast media (ICM) for a better resolution and more accurate diagnosis. Despite careful selection of ICM, occasional hypersensitivity reactions (HSR) remain a point of interest for radiologists and allergologists.

AIM: To determine the type, clinical aspects and the allergological evaluation of previously experienced hypersensitivity like reactions to ICM. To analyse the results of the skin tests used to confirm allergy to a certain iodinated contrast agent.

MATERIAL AND METHODS: Single Center of Allergy and Pulmonology of the Vilnius University hospital Santaros Klinikos data from 2014 to 2018 retrospectively analysed. Clinical data including age, sex, skin prick and intradermal tests results, tested drugs names and clinical outcome were obtained from medical records All patients were consulted by an allergist due to adverse ICM reactions in their clinical history. ENDA questionnaire and skin provocation tests were performed according to ENDA/EAACI rolls.

RESULTS: In total 69 patients (average age 55.90 ± 13.16 years) with a clinical history of HSR to ICM were identified, with 72.46% (n=50) being females. Skin rashes or anaphylaxis occurred in 52.17% (n=36) and 14.49% (n=10) cases, respectively. Immediate type HSR (time of occurrence within 1 hour) made up 71.01% (n=49). Culprit iodinated drugs identified: diatrizoate 13.04% (n=9), iodixanol 10.14% (n=7) and iopromide 8.70% (n=6). All patients undergone skin prick and intradermal testing as a first-choice technique, 13.04% (n=9) of them were positive and confirmed true hypersensitivity to ICM. Patch test was performed to 7.2% (n=5) of the patients with non-immediate type of reactions, all of them were negative.

CONCLUSIONS: Immediate hypersensitivity reactions are more frequent than non-immediate ones. Skin rashes are the most common clinical symptom. ENDA questionnaire and skin tests play a front-line role in allergological hypersensitivity assessment. Skin prick and intradermal test remain the main instrument in allergy diagnostic algorithm.

The weather conditions analyzed with artificial intelligence are useful for prediction of the prevalence of acute coronary syndromes.

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Tutor: Patrycja Molek, Bogdan Bochenek, Agnieszka Wypych, Jadwiga Nessler, Jaroslaw Zalewski

Introduction: It was shown that various individual weather conditions are associated with the incidence of acute coronary syndromes (ACS). The prediction of the number of ACS based on the weather conditions in the individual climate zones is not effective.
Aim of the study: To investigate whether the artificial intelligence system might be useful in prediction of the prevalence of ACS based on weather conditions.
Methods: Between 2008 and 2018, 105 934 ACS patients were hospitalized in Lesser Poland Province cover by two meteorological stations. The predicted number of ACS per day has been estimated with the Random Forest machine learning system based on air temperature (°C), pressure (hPa), dew point temperature (TdP, °C), relative humidity (RH, %), wind speed (m/s), precipitation (mm) and their daily extremes and ranges derived from the day of ACS and from six days before ACS.
Results: The correlations between predicted and observed number of ACS have ranged for spring from 0.73 to 0.77 with confidence intervals (CI) of 0.68-0.82, for summer 0.72-0.76 (CI 0.66-0.81), for autumn 0.72-0.83 (CI 0.67-0.87) and for winter 0.76-0.79 (CI 0.71-0.83) ($P<0.0001$ for each). Daily ranges of pressure and TdP on the ACS day and daily range and maximum of RH on the day before were of the highest importance in machine learning process. The adjustment for clinical characteristics has improved predictions for spring to 0.77-0.89 (CI 0.72-0.91), for summer to 0.78-0.91 (CI 0.73-0.93), for autumn to 0.85-0.91 (CI 0.81-0.93) and for winter to 0.84-0.87 (CI 0.80-0.89) ($P<0.0001$ for each).
Conclusions: The weather parameters have been proven useful in predicting the prevalence of ACS in a temperate climate zone if analyzed with an artificial intelligence system.

Early chronotype is associated with the occurrence of remission at diagnosis in adults with type 1 diabetes

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Tutor: Dorota Zozulińska-Ziółkiewicz, PhD, DSc, Prof. ; Aleksandra Uruska, PhD, DSc, Assoc. Prof.

Introduction: Recently, the circadian clock has been associated with glycemic control. However, no data are describing the influence of the chronotype on the course of type 1 diabetes. Chronotype is an individual circadian rhythm, that describes the preferences of sleep and activity in 24-hour period. Early chronotypes tend to sleep and wake up early and are believed to be more matched to the work schedules. Remission phase in type 1 diabetes is an important indicator of better metabolic control, that has been shown to reduce risk of diabetes complications.

Aim of the study: The study aimed to determine the relationship between chronotype and factors influencing the occurrence of remission one month after diagnosis in adults with type 1 diabetes.

Material and methods: A retrospective, cohort study included 48 participants with type 1 diabetes aged 18-40 (women 33%). The primary outcome was to measure the impact of chronotype on the occurrence of remission in early type 1 diabetes course. Secondary outcome included the impact of relative social jetlag (discrepancy between social and biological time) on glycemic control at the diagnosis. Chronotype and relative social jetlag were assessed using Munich Chronotype Questionnaire (MCTQ). The participants were assigned into three groups: early (E), intermediate (I) and late (L) chronotypes depending on the three quartiles values (1^{st}=04:05:21; 2^{nd}=04:30:00; 3^{rd}=05:02:03 hours:minutes:seconds). Remission criteria were: HbA1c<6.5%, CPE>0.5 ng/ml and daily insulin requirement<0.3 U/kg/d.

Results: The occurrence of remission favored early chronotype (E=90% vs. I=43% vs. L=42%; p=0.019). In multiple logistic regression analysis, the occurrence of remission was independently associated with early chronotype [OR=5.32 (95% CI 1.24-22.90);p=0.025]. Positive correlation between relative social jetlag and HbA1c was observed (rs=0.44; p=0.003).

Conclusions: Chronotype influences the early course of the disease in adults with type 1 diabetes. Early chronotype is associated with the occurrence of remission one month after diagnosis.

Association between FGF-23 and OPG serum concentration and metabolic management in adults with type 1 diabetes mellitus.

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Tutor: Rogowicz-Frontczak A. MD, PhD, Uruska A. MD, PhD, DSc, prof. Zozulińska-Ziółkiewicz D. MD, PhD, DSc

Introduction:

Type 1 diabetes mellitus (T1DM) is an autoimmune disease which may lead to chronic neurovascular complications. Fibroblast growth factor 23 (FGF-23) is part of the FGF-23-bone-kidney axis and according to recent studies should be considered as a new regulatory system, which impacts phosphorus metabolism. It is an inhibitor of phosphate absorption and reduces the synthesis of 1,25(OH)2D. Epidemiological studies have shown: high levels of FGF-23is associated with adverse effects including increased mortality, cardiovascular events, progression of chronic kidney disease and increased risk of fractures. Osteoprotegerin (OPG), which is part of the OPG-RANK-RANKL system, is a physiological regulator of osteoclast differentiation. It has been shown that the concentration of this cytokine is positively correlated with coronary calcification, vascular stiffness and increased risk of mortality from vascular causes in patients with T1DM.

Aim of the study:

The aim of the study was to investigate association between the serum concentration of FGF-23 and OPG in relation to HbA1c level in adults with DM1.

Material and methods:

The study group consisted of 79 adults with T1DM. Medical history, anthropometrical features and laboratory results were collected. Patients were divided into 2 groups depending on the level of HbA1c. The first group included 56 patients with bad metabolic control (>7% of HbA1c) and the second group- 23 patients with good metabolic control (<=7% of HbA1c). The level of FGF-23 and OPG were assessed with ELISA kits.

Results:

In comparison of group with bad and good metabolic control serum concentration of FGF-23 and OPG were significantly higher in patients with better HbA1c [146,61 (126,84-205,13) vs 256,42 (163-367,79)pg/ml; p=0,003, and 93,55 (77,3-155,2) vs 188,64 (114,91-409,3) pg/ml; p=0,003] respectively.

Conclusion:

Available literature suggested higher levels of tested proteins would be found in patients with high HbA1c level.This study sheds new light on the issue, thus it suggests looking for the causes of this results.

The effect of radioiodine therapy in 2000 patients with subclinical hyperthyroidism

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Tutor: PhD Saeid Soleman Abdelrazek

Aim of study: We aimed to assess the influence of radioiodine (131I) therapy on the achievement of euthyroidism, prevention of adverse cardiovascular sequelae and preventing progression to overt hyperthyroidism.

Material and methods:
The study included 2000 patients treated by The Department of Nuclear Medicine during the last 14 years. The age range was 23–79 years. There were 1780 females and 220 males, 650 patients with multinodular goitre (MNG), and 1350 patients with autonomous nodule (ATN). 185 patients were previously treated with antithyroid drugs for 1–3 months before the radioiodine therapy. We excluded malignant changes in all nodules by fine-needle aspiration biopsy. All patients had serum TSH levels <0.1 mU/l and effective T-half was more than 3 days at the time of treatment. We used Marinelli's formula to calculate the activity dose which ranged between 200 and 800 MBq. The absorbed dose was 180-300 Gy, in proportion to thyroid volume. Follow-up control was done every 6 weeks.

Results:
Of all patients, 99% with ATN and 93% with MNG achieved euthyroidism. Hypothyroidism was developed by 1% of patients with ATN and 6% with MNG. One percentage with MNG remained with subclinical hyperthyroidism and required a second dose of radioiodine therapy. Furthermore, symptoms of subclinical hyperthyroidism (tachycardia, palpitation, atrial fibrillation) disappeared in all patients, their exercise tolerance improved, blood pressure normalised and the quality of life improved.

Conclusions:
Our results prove high effectiveness of radioiodine treatment in patients with subclinical hyperthyroidism. Early diagnosis followed by proper preparation of patients, accurate measurement of administered activity, effective half-life and well organised follow-up are very important in successful therapy. We recommend early treatment of subclinical hyperthyroidism and long period of follow-up to evaluate the long-term effect of radioiodine therapy.

Correlation between MC4R gene variants and insulin resistance

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Introduction:

MC4R (melanocortin 4 receptor) genes variants have been associated with risk of developing obesity, type 2 diabetes mellitus and coronary artery disease.

Aim of the study:

To establish correlation between SNP (single nucleotide polymorphism) of MC4R rs17782313 and insulin resistance among patients

Material and methods:

Study group consisted of 294 patients (136 men and 158 women). Collected venous blood samples were stored at minus 70 C until study group was completed. In laboratory of Clinical Hospital 1 in Zabrze the DNA material were isolated, proper concentration of the DNA (15 ng/µl) were prepared and quality and quantity were checked by spectrophotometry. Allelic discrimination was performed in Roche Lightcycler96 thermocycler with use of fluorescent-labeled TaqMan Pre-designed SNP Genotyping Assay probes.

Results:

The most common genotypes were homozygote TT- 188 patients (64%), then heterozygote CT- 198 patients (33%) and homozygote CC- 8 patients (3%). In the study group there are 30 patients with diabetes, 143 overweight and 46 with obesity.

Conclusion:

We have found significant differences in values of HOMA-R and Qucki between TT,CT and CC carriers as well as between TT carriers and CT+CC carriers. CC+TT carriers have significantly lower value of HOMA-R and higher QUICKI value than TT carriers.

Blood-borne extracellular vesicles – potential predictors of left-ventricular remodelling after acute myocardial infarction

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Tutor: dr n. med. Aleksandra Gąsecka

Introduction

Left ventricular remodelling is a long-term complication of acute myocardial infraction (AMI), which increases the risk of heart failure (HF) and a mortality rate. No parameters allowing prediction of LVR after AMI has been found yet.

Extracellular vesicles (EVs) are molecules involved into intracellular communication and released into the blood by endothelial cells and blood cells (e.g. erythrocytes, platelets). It was studied that in course of AMI, blood cells and vascular endothelial cells release EVs. Therefore, we hypothesized that their concentrations may be used as a biomarker of left ventricular remodelling after acute myocardial infraction.

Aim of the study

We aimed to assess the efficacy of the concentrations of EVs as a potential biomarkers to predict LVR after AMI.

Material and methods

The study included 55 patients after first onset of AMI with or without ST-fragment elevation. Within 24h after AMI the plasma concentrations of EVs from erythrocytes (CD235a+), endothelial cells (CD146+), platelets (CD61+), leukocytes (CD45+), activated platelets (P-selectin+) and EVs exposing phosphatidylserine (PS) were measured. Echocardiography was performed within 24 hours after AMI and repeated at 6-month follow-up to assess the occurrence of LVR. LVR was defined as an increase in left ventricular end-diastolic volume by 20% at 6 months after AMI, compared to baseline.

Results

Concentrations of EVs from endothelial cells, erythrocytes and platelets predicted LVR in univariate analysis (area under the ROC curve [AUC] $\geq$0.74, p$\leq$0.02 for all). Concentrations of EVs from endothelial cells and erythrocytes were independent LVR predictors (OR 8.2, CI 1.3-54.2 and OR 17.8, CI 2.3-138.6, respectively) in multivariate analysis. Combining the three EV subtypes allowed to predict LVR with 83% sensitivity and 87% specificity (AUC 0.87, p<0.001).

Conclusions

Plasma concentrations of EVs from endothelial cells, erythrocytes and platelets cells are potential new predictors of LVR after AMI.

21st ICYMS

Oncology, Hematology and Radiotheraphy

Nanosecond Pulsed Electric Field Increases the Expression of MAGE Receptor on Melanoma Cells

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Tutor:

Introduction:

Pulsed electric field (PEF) is currently used in various fields of molecular biology, genetics and medicine. In oncology, the immunomodulatory effects of PEF might find its application in enhancing the expression of specific cancer-therapy targets. In this field, PEF could potentially be used to induce the presentation and biosynthesis of membrane receptors. This approach would allow to overcome one of the problems of cellular therapies of the solid tumors, which is the downregulation of therapy targets. Idea, that the application of PEF, could make the tumor visible for the immune system, shows a very promising field of research.

Aim of the study:

The aim of the study was to optimize PEF parameters to induce the expression of MAGE receptors in melanoma cells.

Materials and Methods:

Viability experiments and fluorescence studies of MAGE A1 and MAGE 3 receptors were conducted on A375 cell line.

Results:

Based on the optimization studies, we propose, that the most effective PEF, to increase MAGE expression would be in the **high nanosecond** (200 ns) range of pulses, would have an **increased number of the pulses** (100 pulses) and its frequency would be in the **kHz** (10 kHz) range.

Conclusions:

nsPEF treatment of melanoma cells might be an effective method to increase the expression of melanoma-speciffic receptors. Presumably, in the future the method might be used to make the cancer cells visible for the immune system.

The occurrence of adverse events during treatment with imatinib

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Introduction: Imatinib, the BCR-ABL tyrosine kinase inhibitor is considered to be the first-line treatment for patients with chronic myeloid leukemia (CML). Imatinib is associated with mild to moderate toxicity and patients may experience adverse events (AEs) during treatment.

Aim:
To describe the baseline characteristics of CML patients treated with imatinib and to assess the frequency of AEs during treatment.

Materials and methods:

The retrospective analysis of 83 consecutive CML patients from the Department of Hematology, Jagiellonian University Medical College, Cracow treated with imatinib as a first-line TKI therapy was performed. Medical data was collected from medical records and statistical analysis was performed using R software version 3.6.2.

Results:
The median age of analyzed population at diagnosis was 65.34 +/- 14.8 years, 44 (53.01%) patients (pts) were male. Mean age at the start of imatinib therapy was 53.06+/- 15.2. Mean follow up time was 146.49+/- 30.59 months. During treatment with imatinib 49 (59.04%) pts experienced AES including bone and muscle pain in 21 (42.86%) pts with AEs, edema- 12 (24.49%), muscle cramps - 9 (18.37%) pts. 8 (16.32%) pts experienced cardiac and 2 (4.08%) renal AEs. 20 (40.82%) patients with AEs had cardiac, 5 (10.20%) renal comorbidities, 11 (22.44%) diabetes, hypercholesterolemia 7 (14,29%), osteoarthritis 9 (18.37%) before the initiation of TKI therapy.
Imatinib dose was reduced due to intolerance in 7 (33.33%) pts with AEs.

There is statistically significant positive association between the age of the initiation of imatinib and the occurrence of adverse events (AEs) among patients (p=0.03). Suffering from osteoarthritis before the imatinib treatment is significantly associated with occurrence of AEs (p=0.042)(most commonly paresthesia).

Conclusion: Older age and osteoarthritis at the initiation of the imatinib treatment increase the risk of AEs occurrence during imatinib therapy. Most common AEs were bone and muscles pain.

Analysis of TOX protein expression on peripheral T-cell lymphoma cells

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Tutor: dr n. med. Monika Joks

Introduction

T-cell lymphomas represents 10-15% of all non-Hodgkin's lymphomas. Most frequent are peripheral T-cell lymphomas (PTCL), including the following histopathological subtypes: peripheral T-cell lymphoma (PTCL NOS), angioimmunoblastic lymphoma (AITL), anaplastic lymphoma (ALCL) and follicular T-cell lymphoma (PTCL THF).

The thymocyte selection-associated high mobility group box factor (TOX) gene family encodes nuclear proteins belonging to the HMG box superfamily (high-mobility group box superfamily) that affect transcriptional regulation. HMG-box proteins are involved in the regulation different processes such as transcription, DNA repair. In neoplastic cells HMG-box facilitate cell growth and metastasis.

Literature data concerning TOX gene expression in non-Hodgkin's lymphomas are scarce and mainly concern cutaneous lymphomas. In mycosis fungoides (MF) it has been shown that high TOX mRNA levels correlate with an increased progression risk of MF progression. TOX protein expression is important marker in the differential diagnosis of MF and non-lymphomatoid skin diseases.

Aim of the study

To assess expression of the TOX protein in PTCL tumor cells as a potential diagnostic marker.

Materials and methods

Paraffin blocks of 10 patients with diagnosed PTCL were collected and used as a material. The samples were sliced and stained with hematoxylin and eosin. Immunohistochemistry for TOX protein was performed.

Results

TOX expression was detected among three patients with PTCL NOS. In two cases, the expression ranged from 40 to 50%, and in the third case amounted to 5-10%. In two patients with PTCL TFH, TOX expression was evaluated at 40 and 70%. In three patients with ALCL, the expression were 1-2%, 10% and 30% respectively. In first patient with AITL, TOX expression was not demonstrated, and in the second reached 50%.

Conclusions

Neoplastic cells of different types of PTCL exhibit variable TOX protein expression. Further studies in this area may contribute to the growing diagnostic importance of TOX protein in PTCL.

Attitudes about Testicular Self-Examination among Polish Males

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Introduction: Epidemiological data indicate an increased incidence of testicular cancer (TC), making it the most common malignant tumor in men from aged 15–45. Oncological and urological associations recommend that men with specific TC risk factors should regularly perform a testicular self-exam (TSE).
The aim of the study: Discover the attitudes among Polish males regarding TSE and factors (environmental, social, educational) that affect intention to perform TSE.
Methods: An original survey containing 21 questions was used to conduct a study among the Polish branch of VW (Volkswagen Poland) employees.
Results: A total of 522 fully completed questionnaires were collected. The mean age of the surveyed respondents was 32 years. Information about TC and how to perform TSE was obtained by 34.4% (n = 185) of the men. It was shown that the following factors increase men's intention to perform TSE: TC in their family member ($p < 0.05$; HR = 5.9; 95% CI: 1.5–23.0), GP's(General Practitioner) recommendations ($p < 0.001$; HR = 6.8; 95% CI: 3.2–14.3), concern expressed by their partner ($p < 0.001$; HR = 3.3; 95% CI: 2.1–5.3), and social campaigns ($p < 0.001$; HR = 2.6; 95% CI: 1.5–4.6).
Conclusions: Approximately half of young polish males do not perform TSE. Access to information on TC prevention is limited. Further action is needed to improve men's awareness of TC and TSE.

Fecal microbiota transplantation in patients with acute and chronic graft versus-host disease— spectrum of responses and safety profile. Results from a prospective, multicenter study

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Tutor: Dr n. med. Jarosław Biliński

Introduction: Allogeneic hematopoietic cell transplantation (alloHCT) is a potentially curative strategy for patients with selected blood diseases. Graft-versus-host disease (GvHD) reduces the effectiveness of this treatment. There is a correlation between the GvHD occurrence and gut microbiota composition. The fecal microbiota transplantation (FMT) is a promising approach in the treatment of acute GvHD.

Aim of the study: Summary and analysis of the impact of FMT on acute and chronic GvHD and the ARB decolonization rate.

Material and methods: It were a prospective, multicenter study enrolling patients who underwent alloHCT between 2010 and 2019 in the Department of Hematology, Transplantation and Internal Medicine of the Medical University of Warsaw. In the cohort of patients treated with FMT to decolonize ARB from the GI tract there were also patients with acute gut GvHD. A total of 16 FMTs were performed in 11 patients with aGvHD and in two patients with cGvHD. Each FMT was carried out intraduodenally via a nasoduodenal tube between 2016 and 2020.

Results: Overall response rate in aGvHD patients reached 57%, including complete remissions in 42%. Median duration of response to relapse, death or last follow-up was 153 days. Median overall survival was 66 days in non-responders and 332 days in responders (HR 0.18, $p<0.005$). Both patients with cGvHD achieved stabilization and were alive at last follow-up. Severe adverse events were diagnosed in eight (56%) patients, including two early deaths, but most of them were unrelated to FMT. Septic shock, sepsis and Norovirus infection were possibly or certainly related to FMT. Complications after FMT were associated with poor overall performance status of the patients (ECOG>2). ARB decolonization reached 71%.

Conclusions: The study confirms very good efficacy of FMT in the treatment of acute gut GvHD and in the gastrointestinal tract decolonization from ARB. In contrast to previous studies, it revealed a higher rate of adverse events, especially in severely-ill patients, which means FMT should be planned earlier in the course of steroid resistant/dependent GvHD.

Levels of IL-10 and VEGF expression in Tie2 expressing monocytes in chronic lymphocytic leukemia

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Introduction

Tie2 expressing monocytes (TEMs) is a small population (about 2% to 7%) of peripheral blood mononuclear cells (PBMCs) with proangiogenic abilities. In several conditions, including solid cancers, their levels can be significantly elevated. Despite that, there are very few studies focused on their role in hematological malignances, such as chronic lymphocytic leukemia (CLL).

Aim of the study

We compared the ability of TEMs ($CD14^+CD16^+Tie2^+$) and monocytes ($CD14^+CD16^+Tie2^-$) to production of the proangiogenic VEGF (vascular endothelial growth factor), and immunosuppressive IL-10, in CLL patients.

Materials and methods

The study involved 30 patients diagnosed with CLL. Flow cytometry was performed on PBMCs using anti-Tie2 PE, anti-CD14 V450, and anti-CD16 FITC, and intracellularly stained with anti-human Il-10 PerCP-Cy5.5.
Purified CD14+Tie2+ and CD14+Tie2- fractions were analyzed for IL-10 and VEGF mRNA using quantitative RT-PCR.
Using ELISA kits, a quantitative determination of human angiopoietin 2 (Ang-2) in plasma samples was performed.

Results

We have found that TEMs expressed significantly higher IL-10 levels as compared to Tie2- monocytes [median (IQR), 2.38 (1.16-6.25)% vs. 0.48 (0.20-2.25)%, p <0.001]. Consistently, IL-10 mRNA level was significantly higher in the $Tie2^+$ as compared to the $Tie2^-$ fraction [median (IQR), 0.52 (0.04-1.49)% vs. 0.25 (0.005-1.06)%, $p < 0.05$]. TEMs expressed higher levels of VEGF mRNA than $Tie2^-$ monocytes [median (IQR), 0.45 (0.16-1.52)% vs. 0.8 (0.05-1.07)%, $p < 0.05$]. We found a positive correlation between Ang-2 plasma and the percentage of TEMs in CLL patients (r=0.277; $p < 0.05$) and between Ang-2 concentration and the percentage of TEMs with intracellular IL-10 expression (r=0.451; p <0.01)

Conclusions

Immunosuppressive cytokine IL-10 and proangiogenic VEGF mRNA are upregulated by Tie2+ monocytes. TEMs with intracellular IL-10 expression might be connected to the elevated level of Ang-2 released by CLL cells. It seems that TEMs promote CLL progression not only by the stimulation of angiogenesis but also by the inhibition of antitumor immunity.

Long-term results of radical External Beam Radiotherapy (EBRT) with HDR Brachytherapy (HDR BT) boost in high-risk prostate cancer patients

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Tutor: Marek Konkol MD, Artur Chyrek MD

Introduction: Prostate cancer is the most common neoplasm among men in Poland. High risk prostate cancer occurs in 15% of cases and is associated with an increased risk of relapse, metastases and death. Radiotherapy is an established treatment. Brachytherapy (BT) with External Beam Radiotherapy (EBRT) improves biochemical control through dose-escalation without increasing a therapy-related toxicity.

Aim of the study: A retrospective, long-term analysis of clinical outcomes in high-risk prostate patients treated with radical EBRT and HDR BT, evaluating the correlation with clinical parameters.

Materials/Methods: A retrospective, single-centre, observational study has been carried out among 183 patients treated with EBRT and HDR BT boost (25 x 2 Gy + 15 Gy), in Greater Poland Cancer Center between 2007-2008. Statistical analysis was conducted for the 82 high risk group patients. 76 patients were receiving androgen deprivation therapy. From this group, we excluded 8 patients without biochemical relapse, whose follow-up was lower than established. Median age was 63 years. 74 patients with complete 5-year follow-up were evaluated for efficacy based on biochemical-free survivals (BFS) as endpoints.

Results: 5 years post-treatment, 58% of patients were free from biochemical failure.
Initial PSA level, clinical TNM stage and Gleason score didn't correlate with biochemical relapses, however, a statistically significant correlation between post-treatment PSA nadir and 5-year relapses was found. Also, nadir PSA was associated with time to relapse. No correlation was found between time from EBRT to BT, gland volume and a treatment failure.

Conclusions: BFS were comparable with other studies on combined radical EBRT and BT at that time. Any of the NCCN high-risk group factors itself was not associated with stronger risk of relapse if patients had been qualified to the proper risk group. It shows the crucial role of precise diagnostics before treatment. Study indicates that PSA nadir could be a useful primary endpoint with its prognostic value in clinical practice.

21st ICYMS

Neurology, Neurosurgery and Psychiatry

Functional studies of clinical neurophysiology do not confirm the influence of Gz force on development of neck pain in polish high-maneuvering jet fighters

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Tutor: Juliusz Huber

Introductions

Overloads associated with the work of a jet fighter pilot working in 7G overloading can lead to changes in the function of muscles and peripheral nervous systems in upper extremities. It could lead to changes in the biomechanics of the spine, cause changes in the conductivity of nerve impulses in the fibers of the spinal roots, cause changes in peripheral nerve fiber conduction, changes in the function of muscle motor units.

Aim of the study

The aim of the study was to determine whether the abnormalities can be diagnosed by clinical methods and using clinical neurophysiology studies in jet fighter pilots.

Material and methods

Fifteen jet pilots with an average flight duration of 1,711.7 hours participated in the study. The dermatomal sensation was examined using von Frey's filaments, the occurrence symptoms measured in the VAS scale. The activity of muscles of the upper extremities was examined by electromyography (EMG), the transmission of nerve impulses was diagnosed by electroneurography (ENG), the efferent transmission from C5-C7 spinal centers to muscles was verified with motor evoked potentials induced with magnetic field (MEP).

Results

The tested pilots showed moderate physical activity and rated the occurrence of pain in the cervical region as 1 on the VAS scale. Dermatomal perception studies did not reveal abnormal symptoms. Clinical neurophysiological examinations showed no pathology during EMG examinations. In addition, the results were obtained with a greater amplitude than in the control group, which suggests a higher efficiency of motor units. The parameters of ENG in the median nerves peripherally and MEPs muscles did not reveal abnormalities.

Conclusions

Highly overloaded jet pilots do not show pathological symptoms in neurophysiological studies. Moreover, the general health of the studied pilots is better than that of the healthy volunteers from the control group.

KEYWORDS: jet fighter pilots, overloadings, cervical pain, electromyography, electroneurography, von Frey's filaments

Neurometabolic alterations in immunocompetent patients with acute Toxoplasma gondii infection - a proton magnetic resonance spectroscopy study of the brain

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Tutor: Adam Garkowski, MD

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Introduction: Toxoplasmosis is a disease caused by parasite Toxoplasma gondii (T. gondii). Primary infection with T. gondii in immunocompetent individuals is usually asymptomatic with self-limited episodes of lymphadenopathy and myalgia. In the context of immunosuppression, parasite can reactivate and lead to debilitating disease. Many new epidemiological researches said that in immunocompetent people the latent T. gondii infection is connected with neuropsychiatric disorders including schizophrenia, depression and more subtle alterations. There have not been any researches assessing the influence of acute infection with T. gondii on the CNS in healthy adult immunocompetent patients using magnetic resonance imaging (MRI), including proton magnetic resonance spectroscopy (1H-MRS). 1H-MRS allows for non-invasively evaluation the metabolic activity in selected cerebrum regions.

Aim of the study: In consideration of the recent epidemiological researches, the purpose of this study was to evaluate whether immunocompetent patients infected with T. gondii may develop brain metabolite alterations within several brain regions without any macroscopic changes on the conventional MRI.

Material and methods: Fifteen patients diagnosed with an acute toxoplasmosis and ten healthy controls have been involved in the research. All Proton MR spectra were acquired with repetition time (TR) = 2000 ms, and echo time (TE) = 30 ms. Single voxels were located in the basal ganglia, frontal, temporal and occipital lobes.

Results: We discover a statistically significant increase of the myo-inositol/creatine (mI/Cr) ratio within the frontal lobe, basal ganglia and in the temporal lobe in the patients suffered from toxoplasmosis. We also found significantly reduced glutamate–glutamine/creatine (Glx/Cr) ratio in the occipital lobe and reduced N-acetylaspartate/creatine (NAA/Cr) ratio within basal ganglia.

Conclusions: A significant increase in mI/Cr ratio, reduction in NAA/Cr and Glx/Cr ratio in patients with acute toxoplasmosis indicates on the presence of microglia activation with neuronal dysfunction, and moreover glutamine-glutamate dysregulation. Activation of glial cells is a hallmark of brain pathology and may lead to neuronal damage.

Clinical case: A patient with Parkinson's disease and disturbed sleep

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Introduction: Multiple system atrophy (MSA) is the most rapidly progressive synucleinopathy, which is characterized by α-synuclein deposit accumulation in oligodendroglial cells in the central and peripheral autonomic nervous system. Depending on initial motor deficits, MSA is sub-classified into parkinsonian (MSA-P) and cerebellar (MSA-C) phenotype.

Case report: We present a case report of a 58-year old male patient with a history of previously diagnosed idiopathic Parkinson's disease who presented with snoring and episodes of apnea, talking or shouting during sleep, uncontrollable repetitive limb movements.

Breathing-related sleep disorders appeared prior to the onset of Parkinson's disease. The patient specified stiffness in the limbs, frequent nightly awakenings due to nocturia, heavy sweating, and dry mouth. Furthermore, the patient expressed parkinsonism symptoms as well as autonomic dysfunction symptoms: sialorrhea, urinary dysfunction, sweating, impaired speech, blurred vision. Regardless of dopaminergic treatment, Parkinson's disease progressed rapidly from stage I in 2014 to stage III-IV in 2018.

All-night video Polysomnography showed sleep fragmentation due to mainly spontaneous arousals partly due to limb movements or sleep-related breathing events, lack of stage N3 sleep was observed. REM sleep behavior disorder (RBD) was registered during the second episode of REM sleep. The sound of stridor - high pitched, deep and loud inspiration and moderate sleep apnea were detected. Nocturnal laryngeal stridor is uncommon in idiopathic Parkinson's disease but is known to occur in approximately one-third of patients with MSA.

MRI revealed atrophy of the putamen. On the T2 MRI - hypointensity of the posterior putamen, a hyperintense lateral putaminal rim.

Recommendations included changing of treatment, consultation with otorhinolaryngologist, concerning nocturnal stridor diagnosis and treatment. Continuous positive airway pressure therapy.

Conclusion: MSA may be difficult to distinguish clinically from other parkinsonism-related disorders, particularly in patients at the early stages of the disease. Detection of specific sleep disorders can help differentiate this disease from other synucleinopathies.

Mental health among higher education students during the COVID-19 pandemic: a survey-based study in two European countries

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Introduction

Social, economical and political issues caused by the COVID-19 pandemic potentially intensified mental health problems among adult students.

Aim of the study

To explore levels of depression, anxiety, suicidality, subjective health among students in Lithuania and the Czech Republic during the COVID-19 pandemic.

Materials and methods

An online survey was distributed among college students in Lithuania and the Czech Republic in 2021. It contained The Hospital Anxiety and Depression scale (HADS), the Sense of Coherence scale (SOC-3), questions of subjective health, suicidality and experiences of the COVID-19 pandemic.

Results

The data sample consisted of 1001 respondents from Lithuania (Md age 20 years, [18-69]) and 2062 from the Czech Republic (Md 21 years, [17-50]). The latter scored less on the HADS anxiety (Md=7 [0-21] vs Md=10 [0-21], $p<0.0001$), but more on the depression (Md=9 [0-21] vs Md=6 [0-21], $p<0.0001$) subscale. There were more attempted suicides in Lithuania (17 [1.7%] vs 14 [0.7%], $p=0.008$). The majority of Czech students evaluate their health as very good or good (59.4%), meanwhile less than half of Lithuania's students do so (45.4%). During the pandemic, 1969 (64.3%) respondents indicated higher anxiety and 1948 (63.6%) – sadness. 1516 (49.5%) expressed worsened physical health, 1149 (37.5%) and 1010 (33.0%) lost career opportunities or income, accordingly. 1216 (39.7%) experienced problems in relationships and 797 (26.0%) had no comfortable place to study. Subjective worsening in health ($\beta=0.190$), relationships ($\beta=0.185$), academic performance ($\beta=0.123$), career opportunities ($\beta=0.067$), lower income ($\beta=0.042$) and a lack of comfortable place to study ($\beta=0.117$) during the pandemic were associated ($p<0.05$ for all) with higher scores of the HADS (model adj$R^2=0.317$, $p<0.0001$). Low self-reported health (OR=3.57, 95% CI=2.19 to 5.84), high HADS (OR=1.06, 95% CI=1.00 to 1.13), but not gender or SOC were significantly associated with suicidal attempts (Nagelkerke $R^2=0.197$, $p<0.0001$).

Conclusions

Deterioration of health, academic and personal life during the COVID-19 pandemic in students‘ population were recognised as possible predisposing factors of depression and anxiety. The latter are potentially associated with suicide attempts.

Sphingosine-1 phosphate receptor 3 expression in brain tumours

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Sphingosine-1 phosphate receptor 3 expression in brain tumours

INTRODUCTION: For years now, growing emphasis has been put on molecular testing in the highly heterogenous group that is gliomas and other central nervous system tumours. Molecular profiling is now an essential step to making a proper diagnosis, as certain genetic profiles imply prognosis and guide tumour treatment as well, increasingly more often identifying therapeutic targets within tumours.

AIM OF THE STUDY: I aimed to assess levels of S1PR3 expression in different brain tumour tissue samples – metastases, gliomas and meningiomas. Additional testing was performed on surrounding brain tissue. Results were then compared between studied subgroups.

MATERIALS AND METHODS: Participants of the study were 42 patients operated on due to brain tumours from June 2019 to August 2020 in the Department and Clinic of Neurosurgery and Neurotraumatology, Poznan University of Medical Sciences, Poland. Sphingosine-1 phosphate

receptor 3 (S1PR3) expression was evaluated with the method of chromogenic immunohistochemistry (CIH).

RESULTS: S1PR3 expression varied between studied subgroups. We found the intensity and extent of S1PR3 expression to be the greatest in high-grade glioma tumour tissue samples. We also report positive correlation between S1PR3 expression and brain oedema surrounding metastatic tumours.

CONCLUSIONS: High level of S1PR3 expression seems to be a promising factor for estimating more aggressive course of disease in neoplastic brain tumour patients. Primary research has also shown its potential usability as target for adjuvant neuroprotective treatment in such individuals – one promising agent is fingolimod, a drug currently used for treating multiple sclerosis.

Early rehabilitation course among hemisphere ischemic stroke patients

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Tutor: prof. Svitlana Medvedkova, MD, PhD, DSc

Introduction: Stroke is a major global health issue. Despite all works on this topic further exploration of the recovery process among such patients is highly required.

Aim of the study: Study recovery indicators in the early rehabilitation period of ischemic stroke and factors that can influence it.

Material and methods: 37 patients of the department of neurorehabilitation based in Zaporizhzhia City clinical hospital No.6 were examined during 6 months after ischemic hemisphere stroke. There were 27 men and 10 women (mean age – 58,0). The clinical examination of patients included estimating the level of neurological deficit with National Institute of Health Stroke Scale (NIHSS), estimating the functional recovery level with Modified Rankin Scale(mRS) and assessing the independence in activities of daily living with Barthel ADL Index (BI). All patients were performed CT to confirm the ischemic stroke presence and to reveal the actual size of the lesion.

Results: Among examined patients, the right hemisphere was damaged in 24 (64,84%), and the left in 13 (35,14%). Localization of lesion did not impact the level of neurological deficit, functional recovery level or independence in activities of daily living level ($p>0,05$). The correlation between the level of neurological deficit (NIHSS on 10^{th},90^{th},180^{th} day) and functional recovery level (mRS 10^{th},90^{th},180^{th} day) was revealed. As well as it was revealed between the level of neurological deficit and the level of independence in activities of daily living (BI on 10^{th},90^{th},180^{th} day) ($p>0,05$). There was no correlation between age, gender, body mass index and level of neurological deficit, functional recovery level, independence in activities of daily living. But the size of the lesion correlated to the level of neurological deficit in the debut.

Conclusions: Correlation between level of neurological deficit and levels of functional recovery and independence in daily living was revealed. It was also revealed that age, gender, localization of lesion or body mass index did not affect recovery indicators.

De novo headache associated with personal protective equipment in healthcare workers during COVID-19 pandemic

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Introduction:
During COVID-19 pandemic personal protective equipment (PPE) has become mandatory in hospitals all over the world. Healthcare workers have noticed that PPE use can cause discomfort and other negative effects, one of which is new-onset (*de novo*) headache.

Aim of the study:
The aim of this study was to determine the association and risk factors for PPE related *de novo* headache among healthcare workers in Lithuania during the COVID-19 pandemic.

Materials and methods:
A descriptive cross-sectional study was conducted in Lithuania in February 2021. The compiled questionnaire was distributed using social networks. Descriptive analysis was performed on demographic data.Binomial logistic regression models were used to compare variables with the development of *de novo* headache. A p-value <0.05 was considered statistically significant.

Results:
910 healthcare workers have submitted their responses: 365 (40.1%) reported having pre-existing headache, 339 (37.3%) – *de novo* headache. In *de novo* headache group 140 (41.3%) participants reported average headache frequency 2-3 days a week; 166 (48.9%) - reported headache start in 2-3 hours after putting on PPE; 136 (40.1%) - reported headache duration up to 1 hour after taking off PPE. Headache severity was evaluated as mild – 3-4 points (out of 10) in numeric pain rating scale by 142 (40.6%) participants in *de novo* headache group. Binomial logistic regression analysis stated that longer average PPE use duration (OR=1.31, CI: 1.11-1.53, p=0.001), FFP2 respirator use (OR=1.80, CI: 1.19-2.71, p=0.005), skin damage caused by PPE (OR=2.46, CI:1.66-3.65, p<0.001), heat stress experienced while using PPE (OR=2.45, CI:1.66-3.61, p<0.001) are statistically significant and independently associated with *de novo* PPE related headache.

Conclusion:
This study identifies longer average PPE use duration, FFP2 respirator use, skin damage and heat stress from PPE use as risk factors for new-onset PPE associated headache.

The relation of cognition and disorders of volitional saccades in essential tremor

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Tutor: M. Wójcik-Pędziwiatr, MD, PhD; K. Szewczyk, MD; prof. M. Rudzińska-Bar, MD, PhD

INTRODUCTIONEye movements are a great source of information for both clinicians and scientists as their abnormalities frequently seem to localize a disease process. Saccades are rapid eye movements that abruptly change the point of fixation. Volitional saccades are sensitive marker in assessment of cortical areas connected with cognition.Essential tremor (ET) is the most frequent movement disorder. Many studies have proved the presence of mild cognitive dysfunctions supported by frontal regions in ET. To our best knowledge there are no previous studies to evaluate the relation between saccades and cognition in ET.**AIM OF THE STUDY**Our study aimed to assess the relation between the abnormalities in volitional saccades and cognitive function in ET. As ET is an important disorder in the neurological field, saccade parameters, especially latency, may be very useful in making diagnosis and following the disease progress. **METHODOLOGY**Sixteen ET patients, including 6 females and 10 males (age average: 55 ±26 years, mean disease duration of 14±11 years) and control group consisted of 10 healthy subjects have been studied. The team has used the Saccadometer Research device (*Ober Consulting, Poland*) to measure antisaccades and memory-guided saccades. Correct saccades were classified by algorithms developed by *Ober Consulting* and further verified manually, according to criteria met in the previous research.In order to assess parameters of saccades, both *Ober Consulting's* algorithms and *ResearchAnalyzer* software were used. To evaluate cognitive function the battery of tests including: BVRT, Stroop test, SDMT, AVLT and others was used. Severity of tremor was assessed by Clinical Rating Scale for Tremor (CRST).**RESULTS**Antisaccades latency rose with age, disease duration, CREST score, decrease in Stroop test, in Verbal Fluency test and in AVLT test.**CONCLUSIONS**The most important parameter of saccades to assess cognition is latency. Observed higher latency in ET may correlate with the decline of cognitive functions and the disease progression, which have been confirmed by performed neuropsychological tests.

The impact of believing in conspiracy theories and false information related to COVID-19 disease on the level of anxiety and depression.

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Tutor: PhD. Magdalena Piegza, PhD. Paweł Dębski,

Introduction: The tendency to believing in conspiracy theories and false information connected with COVID-19 disease is a serious problem for public health. Underestimating dangers related to COVID-19 disease have severe consequences, such as an increasing number of infected people and therefore an increasing number of deaths.

The aim of the study was to examine correlations between the tendency to believing in conspiracy theories, false information connected with COVID-19 disease and the intensity of anxiety and depression symptoms.

Material and methods: The online questionnaire was completed by 700 Poles (585 women, 110 men) with an average age of 24.7±6.34 years. Psychometric tools used in the questionnaire were Generic Conspiracist Beliefs Scale (as a measure of general belief in conspiracy theories), Hospital Anxiety and Depression Scale, COVID-19 Conspiratorial Beliefs Scale (an own design scale examining false beliefs connected with COVID-19 disease) and a sociodemographic survey. Statistical methods used to analyse the data were: Spearman's rank correlation coefficient, simple linear regression, backward stepwise multiple regression and Mann–Whitney U test.

Results: The analysis of correlations revealed that there was a statistically significant positive dependency between the intensity of general believe in conspiracy theories, believing in false information about COVID-19 disease and the level of anxiety and depression. Furthermore, the regression analysis showed that there was the statistically significant dependency between believing in false information connected with COVID-19 disease and symptoms such as anxiety and depression. The examination of statistically significant differences revealed a greater severity of anxiety symptoms in a group of women.

Conclusions: Beliefs in conceptions undermining credibility of dangers connected with SARS-CoV-2 infections may contribute to the deterioration of mental health by worsening symptoms of anxiety and depression.

Diagnostic and Therapeutic Difficulties in Progressive Supranuclear Palsy - Case Report

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Tutor: Urszula Skrobas MD, PhD

Background: Progressive supranuclear palsy (PSP), also known as Steel-Richardson-Olszewski disease, is an example of tauopathy from the group of atypical parkinsonisms. This disease occurs with a frequency of about 5-8.3 cases per 100.000 population. In a typical course, PSP appears in patients over the age of 40 in whom numerous falls, paralysis of vertical eye movements can be observed. Additionally, patients may develop a number of other symptoms, including axial stiffness, postural instability, retrocollis, dysarthria, dysphagia, loss of criticism, careless behavior, bradyphrenia and subcortical dementia.

Case report: A 69-year-old female was admitted to the Neurology Department to diagnose disorders that have been progressing for four years, in the form of motor slowdown, muscle stiffness, posture, speech and eye movement abnormalities. The patient's medical history included depressive and anxiety disorders (addiction to benzodiazepines, suspected drug-induced parkinsonism) and numerous falls. In the course of diagnostics, additional tests were performed, among which the head MRI showed characteristic symptoms indicating progressive supranuclear palsy reduction in the volume of the midbrain (so called symptom of "hummingbird head"). All of the findings in the context of clinically demonstrated abnormalities proved the above-mentioned diagnosis. The patient has received treatment with memantine, levodopa, amantadine, as well as quetiapine and sertraline due to psychiatric complaints and remains under the supervision of a Neurological Outpatient Clinic.

Conclusions: PSP is an example of atypical parkinsonism, which, due to its rarity and non-specific symptoms, may be a diagnostic challenge. It is important to raise the awareness of atypical parkinsonisms among healthcare professionals to help them make a proper diagnosis and adjust the further management. There are still many doubts about causal and disease-modifying treatment. Several clinical trials are currently underway to determine the effectiveness of therapies aimed at stabilizing microtubules or excessive accumulation and phosphorylation of the tau protein.

21st ICYMS

Orthopedics, Physiology and Sports Medicine

Long-term bone response to a bioactive drug molecules in the femoral neck of osteoporotic rats

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Tutor:

Fragility fractures are common among the elderly. Zoledronic acid (ZA) is a potent bisphosphonate used clinically with documented positive preventive effect on fragility fractures. Systemic use of ZA has shown positive results, furthermore, studies indicated local usage of low-dose ZA, leads to improved bone formation.

We aimed to evaluate the long-term effects of local ZA and rhBMP-2 delivery on bone remodeling in the femoral neck canal of osteoporotic rats.

In ovariectomized rats femoral neck canals holes were drilled and defects were treated as follows: G1) empty (n=8), G2) Calcium sulphate(CaS)/hydroxyapatite(HA) biomaterial (n=8), G3) CaS/HA biomaterial+systemic ZA (n=11), G4) CaS/HA+Local ZA(10 µg) (n=11), G5) CaS/HA+Local ZA(10 µg)+rhBMP-2(5 µg) (n=9). To establish that the CaS/HA biomaterial is an optimal carrier for local ZA delivery, we used 14C-ZA to study the bioavailability of ZA during the entire course of bone regeneration and compare it to the ZA available in the femoral neck canal when ZA was delivered systemically (s.c injection). Animals were sacrificed after 24-weeks and both legs were subjected to micro-CT imaging, then the specimens that received 14C-ZA were subjected to scintillation counting while the rest of the specimens were tested mechanically to evaluate the peak force to fracture of the femoral neck.

Significantly higher bone volume/tissue volume was observed in G4-G5 compared to G1-G3, indicating that local delivery of ZA or ZA+rhBMP-2 is necessary for bone regeneration. Scintillation counting results indicated similar amount of 14C-ZA accumulation in both legs in G3. In the local treatment group (G4), higher amount of 14C-ZA was observed in the defect leg.

The results indicate that local delivery of ZA via the CaS/HA biomaterial carrier can aid in regeneration of large volumes bone within the femoral neck. This method could potentially be used in poor quality bone where hardware fixation in the femoral canal often fails.

An analysis of self-reported injuries in international offshore sailors.

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Tutor: Jędrzej Lesman, MD, PhD

Introduction:

Offshore sailors are prone to frequent orthopaedic injuries, which may occur during recreational as well as professional voyages and also during races and regattas. Understanding mechanisms and risk factors for these injuries may allow to introduce measures reducing their occurrence.

Aim of the study:

The aim of the study was to determine the epidemiology of injuries sustained during offshore sailing and to asses factors describing given cruises, searching for possible risk factors for injuries.

Material and Methods:

70 respondents answered the online questionnaire shared on online groups and pages gathering international sailors. Inclusion criteria were sailing on offshore waters at least once in 2019. Data on sustained orthopaedic injuries, their frequency, severity, mechanism, location and contributing factors were collected. The survey regarded not only cruises with injuries, but also cruises without. Acquired data were analysed statistically using the following tests: double-tailed exact Fisher, Shapiro-Wilk, Levene and U-Mann Whitney

Results:

70 sailors from 17 countries reported 79 cruises, among which 14 were with injury. 5/26 (19.23%) of women who took part in the study were injured, compared to 9/44 (20.45%) among men, $p=0.999$. Average number of days spent sailing were 74.79, SD = 77.44 for people who were injured and 51.37, (SD = 47.14) for those who weren't ($p=0.64$). The most frequent type of injury was skin laceration/cut (21.4%) and the most often injured part of body was hand (42.8%). The majority of cases occurred on midship (35.7%). Almost 50% of injuries were sustained while using ropes. The most common contributing factors reported by sailors were inattention/ distraction (26.3%) and difficult weather conditions (36.8%).

Conclusion:

Multifactorial nature of sustained injuries poses a challenge in implementing effective safety measures. There is a need for further studies conducted on a larger group of offshore sailors to better understand sailing injuries, their mechanisms and develop evidence-based prevention strategies.

COVID-19 pandemic impact on screening in Developmental Dysplasia of the Hip.

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Introduction: Developmental Dysplasia of the Hip (DDH) is a common disease screened for in newborns. If undetected and untreated, it can lead to impairment of limb function and early hip osteoarthritis. A late presentation might require more aggressive interventions, including open reduction surgery. Therefore, early diagnosis and treatment are crucial to preventing complications and achieving the best outcomes. Accessibility to screening programmes could be worsened by the COVID-19 pandemic.

Aim of the study: This study aimed to evaluate whether the COVID-19 pandemic impacted the screening in Developmental Dysplasia of the Hip.

Material and methods: We performed a retrospective review of 269 children examined for DDH in 2019 - before the pandemic - and 2020 - during the pandemic. We included patients who had their first visit between March and September. All of the patients were examined by one orthopaedic surgeon with experience in hip sonography screening. We reviewed standardised protocols, which included: pregnancy and delivery history, visit dates, clinical exam and sonography evaluation. Results were analysed with the use of the STATISTICA programme.

Results: The number of children examined in 2019 was higher than in 2020 (164 vs 94). The mean age (counted in days) of patients who reported for examination was 35,13 in 2019 comparing to 41,25 in 2020, and the difference was statistically significant (p=0,02794). In 2019, there were 10 patients (6,1%) who needed more than two consultations; in 2020 there were 3 such patients (2,85%), and the difference was not significant. Two patients in 2019 and two in 2020 required ambulatory treatment. None of the patients was referred for hospital treatment.

Conclusions: The number of children examined in 2020 was lower comparing to 2019. The first visit for hip sonography screening was delayed during the COVID-19 pandemic compared to the previous year. There was no difference in administered treatment.

Reconstruction of the bone fracture mechanism in an aviation accident based on post-mortem imaging

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Introduction:

Traveling by air increased over past decades. Number of aircrafts increases with small single-engine airplanes representing up to 65% of them. Furthermore, single-engine airplanes hold the highest accident rate. Identification and investigation of bodies of victims of airplane disasters is often very difficult due to massive damage and dismembering, although it may be crucial in investigation concerning cause of disaster, especially in single-engine airplanes crashes. In cases of challenging autopsies Post Mortem Computed Tomography(PMCT) may be a valuable addition to investigation.

Aim of the study:

The aim of the study is to discuss how analysis of bone fractures and other injuries may contribute to reconstruction of events during an airplane crash.

Material and methods:

Two male victims of single-engine airplane crash, who both had valid pilot licenses, were firstly scanned in PMCT and then examined during conventional autopsy. Their bone fractures described in autopsy report and in PMCT scan were analyzed.

Results:

Both victims had multiorgan injuries. PMCT showed fractures of occipital condyles, cervical and lumbar spine, pelvises and necks of femurs in both victims-common injuries occurring, when vertical force acts on a body (here-vertical deacceleration). Furthermore, both victims had fractured facial cranium bones, clavicles, sternums and distal parts of upper extremities-common injuries, when horizontal force acts on a body (here-horizontal deacceleration). One victim had noticeably more injured right side of cranium which may suggest his head collided with something in cockpit or with other pilot. Also one victim had fractures in carpal bones, ulna and radius, suggesting he could firmly grip the yoke at the time of accident, meaning he could control plane in that moment which has its implication in forensic investigation.

Conclusion:

Thanks to analysis of bone fractures images obtained via PMCT we can imagine possible falling path of airplane and presume who was controlling aircraft at the time of accident. Due to that, analysis of bone fractures of aviation disaster victims can be valuable in investigation concerning cause of accident.

Kirschner wires versus Titanium Plates and Screws in the treatment of metacarpal and phalangeal fractures

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Tutor: Dr n. med. Przemysław Bereza

Introduction: Fractures of metacarpals and phalanges are the most common injuries of the upper extremity. Unstable and displaced fractures are usually treated surgically.

The aim: The aim of this study was to compare the therapeutic effect of Kirschner wires (K-wires) and titanium plates and screws internal fixation in the management of metacarpal and phalangeal fractures (ICD-10: S62.2-S62.7).

Methods and materials: The study was conducted as a retrospective evaluation of clinical and outpatient follow-up data and included 80 patients treated in the Department and Clinic of Orthopaedics and Traumatology in Katowice between 01.2014-06.2019. There were 58 (72.5%) men and the mean age was 33.6±11. Patients were divided into the two groups based on method: 39 (49%) K-wires and 41 (51%) plates and screws group. The clinical end points were time of immobilization and the presence of long-term complications.

Results: The two groups were similar to the age of the patients ($P > 0.05$). Mean time from injury to surgery, hospital stay and surgery were significantly longer in plates and screws group ($P<0.05$). Mean time of immobilization was significantly longer in the K-wires group (6.4 vs. 4.8 weeks; $P<0.001$). All operations were followed by uneventful postoperative recovery. Outpatient clinic follow-up showed no significant differences in complications between K-wires and plates/screws groups (26% vs. 21%; $P > 0.05$).

Conclusions: Regardless of the method which was used, the treatment was generally efficient. There are no large randomized studies confirming the superiority of any of these methods. Nevertheless for now economic factors such as price, time of surgery and hospitalization indicate K-wires predominance.

21st ICYMS

Pharmacy

THERAPEUTIC DRUG MONITORING FOR OLAPARIB - PILOT STUDY

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Tutor: prof. UM dr hab. n. farm. Edyta Szałek

Introduction: Olaparib is the poly ADP ribose polymerase inhibitor (PARP), which is used for the treatment of platinum-sensitive BRCA-mutated ovarian cancer patients, but oncologists do not have recommendations of treatment depending on efficient plasma concentrations of the PARP inhibitor. Therapeutic drug monitoring (TDM) is a useful tool for individualization of cancer therapy; therefore, it is essential to establish recommended plasma drugs concentrations by consideration their safety.

Aim of the study: The goal of the study was the assessment of plasma trough concentrations of olaparib at steady state (C_{trough}) in ovarian cancer patients. Additionally, the severity of olaparib side effects (SEs) was assessed.

Material and methods: The study involved 21 patients (mean [SD]; age 57.3 [8.3] years; weight 68.2 [13.4] kg; and BMI 26.4 [5.0] kg/m^2) with an ovarian cancer treated with olaparib (tablets 300mg/12h or capsules 400mg/12h). Plasma concentration of olaparib was measured by HPLC-UV method (λ=254nm; Symmetry C8 column; internal standard: paracetamol; gradient flow), validated according to European Medicines Agency guidelines. The severity of olaparib SEs was assessed by CTCAE (Common Terminology Criteria for Adverse Events) v.5.0 scale.

Results: The method validation confirmed good precision (CV <15%), accuracy (92.3-115.0%) and linearity (r=0.9994) in the range of 100-4000 ng/mL. The olaparib C_{trough} in patients with SEs (n=8) was 812.2-7073.3 ng/mL (CV=95%), in patients without SEs (n=13) 238.9 – 4174.9 ng/mL (CV=117%). SEs were following: fatigue (modest, n=2; severe, n=2) and anemia (grade G2, n=2; G3, n=3).

Conclusions: The study showed wide range of olaparib C_{trough} in analyzed patients with ovarian cancer, both in the group with SEs and without SEs, therefore continuation of the study on larger population of patients is needed to establish recommended plasma drug concentrations.

The activity of inosine 5'-monophosphate dehydrogenase activity and mycophenolic acid pharmacokinetics in children with nephrotic syndrome

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Tutor: Sobiak Joanna PhD

Introduction

In pediatric nephrotic syndrome, the pharmacokinetic parameters of mycophenolic acid (MPA) are variable and the recommended MPA exposure is higher than for transplant recipients. In MPA therapeutic monitoring, inosine-5'-monophosphate dehydrogenase (IMPDH) activity may be useful.

Aim of the study

The aim of the study was to determine IMPDH activity in peripheral blood mononuclear cells along with MPA pharmacokinetics in children with nephrotic syndrome treated with mycophenolate mofetil (MMF).

Material and methods

The study included 12 children (five girls, seven boys) aged 4–16 years (mean age 8 ± 4 years) with nephrotic syndrome treated with MMF. From each child, four blood samples were collected (before the next MMF dose and 1, 2, and 4 h afterwards). IMDPH activity and MPA concentrations were determined using two HPLC-UV methods. IMPDH activity was calculated using xanthosine monophosphate (XMP) normalized with adenosine monophosphate (AMP).

Results

Mean IMPDH activity was variable and amounted to 39.23 ± 27.40 $\mu moL \cdot s^{-1} \cdot moL^{-1}$ AMP and 17.97 ± 15.24 $\mu moL \cdot s^{-1} \cdot moL^{-1}$ AMP before the next MMF dose (A_{trough}) and 1 h afterwards, respectively. The IMPDH activity within the first 4 h after MMF administration was variable, as CV% was within 68–115%. The highest IMPDH activity, along with the lowest MPA concentration (1.84 ± 1.17 $\mu g \cdot mL^{-1}$), was observed in samples collected at time 0 (A_{trough} and C_{trough}). The lowest IMPDH activity was A_1, and at this time point, the MPA concentration was the highest (10.55 ± 3.04 $\mu g \cdot mL^{-1}$) and close to the MPA maximal concentration (C_{max}; 10.59 ± 2.97 $\mu g \cdot mL^{-1}$). MPA area under the concentration-time curve within 4 h was 22.59 ± 7.34 $\mu g \cdot h \cdot mL^{-1}$.

Conclusions

Determining IMPDH activity may be applied for assessing the pharmacodynamics effect of MMF therapy in children with nephrotic syndrome. Our results showed that although the lowest IMPDH

activity was observed with the highest MPA concentration, target IMPDH activity values remain to be defined.

Promoting drug safety in elderly by pharmacy students

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Tutor: Waszyk-Nowaczyk Magdalena PhD,Guzenda Weronika MSc

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Tutor: Waszyk-Nowaczyk Magdalena PhD,Weronika Guzenda MSc

Introduction:

Medication education programs for the elderly patients and the provision of complete detailed information can crucially enhance safe and accurate drugs administration.

Aim of the study:

Increase the awareness of people over sixty years in the field of proper drug use and analysis of the level of their current knowledge, along with the possibility of its improvement as a result of educating students of the fifth year of pharmacy.

Material and methods:

An anonymous survey was conducted from November 2019 to March 2020 among people over 60 years in three senior citizens' clubs in Poznan.The total of 58 respondents (10.5% men and 89.5% women) participated. Data from them were collected both before and after the lectures provided by pharmacy students.

Results:

The training showed a significant improvement in awareness of the use of recommended doses of drugs ($p=0.0455$) and drug interactions with food ($p=0.0095$). Patients understood the importance of providing all information about current diseases, medications and allergies not only to the physician ($p=0.0265$) but also to the pharmacist ($p=0.0051$). Moreover, they paid attention to the symbols placed on drug packages ($p=0.0020$) and to the correct combination of prescribed drugs with self-purchased preparations ($p=0.0077$).The need of improving the quality of pharmacotherapy in elderly patients, who lived alone or achieved only primary education were observed due to significant problems with acquiring knowledge ($p<0.05$). Conducted trainings helped to increase seniors' knowledge about the safe use of drugs andintroduced the idea of pharmaceutical care and

the possibility of holistic cooperation with pharmacists and physicians, extending the scope of their services in patients' opinion ($p<0.05$).

Conclusions:
Pharmacy students can broaden the knowledge of seniors in the field of proper pharmacotherapy, the use of drugs or the method of their administration, thanks to which they can obtain significant health benefits and increase their knowledge of the drugs taken.

Towards a novel therapy for Alzheimer's disease among serotonin 5-HT6R antagonists – computer-aided approach

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Tutor: assoc. prof. Handzlik Jadwiga, PhD

Introduction: 5-HT_6 receptor (5-HT_6R) is a metabotropic serotonin receptor that is found abundantly in brain parts involved in cognitive functions, such as striatum and hippocampus. Surprisingly, both 5-HT_6R agonism and antagonism improve memory and cognition in animal models. 5-HT_6R antagonists showed encouraging results in Phase II of clinical trials in patients with Alzheimer's disease, however, none of them succeeded in Phase III, thus searching for novel 5-HT_6R agents with higher efficacy *in vitro* and *in vivo* is required. Additionally, 5-HT_6R is linked to mood control and feeding behavior that could be utilized in the discovery of innovative antidepressant, anti-anxiolytic, and anti-obesity drugs. 1,3,5-triazine compounds represent a recently discovered group of 5-HT_6R antagonists, which demonstrate nanomolar affinity and procognitive effect in rats.

Aim of the study: This work aimed to discover new 5-HT_6R antagonists being 1,3,5-triazine derivatives and to choose the most promising compounds.

Materials and methods: Pharmacophore-based approach showed structure-activity relationships of 1,3,5-triazine compounds and revealed the lack of one feature compared to the reference pharmacophore model for 5-HT_6R antagonists. Knowledge of this fact gave the opportunity to design novel derivatives with enhanced protein-ligand interactions. Designed compounds were ranked according to the following criteria: a) potency to interact with 5-HT_6R (molecular docking studies); b) predicted physicochemical properties; c) synthesis accessibility (retrosynthetic analysis).

Results: Two derivatives with the highest score in ranking were selected for synthesis and further biological evaluation.

Conclusions: The presented study showed that pharmacophore models, retrosynthetic analysis, and calculation of physicochemical properties, while applied together, rationalize drug design, thus increasing the probability of obtaining the desired bioactive molecules and simultaneously providing cost reduction.

This study was performed within the Student Medicinal Chemistry Scientific Group at the Department of Technology and Biotechnology of Drugs JU MC (Studenckie Koło Chemii Medycznej, UJCM) and was financed by the National Science Center grant No. UMO-2018/31/ B/NZ7/02160.

Compatibility of ibuprofen with total parenteral nutrition

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Tutor: Dettlaff K. PhD

Introduction: Intravenous ibuprofen (400 mg/100 mL and 600 mg/100 mL) has only been available on the Polish pharmaceutical market for two years. The indication for such dosage form is the relief of pain in adults. There is no information in the available literature on the compatibility of these products with total parenteral nutrition (TPN).

Aim of the study: The designed experiments allowed us to determine if commercial ready-to-use (RTU) 3-in-1 parenteral nutrition admixtures and intravenous ibuprofen can be administered simultaneously via one infusion line using Y-site.

Material and methods: The compatibility of ibuprofen was tested with six RTU parenteral admixtures for central access (Lipoflex Special, Omegaflex Special, Omegaflex Special without electrolytes, Kabiven, SmofKabiven, Olimel N9E), and with four RTU admixtures for peripheral access (Lipoflex Peri, Omegaflex Peripheral, Kabiven, Olimel Peri N4E). Drug-TPN compatibility was tested in various proportions resulting from the minimum and maximum allowable rates of administration. The analysis of pH, osmolality, particle size of the lipid emulsion, and zeta potential was performed upon sample preparation and after 4 hours of storage at 23 °C.

Results: The pH and osmolality of the ibuprofen-TPN samples did not change statistically significantly after 4 hours of storage. In a few cases, the absolute value of the zeta potential decreased. A critical change was the appearance of lipid particles with a diameter greater than 1 μm in many samples, proving the aggregation of lipid particles**.**

Conclusions: It was found that ibuprofen was compatible with two RTU parenteral nutrition admixtures for central administration (Omegaflex Special without electrolytes and Olimel N9E) and three peripheral administration ones (Lipoflex Peri, Omegaflex Peri, Olimel Peri N4E).

Acknowledgments: This research was supported by the Poznan University of Medical Sciences (Grant SBN No. 4125/2020).

Potential of Japanese knotweed cyclodextrin systems in the treatment of periodontitis

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Introduction

Japanese knotweed *(Polygonum cuspidatum)*, is a well-known plant in traditional Chinese medicine. Knotweed rhizome extract has potential properties valuable in the treatment of inflammatory diseases that can be moreover improved by appropriate modification.

The aim

The aim of this study was to evaluate potential use of Japanese knotweed rhizome in the treatment of periodontitis and to estimate beneficial impact of cyclodextrin modification on anti-periodontic activity.

Methods & Materials

The extraction process of raw material was optimized and the obtained liquid extracts were lyophilized (Heto PowerDry PL3000 Freeze Dryer). Extract was kneaded with β-cyclodextrin (β-CD) in a mortar in a 1:1 mass ratio. HPLC-DAD method was used to assess content of main active compounds – resveratrol and emodine. Dissolution studies were performed by using paddle apparatus (Agilent 708-DS). Passive permeability of active compounds was evaluated by Parallel Artificial Membrane Permeability Assay (PAMPA). The antioxidant properties of extracts were assessed using the DPPH and CUPRAC methods. Anti-inflammatory activity was determined by *in vitro* hyaluronidase inhibition assay.

Results

HPLC-DAD analysis has shown that the cyclodextrin complex had a more favorable chemical composition. We confirmed that resveratrol and emodine are highly permeable compounds ($P_{app} > 1 \times 10^{-6}$ cm/s). In dissolution study resveratrol and emodine were released in greater quantity from β-CD system. Extract without and with β-CD showed antioxidant properties (DPPH IC_{50} = 25.53 ± 0.57 µg/ml, CUPRAC: $IC_{0.5}$ = 26.53 ± 0.15 µg/ml for extract; DPPH IC_{50} = 28.51 ± 0.44 µg/ml CUPRAC $IC_{0.5}$ = 24.67 ± 0.78 µg/ml for extract with β-CD). Moreover, complexation enhance anti-inflammatory activity of *P. cuspidatum* (IC_{50} = 43.97 ± 1.52 µg/ml for extract and 33.96 ± 0.56 µg/ml for extract with β-CD).

Conclusions or Introduction

Our research confirmed that Japanese knotweed rhizome extract have potential in treatment of periodontal disease, especially in form with β-cyclodextrin.

Study was supported by a grant from STN PUMS (no. 27)

Lamotrigine blood determination by high-pressure liquid chromatography with diode array detection during therapy

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Introduction
Therapeutic drug monitoring is a clinical practice, combining multidisciplinary knowledge in order to determine and interpret the drug blood levels during therapy. Main objective is to maximize satisfactory effects and reduce adverse reactions. Lamotrigine (LTG) is approved for therapy of bipolar disorder and a wide variety of seizure disorders. Determination of LTG in serum can be useful during polytherapy or to assess compliance of patients.
Aim of the study
This work aims to develop analytical method based on liquid chromatography with diode array detection for LTG blood detection in clinical setting. The procedure allowed to prepare the drug exctraction and determination methods with high efficiency, confirming its practical use.
Material and methods
The blood exctraction and method determination of LTG were based on available literature. Firstly, blood taken from patients treated with LTG was secured and data on dosage and therapy were analysed. The second stage was concerned on the extraction technique. The last part included the analysis of the drug blood level via the liquid chromatography method.
Results
From the pool of over 200 patients, blood of 50 was secured (including children, pregnant and patients in polytherapy). Most patients showed response to the drug while its concentration was in the range of 2.5 to 15.0 µg/mL, while exeeding 20 µg/Ml often showed signs of toxicity. Blood was drawn at various time intervals from the last dose. Significant exceeding of this range was observed, mainly during polytherapy (with valproic acid).
Conclusions:
The most valuable extraction technique was liquid-liquid technique. Validation confirmed usefullness of developed method and potential for future clinical usage. Determination of LTG blood level can give more control over the therapy and provide useful information in cases with poor response, noncompliance, adverse effects, or during polytheraphy.

21st ICYMS

Public Health

Protecting Mental Health in Future Physicians: Coping Strategies and Mental Health Among English-speaking Medical Students in Poland During The Covid-19 Pandemic

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Tutor:

Introduction

Among medical students, stress has compounded during the Covid-19 pandemic due to a myriad of factors. These stresses have forced students to seek various coping mechanisms, some that can themselves exacerbate stress and anxiety.

Aim of the Study

The aim of this study was to identify associations between the mental health of students during the Covid-19 pandemic and self-perceived change in alcohol use, as well as other factors affecting mental health, and to assess coping mechanisms used by students.

Materials & Methods

An online survey was disseminated to medical students in English medical programs throughout Poland and consisted of 5 parts - demographic information, self-perceived change in alcohol use, PHQ9 and GAD7 questionnaires for depression and anxiety, Brief COPE survey assessing coping mechanisms, and assessing how affected students have been by the Covid-19 pandemic. SPSS was used for statistical analysis.

Results

The study population consisted of 232 medical students, 177 of which were students of PUMS, comprising about 17 percent of the English student body. Among students who responded, 50% reported moderately severe or higher rates of depression, and 33% reported moderately severe or higher rates of anxiety. Significant differences in PHQ9 and GAD7 scores were found between multiple groups, for example, those groups with changes in alcohol use, those who differed in the amount of family members affected, and more. The most utilized coping mechanisms were humor, planning, and self-distraction, and the least utilized were substance use, denial, and religion.

Conclusions

This data suggests that there is a high rate of students suffering from depression and anxiety, and severeal factors may be exacerbating these illnesses during the Covid-19 pandemic. Applying these results in support of expanding student resources around psychological well-being at a university-level could benefit all students and aid in developing healthy coping mechanisms among future doctors.

Awareness of Measures for Myopia Control: A Survey Among High School Students

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Tutor: Egle Danieliene MD, PhD

Introduction: The global increase in prevalence of myopia is highly accelerated by the COVID-19 lockdown and 2020 is considered to be the year of quarantine myopia. Having the knowledge of measures for myopia control and understanding its importance is crucial, especially among young people, who are starting to take responsibilities for their own treatment choices while still being very vulnerable to short-sightedness.

Aim of the study: The aim of this research was to collect data on the level of awareness of myopia control opportunities amongst high schoolers in Lithuania.

Methods: A cross-sectional survey was conducted among 432 participants, aged 16-20 years. The online questionnaire consisted of 18 questions about myopia, its control opportunities, approach to glasses and personal preferences.

Results: Half of the survey participants (216/342) were myopic. 65,3% (282/432) agrees that myopia progression can be stopped, if timely measures are applied, while 50% (216/432) tends to believe that myopia can be completely cured. Respondents choose glasses (92,4%, 399/432), contact lenses (87%, 376/432), laser surgery (80,8%, 349/432), eye exercises (65,3%, 282/432), orthokeratology (21,3%, 92/432) as the main correction agents. A quarter of the respondents (108/432) thinks that glasses must be prescribed for everyone with myopia. 38,7% (167/432) believes that spectacles must be worn full-time, while 50,9% (220/432) would wear glasses only when looking into the distance. However, 48,8% (211/432) prefers to wear lower prescription glasses because they are convinced that full correction can damage the eyesight. The most effective and comfortable measure for myopia control according to the participants is laser surgery (39,4%, 170/432) and 52,8%(228/432) believes that this intervention cures myopia.

Conclusion: Young people play an important role in myopia control, however, the levels of awareness that they have demonstrated are not sufficient. Successful management of myopia requires understanding that short-sightedness cannot be cured and better knowledge of the appropriate control options is needed.

Prevalence of depression among Polish medical students and its link with selected environmental factors

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Tutor: Dr n. med. Grzegorz Mizerski

Introduction: Medical students are at a particularly high risk of depression. The prevalence of this disease among them is estimated to be above 30%. A research carried out among Polish medical students showed that 21.7% of them seeked help of a psychologist or a psychiatrist and further 36.5% declared a need of a psychological consultation.

Aim of the study: The aim of the study was to investigate the prevalence of depression among Polish medical students and to determine enviromental factors associated with this disease.

Material and methods: 1023 medical students took part in the study. The research tool included PHQ-9 standardized questionnaire and author's questions. Among participants there were students from each year of studies and from 18 Polish universities. Answers were collected in the April of 2020.

Results: More than a half of students (51.61%, 95% CI: 48.50-54.72) were classified as having major depression. 30.21% of respondents had mild depressive symptoms, 26.00% - moderate depressive symptoms, 15.05% - moderately severe depressive symptoms and 10.56% - severe depressive symptoms. About 1 out of 3 students had thoughts of suicide or self-harm (31.38%, 95% CI: 28.54-34.32). A link was found between major depression and: bad economic status, bad relationship with parents, siblings and friends and not having a person that one could count on in a difficult situation. No relationship was found between major depression and: gender, parents' level of education, year of studies and size of hometown. 63.54% of participants noticed depressive symptoms in a friend who studies medicine, 44.67% know a person with diagnosed depression who studies medicine, 13.20% know a medical student who attempted suicide and 2.93% know a medical student who committed suicide.

Conclusions: Depression is common among Polish medical students. The research shows that bad interpersonal relationships increase the risk of depression.

The Productivity of Medical Publication on COVID-19 in the First Half of 2020: A Retrospective Analysis of Articles Available in PubMed

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Introduction

Coronavirus disease 2019 (COVID-19) pandemic is a novel public health emergency, activating the global healthcare system. The control of the pandemic and treatment of people affected depends on deep understanding of the infection's biology and course. Since the first reports of pneumonia of unknown origin in Wuhan numerous researchers started investigations on the novel etiological agent. There is little knowledge on the productivity of medical researches during this period.

Aim of the study

We aimed to analyze the COVID-19 research productivity of authors representing different countries and associations between the number of articles and COVID-19 spread.

Material and methods

We retrieved all articles on COVID-19 indexed in PubMed between 31 December 2019 and 30 June 2020. We identified the countries of individual authors' affiliations. We performed the R Spearman rank correlation test between the number of articles with at least one author from a country per one million citizens and Human Development Index (HDI), a number of COVID-19 cases and deaths per one million citizens before 1 July 2020.

Results

Overall, we identified 27,815 articles, including 18,225 original contributions, 2,449 reviews, and 69 meta-analyses on severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection. The highest productivity characterized the authors coming from China (n = 11,519 articles with at least one author), followed by the United States of America (n =

9,666) and Italy (n = 7,261). The number of articles on COVID-19 associated with HDI (Rs = 0.79), the numbers of cases (Rs = 0.47), and deaths (Rs = 0.46) (all $p < 0.001$).

Conclusions

Early COVID-19 researches were most often authored by researchers from highly developed countries and those affected by the rapid initial spread of SARS-CoV-2.

Videoautopsy- a new diagnostic tool in post-mortem examination

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Tutor: ŻABA Czesław PhD

Introduction: The decrease in the number of autopsies carried out in the recent years requires searching for the causes and taking steps to reduce the phenomenon. The fear of disfiguring the body as a result of the procedure seems to play a key role. Minimally invasive post-mortem examination with the use of a laparoscope is way to reduce the factor. Videoautopsy, i.e. a minimally invasive autopsy performed with the use of laparoscopic techniques, is a new tool that allows for accurate imaging and analysis of organ changes.

The aim of the study: The aim is to showcase the first use of the endoscopy in post-mortem examinations – Videoautopsy in Poland.

Data and methods: In the period from April 2020 to April 2021, the first attempts in Poland to perform an autopsy with the use of laparoscopy were carried out. They were performed using a column and an optical system Storz (Telecam SL II, Xenon Nova 300, Storz Thermoflator, Germany) and Mycke laparoscopic surgical instruments (Sweden).

Results: The procedures revealed Videoautopsy to be a workable and valuable method in post-mortem diagnostics. Endoscopic examination of abdominal cavity and chest allowed for the accurate detection and evaluation of macroscopic changes in organs, while causing minimal damage and disfigurement to the corpse. Openings made to insert trocars were small and easy to cover. The whole procedure could be recorded.

Conclusions: This minimally invasive endoscopic method of examining bodies may become an alternative procedure to the traditional autopsy. Videoautopsy can also be utilized for educational purposes. It is necessary to develop a technique of endoscopic examination of the skull. Research carried out at the Poznań University of Medical Sciences also aims at developing a set program for conducting a post-mortem examination, as well as showcasing its limitations.

Comparison of the nutritional value and quality of meal plans offered in popular diet apps

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Session: Public Health

Introduction: Diet apps offering individual meal plans may help to lose weight and improve health, however, the quality of these app-based diets has not been well studied.

Aim of the study: This study aimed to compare the nutritional values and quality of meal plans offered in popular diet apps, evaluate the intake of selected food groups, and compare the nutritional value of the diets to dietary recommendations.

Material and methods: Diet apps were selected from the most popular Health & Fitness category apps available in Google Play and App Store and seven-day meal plans for a 50-year old obese woman were created. The nutritional values of the diets were assessed using the Aliant software and compared to those provided by apps. Diet qualities were evaluated by calculating the Healthy Diet Indicator and the Diet Quality Index.

Results: In total, ten diet apps were selected and included in the analysis. Nine apps provided information about the diet's energy values, seven apps informed about the macronutrient compositions but none gave the vitamin and mineral content. The apps significantly differed in the

calculated energy values, protein, fat, carbohydrate, vitamin and mineral contents, diet qualities, and food group intakes. According to the Aliant software calculations, most diets provided sufficient amounts of vitamins and minerals but the percentage of energy contribution from proteins, fats and carbohydrates differed from recommended. Moreover, the calculated nutritional values of the diets were significantly different from values provided by the apps.

Conclusions: Meal plans available in popular apps significantly differ in nutrient and food group intakes. Furthermore, the app-declared values differ from the calculated based upon the primary nutritional database, hence, the quality of app-offered individual meal plans should be improved.

Impact of the COVID-19 pandemic on resilience, well-being and burnout in medical students with preexisting mental health conditions

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Tutor: Ewa Pawlowicz, MD, Professor Michal Nowicki MD, PhD

Introduction: Recent reports indicate significant worsening of preexisting psychiatric conditions during the COVID-19 pandemic. It has been proved that medical students are more vulnerable to experience psychological distress than the general peer population. Resilience is the ability to cope with a crisis or to return to pre-crisis status quickly.

Aim of the study: The aim of this study was to assess resilience, well-being and burnout in medical faculty students reporting preexisting mental health problems in the time of COVID-19 pandemic.

Material and methods: The online survey consisting of well-validated surveys assessing resilience (Resilience Scale 14; RS-14), well-being (Medical Student Well-Being Index; WBI) and burnout (Maslach Burnout Inventory: General Survey for Students; MBI-SS) as well as additional questions with a focus on preexisting mental health problems was distributed via Facebook and other online students' platforms. 1863 medical faculty students agreed to fill in the survey, 1189 answered the question about the preexisting mental condition. 299 students (25.1%) reported preexisting psychological and psychiatric conditions: anxiety, depression, personality and stress-related disorders.

Results: Lower resilience level was found among medical students reporting mental health conditions; the mean RS-14 score in this group was 60±13.5 ('low' resilience level) *vs.* 66.9±12.9 ('on the low end' resilience level) in those not reporting previous mental problems ($p<0.001$). Self-reported preexisting mental health problems was associated with higher WBI scoring (4.8±1.4 *vs.* 4.1±1.7; $p<0.001$), indicating more significant psychological distress. All burnout dimensions scores differed significantly, i.e. students reporting preexisting mental conditions presented higher exhaustion (21.3±6.3 *vs.* 18.8±6.8; $p<0.001$) and cynicism (19.8±7.6 *vs.* 16.8±8.2; $p<0.001$) and a lower professional efficiency (15.8±6.3 *vs.* 17.6±6.5; $p<0.001$).

Conclusion: Medical students are at very high risk of psychological distress in face of pandemic. Higher burnout, lower resilience and well-being measures were found in students reporting preexisting mental health conditions. Providing necessary support

to this vulnerable group seems crucial to minimize mental health harms of COVID-19 pandemic.

COVID-19 - WHY DOES THE THIRD WAVE BOTHER US LESS THAN THE SECOND ONE?

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Tutor: lek. Krzysztof Wilczyński, MD; prof. Małgorzata Janas – Kozik, MD, PhD

Introduction:

Undoubtedly, COVID-19 pandemic is associated with fear in a large part of the society. The media is constantly flooding us with dim statistics, which elevates the overall anxiety. The introduction of vaccination against SARS-CoV-2 gave hope for reducing fear. It is assumed that the growing number of vaccinated people could give a sense of security to the community.

The aim of the study:

The aim of the study was to estimate the level of fear of COVID-19 during the second and third waves of pandemic among students of various faculties from all over Poland.

Material and methods:

The study has been conducted by using a two-part, anonymous questionnaire. Each respondent was asked to complete different versions at four time points of the pandemic. The first part required general information, collected data on exposure to COVID-19 infection and disease statistics among respondents and their relatives, included questions about subjective opinion about vaccination against SARS-CoV-2 and willingness to vaccinate. The second part consisted of multiple relevant research questionnaires, whereby each approach included Fear of COVID-19 Scale (FOC).

Results:

The median FOC score obtained by the participants (N=228) presented moderate decrease (part 1=14.80±4.88; part 2=14.38±4.64; part 3=13.56±4.62) until the third wave began, resulting in slight rise in score of part 4= 13.72±4.92 ($p<0.001$). Over 50% (N=122) of participants received at least one dose of vaccine. The median time spent at home during the day was 19.03±4.46 hours during the second wave and 16.52±4.63 hours during the third ($p<0.001$).

Conclusion:

There is an evident decrease in fear felt by participants comparing the second and the third waves. Participants lead lives like before the pandemic, which can be seen in the rise of the number of hours spent outside. One reason for that can be a feeling of safety caused by vaccinations, as over half of our studied population has already been vaccinated.

Investigation of stress level among medical students assesed by the Perceived Medical School Stress Instrument.

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Introduction: Medical students are vulnerable to high level of stress due to type of work they are preparing for as well as the amount of responsibilities and studying they have during their studies. Those factors often cause addictions and suicidal thoughts among medical students.

Aim of the study: The aim of the study was to investigate stress levels among medical students who are exposed to plenty of stressors.

Material and methods: We used validated and translated to the polish environment two international questionnaires: Perceived Medical School Stress Intrument and Perceived Stress Scale, to asses stress levels and characterize the factors that induce it.

Results: 60.71% of students declared high level of stress. Stress level was considerably higher among women. Study revealed that part-time students experienced higher stress levels than full-time students. Stress level was higher among second-year and sixth-year students than the other years.

Conclusions: Stress levels among surveyed students were at a high level, it needs to be monitored in the following years. In addition, stress management programs should be used to help students cope with stress.

Assessment of preventive healthcare and screening programmes in Polish student population.

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Introduction: One of the tasks of health service is encourage to take measures that have a beneficial effect on the general health of the society, for example: increasing availability and quality of preventive examinations and regular check-ups. Immunization against infectious diseases, discussing the tips for healthy, balanced lifestyle and good relationship with primary healthcare institutions is provided by primary prevention. Disease screening, identifying risk factors, periodic medical examinations are ensured by secondary prevention while monitoring and reducing the changes caused by the diagnosed symptomatic disease are provided by tertiary prevention.

Aim of the study: The aim of the study was to evaluate the situation of preventive healthcare and screening program in student population.

Material and methods: 105 students, 90 women (85.7%) and 15 men (14.3%) with mean age 23.48 ± 2.4 participated in our study. We have constructed an online questionnaire and divided it into three parts – questions about socio-demographic parameters, health prevalence and lifestyle. Statistical analysis was performed with MS Excel and Statistica 13.3.

Results: Preventive examinations are regularly performed by 52.4% of respondents. 47.2% women have never had cytology. A significant correlation was observed between the performance of regular examinations by parents and the regularity of examinations among students, which was higher among students whose parents regularly performed the examinations ($p=0.00028$). Only 42.9% students regularly perform self-examination (breasts and testicle) and 58% say they know how to do them correctly. 23.8% people get vaccinated against the flu. 55.2% of respondents plan to get vaccinated against COVID-19. 97.1% of the respondents believe that there should be more campaigns promoting healthcare.

Conclusions: The level of prevention among the student population is low. An increase can be achieved by organizing information campaigns about prevention programs. They should be carried out both among students and their parents.

Attitude towards the COVID-19 pandemic and vaccines: a Lithuanian survey

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Tutor: Dr. Ieva Norkiene

Introduction. Achieving population immunity without causing an enormous strain on healthcare resources is the main task governments are facing in their battle with the COVID-19 pandemic. Widespread vaccination is unimaginable without overcoming the population's mistrust about the safety of the vaccines and overall misconceptions about the disease itself, therefore it is important to understand the attitude of the people towards it and evaluate the factors impacting it.

Aim of the study. The aim our study was to evaluate the attitude towards COVID-19 pandemic and examine demographic, social and behavioral correlates of the resistance to a COVID-19 vaccine.

Materials and methods. Representative longitudinal online survey was conducted from the data of the World Health organisation (WHO) and other similar surveys.The survey consisted of main socio-demographic data, questions reflecting the views about pandemic management, beliefs about vaccination, immunisation and intentions to vaccinate. Statistical analysis was carried out by the SPSS statistical software package version 25.0 (IBM/SPSS, Inc., Chicago, IL). Baseline characteristics were defined using descriptive statistics.

Results. A total of 634 survey responses were included in the final data analysis. The majority of the responders were aged 20-30 (74.8%), 84.5% of them were female. 67% of the respondents said that they understand the role of vaccines in preventing infectious diseases and 94% reported having no previous side effects to them. About half (50.2%) of the people trust the Lithuanian government in managing the pandemic with around 75% abiding the restrictions. 65.9% of the respondents would be willing to vaccinate, although when asked about obligatory vaccinations only 34% gave an affirmative response.

Conclusions. Our findings suggest an overall positive attitude of the population towards the COVID-19 management strategy and individual preparedness to vaccinate and act accordingly to lockdown restrictions. Larger population studies are needed to verify the predictors of negative attitude towards COVID-19 vaccination.

Studying dentistry in Poland- is this faculty stressful for future dentists?

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Tutor: prof. dr hab. Grzegorz Kopeć

Stress is a natural feeling we experience every day- it's our body's reaction to stimuli known as stressors. It is widely said that stress may have a positive impact on our bodies to some extent (eustress) but at some point, it may be harmful and leads to psychological problems (distress).

The study aimed to evaluate the stress level among dentistry students in terms of sex, age, years of studies and study mode.

We enrolled 272 dentistry students from all five years of Jagiellonian University Medical College in Kraków including 197 female and 75 male respondents. The overall response rate was 85%. To assess the level of stress we used two independent stress questionnaires validated for the polish translation and environment: PSS-10 (Perceived Stress Scale) and PMSS (Perceived Medical School Stress Instrument).
These two cover a wide range of stressors including competition, social isolation, workload etc.

Male and female dentistry students differed significantly in total PSS-10 scores. The mean level of stress among female students was high at 22.9±6.51 and the results among the group of male students was 20.12±6.69 ($p=0.002$). First, second and fith-year students were statistically significantly more stressed than third and fourth-year students ($p<0.001$). As for the age and study mode (full-time and part-time) no statistically significant differences were observed.
Both groups did not significantly differ in the rates of stress score in the PMSS questionnaire.

During our study, we found out that the level of stress among the group of polish dentistry students is high. If we compare the results of our research with the studies conducted at foreign universities (German, American or Norwegian) we can easily find out that polish dentistry undergraduates are more stressed than their foreign colleagues. High-stress scores are likely to cause psychological problems and poor academic performance, therefore we think that support services should be made widely available to all medical students. We believe that such solutions would help students to cope with stress and thus, would help them to achieve more goals during their study period.

Increase in the incidence of periodontitis in the population of psoriasis vulgaris and psoriatic arthritis.

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Tutor: Andrzejewska M. MD DSc, prof. Adamski Z. MD, PhD,

Introduction:
Psoriasis vulgaris, and psoriatic arthritis and periodontitis are associated with similar pathophysiological disorders, including an increased immune system response. Therefore, it is important to explain the potential relationship of these two diseases with regard to their clinical course, prognosis and response to treatment. Few reports indicate a connection between psoriasis vulgaris and psoriatic arthritis with periodontal disease, but this issue requires further research.

Aim of the study:
Assessment of the relationship between psoriasis vulgaris and psoriatic arthritis and periodontal disease.

Matherial and methods:
The study was carried out on a group of 59 patients, among which the test group consisted of 30 patients with diagnosed with ordinary psoriasis and psoriatic arthritis, and a non-healthy contorn group in which psoriac was excluded. The patients underwent medical examinations to assess the patient's dermatological status (PASI, DLQI, BSA indicators) and rheumatology (CASPAR scale), as well as a clinical dental examination to assess the condition of the oral cavity (API, Pl.I), gingival condition (GI, SBI), periodontal status (PPD, CAL).
In addition, laboratory tests were performed, thanks to which the concentration of selected pro-inflammatory cytokines was determined: IL-1alpha, IL-1beta, IL-6, IL-17, tumor necrosis factor (TNF) (enzyme immunoassay ELISA) and C-reactive protein (CRP) (MULTIGENT CRP Vario test)

Results:
A positive correlation was found between the level of CRP protein and the clinical indices of GI ($p = 0.0001$), SBI ($p = 0.0004$), PPD ($p = 0.001$), CAL ($p = 0.002$). Additionally, blood levels of interleukins were positively correlated with the dental indexes PI.I ($p = 0.048$), API ($p=0.046$), SBI ($p = 0.038$), and PPD ($p = 0.043$).

Conclusions:
There is a highly likely association between periodontal disease and psoriasis vulgaris and psoriatic arthritis.
Patients with psoriasis vulgaris may experience tooth loss due to progressive periodontal disease, as higher gingivitis (GI, SBI) and periodontitis (PPD, CAL) scores have been observed. There are some correlations between interleukin levels and indicators of oral hygiene, indicators of gingivitis and periodontitis. There is a clear correlation between CRP protein levels and the gingival and periodontal health of patients with psoriasis. However, further research on markers is needed in patients with psoriasis.

21st ICYMS

PhD Session

Analysis of 25-hydroxyvitamin D2, 25- hydroxyvitamin D3 and 3-epi-25-hydroxyvitamin D3 in plasma of patients with cardiovascular disease by UPLC-MS/MS method

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Introduction: Vitamin D also has a role in protecting against cardiovascular disease. Therefore, measuring vitamin D metabolites may provide us with deep insight regarding the correlation between vitamin D and cardiovascular disorder.

Aim of the study: This study presents the development and validation of a novel method for a rapid determination of 25(OH)D2, 25(OH)D3 and 3-epi-25(OH)D3 in human plasma by UPLC–MS/MS. The method was used to analyze these compounds in clinical samples of cardiovascular disease patients.

Material and methods: Hexane was used for liquid-liquid extraction to isolate metabolites from plasma. Metabolites' separation was done in Kinetex F5 analytical column at 40 °C. The mobile phase was a mixture of water and methanol (80:20), both containing 0.1% (v/v) formic acid. The flow of the mobile phase was adjusted to 0.35 mL/min, and 10 μL was used for injected sample volume. Detection of the analytes was performed on a triple-quadrupole MS with multiple reaction monitoring via electrospray ionization.

Results: The calibration curves for metabolites were linear in the range 1.0-100.0 ng/mL. The results for quality control samples at low, medium, and high concentrations were less than 15% indicating good intra- and inter-day precision and accuracy. The short-term and long-term stability of the analytes were determined.

Conclusions: The UPLC–MS/MS method is specific, repeatable, reproducible, adequately accurate and precise and fulfils the EMA validation requirements for the bioanalytical method. The method was successfully applied for the analysis of 25(OH)D2, 25(OH)D3 and 3-epi-25(OH)D3 in plasma of patients with cardiovascular disease and allowed to identify the patients with deficient levels of the studied compounds.

Keywords: Epi-hydroxyvitamin D; Deuterated internal standard; Liquid-liquid extraction; MS/MS detection; Validation

COMPARISON OF THE ANTI-INFLAMMATORY EFFECTS OF CANNABIDIOL AND DICLOFENAC IN HUMAN HaCaT AND A431 CELLS

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Cannabinoids can act on inflammation through mechanisms different from agents such as nonsteroidal anti-inflammatory drugs (NSAIDs). They are also free from the adverse effects associated with NSAIDs. Thus, their clinical development provides a new approach to the treatment of diseases characterized by acute and chronic inflammation. Nuclear factor-kappa B (NF-κB) is a mediator of inflammatory pathway, regulating pro-inflammatory enzymes, such as cyclooxygenase-2 (COX-2), and playing a significant role in carcinogenesis.

Aim of the study: These preliminary studies aimed to compare the effect of cannabidiol (CBD) and diclofenac (DCL) on the NF-%u043AB signaling pathway in normal and cancer skin cell lines.

Material and methods: HaCaT cell line of spontaneously immortalized keratinocytes and A431 epidermoid carcinoma cells were grown in standard conditions. The cell viability was assessed by the MTT assay. Cells were incubated for 24 h with CBD and DCL, and then cytosolic and nuclear fractions were isolated. The activation of NF-κB p50 and p65 was assessed by measuring their translocation from cytosol to nucleus and the level of COX-2 by the Western blot method.

Results: CBD reduced the cell viability in a dose-dependent manner and was more cytotoxic than DCL in both tested cell lines. DCL was less effective than CBD in HaCaT and A431 cell lines. CBD reduced the NF-κB activation, resulting in a diminished level of COX-2 protein in the cytosolic fraction in both cell lines, while its effect was more significant in cancer cells.

Conclusions: These results indicate that CBD was a more potent suppressor of the NF-κB signaling pathway than DCL. Concurrently it downregulated the COX-2 protein level more efficiently in cancer cell lines. Thus, it might be considered as a potential chemopreventive and/or therapeutic agent and might potentially enhance the effect of DCL.

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Laboratory risk factors of developing critical COVID-19 in hospitalized patients

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Tutor: prof. dr hab. Piotr Leszczyński, dr n. med. Katarzyna Pawlak-Buś

Introduction

Since March 2020 we have been facing global pandemics of Coronavirus disease 2019 (COVID-19), although our knowledge of this disease remains limited. Identification of laboratory risk factors of developing respiratory failure can contribute to early recognition of patients that will need respiratory support.

Aim of the study

The objective of our study was to identify abnormalities in laboratory results that can precede progression from moderate or severe to critical COVID-19.

Materials and methods

We retrospectively analysed laboratory data of 177 patients admitted with moderate or severe COVID-19 to Jozef Strus Municipal Hospital in Poznan Rheumatology and Osteoporosis Ward that has functioned as a ward for patients infected with SARS-CoV-2 from 16th March 2020. Eligibility criteria included positive SARS-CoV-2 RNA RT-PCR result and ground glass opacities in chest computed tomography. Laboratory results taken into analysis were obtained during first 48 hours of hospitalization. Critical COVID-19 was defined as achieving at least 6 points in WHO Clinical Progression Scale during hospitalization. Statistical analysis was conducted with the use of Statistica v.13.3 and MedCalc v.19.8. We performed univariate analysis using chi-square and Fisher exact test. Then, we performed multivariate binary stepwise logistic regression with backward elimination using risk factors obtained in univariate analysis as dependent variables.

Results

We identified 42 patients who developed critical COVID-19. In multivariate analysis following laboratory risk factors of developing critical COVID-19 were found: highly sensitive troponin I concentration (hs-TnI) >26 ng/mL (OR 13,45; 95%CI 3,28-55,11; p<0,001),), neutrocytes to monocytes ratio (NMR) >15 (OR 5,67; 95%CI 1,97-16,36), serum interleukin-6 (IL-6) concentration > 50 pg/mL (OR 5,52; 95%CI 1,86-16,37; p=0,002),), fasting glycaemia >6,8 mmol/L (OR 4,74; 95%CI 1,65-13,66; p=0,004), immature neutrophils count >0,06/μL (OR 4,06; 95%CI 1,35-12,2; p=0,01) and urine protein concentration >500 mg/L (OR 2,94; 95%CI 1,04-8,31; p=0,043).

Conclusions

The most significant risk factors of developing critical COVID-19 during hospitalization are: elevated hs-TnI, IL-6 and glucose serum concentrations, increased immature neutrophil count and NMR and proteinuria during first 48 hours after admission.

Radiological abnormalities in on-admission chest computed tomography as risk factors of developing critical COVID-19

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Introduction

Coronavirus Disease 19 (COVID-19) is a life-threatening pneumonia caused by Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) Chest X-ray and computed tomography (CT) are two most widely used imaging modalities in assessment of pulmonary abnormalities in this disorder. Identification of radiological risk factors of critical COVID-19 can help clinicians in early recognition of patients that may develop respiratory failure.

Aim of the study

The objective of our study was to identify abnormalities in radiological abnormalities in chest CT laboratory results that can precede progression from moderate or severe to critical COVID-19.

Materials and methods

Chest CT scans obtained with the use of Siemens Somatom Sensation 64-slice computed tomography machine of 177 patients were retrospectively analyzed. Patients were admitted with moderate or severe COVID-19 to Jozef Strus Municipal Hospital in Poznan Rheumatology and Osteoporosis Ward that has functioned as a ward for patients infected with SARS-CoV-2 from 16th March 2020. Eligibility criteria included positive SARS-CoV-2 RNA RT-PCR result and abnormal CT.

Critical COVID-19 was defined as achieving at least 6 points in WHO Clinical Progression Scale during hospitalization. Statistical analysis was conducted with the use of Statistica v.13.3 and MedCalc v.19.8. We performed univariate analysis using chi-square and Fisher exact test. Then, we performed multivariate binary stepwise logistic regression with backward elimination using risk factors obtained in univariate analysis as dependent variables.

Results

We identified 42 patients who developed critical COVID-19. In univariate analysis we detected 13 risk factors that were used in logistic regression and following radiological risk factors of developing critical COVID-19 were found: involvement of more than 50% of lung parenchyma (OR 9,7; 95%CI 3,44-27,32; p<0,001), bronchiolectasis (OR 5,82; 95%CI 1,85-18,34; p=0,003), dilated pulmonary arteries (OR 3,69; 95%CI 1,30-10,52; p=0,014); diffuse distribution of opacities (OR 3,32; 95%CI 1,12-9,79; p=0,03).

Conclusions

The most significant radiological risk factors of developing critical COVID-19 during hospitalization are: involvement of more than 50% of lungs, bronchiolectasis, dilated pulmonary arteries and diffuse distribution of opacities.

Variation of T cells activation and PD-1 expression in sentinel node correlates with prognosis and survival in oral squamous cell carcinoma

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Introduction

Improved understanding of the host's immune status in oral squamous cell carcinoma (OSCC) may facilitate identification of patients at higher risk of recurrence and improve patients' selection for ongoing clinical trials assessing the effectiveness of immune checkpoint inhibitors (ICI). ICI have revolutionized cancer management, yet the effect of systemic anti-PD-1 treatment is predominantly studied in tumor-infiltrating lymphocytes. Its impact on PD-1 expressing cells in tumor-draining lymph nodes (TDLNs) is not well understood and yet to be explored. Thus, further research aiming for better understanding of the PD-1 pathway not only in tumor tissue but also in TDLNs is warranted.

Aims of the study

We aimed to investigate Sentinel Node-derived T cells characteristics and their impact on survival.

Material and methods,

We enrolled prospectively 20 OSCC patients treated at Karolinska University Hospital, Stockholm, Sweden with primary tumour excision and elective neck dissection. On top of the standard treatment, the enrolled patients underwent sentinel node procedure. T cells derived from Sentinel nodes, non-sentinel nodes, primary tumour and PBMC were analyzed in flow cytometry.

Results

Our data showed that both helper and cytotoxic T lymphocytes in OSCC tissue were highly activated and expressed high level of PD-1 (over 70% positivity). Lymphocytes in TDLNs and peripheral blood expressed significantly lower levels of PD-1 and other activation markers compared to TILs. Furthermore, we proved that patients with a high percentage of $CD3^+$ $PD\text{-}1^+$ cells in TDLNs had significantly lower disease-free and overall survival rates (log-rank test P = .0272 and P = .0276, respectively). Sentinel nodes derived T regulatory cells were also significantly more activated compared with non-sentinel nodes.

Conclusions

Taken together, we proved that flow cytometry of lymph nodes in OSCC is feasible and may be used to investigate whether PD-1 levels in TDLNs correspond with survival and potentially with response to anti-PD-1 therapy. Such knowledge may ultimately help guide anti-PD-1 treatment.

Metacarpal reconstruction using autologous tissue after amputation of dysfunctional little finger - huge sacrifice or little loss?

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Tutor: dr Maciej Brębborowicz

Background

The prognosis of a multi-tissue hand injury depends on the extent and degree of damage to vital structures. Long-term multi-stage treatment is often necessary. In treatment planning, the patient's expectations are essential. Thinking outside the box is fundamental because each patient is a challenge.

Case presentation

A 53-year-old male with crush injury of right hand, amputation of the 4th and 5th metacarpal bones and hamate bone, fracture of the 3rd metacarpal, damage to the II-V finger flexors and extensors, injury of ulnar nerve and artery. Initially treated in a different center - wound debridement, stabilizing the 3rd metacarpal with "K" wires and skin sutures. Treatment was complicated by necrosis of metacarpal soft tissues. Necrotic was removed, wound was cleaned, and a negative pressure wound therapy was applied. The soft tissue defect was covered with a middle-thickness skin graft.
It was healed, but still, there was a loss of metacarpal tissue. Lack active movement of the little and ring finger's, the long and index finger movement was significantly limited. Lack of motor and sensory function of the ulnar nerve.
The recovery of little finger function was poor, the patient was offered amputation using pedunculated proximal and middle phalanges to reconstruct the 4th metacarpal bone. The hamate bone was restored from the 5th metacarpal's head and distal phalanx. Dorsal side of the hand was covered with a flap from the little finger.
After the operation, the part of the skin flap was poorly supplied with blood. It was decided to observe and change the dressing regularly and undergo regular outpatient control.
Currently, the patient is satisfied with the results and is waiting to be admitted in 6 months to continue the treatment.

Conclusion

The complete lack of movement and feeling on the little finger didn't predict a good function in the future; it could even interfere with everyday functioning. Amputation allowed the use of the patient's valuable own tissues to reconstruct the remaining structures and improve the hand's aesthetics. Further stages of treatment and long-term rehabilitation are still necessary.

Quality of resuscitation procedures during training and simulation of high fidelity - comparison

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Tutor: prof. Jan Godziński

Introduction: The proper conduct of resuscitation procedures is crucial for the survival of patients after cardiac arrest. The situation in which you need to use the first aid skills in practice can be extremely stressful for witnesses of accidents. Fear and stress may result in lower quality of rescue operations.
Aim of the study: The aim of the work was to check the quality of CPR in training and simulation situations to reflect real situations.

Materials and methods: The study used the "Resusci Anne QCPR" mannequin, measuring the parameters of CPR. 15 people participated in the study - medical students trained in the first aid. The study consisted of two parts. In the training part, the respondents were conducting a resuscitation for 2 minutes, in the simulated test part the scenario of sudden loss of consciousness of the elderly man at the railway station was presented. The students' task was to check for breathing, call for help, send witnesses to the AED and conduct a 2-minute CPR. The results of CPR parameters in both groups were compared.

Results: 13 people performed worse resuscitation procedures during simulation, computer program rated average CPR during training at 89.85%, and during simulation AT 81.77%. Particularly large differences were visible in the quality of compressions, whose average score during the training was 91.08%, and during the simulation 76%. Interestingly, during the simulation, a higher mean compression frequency was found, amounting to 124.8 /minute, which is higher than the frequency recommended by the ERC. The correct speed in the range from 100-120 compressions per minute was found in 10 students during the training and only 3 during the simulation.

Conclusions: The decrease in the quality of resuscitation during simulation may be a proof of a decrease in the quality of CPR procedures in clinical settings. It is important to conduct classes in simulation conditions, preferably simulations of high fidelity.

Geriatric patient in the ED

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Tutor: prof. Jan Godziński

Introduction: Ageing is a process which influences both physical and psychological health. Geriatric patients – over 65 years old – usually suffer from many chronic diseases. Common polypharmacy leads to many side effects. Cognitive disorders, typical among elderly people, frequently makes completing medical history difficult.

Aim: The aim of our work was to check a general society view on geriatric patients' treatment in Emergency Department.

Methods and materials: With the use of anonymous, author's questionnaire spread via the Internet we collected 397 responses.

Results: Majority of respondents believe that geriatric patients aren't the dominant group of patients in Emergency Department. On the other hand considerable amount of elderly patients' examinations is found ungrounded by 48,6% respondents. Furthermore 27,5% of all asked people answered that this might be the reason for other patients' worse medical treatment. In case of slight senior health decompensation up to 17,6% respondents would call Emergency Service rather than General Practitioner. Similarly 46,4% of asked believe that senior patients will get better medical treatment in the Emergency Department than from General Practitioner. At the same time up to 70,8% respondents claim that elderly patients are treated disrespectfully by hospital staff.

Conclusions: The society should be constantly educated what kind of disorders are indications for admission to the Emergency Department. Therefore hospital wards would not be overloaded. It is also important to pay attention to the way which geriatric patients are treated by the medical staff.

Mechanical thrombectomy and stenting - case report of a 56-year-old patient with ischemic stroke.

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Tutor: professor, Ph.D Kornelia Kędziora-Kornatowska

Ischemic strokes happens when an artery supplying some part of the brain with blood becomes obstructed and the blood does not flow through it or does not flow enough to allow the brain cells to receive as much as they need. Among this type, embolic stroke is also distinguished, one in which carotid and cerebral arteries are occluded. Mechanical thrombectomy is used if the embolism is in an not stenotic vessel, while mechanical thrombectomy and stenting is performed in the event of an embolism in a stenotic vessel.

A 56-year-old patient admitted to the hospital due to obstruction of RICA and RMCA. The extent of obstruction by many radiologists could disqualify that patient for thrombectomy. In the neurological examination, the patient was in a good general condition, conscious. In preliminary diagnosis: acute anterior cerebral circulation failure, left-sided paralysis, right hemisphere infarction, dysarthria.Qualified for thrombolysis by intravenous Actylise infusion, NIHSS = 14 points. The procedure was performer with a puncture into the right femoral artery. Angiography showed RICA obstruction from the level of the pad. After obstruction, another angiography was performed, showing RMCA obstruction. Managed by aspiration and thrombectomy. Next in the neuroprotection sheath and after Brilique administration, ICA balloon surgery was performed, with a stent inserted by the balloon. Thrombolysis in myocardial infarction was successful. The insertion site was protected by an occluder. The control DynaCT showed a hyperdense focus in the right hemisphere for a CT scan. After excluding intracranial bleeding, double antiplatelet therapy was prescribed. After the unblocking treatment, an improvement in the neurological condition was achieved in the form of the transition of the paralysis to left-sided hemiparesis and reduction of dysarthria, NIHSS 6 points.

Thrombectomy is a method of remarkable effectiveness in the treatment of cerebral ischemia. By reducing the infarct area, patient's condition was improved. The described case had extensive RICA and RMCA obstruction, however, thanks to performed method, neurological defects were reduced. The patient received recommendations.

Diagnosis of preeclampsia in women with diabetic kidney disease (DKD)

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Tutor: Ewa Wender-Ożegowska, MD, PhD, Prof.

Introduction: Preeclampsia (PE) is one of the most severe obstetrical complications, affecting 2-3% of pregnant women. In pregnant women with DKD, it is especially challenging to diagnose PE and diversify it with DKD progression.

Aim:

We aimed to determine the frequency of PE among patients with DKD and find the best matching criteria for PE diagnosis in this group of patients. We evaluated risk factors: hypertension, proteinuria, retinopathy, and prevention methods aspirin use and insulin therapy methods.

Material and methods:

We included 79 patients in the first trimester with DKD. All patients had diabetes with renal complications , lasted for at least twenty years, and/or started before the age of ten.

We used the International Society for the Study of Hypertension in Pregnancy preeclampsia criteria with the adjustment made by Wiles et al. for patients with chronic kidney disease to determine the renal component of PE.

Results:

In our group of patients proliferative retinopathy was diagnosed in 16 patients (20,2%), proteinuria in 10 patients (12,6%), coronary artery disease in 2 patients (2,5%), chronic hypertension in 11 patients (13,9%).

PE was diagnosed in 18 patients (22,8%) that stands for 48,1 % of patients with pregestational proliferative retinopathy and/or proteinuria, and 9,6% of patients without vascular complications.

Patients diagnosed with preeclampsia were significantly older ($p=0,004$) and had longer diabetes duration ($p=0,0001$). We observed in group with PE significantly more hypertension and proteinuria in all trimesters, creatinine concentration, and creatinine clearance in the third trimester. Patients using insulin pumps were less likely to develop PE than patients using insulin pens.

Fetal growth restriction (FGR) incidence was higher among patients with PE (27,8% vs 0,6% $p<0,05$)

Conclusions:

Long-lasting diabetes is a significant risk factor for PE. Proteinuria, hypertension, and retinopathy amplify the risk. Placental insufficiency manifested by FGR is a clinical element of PE development. Insulin pump therapy helps to prevent PE.

The role of adropine and neopterin in the course of gestational diabetes and the development of related complications- preliminary study.

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Tutor: Ewa Wender-Ożegowska

Adropin promotes glucose oxidation in relation to fatty acid oxidation in muscles. Neopterin is a low molecular mediator of the cellular immune response; is called an inflammatory marker.

We aimed to assess the concentrations of adropin and neopterin in the course of gestational diabetes (GDM) and their possible relationship with obstetric complications.

We included 65 obese and overweight pregnancies (BMI> 27 kg/m2) with GDM and diabetes in pregnancy (DIP) acc. to HAPO criteria. Blood samples we collected during two visits: V1- between 28-32 and V2- between 37-39 weeks of gestation. The concentrations of adropin and neopterin were determined using ELISA. The study group was assessed in terms of anthropometric, metabolic control and obstetric effects.

At V1, the mean level of adropin was 532.32 mmol/ml, the median level for neopterin was 2.54 mmol/ml. At V2, the mean adropin was 589.67 mmol/ml, and the median for neopterin was 3.27 mmol/ml. We noticed that concentration of both cytokines rose significantly between V1 and V2 ($p<0,02$ and $p<0,002$ respectively).
Patients were divided according to the quartile distribution of adropin and neopterin concentrations. Patients with a higher concentration of adropin (the second quartile) had statistically significantly lower body weight and BMI ($p<0.01$) at V1. However, at V2, patients with higher levels of adropin (in the second quartile) had greater weight gain since V1 than patients in the first quartile ($p<0.01$). Higher neopterin values in the second quartile at V1 were associated with significantly lower HbA1c values during patient recruitment compared to the first quartile. At V2 the body weight of patients at higher neopterin values was significantly lower in comparison with those at lower concentrations ($p<0.01$).

Higher adropin in the third trimester was associated with lower body weight and better metabolic control. The atropin increase in the third trimester might have caused lower weight gain and better dietary adherence and probably effected on increasing insulin resistance. Impact of increased adropin level of obstetric complications was not observed. The role of neopterin in maternal weight has to be further analysed.

21st ICYMS

Dentistry Case Report

Hemisection as an illustrative procedure in the endodontic surgery - case reports

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Tutor: prof. dr hab. n. med. Anna Surdacka

Background
A hemisection involves removing one of the tooth roots with its coronal portion, most commonly in mandibular molars. It is an alternative to tooth extraction in case of complications after endodontic or periodontal treatment.

Case report
This presentation reports two clinical cases describing hemisection procedures in the right mandibular first molars. The first one was performed in the 63-year patient with caries drifting along the distal root below the bone level, and the second one in the 34-year patient with the exacerbated periapical lesion at the mesial root after unsuccessful endodontic retreatment in another dental office. Under conduction anaesthesia, the tooth crown was cut in the vestibular-lingual direction, and one half was removed along with the root. In both cases, the procedure was performed correctly and ensured the long-term preservation of the rest tooth parts.

Conclusions
The prognosis of a hemisection is similar to routine endodontic treatment, provided that the choice of procedure is appropriate to the clinical case, the root canal treatment is performed correctly, and the prosthetic restoration is satisfactory in relation to the occlusal and periodontal needs of the patient.

Regional odontodysplasia – rare developmental dental anomaly: a case report

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Tutor: Prof. Anna Surdacka, DDS, PhD

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Tutor: Prof. Anna Surdacka, DDS, PhD

Regional odontodysplasia – rare developmental dental anomaly: a case report

Background

Regional odontodysplasia is a rare developmental dental anomaly affecting ectodermal (enamel) and mesodermal tissues (dentine, cementum, pulp). Hypocalcification and hypoplasia of dental hard tissues are most often observed in one quadrant. The aetiology of the disease remains still uncertain - the harmful local factor in the perinatal period is considered. It occurs more often in the maxilla, with a predisposition to females.

Case report

The report presents a clinical case of a 5-year-old boy with regional odontodysplasia affecting deciduous and permanent dentition in the left quadrant of the mandible. The radiological image revealed characteristic "ghost teeth" (with a large pulp chamber and thin walls) in primary dentition and poorly developed buds of secondary teeth. Other teeth do not show any pathology. During the past several months, because of recurrent purulent inflammations milk teeth (in sequence 73, 74, 72, 71 and 75) were surgically removed. Due to the early loss of primary teeth, a removable denture was planned, whereas, in case of expected deficiencies in secondary dentition, implantoprosthetic treatment is considered after the growth period.

Conclusions

In the literature, among dentists there is no consensus on the treatment of choice. However, it is suggested that teeth affected by this disorder should not be extracted until inflammation occurs to allow the development of surrounding bone. Due to the functional and aesthetic needs changing with age, the patients with odontodysplasia require long-term specialist care.

Dense bone island in mandible – a case report

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Tutor: Prof. Anna Surdacka

Background

A „dense bone island" (DBI) is described as an isolated, non-expansible, asymptomatic and radiopaque lesion descend from the trabecular bone. It's also known as idiopathic osteosclerosis, enostosis, bone scar and focal periapical osteopetrosis. The DBI is round, elliptical or irregular in shape with a variable but more often modest size. It appears with a higher prevalence in the molar region of the mandible. The aetiology is unclear. In some studies, DBI is considered as an anatomic variation or a developmental bone lesion.

Case report

A case report of a seventeen-year girl presents a dense bone island, accidentally observed on the right side of the mandible in the premolar-molar region on the orthopantomogram. A uniformly radiopaque lesion had a two-dimensional size of about 1.5x0.8 cm. There were no visible signs of connection with root apices and their resorption. The teeth were vital without any symptoms. For further diagnostics, the patient was referred for cone-beam computed tomography. The exact dimensions of the lesion were 14.9x8.9x7.5 mm (maximum values along central axes; respectively length, height and width). This dense bone island bordered directly cancellous bone and only medial periphery was combined with bundle bone on the lingual side of the mandible. Because of benign lesion character, the periodical radiological observation was recommended.

Conclusions

In differential diagnosis it must be considered several radiopaque lesions such as condensing osteitis, exostosis, hypercementosis, osteomas, osteoblastomas, fibro-osseous lesions, odontomas, cementoblastomas, root segments and even impacted teeth. Due to good isolation, limited growth and no symptoms presence the dense bone isles ordinarily don't require any treatment.

Supernumerary teeth: a case report of multiple distomolars in a non-syndromic patient

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Tutor: assoc. prof. Błochowiak K., DDS, PhD

Supernumerary teeth develop in excess of the normal number of teeth. This abnormality occurs infrequently. The majority of the cases has been reported in patients with syndromes including cleidocranial dysplasia, Gardner's syndrome, cleft lip and palate. The number of non-syndromic findings is relatively low. The presence of supernumerary teeth may cause crowding, displacements, failure of eruptions and other anomalies. Supernumerary teeth that erupt distally to the third molar are called distomolars.

Our study presents a case of a 16-year-old non-syndromic patient. He was orthodontically treated for distocclusion, the narrowness of the upper arch, an excessive overbite and crowding. From the age of seven to the age of twelve, the patient used Schwarz appliance. Afterward, he received fixed appliance therapy which was undertaken in a 34-month period. Orthopantomograms were performed before, in the middle and at the end of that phase. They revealed the presence and development of two bilateral fourth molars in maxilla and one unilateral fourth molar on the right side of the mandible. To minimize the negative consequences such as formation of dentigerous cyst, enlarged follicular sac, failure of eruption, pathological resorption and displacement of the permanent teeth, extraction is recommended.

Presented case indicates necessity of early radiological investigation and long-lasting monitoring of the supernumerary teeth growth to exclude the possible complications related to their presence and to implement necessary treatment.

Post-traumatic external cervical resorption – a case report

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Tutor: Prof. Anna Surdacka

Background

Resorption is defined as the loss of hard tooth tissue and alveolar bone resulting from physiological or pathological processes. Inflammatory cervical resorption, as the name implies, begins in the cervical region of the tooth, specifically directly below the epithelial attachment.

Case report

The case report presents a 21-year-old female who sustained trauma of maxillary incisors twice within two months after bicycle accidents. After the second injury, she immediately self-set the extruded tooth 11 to the alveolus. Because of the discomfort lasting for two months, the patient was referred for the control X-ray, which showed a greater range of radiolucent lesion in the cervical area. For a more accurate diagnosis, in the CBCT, resorption defects were observed in the cervical region from the mesial and distal sides of the root as well as in the apical region. Due to the progressive cervical resorption development, endodontic treatment was implemented with the temporary filling of the root canal with calcium hydroxide for four weeks. After half a year, the control radiograph of the tooth was taken, which showed resorption changes of comparable size to the previous.

Conclusions

Treatment of external cervical resorption depends on the location of the lesion, the degree of damage to the hard tissues of the tooth, and whether the defect extends to the pulp. Resorptive defects were classified in a variety of ways to help clinicians select the correct treatment.

Patient with odontogenic maxillary sinusitis.

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Tutor: Dr hab. n. med. Katarzyna Błochowiak

Author: Aleksanra Klimowicz
Tutor: dr hab.n.med. Katarzyna Błochowiak

Background

Odontogenic maxillary sinusitis constitute 10% amongst all causes of sinusitis.
Proximity premolars' and molars' apical roots and ongoing disease processes facilitate spread of inflamation to sinus cavity.
Acute maxillary sinusitis characterized by severe pain, which intensifies during touch infraorbital area. Purulent discharge occurs out of the nasal cavity on the side with inflammation. A frequent symptom is an increased body temperature, thus the patients are firstly prescribed antibiotics to mitigate general symptoms and to prevent further spread of inflammation.
Epidemiological data indicate constant growth in the number of patients affected with sinusitis. Consequences of untreated caries, purulent lesions including, only intensify this issue.

Case Report

The patient, 42 years old, reported pain in the right infraorbital area, swelling of right cheek and oral vestibule and purulent leakage from the right nasal opening. Pantomographic photo was taken and presented cyst in the periapical space of tooth number six, radiolucent in the right sinsus was identified. The decision to extract tooth 16 was made. Within the local anesthetic, trapezoidal cut was made, muco-osteo-cutaneous flap was delaminated and perforation cortical bone from the vestibular side in the are of causal tooth 16 was exposed. Tooth 16 was extracted together with the root of tooth 15, cyst was removed from maxillary sinus, granulation tissue was scooped from the alveolar recess of the maxillary sinus and sinus was rinsed. The resulting oroantral fistula was closed with Wassmund-Borusewicz method, using flap extracted from the cheek. Non – absorbable sutures Dafilon nr 5.0 was insterted and Augmentin together with Nimesil and Xylometazolin was prescribed.

Conclusions

The patient requires long-term postoperative observation and control of closed oroantral fistula. The need for reapeted surgically conventional or endoscopic process of the maxillary sinus process is not excluded.

Maxillary supplemental canine - a case report

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Tutor: prof. MD-PhD Teresa Matthews-Brzozowska

Introduction: The occurrence of supernumerary teeth in the maxillary canine region is a very rare dental anomaly. It has been estimated to account for only 1.5% of cases of supernumerary teeth. The etiology still remains unknown.
Aim: To discuss the significance and implications of this pathology in clinical practice.
Materials and Methods: We report the case of a 10-year-old boy without comorbidities who was diagnosed with a supernumerary canine in the maxilla.
Results: The occurrence of a supernumerary canine in the maxilla is a very rare phenomenon that poses an aesthetic and functional problem. X-rays and CBTC are useful in making the diagnosis.
Conclusions: A supernumerary canine in the maxilla is usually an indication for extraction.

Extensive medication-related osteonecrosis of the jaw (MRONJ) in a patient with metastatic breast cancer treated with zolendronic acid - a case report

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Tutor: Anna Starzyńska MD, PhD, DSc, Professor of Medical and Health Sciences

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Abstract

Background

Medication-related osteonecrosis of the jaw (MRONJ) consists in the destruction of exposed bone, with the exposure persisting for a minimum of 6-8 weeks. It occurs in patients during or after treatment with antiresorptive or antiangiogenic drugs (e.g. bisphosphonates, denosumab). It develops in patients who did not undergo head and neck radiotherapy and were not diagnosed with facial bone metastases

This work highlights the importance of interdisciplinary approach and difficulties in the treatment of a patient with MRONJ.

Case report

A 50-year-old female was admitted to the Department of Oral Surgery Medical University of Gdańsk due to pain of the maxila. In intraoral examination was a visible exposed bone fragment distally behind the last tooth, purulent discharge during pressure. The patient was taking intravenous ZOLENDRONIAN ACID for a three years due to metastasis of breast cancer. The surgery was planned for the antibiotic prophylaxis. Under local anesthesia, a mucoperiosteal flap was performed, the necrotic tissues were %u200Brecovered. %u200BA-PRF membanes was applied to the wound.

Conclusions

Treatment for MRONJ is very long and difficult. Sometimes it is necessary to include alternative methods in addition to surgery. It may represent a valuable treatment option for MRONJ.

Between the cyst and the tumor - an odontogenic keratocysts

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Abstract

Background

Odontogenic keratocyst (OKC) is is a rare and benign but locally aggressive developmental cyst. It most often affects children and adolescents. It is occurred the posterior mandible. OKC can be asymptomatic. Typically, symptoms present with bone destruction and expansion, pain, swelling, face asymmetry, tooth movement and resorption, pathological fracture of the mandible and Vincent's symptom. In the maxilla, OKC is growing more aggressive course compared to the mandibular region. OKC can relapse frequently, which depends on the type of treatment.
The aim of this work was to present diagnostic imaging of patients with OKC and its coincidence with Gorlin-Goltz syndrome.

Case reports

We present case series of three patients who presented osteolytic lesions occurring in mandible or in maxilla. Further medical examinations were made (orthopantomography, computed tomography or cone beam computed tomography, histopathological examinations). The presence of odontogenic keratocysts were found. Additionally, Gorlin-Goltz syndrome was diagnosed in each cases of the patients. Treatment modalities were personalized to achieve satisfactory results. Lesions were treated by enucleation. The patients after the procedures were under observation.

Conclusions

Odontogenic keratocyst is characterized by frequent recurrences and aggressive growth. Clinical and radiological examinations should be performed regularly.

Trichorhinophalangeal syndrome type I – case report

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Tutor: Assoc. Prof. Karolina Gerreth, DSS, PhD

Background

Trichorhinophalangeal syndrome type I (TRPS1) is a rare genetically determined disease with autosomal dominant inheritance in most patients. It is characterized by a dysmorphic triad involving a pear-shaped nose and prominent ears, thin and sparse hair, and short stature. The combination of symptoms helps in the early diagnosis of the disorder classified as skeletal dysplasia. Moreover, patients exhibit dental symptoms such as hypodontia, the presence of conical-shaped teeth or delayed teething. TRPS1 syndrome is a disease with extremely variable expression, with clinical phenotypes that can be quite mild, and, therefore, it may be often undiagnosed.

Case report

A case report of a patient with diagnosed TRPS1 syndrome showing a characteristic dysmorphic triad was presented. A class III skeletal pattern was diagnosed, as well as dental abnormalities characteristic of this disease, including missing teeth and irregularities in the shape of the teeth.

Conclusions

As a result of an early diagnosis of the disease the child can receive multi-specialist medical and dental care. Interdisciplinary treatment helps in obtaining functionally and aesthetically satisfactory results and in keeping the teeth healthy until adulthood. Such procedures ensure the improvement of the physical and mental well-being of patients affected by this syndrome.

Fused incisors in the dentition of a 10-years-old male patient- case report.

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Tutor: PhD Agata Tuczyńska

Background: Among the dental abnormalities, there are disorders of both the number and shape of the teeth, which disturb the harmony of the dental arch, driving the formation of malocclusions. Double teeth might be present in the primary or secondary dentition. Among the double teeth, there are fused teeth and geminated teeth. Fused teeth result from joining two or more tooth buds within enamel and dentin, the crown has a groove along the long axis of the tooth, and the chambers may be separate or common, depending on whether the infusion is partial or final. Fusion of two teeth buds may occure as one tooth is clinically missing in the dental arch. A case report: A ten-year-old male patient presented to the Orthodontic Clinic with a main complaint of the presence of the different shape of the teeth. Intraoral and radiological examination revealed the presence of permanent fused teeth due to the fusion of tooth buds 41 and 42, and the shift of the medial line to the right. The patient was qualified for orthodontic treatment with removable appliance. Treatment with the Schwarz plate was started. Conclusions: Orthodontic treatment of a patient with disorders of the shape and number of the secondary teeth requires an interdisciplinary approach including specialists in the field of conservative dentistry and prosthetics. The patient's treatment will be long-term and multi-stage, ensuring satisfactory and stable smile aesthetics.

21st ICYMS

Surgical Case Report I

Case Report: recurrent chronic sinusitis associated with Sjögren's syndrome

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Tutor:

Presenting author: Sarah Palmer
Co-author: Mishti Sharma
Tutor: Associate Professor Dr. Małgorzata Leszczyńska

Background:
Sjn's syndrome (SS) is a common chronic autoimmune disease with an unknown etiology. It predominantly affects middle-aged females and results from exocrine lymphocytic infiltration, keratoconjunctivitis sicca, and xerostomia. Chronic sinusitis (CRS) is characterized by persistent symptoms including nasal inflammation, discharge, pain, anosmia, and lack of taste. Functional Endoscopic Sinus Surgery (FESS) is often successful in treating CRS. This study highlights an atypical case of CRS in a patient who was treated for five years unsuccessfully until her correct diagnosis of SS.

Case Report:
A female, 32, with previously diagnosed CRS presented with recurrent symptoms (purulent nasal discharge, congestion, and headaches). The previous FESS included a septoplasty, conchoplasty, uncinectomy, antrostomy, and opening of ethmoid and sphenoid sinuses. Recurrent hypertrophy of the nasal cavity and ethmoid mucosa, sputum, and pus in the right nasal cavity was found. The patient underwent re-FESS including ethmoidectomy, frontonasal duct widening, and removal of maxillary sinus exudate. An extensive pharmacological regimen was prescribed. Post-surgery examination showed an unobstructed nose with mucosal inflammation and clear sinuses. The patient's headaches and nasal discharge persisted and examination showed bilateral edema in the periorbital, parotid, and lower lip regions. Her vision was obstructed with painful eye movement. The patient's poor response to FESS indicated that further immunological investigation was needed. The pANCA, cANCA, I81 - CRP, C55 tests were inconclusive. The edema was treated with medication. A rheumatologist was consulted after a lower lip and salivary gland biopsy was taken. Histological results were conclusive of SS.

Conclusion:
If the surgical intervention of CRS is unsuccessful, an autoimmune disease, predominantly granulomatosis with polyangiitis, is suspected, however in this case SS was found. Additional research is needed on CRS and SS involvement to shorten diagnostic time and patient burden.

Superiority of laparoscopy in emergency cases over classical open surgery - case report

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Tutor:

Introduction: Acute abdominal pain is a leading symptom in case of many surgical emergency patients. Laparoscopy allows for accurate diagnosis and immediate treatment of many acute abdominal conditions, offering a better view of the abdominal cavity compared to an open surgery.
Case report: A 46-year-old woman came to the emergency room on 27.02.2021 due to increasing pain in the right lower quadrant of the abdomen since the morning. The pain was localized in the lower abdomen since the beginning, and not migrated. She reports a lack of appetite due to the pain. So far she has not been treated for anything nor operated. Physical examination showed tenderness to palpation in the right lower quadrant of abdomen. Peristalsis were subdued and lazy. Laboratory tests: CRP 5.6, WBC 12 000. There was no changes in the USG examination. After a few hours, the inflammatory parameters increased. In view of the above, she was qualified for laparoscopy suspecting acute appendicitis. Intraoperatively it turned out that the appendix was found unchanged, and purulent fluid was found in the pelvis. Further inspection of the peritoneal cavity revealed a duodenal pad perforation, laced with omentum. A 24-year-old woman came to the emergency room on 11.02.2021 due to right lower abdominal pain lasting for the past 2 days. Her abdomen was soft and tender to palpation in the right lower quadrant with (+) Blumberg's sign. Peristalsis were subdued and lazy. Laboratory tests: WBC 12 000, CRP 20. She was qualified for laparoscopy suspecting acute appendicitis - intraoperatively the appendix turned out to be unchanged, but visible mass of endometriosis on the mural peritoneum of the anterior abdominal wall were revealed.
Conclusions: Both cases demonstrate the definite superiority of laparoscopy in emergency cases over classical open surgery, during which the actual causes of complaints would not be visible.

Salvage pneumonectomy for advanced-stage ovarian leiomyosarcoma metastasis

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Tutor: Łukasz Gąsiorowski, Cezary Piwkowski

Background

Leiomyosarcoma (LMS) is a most commonly occurring in elderly women as a primary neoplasm of the uterus and ovaries. It has the lowest tendency towards distant metastasis primarily to the lungs. Early detection and treatment are critical for long-term survival of the patient. Today, the mainstay treatment is surgical excision combined with radiochemotherapy. Radical procedures such as, pneumonectomy have fallen out of favor. It is performed only in selected patients upon fulfillment of strict classification criteria.

Case report

A 72-year-old woman presented with pain in the epigastric region, loss of 10 kg in 8months and worsening dyspnea for the past 2 years. She complained of rapidly-decreasing exercise tolerance. The patient was admitted with a suspicion of a secondary LMS with a history of primary sarcoma of the ovary and uterus operated in 2013 with total primary tumor clearance. CT scan of the chest revealed a large tumor (10cmx17cm) with right pleural cavity effusion. Additionally, significant tracheal and right pulmonary vessel compression were observed. The patient underwent a radical intrapericardial right-sided pneumonectomy with lymph node sampling. Post-operatively, the patient required vasopressors due to low blood pressure. Poor well-being, general weakness, depressive mood and an opportunistic infection with *Clostridium difficile* were the reason for patient`s lengthened hospital stay. She was discharged on 31st postoperative day with a referral for further rehabilitation and follow-up

Conclusions

This report is the first to describe salvage pneumonectomy for secondary LMS. The goal was to free up the left lung with significantly limited respiratory efforts and to ensure adequate postoperative pulmonary reserve. Many retrospective studies demonstrate a falling trend in radical metastasectomies over the last few decades. Nevertheless, the right lung resection for metastasectomy was performed in this case because it is believed that total removal of the tumor is critical in the patient`s long-term survival. The approach was approved by a multidisciplinary team after taking into consideration the disease advancement. This case is a great example of importantance of individualized patient therapy and approach in advanced-stage metastasis management.

Arterial Haemorrhage after Cardiac Resynchronisation Therapy Defibrillator Implantation

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Tutor: Dr Maciej Grymuza MD

Author:		Natasha		Ahmed
Tutor:	Dr	Maciej	Grymuza	MD

Background:

Heart failure (HF) is a fatal and life threatening condition. For this reason, medications become redundant and invasive procedures to implant electronic devices, like cardiac resynchronization therapy defibrillator (CRT-D), become necessary in most severe cases. Purpose of CRT implantation is to correct the irregularity in intra-cardiac electricity conduction and as a result enhancement of muscle contractility and improvement of blood flow.

Case report:

A 69 year-old patient was admitted to have a CRT-D implanted. His medical history consisted of myocardial infarction in 1997 and 2003, coronary artery bypass graft in 2004, percutaneous coronary intervention of the left circumflex artery in 2010, hypertension, diabetes mellitus, atrial fibrillation (AF) with left bundle branch block and NYHA II HF. The patient takes rivaroxaban for AF, which was stopped 24 hours before the implantation. Two hours after implantation, the patient reported swelling and pulsating pain in the left subclavical region. Physical examination showed the patient to be pale, diaphoretic with blood pressure of 85/59; therefore he was in shock. Complete blood count and a CT angiogram revealed a haemorrhage in the costocervical trunk, which branches off the subclavian artery, formed a haematoma. For management, angiography as conducted for stent graft implantation, and 3 units of blood transfusion was given. The next day, CT revealed no active bleeding, therefore clopidogrel was given for the stent. Four days later, rivaroxaban was resumed. Additionally, antibiotics were given as prevention for device infection. The further clinical course was uneventful.

Conclusion:

Venous bleeding can occur during cannulation whilst implanting a CRT-D, however, arterial bleeding is extremely rare. Ultimately, rather than discharging patients on the same day of CRT-D implantation, they should be monitored for a few days after. This case highlights the vigilance and precautions that need to be taken to prevent these fatalities.

Aspiration thrombectomy in high-risk patients with acute pulmonary embolism: a single centre experience

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Tutor: Piotr Kübler MD PhD, Michal Kosowski MD

Background: Acute pulmonary embolism (PE) is the third most frequent cardiovascular disease which may result in severe disability or even death if undiagnosed or untreated. Therefore choice of optimal treatment along with risk stratification made by the Pulmonary Embolism Response Team (PERT) is crucial, especially in hemodynamically unstable patients with contraindications to systemic thrombolysis (ST). The PERT includes specialists such as interventional cardiologists, cardiac surgeons, anesthesiologists and radiologists.
European Society of Cardiology guidelines recommend ST in high-risk PE. However, ST has many absolute contraindications and when they occur patients may benefit from aspiration thrombectomy, which is a less invasive alternative to surgical embolectomy.

Case report: In 2020, the thrombectomy program for Lower Silesia Region was launched at University Hospital in Wrocław (USK). Six patients have undergone the procedure so far. In the presented cases the Indygo system was used to aspire the thrombi and once the pig-tail system to perform local thrombolysis. Five out of six patients survived the procedure and experienced complete or partial resolution of symptoms.
Four of them were male aged from 48 to 66 years old. Three of them were admitted to the hospital with acute high-risk PE and one suffered from moderate-high-risk PE. Two female patients were 49 years old and 64 years old and both were admitted with high -risk PE. All patients have undergone catheter-directed therapy. Four procedures were fully successful and resulted in indisputable improvement of patients' clinical condition.

Conclusions: The catheter-directed therapies (CDT) such as aspiration thrombectomy, represent effective methods of treatment for acute massive pulmonary embolism especially in patients with ST contradictions. This form of therapy is at present perceived as innovative and challenging but it may become more common in the future. Presented clinical case series support the hypothesis that patients with high-risk and intermediate-risk PE may benefit from CDT.

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Acute appendicitis in newborn

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Tutor: Anna Ogorzałek

The aim of the study is to describe a rare case which is acute appendicitis in a newborn baby.
Acute appendicitis is common cause of acute abdomen in children. The smaller the child, the less characteristic the symptoms. The most common are increasing abdominal pain intensified in the lower right, preceding fever, nausea, vomiting or anorexia. Acute appendictis is rarely considered in newborns and infants as the etiological factor of acute peritonitis. However, the presented patient with a genetic defect, severe pregnancy and postpartum complications developed the above disease entity.

A newborn male from third pregnancy, third delivery, born at 37 gestation week, by average CC with a weight of 3360. He received 6 points on the Apgar scale. After birth, the child required respiratory support. In the physical examination, generalized edema, reduced muscle tone, facial dysmorphism. After initial stabilization, the child was transported to the neonatal intensive care unit, monitored, complete parenteral nutrition implemented. In the first day of life, due to significant hypercapnia and lack of respiratory drive, the child was intubated and connected to a respirator. On the second day of life, enteral nutrition was introduced with a replacement preparation with an increased degree of protein hydrolysis. On day 11 of life signs of food intolerance were found, green backlog was observed in the stomach probe, blood was present in the stool.
Imaging tests were commissioned: abdominal USG, X-ray of the abdominal cavity.
After surgery, the child was qualified for laparotomy. Intraoperatively, gangrenous perforated appendix with diffuse peritonitis was found. The appendix was removed and peritoneal drainage performed

Acute appendicitis is a common phenomenon in childhood, but this diagnosis is rarely considered in the differential diagnosis of acute abdomen in the neonatal period, since the incidence of this condition ranges from 0.04 to 0.2% and is more common in premature babies. The clinical picture of neonatal acute appendictis is unspecific and may lead to delayed diagnosis and misdiagnosis of necrotizing enterocolitis, which is a much more common condition in the neonatal period.

Mirtizzi Syndrome

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Gall bladder stones are less common in the pediatric population than in adults. There is an increase in the number of cases due to increase in the prevalence of obesity among children. Mirizzi's syndrome is a rare complication chronic gallbladder stones defined as compression of the wedges in the neck bile bladder or Hartmann pocket on the common bile duct or duct hepatic proper.
A 13-year-old boy with symptoms of hepatitis and jaundice was referred to the Department of Pediatric Surgery. Laboratory tests revealed elevated levels of bilirubin and liver enzymes. MR cholangiopancreatography showed an enlarged gallbladder and a dilated cystic duct with a signal defect in the lumen. ERCP procedure with sphincterotomy was performed. Due to the progression of jaundice, a control MRCP was performed, which revealed an enlarged, bent gallbladder with an unthickled wall and dilatation of the intrahepatic bile ducts. The expansion of the CBD and CHD, as well as the deposits in their light, were not visible. On the other hand, the features of pressure on the CBD and CHD by the gallbladder were found. The patient was qualified for laparoscopic cholecystectomy. Intraoperatively, a large bladder was found, fused with the bottom of the bile duct. Due to difficulties in anatomical evaluation, it was decided to convert to laparotomy. The gallbladder was removed and an intraoperative contrast examination of the bile ducts was performed.
A gradual decrease in bilirubin levels and normalization of liver damage markers were observed. The patient was discharged home in good condition.
Gallbladder stones are rare in children, but may have complications, such as Mirizzi's syndrome.
The diagnostic test of choice is ultrasonography of the abdominal cavity, MRCP can also be performed in patients with an unclear ultrasound image. The diagnosis of gallbladder stones in a child doesn't always mean the implementation of surgical treatment. In the presented case, due to the presence of complications, the appropriate procedure was to perform a cholecystectomy. This example shows how important an active diagnostic process and appropriately selected treatment are.

Endovascular treatment of internal carotid aneurysm

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Background:
A prevalence of extracranial internal carotid aneurysms (EICA) is less than 1% of peripheral arterial aneurysms, simultaneously representing 0,4 - 4% of all carotid aneurysms.
The symptoms are various and can be presented by pulsating mass in the neck, cranial nerves dysfunction and neurological ischemic disorders. Unoperated lead to cerebral infarction in 70% of cases. Significant etiological factors include atherosclerosis and injuries of the neck. Symptomatic aneurysm or with diameter >20 mm is an absolute indication for surgery. The surgical treatment can be managed with an open, hybrid or endovascular method, depending on the aneurysm's location, size and structure.

Case report:
A 58-year-old male was admitted to the Neurology Clinic due to exacerbation of dizziness and vomiting. An MRI scan revealed a pineal cyst and DVA-type lesion in the right temporal lobe. In the angio-CT scan the saccular aneurysm of the left internal carotid artery was found. In the Department of Vascular Surgery the patient was qualified for the endovascular treatment. An implantation of the vascular stent to the internal carotid artery was performed. The patient was discharged home in a good condition. During the 30-days follow-up nor complications neither relapse of symptoms were observed.

Conclusions:
EICA is an uncommon disease with diverse etiology.Treatment includes surgical and conservative methods alike. Conservative treatment is used in about 11% of cases and characterized by higher 30-day mortality and risk of cardiovascular events compared to surgical treatment. Endovascular procedures are performed in about 5% of cases, though the long-term data is lacking. In a few publications, they are characterized by a lower number of complications, especially nerves damage and cardiovascular events compared to open surgical treatment.
For the described patient endovascular surgery was chosen due to location and structure of aneurysm. The correctness of the method was confirmed in the postoperative follow-up.

Vascular graft infection as the most serious complication of vascular surgery

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Background

Vascular graft infections (VGI) belong to the most serious complications in vascular surgery. They concern up to 2.5% of patients with femoral-femoral bypass. Early infections are mostly caused by a breach in sterility during surgery, while late mainly by hematogenous bacteria spread. The 30-day mortality is estimated at 10-25% and the annual at 50%. The risk of recurrence of infection in lower limbs is 12%. The most important risk factors include: obesity, chronic obstructive pulmonary disease (COPD), dialysis, critical lower limb ischemia, diabetes, hyponatremia and previous revascularization. Symptom severity varies from pain, swelling and fever to bleeding, intestinal obstruction and shock. The treatment of choice is reconstruction with autologous superficial venous material.

Case report

In 2007, a 62-year-old male with multiple comorbidities was admitted to the Clinic of Vascular Surgery due to symptomatic Leriche's syndrome. Aorto-bifemoral graft was inserted and fasciotomy was made. In 2007, due to thrombosis the patient underwent a femorofemoral bypass surgery. In 2013 right lower limb ischemia and in 2016 pseudo-aneurysm in the distal anastomosis of bypass were diagnosed. In 2019 the patient was admitted again due to a cutaneous fistula in the left groin, pain and suspected VGI. The patient was being prepared for elective surgery, but the massive hemorrhage from fistula occurred. An emergency operation was performed. The suprapubic bypass was reconstructed. Broad-spectrum antibiotic therapy was included, later changed to targeting methicillin-resistant Staphylococcus warneri. Despite intensive therapy, the patient's condition was critical and on the second day after the surgery he died.

Conclusions

Described patient had multiple VGI risk factors. Symptoms have been increasing for weeks. Haemorrhage, which required urgent intervention, significantly worsened the prognosis. Infected graft was replaced with an immediately available prosthetic graft. However, due to the severity of comorbidities and the patient's clinical condition, the applied treatment turned out to be ineffective.

Pitfalls and limits in head and neck cancer treatment - can we save all patients?

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Tutor: Anna Bartochowska, MD, PhD

Background: Head and neck is a limited operation field and often challenges the implementation of the radical treatment. The prevalence of head and neck cancers worldwide is increasing, especially in the younger population with human papilloma virus infection, in which rapid tumor progression leads to a stalemate between the desire for radical treatment and maintaining the patient's quality of life.

Case Report: We report a series of three cases of young patients with advanced cancers at the diagnosis with the dilemma between performing the radical treatment and maintaining the quality of life. First patient is a 42-year old female with advanced squamous cell carcinoma of the larynx without traditional risk factors for this neoplasm. Due to late diagnosis, extended time to resonance imaging and no consent of patient for surgery procedure, further radical treatment after no response to radiochemotherapy failed to maintain the free margins and patient quality of life was worsened with no clinical improvement. 49-year old patient with chronic lymphocytic leukemia reflects the dilemma when to stop the treatment. This patient was diagnosed with advanced squamous cell carcinoma of the larynx and right tonsil, radical surgery was performed with adiuvant radiotherapy, yet the patient had features of recurrence around the tracheostomy three months after surgery. The third patient was a 36-year old man with limited squamous cell carcinoma of the tongue, radiochemotherapy was performed, however after 1,5 year there was a massive recurrence of the tumor. Due to young patient's age salvage surgery was performed, but failed in maintaining sufficient oncological margins. After 6 months patient had a recurrence in the larynx, complete laryngectomy was carried out, however within 2 years two recurrences around tracheostomy were revealed.

Conclusions: In every case of head and neck cancer implementing the radical treatment should always be considered with connection to the quality of life.

Substantially different outcome of coronary artery bypass surgery in two covid infected patients

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Background: Acute coronary syndrome (ACS) patients that require coronary artery bypass grafting surgery (CABG) amid the COVID pandemic has caused global healthcare and social crisis. Especially when CABG is the most commonly performed major surgical procedure of nearly 1 million surgeries yearly worldwide. We report 2 cases of patients hospitalised due to COVID disease, moreover, they suffered from unstable angina and required cardiac surgery.

Case 1: 72-year-old male admitted to multidisciplinary COVID hospital due to unstable angina and asymptomatic SARS-CoV-2 infection. His medical history consisted of hypertension, type 2 diabetes, and previous ST-segment elevation myocardial infarction ten years before. After qualification, he was transferred for CABG surgical treatment of coronary artery disease (CAD). On the pump, CABG was performed under general anesthesia. The operation and the early postoperative period were uneventful. On the 3rd postoperative day, drains were removed, and rehabilitation was started. However, on the 6th postoperative day, sudden deterioration of patient condition was revealed. Arterial blood gas parameters and oxygen saturation decreased, the patient required urgent reintubation and introducing ventilation therapy. The chest X-ray revealed massive pneumonia. Catecholamines and Continuous Venovenous Hemodiafiltration (CVVHDF) were provided, and plasma from convalescents was delivered, but the patient deceased due to respiratory failure despite aggressive ventilator therapy died nine days after surgery.
Case 2- 58-year-old male with a similar medical history and Sars-CoV-2 infection upon admission underwent a CABG procedure to treat CAD and survived. He was later discharged in good condition after testing negative for Sars-CoV-2.

Conclusion:
Both patients presented similar medical history, but only one of them developed severe pulmonary complications. COVID pandemic persists and more patients require surgery. However, it is tough to manage the protocol in patients with COVID-19 disease qualified for surgery as their medical state may deteriorate drastically.

Acute urinary retention caused by 11 centimeters wide myoma

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Background

Myomas (uterine fibroids, leiomyomas) are the commonest benign tumors of the female genital tract. They occur in 20-40% of women in reproductive age. Uterine fibroids rarely appear as individual tumors (10% of cases) and can range in size from 0,5 centimeter to even 15,24 centimeters wide. Heavy menstrual bleeding and pelvic pressure are typical signs of myoma.

The incidence of acute urinary retention is only 7 in 100,000 persons per year and is usually connected to obstruction. Uterine leiomyomas are an extremely rare cause of acute urinary retention.

Case report

On 19 th of February 2021 a 50-years old woman presented at the After Hours Medical Centre complaining of urinary retention. The urine was removed after catheterization. 3 days later the patient was admitted to the Department of Gynecology, Oncological Gynecology and Obstetrics with a referral. The USG revealed a 12 centimeters wide uterine tumor. The patient has never been to a gynecologist. On 26th of February 2021 the patient was qualified for surgery. Laparotomy showed an 11 centimeters wide myoma on the front/side wall of the uterine body descending to the cervix. The body of uterus with fallopian tubes was amputated. There was no complication around surgery. 2 days after surgery the patient was discharged in good overall condition.

Conclusions

Acute urinary retention in women should raise the suspicion of uterine fibroids. Valuable diagnostic tools are imaging studies and a thorough gynecological history. Treatments methods depend on the intensity of symptoms and size of the myoma. Usually, a myomectomy or a total hysterectomy is performed to remove an obstruction.

Unexpected GISTs during sleeve gastectomy

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Background: Gastrointestinal stromal tumors (GISTs) arise from stem cells and the pacemaker cells of Cajal cells. Most GISTs have a mutation in the KIT or PDGFRA gene. The most common location is the stomach (60-70%). The peak incidence in this location is at the age of 60 and people under 40 years old are less than 10% of cases. About 11-15 new cases / 100,000 people are detected in Poland every year. Most of the cases are asymptomatic, while the remainder give non-specific symptoms such as abdominal pain, diarrhea, flatulence, and gastrointestinal bleeding.

Case report: Here we describe 3 patients diagnosed with GIST during sleeve gastrectomy. The first patient is a 32-year-old woman (BMI 40.0), who in the interview reported chronic abdominal pain for 5 years and active smoking since 10 years. The second patient was a 52-year-old man (BMI 49.4) who had hypertension, diabetes and had not smoked for 30 years. The third patient was a 62-year-old female (42.4) who complained of flatulence. Before the operation, she was diagnosed with cholelithiasis. GIST was found in the fundus in the first and second patients, and near the pylorus in the third. All the changes had 1-2 cm diameter. Before the procedure, gastroscopy and USG was performed in all patients and showed no changes. As recommended, the lesions were removed during the procedure. Pathological reports showed complete surgical resection (R0) in all cases; tumors were diagnosed as gastric GIST in the low risk category and adjuvant therapy was not required.

Conclusions: The origin, incidence, and behavior of GIST tumors are still under investigation. The risk factors are also unknown. Surgical resection with tumor margins (R0) is the only potentially therapeutic option for GIST. GIST should be considered in patients with non-specific gastrointestinal symptoms who are not diagnosed.

Corrective osteotomy using 3D imaging and patients-tailored plates of a forearm malunion in a 15-year old male : A case report including preoperative planning and surgical technique

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Tutor: Michał Górecki

BACKGROUND

Diaphyseal forearm fracture malunion may arise as a consequence of conservative treatment and/or several subsequent fractures. Various approaches to corrective surgeries can be used, with one of them being corrective osteotomy with 3D imaging with preoperative planning and use of patient specific plates – patient specific instrumentation (PSI). This case report aims to describe a corrective osteotomy of the diaphyseal forearm fracture malunion in a 15-year-old male.

CASE PRESENTATION

A 15-year-old male was admitted to the Department of Orthopaedics, Traumatology, and Hand Surgery in Poznań, presenting highly limited pronation and supination movements of the left forearm. Elbow range of motion was 0o - 145o of flexion-extension. Radiocarpal joint presented full pain-free range of motion. The patient over a three year span suffered 3 subsequent fractures of the left forearm treated conservatively in a Regional Hospital. Preoperative planning was done by comparing healthy right and left forearm with the malunion in computer tomography scans. Corrective osteotomy of radial and ulnar bone was performed using 3D-printed templates and patient-specific plates. Plates were removed a year from the osteotomy.

Postoperative examination showed an increase in forearm pronation from 5o to 20o and supination from 5o to 60o.

Function of both elbow and radioulnar joint was comparable to preoperative state. No postoperative complications occurred. 12 months after the osteotomy a removal of plates was performed leading to further increase in forearm supination from 60o to 70o. The patient is expected to undergo rehabilitation and will be re-examined in 6 months.

CONCLUSION

Corrective radial and ulnar osteotomy resulted in an increase of forearm rotation, which significantly improved patients' ability to perform everyday activities. The use of PSI is a novel approach seldomly used in bone malunion treatment as it involves long multidisciplinary preoperative planning and high cost. The benefits include high level of precision and operative time reduction. Treatment should be strongly considered in difficult cases, with potentially wider

application in less complex malunions. Therefore, many future applications may be considered for this procedure, with promising results.

Percutaneous coronary intervention of a highly calcified lesion supported with optical coherence tomography

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Tutor: Oscar Rakotoarison MD

BACKGROUND: Percutaneous coronary intervention (PCI) is a procedure used to treat narrowing of coronary arteries. There are still some cases where an adequate effect is difficult to achieve.

CASE REPORT: A 66-years-old male was admitted to hospital due to non-ST elevation myocardial infarction. He had a history of arterial hypertension and nicotinism. Coronary angiography showed calcified lesion in proximal and complete occlusion in the medial part of the right coronary artery. 'Ad hoc' performed PCI only returned blood flow. Due to a highly calcified lesion, full expansion of the balloon catheter was impossible to achieve. The patient was asymptomatic and hemodynamically stable, so PCI with rotational atherectomy was scheduled.

Procedure was performed via left radial approach. Several runs at 160000 rpm were made using a 1.5-mm Rotablator burr (Boston Scientific). Subsequently, optical coherence tomography (OCT) using Dragonfly Optis (Abbott) probe showed 360-degree calcium with a maximal thickness of 1.25-mm and length of 30-mm. Then operators performed unsuccessful inflations using a non-compliant balloon catheter (20 atm). Afterwards, three runs with 2-mm burr at 150000 rpm were performed, but a non-compliant balloon (30 atm) was still unexpanded. At last, full expansion was achieved using very high-pressure OPN non-compliant balloon catheter (SIS MEDICAL AG) at 36 atm. OCT performed before stent implantation showed some calcium cracks. Finally, a 3.5/48-mm drug-eluting stent was implanted and an adequate angiographic result was confirmed by imaging. The hospitalization was uneventful.

CONCLUSIONS: The presented case indicates that treatment of highly calcified coronary lesions may require several combined methods. Calcium cracks allow full expansion of a stent. OCT-guidance during a complex PCI is a helpful tool, determining the anatomy of a lesion, therefore allowing operators to choose an adequate method of proceeding and obtaining precise angiographic results.

TUTOR: Oscar Rakotoarison MD

Small cell carcinoma of the bladder- a series of cases.

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Tutor: PhD Grzegorz Młynarczyk

BACKGROUND: Small cell carcinoma of the urinary bladder (SCCB) is an extremely rare and aggressive neoplasm. Its clinical behaviour is similar to small cell carcinoma of the lung.

CASE REPORT: We report a series of three patients hospitalised at the Department of Urology at Medical University of Białystok in the years 2016-2018.

Patient 1: 72-year old female arrived at the Emergency Department due to first-time heamaturia. The patient presented with a large palpable abdominal mass confirmed by ultrasound. At the Department of Urology TURBT was performed. Histopathological examination showed primary SCCB. CT revealed huge tumour of the bladder. Because of its inoperable character bilateral ureterocutaneostomy was performed. The patient died at a hospice three months after first symptoms occurred.

Patient 2: 65- year old male, referred to the Department of Urology due to massive gross heamaturia, bilateral hydronephrosis and suspicion of bladder cancer, underwent percutaneous nephrostomy and TURBT. Histopathological diagnosis was invasive urothelial carcinoma with glandular differentiation and small cell carcinoma component. CT showed extensive nodular thickening of the bladder wall and irregular external bladder contour. No metastases were found. The patient received three courses of Gemcitabine + Carboplatin chemotherapy and cystectomy was performed.

Patient 3: 80-year old male presented with heamaturia and dysuria at the Emergency Department. Ultrasound showed a solid lesion on the right bladder wall. At the Department of Urology TURBT was performed. Histopathological examination revealed SCCB. No metastases were found in CT. The patient refused further treatment and died after 4 months.

CONCLUSIONS: Usually SCCB is diagnosed at an advanced stage what contributes to the poor prognosis. Better survival is associated with tumour resection and neoadiuvant chemotherapy. In the view of the above, early diagnosis and successful management of the SCCB is a challenge.

Mechanical Thrombectomy for treatment of Cerebral Venous Sinus Thrombosis: A case report

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Tutor: Michalak Sławomir, Proffesor, MD, PhD; Juszkat Robert, Proffesor, MD, PhD;

Background:

Cerebral Venous Sinus Thrombosis (CVST) is an uncommon medical entity, difficult to diagnose due to its various symptomatology and complex etiology. The standard therapy comprises systemic anticoagulation. There is also a possibility of endovascular intervention, such as Mechanical Thrombectomy. Such treatment is rarely reported, and its efficacy was evaluated only retrospectively.

Case report:
A 26-year old male with no prior significant medical history was found unconscious (GCS 6) by a flatmate and admitted to an emergency unit. The toxicology screen was negative.
Imaging tests and clinical picture suggested Cerebral Venous Sinus Thrombosis. MRI-venogram revealed thrombosis of deep cerebral veins, great cerebral vein, straight sinus, and inferior sagittal sinus. There were no abnormalities in MRI-angiogram. The patient was admitted to an Intensive Care Unit, where the treatment included anticoagulant, anti-edematic, and antiepileptic therapy. At ICU, the patient suffered epileptic seizures, was cardiopulmonary insufficient. The patient was considered high-risk due to critical state on admission, unresponsiveness to standard therapy, male sex, and obstruction of deep cerebral veins. After consultation with a neurologist, neurosurgeon, and an interventional radiologist, the patient was referred to a neuroradiology unit of Heliodor Swiecicki Clinical Hospital in Poznan for a Mechanical Thrombectomy treatment. The procedure was performed with no complications, restoring the following vessels' patency: great cerebral vein, straight sinus, and inferior sagittal sinus. To our best knowledge, it is the second such reported effective intervention in Poland.

Conclusions:
Endovascular Mechanical Thrombectomy for Cerebral Venous Sinus Thrombosis is a safe and effective treatment, especially in high-risk patients unresponsive to standard anticoagulant therapy. Due to its effectiveness and causal effect, systemic anticoagulant treatment remains the standard therapy for CVST. Prospective, randomized clinical trials are needed to evaluate further the efficacy of endovascular treatment of Cerebral Venous Sinus Thrombosis.

Subclavian Artery Cannulation Repair Using A Percutaneous Closure Device (AngioSeal)

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Tutor: MD, PhD Aleksandra Gąsecka

BACKGROUND

Central Venous Catheter (CVC) is widely used for many indications, such as vasopressor drug administration or renal replacement therapy. It is usually placed into the internal jugular or subclavian vein. Nevertheless, its administration can also lead to complications (pneumothorax, hematoma and arterial puncture). Although the last is quite frequent, arterial cannulation is much less common.

CASE REPORT

The patient was a 90-year-old female. CVC was planned to be inserted into the right subclavian vein under control of ultrasounds. Control chest X-ray revealed that CVC was introduced into the right subclavian artery instead. The misplacement of CVC was confirmed by echocardiography. It passed through the subclavian soft tissues, went medially along the anterior edge of subclavian artery, then entered into the lumen of subclavian artery in its proximal segment. It passed further to brachiocephalic trunk and ascending aorta. The end of the catheter was visible in the lumen of the vascular prosthesis in ascending aorta. Angiography was conducted to remove CVC. Although, its extraction from the right subclavian artery posed a risk of bleeding. Therefore, the medical team decided to close the puncture using a percutaneous closure device (Angio-Seal® Vascular-Closure-Device). This instrument is used to close the femoral arterial puncture site after angiography procedures using haemostatic collagen sponge along with suture (biodissolvable) to close the vessel injection site. The attempt to close the puncture in the artery was successful. No bleeding or other complications were observed.

CONCLUSIONS

Malposition of CVC into a subclavian artery is a serious complication. Therefore, methods of treatment should be considered. AngioSeal is a percutaneous intervention which appears to be an effective and safe way of treatment of the subclavian artery puncture, being less invasive than typical surgical treatment. However, this device is devoted specifically for femoral artery, so care must be taken while using it on subclavian artery.

Urological Manifestations in Placenta Accreta Spectrum Disorders (PAS) – case report.

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Placenta Accreta Spectrum (PAS) is defined as a placenta grown inside the wall of uterus, sometimes outside of the uterus, into surrounding organs, which occurs in 2.8/1000 pregnancies. Several risk factors of the placenta previa can be specified, such as prior uterine surgery including previous cesarean section, multiple pregnancies, smoking, age above 35 years.

A 29-year-old patient, Gravida-V, Para-IV, 34 weeks' gestation was admitted due to placenta previa and placenta accreta suspicion. Obstetrical history – two CS's, (one placental abruption in 2004). In the MRI the diagnosis and the blurred border between myometrium and placenta was confirmed. The patient was scheduled for a planned c-section at 36 weeks'. A urologist consultation and D-J catheterization of the ureters were made. A 2440 g premature male neonate was born. Due to the inability to separate the placenta and excessive bleeding, a decision of subtotal hysterectomy was made. Because of the infiltration of the placenta towards the right fallopian tube, a gynecologist oncologist was asked to assist. During the operation, after the filling of the urinary bladder by methylene blue, its outflow was observed. The urologist covered the tear. The blood loss during the surgery was nearly 3000 ml, so the patient received 4 units of RBS and 2 units of FFP while the operation. The recovery went uneventful and she was dismissed from the hospital on the 7th day.

PAS represents a significant clinical problem. They can be not visible from the beginning of the pregnancy, generate a high risk for premature delivery and the patient may need a blood transfusion during hospitalization. An extended imaging diagnostics such as MRI must be included. Thus, the patients should be taken care of in the center of the highest reference, and interdisciplinary team.

Surgical management of a large, antenatally-diagnosed microcystic congenital pulmonary airway malformation

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Congenital pulmonary airway malformations (CPAMs) are rare lesions in which abnormal lung morphogenesis results in multi-level malformations of the broncho-pulmonary tree. They occur sporadically with a prevalence of 1 per 11,000-33,000 live births, and fetal prognosis is poor. Causes of fetal demise include severe hydrops leading to edema, ascites, and heart failure, and survival rate is approximately 5% in this setting.

We present a case of large CPAM type III ("microcystic") diagnosed by fetal ultrasonography at 19 gestational weeks (GW) in a primigravid woman. Massive involvement of the left lung resulted in fetal ascites and compression of the heart and contralateral lung. Polyhydramnios (26-36 cm) did not resolve over multiple amnioreductions. Hydrops fetalis was diagnosed at 28 GW. To exclude unilateral bronchial atresia, fetal MRI was performed which confirmed the diagnosis of CPAM. Peritoneal-amniotic shunt was placed twice but was complicated by dislodgement in both cases, and a course of maternal steroids marginally improved hydrops and stimulated growth of the underdeveloped contralateral lung. A baby girl was delivered naturally and spontaneously at 33 GW, and received aggressive ventilation and left lower partial lobectomy in the first month of life. She now approaches nine months of age, with near-to-normal growth milestones.

Advancements in fetal ultrasonography have led to increasing prenatal detection of CPAM. Adjunctive pre- and postnatal imaging has led to the evolution of management strategies that continue to improve prognosis. Microcystic CPAM continues to be associated with a high rate of fetal demise, and treatment in utero is limited and associated with high mortality. The survival of this infant can be attributed to vigorous prenatal management, accurate diagnostic imaging, and ready postnatal surgical intervention. Multidisciplinary vigilance and collaboration was the key to success for both mother and child.

4-week-old infant with a prenatally diagnosed unilateral hydronephrosis - case report

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Tutor: Grażyna Chmaj, MD, PhD

Background: Hydronephrosis refers to dilation of the renal pelvis and calyces caused by the accumulation of urine as a result of outflow obstruction and involves atrophy of the kidney structure. It is the most common urologic abnormality identified during prenatal ultrasonography in the second and third trimesters. Prenatal unilateral hydronephrosis should undergo a semi-urgent postnatal evaluation, within 1-3 weeks.

Case report: A 4-week-old male newborn was admitted to the Department of Pediatric Surgery due to left-sided hydronephrosis. The preoperative ultrasonographical examination revealed a significantly enlarged left kidney, which measured 97 x 49 x 34mm. The pelvicalyceal system was vastly extended, the renal pelvis was dilated up to 48mm, whereas the renal parenchyma was narrowed to 2,5mm. Hypofunction of the left kidney was also detected by conducting the renal scintigraphy, which showed only 28% share in infiltrating. The obstruction of the ureteropelvic junction was the cause of hydronephrosis. Resection of the pelviureteral segment was performed with ureteroplasty according to the Anderson-Hynes procedure with a satisfactory result.

Conclusions: Ultrasonography is of fundamental importance to pediatric urology. Hydronephrosis is the most frequently discovered fetal urologic irregularity, but its severity and clinical consequences can differ greatly. The treatment depends on the extent of enlargement of the pelvicalyceal system. Surgical operation is essential. Ureteroplasty, according to Anderson-Hynes procedure, is one that can be chosen to treat this condition. A decision about the way of treatment is crucial and it should be conducted to each patient individually.

Impalement thoracic injury in 41-year-old male following falling down the stairs – case report

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Tutor: assoc. prof. Mariusz Kasprzyk, MD, PhD, Department of Thoracic Surgery, Greater Poland Centre for Pulmonology and Thoracic Surgery

Background

Chest trauma is associated with high mortality rates. Penetrating chest injuries are less common than blunt ones, despite less extent damage, they cause more bleeding and more often require surgical treatment. Impalement injury with foreign object remaining in patient's body is a distinctive type of penetrating injury that requires cautious transport and thorough fixation of object on scene. Presence of foreign body in the wound may save patients from bleeding out.

Case report

EMS were called to a 41-year-old male, who fell from staircase and got impaled on metal pole. Patient reportedly consumed circa 70 g of alcohol prior to injury. Fire services cut the pole and remaining piece was tightly secured. Patient was haemodynamically stable with no respiratory distress, thus he was disqualified from treatment in Trauma Centre. Patient was then admitted to the nearest county Emergency Department where he undergone basic evaluation. CT scan showed a 30 cm object, 15 cm inside thoracic cavity, passing through to mediastinum, leaning on aortic arch, including haemopneumothorax and first rib fracture. Following phone consultation patient was referred to Thoracic Surgery Department. Anterolateral thoracotomy with upper left lung lobe repair was performed and the pole was successfully removed with no major bleeding. Postsurgical exam revealed Horner syndrome, damage to brachial plexus, recurrent laryngeal nerve and branches of vagus nerve. Patient was discharged at day fourteen with no other deficits.

Conclusions

Complex chest anatomy and the presence of vital structures (heart, large vessels) in thoracic cavity require diagnostics and treatment process to be careful. Patients with penetrating injury, who present no signs of hypovolaemic shock, may have potentially fatal injuries. Chest trauma may cause permanent neurological complications.

Title: Ischemic stroke complicating transsphenoidal pituitary macroadenoma resection

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Tutor: Dr Marcin Wiącek

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Work supervisor: Dr Marcin Wiącek

Introduction:

Macroadenomas are common beningn hypophyseal tumours, that may cause disruption of visual field [1] or other symptoms by mass effect [2]. Following the diagnosis a trans-sphenoid tumor removal is the treatment of choice in patients with visual field impairment [3]. We would like to present a rare case of a patient with ischemic stroke being an macroadenoma resection complication.

Case report:

A 47-year old female was admitted to the Clinic of Neurosurgery for removal of a nonfunctioning macroadenoma of pituitary gland causing progressive decrement of visual field. A trans-sphenoidal resection was performed with the tumor incomplete nresection.Sudden dysarthria and right side hemiplegia have been observed in 24h post-operative period. The MRI revealed an ischemic area of left subcortical region (area supplied by middle cerebral artery [MCA]) and intrapituitary hemorrhage with substantial regional edema. Several days after surgery the patient deteriorated, with the appearance of prominent mixed aphasia and enlargement of ischemic area to entire left MCA supply territory. Compression of distal left internal carotid artery [ICA] or proximal MCA by sudden volumetric expansion of the macroadenoma as a result of bleeding inside the tumor was considered the most probable mechanism of ischemia. Despite intensive rehabilitation for motor and speech impairment, the right hemiplegia and severe aphasia were noted at discharge.

Conclusions:

Transsphenoidal surgery is a procedure of choice for removal of the pituitary macroadenoma. It is considered safe, but occasionally serious complications of surgery can occur, with pituitary apoplexy being one of them. The postoperative hemorrhage into residual adenoma may cause compression of adjacent structures including optic chiasm, cranial nerves and distal portion of ICA. The latter complication is extremally rare and was reported in only few case reports.

21st ICYMS

Surgical Case Report II

Meckel's diverticulum – a rare cause of intestine intussusception and ischemia in adolescent

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Tutor: Anna Ogorzałek M.D.

Meckel's diverticulum is most common congenital malformation of gastrointestinal tract, which results from failure of the proximal part of vitelline duct regression. It is usually located in the distal ileum, within 60–100 cm of the ileocecal valve. Most of cases are asymptomatic and discovered by instance during other surgical procedures. In some people Meckel diverticulum gets inflamed and manifests itself initially as periodic, intermittent abdominal pain, with vomiting, fever, diarrhea, bloody stool as later symptoms. Intussusception caused by Meckel's diverticulum is an indication to its resection. The aim of this work is to make clinicians aware of a rare cause of intestinal intussusception and show that they should react immediately to avoid complications like peritonitis or bowel perforation.

Female Patient, 15 years old girl admitted to ER with strong abdominal pain. USG was performed, which revealed fluid in subhepatic recess, around the spleen and free fluid between intestinal loops. In suspicion of peritonitis she was transferred to Pediatric Surgery Clinic, where decision about urgent surgery was made. During the procedure ileocecal intussusception of necrotic ileum with Meckel's diverticulum was discovered. The 30 cm of intestine loops was resected, then the end to end anastomosis was made. Peritoneal cavity fluid culture revealed presence of anaerobic bacteria – *Clostridium innocuum* and *Prevotella disiensis*. The targeted antibiotic therapy was implemented – cefuroxime aksetil, amikacin, metronidazole. Postoperatively without complications, discharged home a week after surgery in good condition.

Although intussusception due to Meckel's diverticulum is a rare cause of intestinal obstruction, clinicians should be aware of it in their practice, because symptoms are not specific. Symptomatic Meckel's diverticulum is an indication to surgery to avoid serious complications. The earlier surgery is made, the better prognosis for patient is.

Renal halving trauma – is it always indication for surgery?

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Tutor: Grażyna Chmaj M. D.

Genitourinary tract injuries are relatively rare. Renal trauma occur in 5% of all trauma patients. Main symptoms depend on the trauma severity assessed with the use of AAST renal injury scale and may appear as flank tenderness, ecchymosis, tachycardia and hypotension, hematuria. Required interventions include percutaneous nephrostomy tube, ureteral stent, percutaneous drain placement, angioembolization and surgeries such as kidney reconstruction or nephrectomy.

Male patient, 14 years old, admitted to Pediatric Surgery Clinic with abdominal trauma due to fall. He presented symptoms such as strong abdominal pain, anxiety, emesis, hematuria. CT revealed 5th grade of AAST renal injury scale – lower pole of the left kidney detachment with urohematoma (10,5 x 10,5 x 19 cm). Right kidney showed no signs of trauma. Chest CT did not reveal any abnormalities. Due to patient's hemodynamic stability at the day of admission, multi-organ trauma absence and risk factors for intervention presence surgeons decided to implement conservative procedure. Preventive antibiotic therapy was implemented (Cefuroxime, Amoxicillin and Clavulanic Acid). During the whole hospitalization patient required two units of red blood cell concentrate, painkillers and antihemorrhagic drugs. Control CT showed no flow through detached lower pole of the left kidney and correct flow through upper pole with normal urine excretion through left ureter and urohematoma size reduction (10 x 8,5 x 14 cm). Patient was discharged home in good condition.

Presented case was successfully managed with no-invasive procedure, what confirm that surgery even in 5th grade injury is not always necessary, which is a real benefit for the patient. Hemodynamic stability in isolated kidney trauma allow to implement non-invasive procedure. Moreover, indication for such procedure may be presence of risk factors for intervention. In kidney trauma, the benefits and possible complications of operative and non-operative treatment should be properly balanced to make decision about proper management.

Isolated limb perfusion for undifferentiated pleomorphic sarcoma treatment

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Tutor: Vėtra Markevičiūtė

Background: Soft tissue sarcomas constitute 1% of adult malignant tumors. One of treatment possibilities is isolated limb perfusion (ILP). This procedure involves surgical isolation of vascular inflow and outflow of an extremity to separate circulation of affected limb from remained body. Thus, high concentrations of drugs can be circulated locally without exposing the rest of the body to the same level of toxicity.

Case report: In September 2019, a 52 year-old man had complained about left proximal calf pain which had been lasting for two years (intensively for 1 week). Anamnesis indicated non-Hodgkin lymphoma (21 years ago). Computer tomography and magnetic resonance imaging (MRI) had resulted left calf local malignant tumor. Performed biopsy had showed high malignancy tumor - most likely to undifferentiated pleomorphic sarcoma. Neoadjuvant chemotherapy had not been possible due to previous lymphoma chemotherapy treatment. Radiation therapy applied 50Gy/25 fractions. MRI – negative dynamic. In December 2019 ILP had been performed. 12Fr cannula had been inserted in *V. femoralis*, 14Fr in *A. femoralis*. Local chemotherapy with melphalan had been applied for 1 hour, tumor temperature had reached 40 degrees Celsius. After few days patient was discharged for ambulatory care. 2020-01-29 wide tumor resection (resected tumor size - 16,5x9,5x7,5cm) and knee arthroplasty with oncology knee prosthesis were performed. Tumor histopathology report - undifferentiated pleomorphic sarcoma, ypT4, status post treatment: necrosis 95%. For further treatment – rehabilitation. Presently there are no recidives or metastasis. Patient is able to walk without crutches and remains under control of the orthopedic surgeon and oncologist.

Conclusions: ILP is successful for treatment of locally advanced limb soft-tissue sarcomas. By excluding the liver and kidney from the perfusion circuit, drug metabolism is minimized, thus leading to sustained high concentrations of drug in the perfused limb and fewer systemic reactions.

Difficulties in diagnosis and surgery of enormous pelvic mass

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Tutor: Emilia Gąsiorowska PhD MD

Introduction

Germinal tumour is the most common ovarian neoplasm in girls and young women, however differential diagnosis of pelvic mass in these patients should also include ovarian cancer and borderline tumor (BOT). BOT has epithelial malignant tumor properties, such as cellular proliferation, stratification of the epithelial lining of the papillae, nuclear atypia, and mitotic activity. Its discriminative feature is absence of stromal invasion with peritoneal implants. Prognosis depends on histopathological type- from almost 100% survival in germinal tumors to very poor in advanced ovarian cancer. In that group of patients, fertility-sparing surgery (FSS) should be considered, since it enables young women not only to have offspring, but also allows them to produce their own hormones.

Case report

A 22- year-old woman complained about the continuously increasing circuit of abdomen and pelvic pain. She had never been to a gynecologist before. After gynecological examination and ultrasound, an enormous-size cystic-lytic pelvic tumor, which constricted organs of the abdominal cavity, was found. Laboratory results showed elevated LDH and CA-125 slightly above reference values. The patient underwent laparotomy, which was fertility sparing due to her age. Midline cut from the xiphoid process to pubic symphysis was done in order to avoid breaking up the tumor. Non-epithelial tumor was considered because of clinical image and previous laboratory findings. Despite suspicion, histopathology results showed borderline tumor.

Discussion

Surgery which spares the ovary and uterus can be offered to very young patients, who want to preserve fertility and hormonal function of ovaries. However the risk of recurrence in FSS is higher than in radical surgery. Worth considering option is removal of the remaining ovary after filling reproduction plans. It also shortens duration of hormone replacement therapy, which also has side effects and contraindications. Due to the complexity of this problem every patient should be treated individually.

Novel technologies in congenital heart defects - is a Leadless Pacemaker suitable in a Hypoplastic Right Heart Syndrome?

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Introduction: Hypoplastic right heart syndrome (HRHS) is a rare congenital heart defect that could lead to severe bradycardia. A leadless pacemaker, although not previously described in this population, could potentially be an option if transitional transvenous pacing is technically impossible.

Case report: A 27-year-old female with HRHS, resulting in pulmonary trunk hypoplasia. The patient had atrial (ASD) and ventricular septal defects (VSD) at birth. She was palliated at age 2 with a bi-directional Glenn procedure that connected her superior vena cava (SVC) directly to the right pulmonary artery. ASD and VSD were closed during the procedure. A recent follow-up holter electrocardiogram identified a sinus pauses of more than 6 seconds, a severe bradycardia with ventricular rates below 30 beats per minute. Although she was asymptomatic at the time, she is planning for pregnancy.

Implantation of a traditional transvenous pacemaker was infeasible due to the lack of intravascular access - typically the leads are advanced and fixed in the right heart via SVC. Epicardial systems were not considered due to the risk of lead fracture during pregnancy. Therefore, leadless pacing was chosen for our patient. The procedure was performed under local anesthesia. After confirming no shunting between right and left ventricle with ventriculography, the catheter device was advanced from the right femoral vein to the right ventricle. Despite multiple attempts to deploy the pacemaker in the right ventricle, optimal pacing was not achieved, which may be attributable to the reduced RV size and diffuse myocardial fibrosis that commonly present in congenital heart defects including HRHS.

Conclusion: Leadless pacing is an attractive alternative to traditional transvenous pacing, especially in patients with complex cardiac anatomy. While reports of successful implantation of leadless pacemakers in challenging congenital anatomy is rare, no report has discussed the reasons for implantation failure. Careful planning and use of multimodality imaging during the procedure may be helpful to enhance the rate of success. Novel technologies are necessary to improve outcomes in young patients.

ECMO awake as a form of cardiopulmonary life-support for critically ill patients

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Background

Extracorporeal membrane oxygenation (ECMO) is a form of cardiopulmonary life-support for critically ill patients. During awake ECMO protocol patient doesn't require mechanical ventilation. Spontaneous breathing and early mobilization of patients improves functional recovery, reduces risk of superadded infections and preserves tone of respiratory muscles better.

Case report

Case report describes a 20-year-old male patient with advanced idiopathic arterial pulmonary hypertension (IPAH). Diagnostics were implemented after the exercise syncope. Echocardiography and right heart catheterization (RHC) showed the following results: RVSP 100 mmHg, TAPSE 14mm, mPAP 74mmHg.In a 6-minute walk test (6MWT) the patient has covered the distance of 300,7 m. The test wasn't completed due to severe breathlessness. Despite escalation of pharmacological treatment, no improvement was achieved in the patient's condition. Lung transplantation (LTx) remained the only viable treatment option for this patient. While waiting for LTx, it was also decided to perform atrial septostomy with atrial flow regulator (AFR) implantation in order to improve hemodynamic parameters. After 326 days on a waiting list, double lung transplantation (DLT) was performed using veno-arterial ECMO (ECMO V-A).The patient was maintained awake through postoperative ECMO protocol for six more days after LTx. During this time ECMO support was gradually reduced. A month after transplantation echocardiography presented following: RVSP 36 mmHg, TAPSE 26 mm, mPAP 20mmHg.

Conclusios

The change in hemodynamic conditions immediately after lung transplantation may cause LV dysfunction, as it is not capable of handling the normal or elevated cardiac output after years of IPAH. Gradual reduction of ECMO flow within a few days after LTx provides the time needed to LV adaptation to altered hemodynamics.

Complex congenital heart disease with double inlet left ventricle

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Background:

The double inlet left ventricle is a rare congenital disease that involves chambers and valves of the heart. The heart of patients with this condition develops only the left ventricle to which both atria are connected. Additionally, other cardiac defects may be presented.

Case report:

The patient is a three-year-old boy with a complex congenital heart disease. He was diagnosed prenatally with a double inlet left ventricle (DILV), transposition of the great arteries (TGA), hypoplastic aortic arch (HAA), and small atrial septal defect (ASD). He was born from the first gestation in 41 Hbd by cesarean section in February 2017. After two weeks, the Norwood procedure was performed with modified Blalock-Taussig shunt (B-T shunt), interatrial sept excision, closure of patent ductus arteriosus, angioplasty that connect the aortic arch and pulmonary trunk. Later, due to narrowing of the B-T shunt, a stent was placed inside percutaneously. In September 2017, the patient was readmitted due to high fatigability. Balloon angioplasty of the aortic arch was performed twice, and finally, in January 2018, a stent was placed there due to re-coarctation. In February 2018, the Glenn procedure was performed and the B-T shunt was closed. The third stage of the surgical treatment, the Fontan procedure, was scheduled for June 2020, but due to the SARS-COV-2 pandemic, it was postponed.

Conclusions:

Prenatal diagnosis of this rare condition is crucial for survival of infants because it allows the doctors to prepare adequate treatment. Only an early operation performed by qualified surgeons with the support of an interdisciplinary team of physicians can give the patient a chance of survival.

Acute ischemia of the glans penis after surgery phimosis treatment case of extremely rare complication.

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Tutor: Dr. med. Grzegorz Młynarczyk, Dr. med. Konrad Rogowski, Dr. med. Jacek Kudelski, prof. Barbara Darewicz

Background

One of the most common urological procedures is circumcision, which is not free from complications. An extremely rare adverse event may be acute ischemia of the glans penis. It can lead to irreversible necrosis and consequently, to partial excision of the penis if not treated. We believe this case is noteworthy due to difficult course and rarity of the complications.

Case report

A 24-year-old man was admitted to the hospital for the surgical treatment of phimosis. The procedure was performed without any visible complications. 4 hours after the patient's discharge, he returned due to bruising and swelling of the glans penis accompanied by local pain. Physical examination showed no pressure or constriction at the suture area. As a result of the unknown cause of the complication, the wound was revised and the sutures were removed without local improvement. A Doppler ultrasound showed no signs of thrombosis and no disturbances in blood flow in the area of the glans. Performed tests confirmed acute ischemia of the glans penis with no proven mechanism. The treatment was consulted with a vascular surgeon and was based on the described similar medical cases. The hyperbaric therapy was maintained for 2 weeks. During hospitalization used were: anticoagulant therapy with aspirin and low molecular weight heparin., intravenous infusion of lignocaine and pentoxifylline. After intensive care, the changes in bruising, pain and swelling disappeared. A satisfactory local effect was obtained. After discharge from the hospital, the patient was prescribed oral aspirin and pentoxifylline for 30 days.

Conclusions

Early diagnosis plays a key role in the treatment of such rare postoperative complications as circumcision. The available literature data may provide guidance for urologists on how to treat such patients. The main cause of ischemia has not yet been identified. Due to its rarity, acute glans ischemia should increase the physician's alertness and prompt reaction to the diagnosis.

Tumor of the ureter as a metastasis from breast ductal cancer in male – rare case report

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Tutor: PhD Grzegorz Młynarczyk

Background

Breast cancer is the most frequent malignant cancer on which women suffer from. However rarely occurs in male patients. The most typical localisation of this cancer's metastases are lymph nodes, bones, ribs, and vertebras. Urinary tract is not often perceived as a place of metastatic changes. Some cases of spreading ductal breast cancer to urinary bladder are described in women patients. None of them concerned neoplastic lesion found in ureter. Extraordinarily, the disease was diagnosed in male patient.

Case Report

81 year old patient was admitted to the Urological Department due to surgical treatment of tumor of left ureter. Neoplastic lesion was diagnosed two months earlier with Computer Tomography scan performed in case of abdominal discomfort in ER. In physical examination a pathologically changed left breast was observed, which further diagnostics was planned after urological surgery. Procedure of the left nephroureterectomy was performed without postoperative complications. In histopathological analysis metastasis of ductal breast carcinoma was detected. The patient was refered to the Department of Oncology where one did not accept for taking a biopsy of breast. Actually the patient is not appearing on control visits.

Conclusions

Metastatic ductal breast carcinoma located in male patient's ureter belongs to extremal rarity. For this reason there is no schedules of adjuwant treatment of one. Presented case also emphasizes important role of physicall examination. Properly carried out objective examination would allow to observe pathologically changed breast before metastasis occured and avoid severe surgical treatment.

Bezold's abscess- a rare complication of otitis media

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Tutor: Wojciech Brzoznowski Phd

Background

Bezold's abscess is a rare complication of otitis media, resulting from the penetration of pus through the apex of the mastoid process. It extends medially along the sternocleidomastoid muscle to the posterior neck triangle. [1] Due to the introduction of antibiotics the incidence of acute mastoiditis and its complications has declined. [2] Over the period 2006–2016, the Medical University of Gdańsk (MUG) diagnosed and successfully treated 3 cases of Bezold's abscess, one of which we will present.

Case report

A 42-year-old male presented with severe headache, mastoiditis, trismus and unilateral oedema of the head and neck, he had undergone two surgical procedures on the left middle ear due to cholesteatoma. Morphology indicated inflammation; antibiotics were administered intravenously. Imaging revealed a 10x9x6 cm abscess extending from the left mastoid process through the parotid, submandibular areas and neck, which resulted in deformation and displacement of the larynx and osteolysis of the surrounding bone. Tracheotomy, left subtotal petrosectomy, drainage of pus from affected areas were urgently carried out. A cholesteatoma was found filling the tympanic cavity; auditory ossicles were absent; CN VII and meninges of the middle cranial fossa were exposed. The postsurgical cavity was filled with the patient's own fat and *Surgicel*®, the external auditory canal was sutured shut, drainage was installed. Bacteriological analysis of discharge from external auditory canal and pus identified etiology as *Peptostreptococcus sp.* The patient was discharged with satisfying outcome. He remains under outpatient care. In this case study we would like to present diagnostic and therapeutic hardships in treatment of Bezold's abscess.

Conclusions

Due to the use of antibiotics, suppurative complications of otitis media are rare (0.12-0.24%) [3]. Nonetheless, it is still important to quickly diagnose and manage those who develop such complications because they can be potentially threatening to patients' health or life.

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Unusual case of Beckwith-Wiedemann syndrome in the teenage girl.

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Background:
Beckwith-Wiedemann syndrome (BWS) is a genetic disorder, which manifests mainly in children, as hypertrophic disorders with a high risk of carcinogenesis and the presence of congenital defects. It is characterized by gigantism, umbilical hernia, macroglossia and hemihyperplasia, those symptoms usually disappear in adulthood. One of the significant symptoms of BWS is adrenal cortex cytomegaly.

Case:
In July 2018, a 13-year-old girl with abnormal very large, asymmetrical, metachronic breast enlargement was admitted to the clinic. She had a history of previous pheochromacytoma surgery. During the stay the right breast was reduced and its shape was restored. The procedure was uneventful, and the patient was discharged from the hospital. After six months the patient was readmitted due to recurrent enlargement of the left breast. Again, it was reduced and adjusted to the size of the proper breast. For histopathological description materials were clipped form the breast gland and the breast lump. The third correction is planned after the patient reaches adulthood.

Conclusion:
Patients with Beckwith-Wiedemann syndrome require perennial medical care from doctors of various specialties because of occurrence of many different symptoms. Surgical procedures are rarely performed in women under 18 years of age although in this case the treatment which prevented scoliosis and other spinal disorders was performed.

Prevention of spinal cord ischemia via endovascular treatment in Marfan syndrome

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Tutor: Prof. Wacław Kuczmik MD, PhD

Marfan syndrome (MFS) is an autosomal dominant connective tissue disease causing mutation in fibrillin 1, one of the main proteins of the extracellular matrix. Thus has influence on regulation of elastogenesis and bioavailability of transforming growth factor. The main symptoms of the MFS include aneurysm, aorta dilation as well as morphological features: long limbs, scoliosis, malformed ribcage. Regardless of MSF manifestation, the main causes of MSF patient's death are cardiovascular sequels primarily thoracoabdominal aortic aneurysm (TAAA). Staged endovascular treatment of TAAA is preferred in patients with MSF as prevention from spinal cord ischemia (SCI) which may occur in such extensive aortic surgery.

A 40-year-old patient was admitted to our hospital due to acute abdominal pain. Examination revealed a pulsing bulge in the umbilical region. A patient suffered from MFS aortic insufficiency, mitral valve prolapse, and arterial hypertension. A pre-operative angio-CT scan revealed thoracoabdominal aortic dissection. Aortic diameter was 66 mm and increased by 10 mm in 6 months. In addition, it was very symptomatic, which was a direct indication for a procedure. The CT scan also presented an occlusion of the left subclavian artery.
A cardiac surgeon discarded him from the classical surgical procedure as the risk was considered to be too high. The first stage of the treatment involved stent-graft implantation into the thoracoabdominal aorta with branches to the left iliac artery, left and kidney arteries, superior mesenteric artery, and coeliac artery. The further implantation to the right iliac artery was held off and planned for the next hospitalization. The patient was discharged from the hospital in a good general condition.

The SCI incidence in extensive endovascular procedures is significantly high, so it is important to develop additional SCI prevention methods. One of the solutions is a staged procedure which is preferred in patients with MFS as it is important not to close intercostal and lumbar arteries in a short time as the blood supply of the spinal cord is very limited. This method allows gradual change in spinal cord vascularization.

Appendiceal malignancy masked as chronic pelvic pain syndrome and ovarian tumor in 33-year-old woman.

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Tutor: lek. Jakub Dobroch

Background: Chronic Pelvic Pain Syndrome (CPPS) can be caused by gynecological, urological or gastrointestinal disorders. After excluding common causes, more advanced diagnostics should be conducted. Low-grade appendiceal mucinous neoplasm (LAMN) is a rare, heterogeneous disease which clinical course might be masked as chronic inflammation.

Case Report: A 33-year-old woman was admitted to the Gynecologic Oncology Unit with a suspicion of ovarian tumor associated with CPPS. She was directed because of escalating symptoms. She had a history of cesarean section with removal of theca lutein cyst 2 years earlier. Since then she has complained about pelvic pain and received further antimicrobial therapies for suspected pelvic inflammatory disease (PID) and gastrointestinal diseases. Imaging diagnostics showed 10-cm-diameter pelvic cyst and laboratory results revealed increased level of inflammation markers and CA-125. The patient was qualified for the explorative laparotomy. During the operation adnexal mass with right ovary and fallopian tube were removed as well as inflammatory appendix and adhesions. Frozen section revealed no malignant lesion in the resected material. Final pathology report determined diagnosis as LAMN with unspecified surgical margins positivity. The patient was referred to the oncological surgery unit in order to establish further treatment plans. After operation pelvic disturbance surceased completely. No indications for secondary surgery were identified as there were no suspicious lesions in postoperative magnetic resonance results and no symptoms were alleviated. Strict oncological follow-up was recommended. Until now, the patient presents no symptoms of recurrence neither of neoplasm nor inflammation.

Conclusion: CPPS can mask severe diseases either of genitourinary system or gastrointestinal tract, including malignancies. Multidisciplinary approach could lead to faster and more precise diagnosis in complicated cases. Exhaustion of diagnostics and treatment possibilities should lead to change of search direction - in this case, a rare neoplastic lesion of the appendix. This is particularly important among patients suffering from severe pain.

21st ICYMS

Non- surgical

Case Report I

Rare doesn't mean impossible - a case of acute kidney injury in a 6-year-old boy with renal lymphoma.

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Tutor:

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Background
Acute kidney injury (AKI) is an aggressively developing deterioration of the organ, ultimately leading to insufficiency requiring renal replacement therapy. One of the most common causes of AKI in children are HUS and acute poststreptococcal glomerulonephritis. This case report presents a 6-year-old boy, in whom AKI developed with unclear etiology.

Case report
A 6-year old patient was urgently transferred in an emergency state from the district hospital to Pediatric Nephrology Clinic with tubulointerstitial nephritis and developing kidney failure. Before hospital admission the patient reported pain in the right lower limb and abdomen. In the last 12 months, he was treated by Ospene on an outpatient basis due to an elevated ASO titer. Additional laboratory results indicated increasing signs of AKI. Abdominal ultrasonography showed bilateral nephromegaly and a pathological change in the right iliac fossa. MRI showed infiltration in the lesser pelvis, the lumbar spine and the renal parenchyma. The clinical picture was indicative of multifocal lymphoma. The patient was transferred to the Department of Bone Marrow Transplantation, Oncology and Pediatric Hematology. Multidrug chemotherapy was administered with good results.

Conclusions
Kidney damage due to haemodynamic disturbances or the use of nephrotoxic medicines are the most common but not the only causes of AKI in the course of blood cancers. When determining the etiology, it's worth taking into consideration less common, but still possible causes of AKI: kidney involvement in lymphoma or tumor lysis syndrome. Maximally extensive diagnostics, increased monitoring of the patient, and response to treatment thus far administered are necessary to select the appropriate therapy and achieve the best possible clinical results.

Lymphangioma on the hairy skin of the head complicated by numerous basal cell carcinomas and adnexal tumors.

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Tutor:

First autor: Magdalena Kikowicz
Co-autor: Katarzyna Ceglarz
Tutors: Anna Pasierb MD; Joanna Misiewicz-Wroniak MD PhD

Background:
Lymphangioma is lymphatic vessels malformation. It can occur at any age and may involve any part of the body. In 90% it afflict patients under 2-year-old and involves head and neck.
Case report:
71-year-old female was referred to dermatological outpatient clinic for evaluation of asymptomatic multiple vesicles and bullae on the normal skin or erythematous background located on the scalp. Skin lesions appeared 13 years ago. Pemphigus vulgaris was excluded based on histopathological and immunofluorescent examination. Several diagnostic biopsies and surgical interventions were performed since malignant tumors were considered. Histopathology revealed syringomas, trichoepitheliomas, hidradenomas, basal cell carcinomas including infiltrative and cystic types, and hemangioma. 3 years ago after removal of a cystic basal cell carcinoma, patients scalp was covered witch a bald broad skin graft form the thigh. From beginning graft was surrounded by multiple vesicles with a tendency to coalescence into bullae. Each surgical trauma has induced formation of new vesicles and disease progression. The process was spread and not well demarcated. Dermoscopy exposed many hair abnormalities. Two biopsies were taken- one of the area with vesicles, the second of the field suspected of basal cell carcinoma. In both places histopathology revealed basal cell carcinomas on the basis of lymphangioma.
Conclusion :
Acquired progressive lymphangioma appears in the areas affected by trauma. Lymphangioma in the scalp can induce benign and malignant tumorigenesis and can occur at any age thereby should be considered during diagnostic process.

Diabetic foot syndrome in an adult with type 3 diabetes mellitus

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Background: Type 3 diabetes mellitus (T3DM) arises imitatively to a disease of the exocrine part of the pancreas. The most common causes are: chronic pancreatitis, pancreatic ductal adenocarcinoma, haemochromatosis, cystic fibrosis, and previous pancreatic surgery. Type 3, similarly to other types, might lead to serious complications eg. neuropathy, micro- and macroangiopathy. Diabetic peripheral neuropathy is the main reason for non-traumatic amputations of lower extremities.

Case report: A 44-year-old man was admitted to the hospital, due to a hard-to-heal ulceration on a left foot. He was diagnosed with T3DM 9 years ago. DM developed as a consequence of alcohol dependence syndrome, which led to the alcohol-related pancreatic damage. Since then, the patient has discontinued drinking. Unfortunately, at the moment of diagnosis, neurovascular complications of DM were already present (signs of proliferative retinopathy in the right eye and peripheral neuropathy) and have continued to develop, resulting in bilateral diabetic foot syndrome (DFS) and chronic kidney disease in stage 2 with albuminuria. High fluctuations of blood glucose levels (despite HbA1c=7,1%), overweight, lack of physical activity led to development of severe neurovascular complications in a short period of time, in relatively young age. The patient underwent laser treatment of retinopathy and several small amputations (toes I-V and distal part of V metatarsal of the left foot and toes I-II and distal part of II metatarsal of the right foot).

Conclusions: This case highlights the importance of proper glycemia control, healthy lifestyle and regular screening for diabetic complications among patients with T3DM from the onset. DFS is not an affliction that only concerns T2DM patients. Erratic blood sugar levels can be present despite glycated hemoglobin results within normal range. Sooner diagnosis, better management, better outcome.

Hodgkin disease in a patient with proceeding B-cell chronic lymphocytic leukemia and CALR mutation positive pre-fibrotic phase primary myelofibrosis: an unusual association of lympho- and myeloproliferative neoplasms

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Tutor: prof. Krzysztof Lewandowski, MD, PhD, Andrzej Balcerzak, MD

According to the WHO 2016 classification of hematological malignancies, pre-fibrotic phase primary myelofibrosis (pre-PMF) belongs to the category of Philadelphia negative myeloproliferative neoplasms. The coexistence of secondary malignancies in pre-PMF patients, in particular lymphoproliferative neoplasms (LPN), is rarely reported. Herein, we report an unusual case of the Hodgkin disease (HD) in a patient with proceeding *CALR* mutation positive pre-PMF and B-cell chronic lymphocytic leukemia (B-CLL), which has not been reported in the literature so far.

A 73-year-old man was diagnosed with B-CLL in October 2018. Regular laboratory monitoring revealed progressive thrombocytosis up to the 1094.0 G/L, noted in January 2020. Screening for the presence of Janus tyrosine kinase 2 gene mutation V617F (absent) and, subsequently, *CALR* mutation (present), was done. Trephine biopsy revealed hypercellular bone marrow, the presence of B-CLL infiltrate and symptoms of a myeloproliferative neoplasm, morphologically resembling an early phase of primary myelofibrosis. Finally, the diagnosis of ET was established. Hydroxycarbamide intolerance was noted and PEG-interpheron α-2a therapy was introduced. In May 2020 progressive cervical lymphadenopathy, chills, and skin rash were observed. Lymph node biopsy revealed Richter transformation of B-CLL to classical type of HD. Therefore, ABVD therapy was started. Unfortunately, the platelet count rose up to 1000.0 G/L once again, which required the treatment with anagrelide at high doses. The interim PET analysis after 2 ABVD cycles confirmed treatment failure (Deauville 5). Therefore, second line therapy with BGD was started.

The genetic predisposition for both the lympho- and myeloproliferative neoplasm is well known (i.e. 46/1 haplotype and *JAK2* V617F mutation positive MPN). In the case of *CALR* mutated MPN, this kind of association has not been reported yet. It is possible that *TERT* germline variants or other predisposition alleles play a role in susceptibility for both lympho- and myeloproliferative neoplasms.

A 51-year-old patient with metastasis to the frontal bone as the first manifestation of follicular thyroid cancer

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Tutor: Agnieszka Żyłka MD, PhD

Background:
Follicular thyroid cancer (FTC) arises from follicular cells of the thyroid. It is the second most common type of thyroid cancer. Thyroid metastases at early stage are uncommon. Cranial metastases occur very rarely, with incidence of 2.5-5.8% and usually are located in occipital and temporal areas.

Case report:
In April 2017, a 51-year-old female underwent surgery in which solid mass fixed to the right side of the frontal bone and dura mater was successfully removed. At the time, differential diagnosis included malignant meningioma or osteosarcoma. One month later the patient was diagnosed with secondary malignant tumor of brain and meninges. The patient underwent palliative radiotherapy. In the meantime, histopathological examination of resected tumor revealed a metastasis of FTC. Due to that, in July 2017, the patient underwent total thyroidectomy. Biopsy of thyroid confirmed presence of FTC. In right lobe FTC angioinvasion was discovered. In November 2017, the patient was admitted to the Warsaw Oncology Center where scintigraphy revealed numerous pathological concentrations of radioactive iodine in the bones. The patient was qualified for radioiodine therapy and since December 2017 three courses of 131I therapy took place. A diagnostical post-therapeutic scintigraphy revealed a significant reduction in the uptake of radioiodine in the bone metastases and the patient observed a significant reduction of pain.

Conclusions:
This case reminds us that sometimes metastases can be the first manifestations of cancer.
It is extremely uncommon for FTC to metastasize into frontal bone, nevertheless it shows that a variety of tumors should be taken into consideration when proposing a diagnosis. Radioiodine therapy is the only solution in patients with bone metastases that are not manageable with surgical resection and in this case the treatment helped to reduce the size of metastases and to relieve the pain.

Diagnosis and monitoring of Myeloid Neoplasm with Germline Predisposition

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Tutor: Karolina Bukowska-Strakova, PhD

Background: Myeloid Neoplasms with Germline Predisposition belong to rare, underdiagnosed entities. They are usually associate with inheritance of mutated allele (a.o. *CEBPA* gene) and somatic mutation in second allele. A differential diagnosis from *de novo* hematologic disorders, like acute myeloid leukaemia, might be difficult despite differences in clinical manifestations, bone marrow (BM) morphology and clinical course. However, appropriate diagnosis is crucial in terms of therapy and potential relevance for the entire family.

Here we present a flow cytometry (FCM) data obtained from the described disorder.

Case report: A bone marrow (BM) of 3-year old girl with family history of an AML incident (mothers' sister) was examined by means of FCM. BM examination revealed the presence of pathological myeloblasts (CD117+/HLA-DR+; 26% of nucleated cells), including myeloblasts (16%) and monoblasts (10%), dysplasia in granulocytic and monocytic linage and excessive proliferation in all myeloid lines, including proerythroblasts, megakarioblasts and mast cells.

Consequently, Myeliod Neoplasm with Germline Predisposition was suggested. Molecular genetics assay confirmed biallelic mutations in CEBPA gene – one as a germline configuration, second as a somatic mutation.

During therapy, measurable residual disease (MRD) was monitored by FCM. MRD was directed to determine the presence of pathological myeloblast and monoblast, descibred at diagnosis, using LAIP approach. We also applied a "different form normal" approach, and monitored all potential immunophenotypic shifts in all BM cells. Within treatment, the proportion of both pathological blasts populations decreased below 0,1%, however mast cells were still enhanced. Strong but normal BM regeneration was observed in both myeloid and lymphoid lineages.

Conclusions:

As *CEBPA* mutations appear to be unstable throughout the disease course, and at recurrence novel leukemic clones are frequently identified, monitoring of such patients by means of FCM is very challenging. In purpose to exclude the presence of new, independent clones, thorough immunophenotype of all cell lineages must be performed.

Riedel’s thyroiditis or anaplastic thyroid carcinoma – difficulties in differentiation and diagnosis

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agdalena Góralska MD, PhD

l: A dense, palpable mass in the neck, pain and dysphagia increases oncological vigilance. These symptoms are alarming and require urgent diagnosis. Except to there is another rare disease with the same clinical manifestation – a Riedel’s thyroiditis. This case describing a challenging diagnostic path to confirm this unique t
: A 67-year-old woman was referred to
ecause of suspected thyroid carcinoma. She underwent a strumectomy 11 years ago. She reported neck pain and dysphagia lasting 6 months. As ambulatory treatm
d elevated inflammatory markers, patietnt has been treated with anibiotics without improvement. Physical examination revealed a
ged thyroid. Laboratory tests showed elevated CRP, aTPO, aTG and IgG4 serum level. TSH, fT3,
ere normal. Thyroid fine needle aspiration revealed presence of neutrophils and histiocytes, without neoplastic cells. No bacterial growth was found on
terial and blood culture. The ultrasound showed thyroid with heterogeneous, reduced echogenicity, reduced vascularization and irregular boundaries.
e covered jugular vessels. The trachea was compressed. CT revealed a goiter reaching the upper mediastinum and infiltrating left common carotid artery.
gus was attached to the infiltrate from behind. No fibrosis in the abdominal cavity was observed. Based on the clinical picture and results,
yroiditis was diagnosed. The patient didn’t agree to surgery. Glucocorticosteroids were included in the treatment. The patient was discharged home in good condi
: Riedel’s thyroiditis is a rare entity, associates with systemic fibrosis and disorders triggered by IgG4, therefore a serum level of
e useful to confirm this disease. Diagnosis can be challenging due to the unspecific symptoms that overlap with other disorders, like anaplastic thyroid carcinoma. A
ent, there are no general consensus. In case of treacheal compression, surgery is indicated. Despite the lack of causal treatment, steroids are still the mainstay of th
edications aganist fibrosclerosis can be considered.

Patient with refractory PMBCL treated with CAR T-cell therapy.

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Background: CAR T-cell therapy is an immunotherapy method, with autologous, genetically modified T-cells expressing chimeric antigen receptor (CAR). CAR activate T-cells by binding specific antigen, in this case CD-19 commonly expressed by malignant and normal B-cells. Currently four CAR T-cell therapies are available including aksykabtagen cyloleucel, tisagenlecleucel, brexucabtagene autoleucel and recently FDA approved lisocabtagene maraleucel. Indications for therapy include patients after minimum two lines of treatment with: R/R large B-cell lymphoma (LBCL), R/R acute lymphoblastic leukemia up to 25 years of age, R/R mantle cell lymphoma and R/R follicular lymphoma.

Case report: The objective of this case report is to report the efficacy of CAR T-cell anti-CD19 therapy. 39-years old, male patient presented a bulky lesion located in mediastinum, infiltrating and exceeding chest wall (Lugano IV). Primary mediastinal B-cell lymphoma (PMBCL) was diagnosed. PMBCL is rare condition, representing 2-3% of non-Hodgkin lymphomas (NHL), with 10–30% patients having primary refractory, or relapsed (R/R) disease. CR rate for patients with refractory LBCL with existing therapies is 7%. The ASCT performed with non-responders has lower OS rate than when performed in chemotherapy-responding patients. CAR T-cell therapy is promising new possibility for those patients.
Patient progressed after first-line treatment with DA-EPOCH-R and second-line with DHAP-R, and was qualified for CAR T-cell therapy. He successfully underwent lymphocyte collection and then received briging therapy with BR. Before aksykabtagen cyloleucel infusion lymphodepletion therapy with FluCy was implemented. During the first 14 days post-infusion, extrathoracic tumor regression was observed. After 30 days post-infusion, PET scan shown partial metabolic response (Deauville 4). CRS and ICANS occurred, treated successfully. Due to pulmonary invasive aspergillosis left upper lobectomy was performed. After 180 days post-infusion, patient remained in complete remission, confirmed by PET (Deauville 3).

Conclusions: CAR T-cell therapy is effective and promising treatment method for patients with refractory PMBCL.

COVID19 in hematological patients - a report of two cases

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Tutor: prof. dr hab. n. med. Lidia Gil

Introduction:

The outcomes of COVID-19 in hematological patients are of utmost interest due to their high degree of humoral and cellular immunosuppression status. They seem to have increased risk of contracting SARS-CoV-2 when compared with general population and are at high risk of severe complications like intensive care unit admission, invasive ventilation or death. Some of hematological patients need the intensive hematological treatment or diagnostics despite of COVID19. We present two patients with hematological malignancies and concomitant COVID19 successfully treated in Department of Hematology and Bone Marrow Transplantation Poznań University of Medical Sciences.

Case report

The first patient, a 63-y-old man after syncope, presented with splenomegaly, dry cough, WBC 320 G/L, anaemia and RT-PCR SARS-CoV-2 positive test; admitted to the COVID subdivision of department of hematology due to the high risk of leukostasis. The diagnosis of chronic phase of chronic myelogenous leukemia was confirmed. During hospitalization the patient developed fever, pneumonia thus COVID19 was diagnosed. Cytoreductive treatment and then imatinib were implemented simultaneously with the treatment of COVID19 including low dose oxygen therapy with nasal cannula, corticosteroids, remdesivir, convalescent plasma.

The second patient, a 40-years old man, with heavily pretreated, refractory primary mediastinal large cell lymphoma transferred from transplant unit on +3 day after allogeneic stem cell transplantation because of COVID19. Intensive immunosuppressive treatment including methotrexate and cyclosporine as a prophylaxis of transplant rejection and graft versus host disease

was maintained. After the 48 h of treatment with corticosteroids, remdesivir, convalescent plasma a relief of fever and cough was observed.

Both patients were discharged in good general condition without symptoms of COVID19

Conclusions

Both presented cases showed, that the intensive hematological treatment doesn’t exclude successful treatment of COVID19. It seems that patients requiring the special hematological treatment should be treated for COVID19 in special, appropriately isolated parts within the home hematological division.

Challenging differential diagnosis of recurrent hypoglycemia - a case report.

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Tutor: Paweł Komarnicki, M.D., Adam Maciejewski, M.D., PhD, Kosma Woliński M.D., PhD, Paweł Gut, M.D, PhD

Background

Hypoglycemia leads to various symptoms such as hunger, palpitations, tremor, sweating or confusion, but may also occur as a severe life-threatening condition. Mostly it is associated with diabetes and exogeneous treatment methods, however it could also coexist with endogenous hyperinsulinemia. It is a complex condition caused by tumors like insulinoma, congenital or autoimmune disorders - Hirata's syndrome.

Case report

We report a 58-year-old male admitted due to evaluation of repeated episodes of hypoglycemia presented as weakness, tachycardia, increased sweating, palpitations and dizziness. Carbohydrate-based meals reversed the symptoms. The patient's past medical history revealed hypertension, hypercholesterolemia and right renal cyst. He was non-diabetic and denied any exposure to exogenous insulin. Level of glycemia on admission was 51 mg/dl. Laboratory tests revealed very high insulin concentration and glycated hemoglobin at level 5,3%. Computed tomography was performed to exclude insulinoma. No pathological findings were detected within the abdomen. Moreover, insulin to C-peptide ratio was higher than 1. Above-mentioned results prompt us to take into consideration Hirata's syndrome. To establish final diagnosis insulin autoantibodies level was measured.

Conclusions

Differential diagnosis of a recurrent hypoglycemia is challenging. It should include insulinoma and Hirata's syndrome. Level of insulin autoantibodies is critical. Establishment of the cause of endogenous hyperinsulinemic hypoglycemia is crucial due to distinct treatment methods.

Leiomyomatosis of inferior vena cava - case report

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Tutor: Maryla Kuczyńska MD

Background: Intravenous leiomymomatosis is defined as a benign, interstitial growth of smooth muscle cells in the venous or lymphatic vessels. This lesion is mostly seen in women with uterine myomas. Inferior vena cava leiomyomatosis can extend all the way to the heart and lead to life-threatening clinical complications.

Case report: A 40-year-old female patient, after hysterectomy with adnexa due to uterine myomas, came for diagnostic workup due to increasing abdominal pain. On ultrasound examination, balloting hyperechoic structures were found in the inferior vena cava from the level of the junction of the iliac veins to the right atrium. The patient was referred for further diagnostic evaluation to differentiate thrombus or other tissue material. The CT scan revealed thrombi in the right internal iliac vein, common iliac vein, inferior vena cava, and superior vena cava. No obvious thrombus was observed in the right atrium. A local filling defect was found in the distal segment of the left common iliac vein and in the initial segment of the left internal iliac vein. The patient has started anticoagulant therapy. After 4 weeks follow-up CT showed stationary thrombus in the iliac veins and inferior and superior vena cava, indicating no response to the anticoagulant treatment. Subsequently the Doppler US confirmed abnormal masses in the inferior vena cava and iliac veins richly vascularized with the presence of multiple blood flow signals. The ultrasound image clearly excluded the presence of thrombi, indicating inferior vena cava leiomyomatosis, which was later confirmed by histo-pathological examination. The patient was qualified for surgical removal of the abnormal masses within the iliac and inferior vena cava.

Conclusions: Inferior vena cava leiomyomatosis is very rare. It may accompany uterine myomas. It causes diagnostic difficulties in such examinations as ultrasound or CT. Only Doppler US examination can clearly differentiate leiomyomatosis from a thrombus in the inferior vena cava.

Venous thrombosis in a patient with type 1 diabetes mellitus as a distant complication of ketoacidosis

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Tutor: Uruska Aleksandra MD, PhD, DSc

Background: Type 1 diabetes mellitus (T1DM) is a chronic disease characterized by an insulin deficiency resulting from the destruction of pancreatic β cells. The most dangerous complications of T1DM include ketoacidosis and severe hypoglycemia. We report an adult patient who developed medial gastrocnemius vein thrombosis as a distant complication of diabetic ketoacidosis (DKA).

Case report: 28-year-old woman was admitted to the Clinic of Internal Medicine and Diabetology because of metabolic uncontrolled diabetes with hypoglycemic episodes. The patient had suffered from T1DM for 22 years and was treated with intensive functional insulin therapy at the moment of admission. Medical history also included android obesity, mixed hyperlipidemia, eating disorder, and borderline personality disorder. One month before the patient had been hospitalized due to severe DKA complicated with severe respiratory insufficiency and acute renal insufficiency. Since the hospitalization, the patient has developed pain in the right lower leg and right foot. Physical examination revealed soreness, slight edema, and reduced temperature at the right lower leg and right foot. Pulse in the dorsalis pedis artery and the posterior tibial artery was palpable. Doppler ultrasound revealed right medial gastrocnemius vein thrombosis. Diagnostic imaging was unremarkable for any arterial circulatory disorders. The treatment included anticoagulants and compression therapy. The patient was discharged home in good health and followed up at the outpatient clinic.

Conclusions: The case highlights the role of venous thrombosis prophylaxis which should be considered in every patient with severe DKA. Arterial thrombosis is a common complication of DKA but few reports present adult patients with venous thrombosis complicating DKA. The prevalence of venous thrombosis in adults who developed DKA is also poorly known, especially as a distant complication.

Coexistence of T-ALL and neuroendocrine pancreatic tumor.

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Tutor: Woliński K. MD, PhD

Background:
T lymphoblastic leukemia/lymphoma (T-ALL/LBL) is diagnosed as a single disease (although it is disputed). Depending on the bone marrow (BM) involvement, a patient may be defined as having T-ALL or LBL (>=20% vs <20% of lymphoblasts in BM). The prognosis is unfavorable due to a rapid progression.
Neuroendocrine pancreatic tumors constitute 1,3% of all pancreatic tumors. Generally, they are nonfunctional as well as asymptomatic, therefore often found accidentally. The coexistence of two primary neoplasms is exceptional.
Case report:
A 58-year-old man underwent diagnostic procedures due to coughing, dyspnea and changes in the X-ray. CT showed a large tumor in the anterior mediastinum. Series of cytologic tests of the pleural fluid, BAC and EBUS all failed to make a diagnosis. Analysis of tumor samples obtained from the parasternal mediastinotomy and subsequent BM cytometric tests allowed to diagnose T-ALL. At the beginning of the treatment, CT revealed considerable changes in the area of %u200B%u200Bthe retroperitoneal space. Moreover, throughout months, in CT, PET-CT and ultrasound, multiple changes in the liver were described in various ways (as hemangiomas, suspicion of metastatic lesions, cysts). Resistance was diagnosed in the evaluation of induction treatment. On MRI scans, a lesion, unresponsive to the treatment, in the abdominal cavity prompted the speculation of a neuroendocrine tumor. This suspicion was confirmed by immunohistopathological tests. The patient began everolimus therapy. This diagnosis forced a change in the treatment of T-ALL (including giving up on allo-HSCT).
Conclusions: Choice of the imaging method is as important as the interpretation of the results. A single imaging examination, even if a top-notch method is chosen, is not sufficient enough to allow us to become less vigilant. The same applies to finding a primary neoplasm - it should never exclude a co-occurrence of a second primary tumor, neither should it exclude a risk of a future new malignancy.

Newly diagnosed latent autoimmune diabetes in adults with microvascular complications.

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Tutor: Uruska A. MD, PhD, DSc, prof. Zozulińska-Ziółkiewicz D. MD, PhD, DSc

Introduction: Latent autoimmune diabetes in adults (LADA) is the most frequent form of adult-onset autoimmune diabetes and may account for 2% to 12% of all cases of diabetes in adult population. The Immunology of Diabetes Society proposed three main criteria for the diagnosis of LADA: adult age of onset (>30 years); the presence of any islet autoantibody; and the absence of insulin requirement for at least 6 months after diagnosis.

Case report: A 62-year-old women was admitted due to high blood glucose levels (259 mg/dl, 290 mg/dl) and diabetic macular edema in both eyes in an ophthalmological examination. Complementing the ophthalmological examination were symptoms reported by the patient - visual field defects and reduced visual acuity. Additionally, she reported more frequent urinary tract infections and worse wound healing. The patient did not report symptoms typical of hyperglicemia, such as polyuria, polydypsia and weight loss. On admission, the blood glucose was measured to be 235 mg/dl. Glycated hemoglobin (HbA1c) was 12,2%. Urine test detected glucosuria with acetonuria. The patient's past medical history not reported any chronic diseases and has not taken any medications. Subsequent testing (high levels of anti-GAD autoantibodies) verify a diagnosis of LADA.

Conclusion: Prevalence of retinopathy in patients with LADA, that lasts less than 5 years is uncommon and affects approximately 15% of patients. Moreover, GAD autoantibody positivity is associated with a 62% reduced risk of developing microalbuminuria. This case report indicate, that LADA encompasses a wide spectrum of heterogeneous clinical and metabolic phenotypes. Therefore draws attention to the concept of a personalized medicine approach to therapy that takes into account the intrinsic characteristics of each patient.

Diagnostic difficulty of mixed-phenotype acute leukaemia (MPAL) - case studies with unclear recognitions.

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Tutor: lek. Julia Sołek, dr n.med. Marcin Braun, dr n.med. Piotr Stelmach, dr hab. n.med. Hanna Romańska-Knight

BACKGROUND

Mixed-phenotype acute leukaemias (MPALs) represent a rare hematological subunit, which contain distinct blasts populations each of different lineage, one population with multiple antigens of different lineages on the same cells, or even a combination. Because of its vagueness, MPALs have become a challenge for the pathologists and clinicians over the past few years.

CASE REPORT

All four patients aged 62-82 years were admitted to the Wojewódzkie Wielospecjalistyczne Centrum Onkologii i Traumatologii im. Mikołaja Kopernika (WWCOiT) in Lodz. All of them have recently been detected with pancytopenia in a complete blood count. In addition, in one of the patients genetic aberrations (del20q+ and trisomy 19) has been identified. Due to possibility of myelodysplastic syndrome, trephine biopsies of bone marrow were performed. In each case features of bone marrow hypoplasia were shown with percentage of blasts ranging 8-35%. Further immunohistochemistry analyses showed: in two cases, co-existence of subsets expressing MPO (myeloid component), CD3, CD99 (T cell component), CD20 (B cell component) and CD123, CD138 (plasmacytoid component) and, in two others, subsets positive for CD117 (myeloid component) and CD99 (T cell component). In all cases, populations of blasts CD34+ were revealed but no B cell or plasmacytoid components were found. In one patient dominance of CD4+ over CD8+ populations, presence of TdT+ and absence of CD56 cells populations in 20% of bone marrow cells were revealed by flow cytometry. Because of ambiguity of results no definite diagnosis could be offered and all patients were referred to the Department of Haematology for further diagnosis and treatment.

CONCLUSIONS

Mixed-phenotype acute leukaemia demands more careful diagnostic and therapeutic focus for either hematooncologists and pathologists. Our report highlights an unmet need for diagnostic guidelines in MPAL. Further studies are necessary for better differentiation of MPALs with other mimicking entities and enabling appropriate and effective clinical decision-making.

Pseudo-pheochromocytoma a rare manifestanion of paroxysmal hypertension - case report.

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Tutor: Ass. Prof. Nadia Sawicka-Gutaj, MD, PhD

BACKGROUND:

Paroxysmal hypertension with concomitant skin paleness is one of the most characteristic symptoms of a tumor arising from medulla of adrenal gland- pheochromocytoma. Symptoms of increased sympathetic activity, namely dizziness, headache, increased sweating, nausea, chest pain, palpitations, shortness of breath, and a feeling of anxiety, are caused by the excessive secretion of catecholamines. Pheochromocytoma is relatively rare, and it is diagnosed in the app—2% of patients with paroxysmal hypertension. Pseudo-pheochromocytoma should be considered in patients with clinical, biochemical features of excessive catecholamine secretion when the tumour cannot be identified.

CASE REPORT:

A 50-year-old patient was admitted to the Department of Endocrinology due to a suspicion of secondary hypertension. The patient had had a history of well-controlled hypertension diagnosed ten years ago. Since February 2020, he had experienced episodes of a sudden increase of BP up to 200/150 mmHg, preceded by anxiety. The patient underwent hospitalizations at the Departments of Hypertension, at the Department of Internal Medicine, and at the Department of Nephrology. He was diagnosed with obstructive sleep apnea and hypertensive nephropathy G2. During the hospitalization at the Department of Endocrinology, other causes of secondary hypertension such as hyperthyroidism, Cushing syndrome, primary hyperaldosteronism were excluded. CT scan of the abdomen did not reveal any abnormalities. Due to the increased excretion of normetanephrine in the 24-hour urine collection, the patient was referred for an 18FDOPA-PET examination. The examination did not reveal a catecholamine-secreting tumour. The diagnosis of pseudo-pheochromocytoma was established. Psychotherapy was recommended, and improvement of the patient's health condition has been achieved.

CONCLUSIONS:

Pseudo-pheochromocytoma is diagnosed by excluding other causes of paroxysmal hypertension.
Also, patients with OSA can develop hypertension mimicking a pheochromocytoma.
During the COVID-19 pandemic, several cases of anxiety, depression are reported. It is likely that in the described case, obstructive sleep apnea and the COVID 19 pandemic significantly contributed to the development of pseudo-pheochromocytoma.

21st ICYMS

Non-surgical Case Report II

Undifferentiated arthritis

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Tutor:

Author:Zofia Czabajska
Co-authors:Katarzyna Wiśniewska
Tutor:Professor Piotr Leszczyński MD,PhD,DSc

background:There are more than 100 types of arthritis and joint-related diseases. The presented case shows how symptoms of several diseases can overlap and make the proper diagnosis of arthritis difficult.

case report:A 34-year-old male was admitted to our hospital suffering from arthralgia and myalgia. The patient was a forester by profession. Symptoms occurred 1 year before the referral and they have recently worsened. Due to the suspicion of rheumatologic disease, imagining studies, and blood tests were ordered. The laboratory investigation (CRP, ESR, ALT, AST, bilirubin, CK, ACPAs anti-dsDNA, complement component C3 and C4) was within normal limits, but RF, anti-Borrelia immunoglobulins (ELISA confirmed in Western Blot) were positive. The antinuclear antibodies test was also positive (ANA-IF titer 1:1000, dense fine speckled pattern, ANA-Profile-3: RNP/Sm: +++). There were no relevant abnormalities in the joint ultrasounds or X-ray scans, and no morphological changes in HRCT. The patient didn't meet the recognition criteria of any rheumatic diseases, despite the results of laboratory tests suggesting rheumatoid arthritis or mixed connective tissue disease. Due to the results of the Borrelia antibodies and the patient's profession, we decided to treat him for Lyme disease (28 days treatment of doxycycline). There was no significant improvement after the therapy.

In a month, the patient reported arthritis of wrists, knees and elbows. We used CRP and ESR which were significantly elevated. The above symptoms along with the results of laboratory tests allowed us to establish the diagnosis of rheumatoid arthritis. We administered methotrexate (15mg per week), and glucocorticosteroids, tapering with the dose. Currently, the patient is in one-year remission.

conclusions:This case highlights various possible causes of arthritis. One of the most common ones are rheumatic diseases, but other non-rheumatic conditions showing similar symptoms should be ruled out before making a diagnosis and starting treatment.

Severe Complication of Early Cessation of Ticagrelor Therapy after Drug-eluting Stent Implantation

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Tutor: Dr. Bartłomiej Perek MD, PhD

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Background:
Antiplatelet agents are commonly prescribed after cardiovascular events. One of them, Ticagrelor, inhibits ADP-mediated P2Y12 dependant platelet activation and aggregation. Of note, it is not recommended as monotherapy but with aspirin, it is used in high-risk patients following percutaneous coronary intervention (PCI). Dual antiplatelet therapy is of paramount importance during the first weeks after coronary procedures, known as the reendothelialization period.

Case report:
A 52-year old man was admitted urgently with unstable angina. Medical history includes hypertension, diabetes mellitus, obesity, and a prior STEMI. The STEMI occurred 12 years ago and was treated with bare-metal stent implantation to the right coronary artery (RCA), which required repeat intervention 4 years later. For the current angina symptoms, an emergent coronary angiography was performed, revealing complete occlusion of the RCA along with significant stenosis in the left anterior descending and left circumflex arteries. Subsequently, PCI was conducted, and two drug-eluting stents (DES) containing sirolimus, were implanted. The patient was discharged on the afternoon of 31st December 2020 with a 90 mg prescription of ticagrelor. However, due to lack of availability in the nearest pharmacy, the patient did not take it and unfortunately 22 hours later, was re-admitted urgently. He presented with acute chest pain which radiated to the upper extremities and jaw. Acute thromboses in the previously implanted stents were found. The ejection fraction of the patient had reduced from 45% estimated during the initial hospitalisation to 30% once he was readmitted. The further clinical course was uneventful.

Conclusion:
Although the patient was non-compliant regarding ticagrelor, physicians need to make sure people are discharged with an appropriate amount of medication. DES implantation has a 0.3-1% risk of early thrombosis, therefore cardiologists cannot rely purely on patient accountability and should ideally give a few doses after discharge, especially during holiday periods.

Rapidly progressing cardiac and renal amyloidosis - case report

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Tutor: Dr Ludmila Basina, Dr Valdis Ģībietis

Background

Amyloidosis is a disease, caused by the misfolding of amyloid protein leading to fibril formation. The most common types of amyloidosis are AL, AA, ATTR and dialysis-related amyloidosis. Majority of clinical cardiac amyloidosis is caused by ATTR and AL amyloidosis. The kidneys most commonly are involved in AL and AA amyloidosis.

Case report

A 52-year-old woman is admitted to a tertiary hospital in a severe condition with suspected acute coronary syndrome and cardiac amyloidosis. Patient's condition has deteriorated rapidly over the past three weeks with main complaints of cough, progressive shortness of breath and chest discomfort. She has been referred from a regional hospital where an echocardiography finding raised suspicion of cardiac amyloidosis.

While hospitalized, myocardial 99mTc-PYP scintigraphy was performed with results suggesting ATTR amyloidosis. Heart MRI findings are consistent with amyloidosis - hypertrophic restrictive cardiomyopathy with subendocardial diffuse late gadolinium enhancement. Urine analysis shows elevated kappa light chains. This finding raises suspicion of AL amyloidosis, since monoclonal protein presence is not characteristic of ATTR amyloidosis.

Myocardial, kidney and trephine biopsies are recommended, however, patient's condition deteriorates rapidly, and she is moved to the intensive care unit. Patient develops tachy-brady syndrome and temporary pacemaker with atrial stimulation is implanted. Renal replacement therapy is initiated due to acute renal failure.

Patients passes away two and a half weeks after hospitalization. Autopsy confirms cardiac and kidney amyloidosis.

Conclusions

Even though initial myocardial scintigraphy suggested ATTR amyloidosis, patient's overall clinical picture with renal involvement was uncharacteristic for this type of amyloidosis. Amyloid typing was not performed, but AL amyloidosis with cardiac and renal involvement remained as the final diagnosis because of the high concentration of kappa light chains in urine.

To reach the final diagnosis as soon as possible, it is important to follow a diagnostic algorithm. Prognosis is still poor in patients with rapidly deteriorating multiorgan involvement, as shown in this case study.

Melkersson-Rosenthal Syndrome - a case report.

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Tutor: Jałowska M, MD, PhD

Background

Melkersson- Rosenthal syndrome (MRS) is a rare, neuro-mucocutaneous disease, which consists of triad of symptoms such as facial paralysis, orofacial edema and fissured tongue. It is not frequent to observe all of the symptoms at the same time. The most common one is orofacial edema. The etiology of MRS is unclear, but it is thought to be caused by various factors like infections, genetic predisposition, immune deficiency, food intolerance and stress.

Case report

A 58-year-old female patient presented to the dermatology clinic with upper lip edema, that has been recurring for 2 years. It first appeared after her denture replacement. Physical examination revealed swelling of the upper lip and upper gum. Neither facial paralysis nor fissured tongue was found. The ACE-inhibitor taken for hypertension was switched to indapamide, as angioedema was taken into consideration in the differential diagnosis. An epidermal patch test was performed to rule out allergic contact mucositis and ANA test to exclude connective tissue disorders. The patient was treated with prednisone followed by methylprednisolone and bilastine with a temporary improvement. Histological findings showed granulomatous cheilitis and Melkersson-Rosenthal syndrome was diagnosed. The patient was later treated with triamcynolone injections, dapson and methylprednisolone for 3 months with no constant improvement. Therefore, the arechin treatment was started.

Conclusions

MRS presenting with a three characteristic features simultaneously is uncommon. It is important to consider MRS in the differential diagnosis of facial edema or paralysis. The lip biopsy was necessary for the diagnosis. A significant improvement was noticed after using arechin and triamcinolone injections. In conclusion, more research is needed to assess the pathology and the best treatment method for MRS.

Unexpected diagnosis of Chilaiditi syndrome in an adult patient with dyspnoea - a case report

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Tutor: Agnieszka Stańczyk, MD

Background

Chilaiditi sign is a rare phenomenon (up to 0.28% of the general population) seen in radiological images where the loop of the large intestine is interposed between the diaphragm and the liver. The clinical image of this transposition varies widely from asymptomatic to severe gastrointestinal and/or respiratory symptoms. If manifested clinically, it is called Chilaiditi syndrome.

Case report

A 68-year-old female patient hospitalized in a psychiatric ward was referred to our hospital due to deterioration of general condition, decrease in peripheral oxygen saturation (SpO_2) to 89% and single crackles at the base of the lungs on auscultation.

On admission, the patient was intermittently illogical with dyspnoea, SpO_2 93-94%. A shift of the lung borders to the area of the right 7th rib and the left 8th rib accompanied by silent crackles was found. In laboratory tests, the only abnormality was elevated D-dimer level – 1189ng/ml. On imaging studies, chest X-ray showed gas under the raised domes of the diaphragm, an enlarged heart silhouette with no sighs of pulmonary congestion. Abdominal ultrasound revealed a picture of strong reverberations as in gastrointestinal perforation while abdominal CT scan did not show free gas in the peritoneal cavity. The patient was consulted surgically, but since no urgent intervention was required, conservative treatment was implemented. Meanwhile, pulmonary embolism and myocardial infarction were also excluded.

The final diagnosis of ventilatory disturbance of the type of restriction secondary to Chilaiditi syndrome and diaphragmatic hiatal hernia was made. The patient was transferred to the psychiatric hospital for further treatment of schizophrenia, with referral for follow-up care within the surgical outpatient clinic.

Conclusions

As Chilaiditi syndrome may lead to serious complications, awareness of this disease is essential for every clinician. Adequate conservative treatment is often sufficient, however, in patients unresponsive to such therapy or with severe complications, surgical intervention is necessary.

High-flow nasal cannula ventilation in the treatment of COVID-19

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Tutor: Professor Piotr Leszczynski MD, PhD, DSc

Background: Since the beginning of the COVID-19 epidemic, oxygen therapy has acquired significance as a primary treatment in patients with SARS-CoV-2 pneumonia. Unfortunately, non-invasive oxygen therapy delivered via face mask with a reservoir bag was insufficient in some patients. To avoid mechanical ventilation, high-flow nasal cannula (HFNC) oxygen therapy has been proven to be an alternative.

Case report: A 67-year-old woman was admitted to our hospital suffering from increasing dyspnoea in the course of SARS-CoV-2 (COVID-19). The patient had a past medical history of hypertension, Diabetes Mellitus type II, paroxysmal atrial fibrillation and obesity. The chest computed tomography CT, performed on admission, disclosed: numerous scattered lesions of ground-glass opacities with thickening of the interlobular septum in both lungs, occupying about 90% of the lung parenchyma. What is more, the pulmonary arteriography detected signs of pulmonary embolism in segmental arteries up to PS9 and PS10. Laboratory investigation revealed leukocytosis, lymphopenia and elevated levels of CRP, ESR, D-dimer. Treatment with FFP of convalescent, remdesivir, low-molecular-weight heparin (in a therapeutic dose) s.c., empirical antibiotics i.v. and glucocorticoids i.v. was implemented.

Despite the pharmacotherapy and the oxygen therapy delivered via face mask with reservoir bag in maximal flow, the patient was developing severe hypoxemic respiratory failure. To avoid mechanical ventilation we started HFNC. The flow of 45L/min fraction of inspired oxygen (FiO2) 80%, temp 31%uFE12C, resulted in saturation increase up to 96%, a respiratory rate decrease to 25/min, and a cessation of central cyanosis. Flow and FiO2 were simultaneously reduced and finally the HFNC therapy ended in 13 days.

The patient needed only oxygen therapy through the nasal cannula with the flow of 5L / min for the next 7 days. We observed an improvement of the clinical condition and laboratory parameters. The patient was discharged home after 4 weeks of treatment.

Conclusions: High-flow nasal cannula ventilation can be successfully used even in patients with pneumonia and severe hypoxemic respiratory failure. HFNC therapy may prevent patients from mechanical ventilation and it potentially circumventscomplications.

Co-occurrence of multiple sclerosis (MS) and neurofibromatosis type 1 (NF1)

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Tutor: Dr. Piotr Iwanowski

Background:

Neurofibromatosis type 1 (NF1) is an autosomal dominant neurocutaneus disease. NF1 gene mutations lead to clinical manifestation in the peripheral and central nervous system. Multiple sclerosis (MS) is a common inflammatory demyelinating disease of the central nervous system. The clinical phenotype is probably modified by interactions from genetic and environmental factors. The co occurrence of these two conditions is extremely rare with only about 13 cases reported in literature thus far.

Case report:

This case report aims to present a 46 year old patient who presents with primary progressive MS (PPMS) as well as a history of NF1 along with a retrospective analysis on the correlation between these two disease states. She was diagnosed with PPMS 8 years previously with the first symptoms of a one-year progressive weakness of the left lower limb. A diagnostic study for cerebrospinal fluid analysis disclosed intrathecal oligoclonal bands. Brain and spinal cord MRI was performed four times, every two years, disclosed a significant increase in multiple lesions on T2 weighted images, without gadolinium-enhancing lesions. The patient had a history of anxiety and depressive mood for ten years, adrenalectomy at 43 yo. (pheochromocytoma localized to the right adrenal gland), cigarette smoking since 18 yo (one pack-years of smoking). She was diagnosed with NF1 in the prepuberal period on the basis of family history and multiple caf鮑u-lait spots on the trunk.

Conclusions:

Our case portrays progressive spastic paraparesis as a primary symptom of MS in NF1 patients. PPMS in NF1 was described without sensory loss and visual disturbance . This supports the hypothesis that PPMS is not only a MS phenotype but could also be a separate entity with its own genetic and environmental causes.

Alveolar hemorrhage in the course of granulomatosis with polyangiitis (GPA)

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Author: Zofia Czabajska
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Complicated therapeutic process of a young patient with brainstem pathological tissue

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ad tried to find out what the sudden deterioration of the patient's health was caused by. Due to the localization of
o make a diagnosis for a young patient. The problem was that the lesions in the imaging studies weren't characte
orly to treatment. Brainstem dysfunction may result from various acute or chronic insults, including stroke, infectio
seases.

t was admitted to the Emergency Room (ER) with speech disorders and left-sided hemiparesis.The patient was t
ogy due to worsening of his neurological condition. Physical examination revealed dysarthric speech, disorders o
vision with the right eye, dysphagia and increased spasticity in the both upper limbs. MRI (magnetic resonance im
ctroscopy) showed a pathological area located paracentrally on the right side in the pons. Contrast enhancement
s in particular right part of the pons. The
fficult to compare, because almost the entire pons is occupied with disease.
t might be chronic lymphocytic inflammation type CLIPPERS, angiocentric lymphoma,
asculitis or glioblastoma of the pons. The examinations extended with further MRI, MRS, CT and PET with fluoroc
S showed the progression of the lesion and increasing the volume of the pons compared to previous imaging exa
alified for a stereotaxic biopsy. The biopsy showed the definitive diagnosis: Astrocytoma anaplasticum WHO GIII

e a major challenge. In
owed a diagnostic difficulty, because the imaging examination didn't confirm an unambiguous diagnosis.

A case of the patient with primary central nervous system vasculitis

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Tutor: prof. Piotr Leszczyński, MD., PhD

Introduction: Primary central nervous system vasculitis (PACNS) is a rare disease, which causes damage of the vessels wall and ischemia of vascularized areas. It may present a wide range of symptoms, consisting of headaches, gradual changes in mental status and focal neurological disorders. Treatment usually consists of corticosteroids and immunosuppressive agents.

Case report: A 48-year-old man was admitted to the Rheumatology and Osteoporosis Department with a suspicion of PACNS. The patient was hospitalized in December 2019 in the Neurogical Clinic in Essen due to an episode of confusion with headache, visual disturbance and behavior disorders. The physical examination found aphasia, features of right internuclear paralysis with latent right hemiparesis. The diagnostic process, including head magnetic resonance imaging (MRI) showed multiple ischemic areas of the brain and digital subtraction angiography (DSA) showed strictures of large and medium-sized intracranial arteries, which is typical of PACNS. During this hospitalization laboratory tests presented lack of antibodies ANA, ANCA, antiphospholipid antibodies and excluded infectious causes. The inflammatory markers were in normal range. The diagnosis of PACNS was confirmed and the treatment was instituted. Steroids (in total dose 1,5g) and cyclophosphamide (in dose 1000 mg) infusions were administered three times subsequent months. The patient responded and tolerated the therapy well with full remission of symptoms. At one – year follow up patient sustained clinical remission and we observed the withdrawal of all neurological symptoms. The last head MRI described the absence of features of cerebral vasculitis.

Conclusions: The diagnosis of PACNS is often difficult. There are no specific markers or clinical features. The diagnosis is made by excluding systemic vasculitis, infections, vasculitis associated with systemic disease. The disease is associated with increased morbidity and mortality. Early recognition is important, because the treatment can often prevent serious outcomes like ischemic stroke.

Coagulopathy and thrombosis as diagnostic difficulty in times of COVID-19

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Tutor: prof. Piotr Leszczyński, MD., PhD

Background: Haematological abnormalities, hypercoagulability and thrombotic complications are common in COVID-19 disease. Differential diagnoses comprise disseminated intravascular coagulation (DIC), sepsis-induced coagulopathy (SIC), heparin-induced thrombocytopenia and COVID-19-associated coagulopathy (CAC) among others.

Case report: A 54-year-old male patient was admitted to the Rheumatology and Osteoporosis Department with COVID-19 pneumonia. On admission his general condition was severe with fever, breathlessness and marked breathing effort. Past medical history included arterial hypertension and nephrolithiasis. Blood tests presented elevated CRP and lymphopenia. The CT showed areas of ground-glass opacities with an estimated 50% involvement of the pulmonary parenchyma. During his hospitalization the patient was treated with high-flow nasal oxygen therapy (HFNOT), convalescent plasma, remdesivir, tocilizumab, dexamethasone, antibiotics and prophylactic dose of enoxaparin. After 5 days of hospitalization control laboratory tests presented a decrease in platelet count and fibrinogen, an increase in D-dimer, PT and INR. Suspicion of HIT II was raised and for this reason enoxaparin had been changed to fondaparinux. The test for HIT antibodies (against PF4-heparin-complex) was negative. Angio-CT confirmed pulmonary embolism in segmental arteries of the right lung. Clinical condition improved and patient was discharged from the hospital without the need of oxygen supplementation after switching anticoagulant therapy to rivaroxaban.

Conclusions: CAC is the most frequent type of haematologic abnormality encountered with patients with COVID-19. It poses diagnostic difficulties due to similarities with other disorders and remains diagnosis of exclusion.

Whipple's disease: A case of hypovolemic shock while awaiting help.

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Tutor: Dorota Mańkowska-Wierzbicka

Introduction: Whipple's disease (WD) remains a rare chronic systemic infectious disorder caused by bacterium *Tropheryma whippelii.* Clinical manifestations include diarrhea, weight loss, fever, abdominal pain and arthralgias. Favorable outcomes have been reported in 90% of the patients after treatment. However, insufficient treatment or misdiagnosis can lead to irreversible neurological damage and fatal outcomes. In this study, we present a rare but near-fatal case of hypovolemic shock secondary to Whipple's disease.

Case Report: A 46 year old Caucasian male presented to the emergency department with malaise and fatigue. He had a 9 month history of 40kg weight loss associated with watery diarrhea (25 episodes/day). On physical examination, his blood pressure was 50/30 mmHg, heart rate was 110 beats/min, weight was 63kg with a BMI of 19.4 Kg/m^2. Initial laboratory investigations demonstrated a potassium level of 2.09 mmol/l, sodium level of 129 mmol/l and albumin level of 2.39 g/dl. Microbiological studies were performed to rule out the most common causes of diarrhea. Given the history of non-specific diarrhea and severe weight loss, an axial computed tomography (CT) of the abdomen and tumor markers including *CEA, CA 19.*9 were also obtained to rule out malignancy. Gastroduodenoscopy revealed white plaques with erosions and severe duodenal edema. Histopathological findings showed foamy macrophages filling the lamina propria. A periodic acid-Schiff (PAS) stain showed PAS-positive globules filling the cytoplasm of the macrophages consistent with WD. The treatment, with 2g of ceftriaxone intravenously, was started and within a week he had gained 10 kg in weight and the diarrhea subdued.

Conclusion: In our case, delayed treatment led to the progression of hypovolemic shock. Due to an atypical presentation and generalized symptomatology, WD demands a high index of suspicion to establish a definitive diagnosis. Early treatment is imperative to avoid life threatening consequences.

From anemia to granulomatosis with polyangiitis

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Tutor: dr hab. n. med. Bogna Grygiel-Górniak

Background: Granulomatosis with polyangiitis (GPA) is an inflammation of small blood vessels, mainly affecting the respiratory tract and kidneys. In the course of the disease, we can observe thrombocytosis, leukocytosis, and anemia. However, persistent microcytic anemia is usually not the first symptom present at the onset of GPA.

Case report: 42-years old man was admitted to the hospital with excessive fatigue and significant microcytic anemia (hemoglobin 7,66 mg/dl). The patient suffered from hypertension which was pharmacologically controlled. On admission, the patient denied respiratory symptoms, and his blood test indicated anemia with thrombocytosis (platelets: 630 000/ml). The red blood cell concentrate was infused until the hemoglobin level reached 16 mg/dl. The abdomen and chest CT was performed, which revealed splenomegaly and ground-glass opacity with emphysema.

Anemia relapsed three months, and the patient was admitted to the hospital many times to replenish blood deficiencies and perform further diagnostics. He reported a low-grade fever, several scleritis episodes in both eyes, hemoptysis, cough, and non-inflammatory joint pain. HRCT showed approximately 20 nodules with necrotic destruction in the lower lobes of both lungs, which were very suggestive of GPA. Serological tests detected significant increases in cANCA antibodies (mainly against proteinase-3) and rheumatoid factor level. The patient was consulted by a nephrologist, who implemented a renal protective regimen due to present proteinuria, but did not indicate a diagnostic renal biopsy. Histopathology of a nasal septum sample showed inflammation and granulomatous changes with the necrotic area.

Conclusion: The presented case is an example of the unusual onset of GPA with the recurrent microcytic anemia. Two years later, symptoms from respitariry track (haemoptysis) and kidney (proteinuria) alongside recurring scleritis did not raise doubts about the diagnosis of granulomatosis with polyangiitis.

Rituximab as salvage therapy in rapidly progressive diffuse systemic sclerosis refractory to standard treatment

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Tutor: prof. Piotr Leszczyński, MD., PhD, Katarzyna Pawlak-Buś, MD., PhD

Background: Diffuse systemic sclerosis (dSSc) is an autoimmune disease characterized by a fibrosis of the skin and internal organs, autoimmunity and vasculopathy. According to EULAR recommendations for the management of this disease the treatment depends on an organ involvement based approach. Unfortunately, there is still a group of patients that do not achieve remission, despite standard treatment. Rituximab (RTX) is a chimeric anty-CD20 antibody. In rheumatology, its use is well established in rheumatoid arthritis or ANCA-associated vasculitides. It may be also a promising therapeutic option in dSSc patients.

Case report: A 49-year-old woman was diagnosed with dSSc in 2016. Initial symptoms of the disease included: skin involvement, finger ulcers, joint contractures, arthritis, interstitial lung disease, pulmonary arterial hypertension, myositis, secondary ventricular arrhythmias, progressive heart failure, were severe. The patient's treatment history included: cyclophosphamide in high doses (1000 mg IV monthly), glucocorticosteroids, intravenous immunoglobulins, mycophenolate mofetil, and methotrexate, without significant response. The patient was qualified to autologous peripheal blood stem cells transplant, unfortunately due to cardiac complications she was disqualified. Due to lack of efficacy of mentioned treatment and patients' worsening condition, we decided to use RTX in the therapy. The treatment was associated with improvement in skin fibrosis (Rodnan Scale - mRSS 35 before, 21 after RTX), EUSTAR activity index (10 before, 6,5 after RTX), healing of finger ulcers, reduction of contractures, and improvement of joint function and heart efficiency, elimination of pulmonary hypertension. No significant change was observed in the lung fibrosis, lung function remained stable.

Conclusions: dSSc patients with involvement of internal organs result in significant morbidity and mortality, even after administration of standard treatment. RTX may be an alternative option for rapidly progressive dSSc. Rituximab reduces inflammation in joints, improves their function and skin fibrosis, but its effects on lung fibrosis have not been proved.

WHEN IT IS NOT GLAUCOMA – A CASE OF MISDIAGNOSED GLAUCOMA

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Tutor: Wojciech Adamski MD, PhD

BACKGROUND:

Glaucoma is a term for a group of eye diseases that has a common feature of progressive neuropathy of the optic nerve, that if left untreated, may lead to irreversible blindness. The main risk factor for its development is increased intraocular pressure (IOP). To diagnose glaucoma, it is necessary to perform the following tests: IOP assessment, gonioscopy, assessment of the optic nerve disc, perimetry , in recent years, the assessment of corneal thickness has become an important element in the diagnosis of patients with glaucoma. OCT(Optical coherence tomography) RNFL(Retinal Nerve Fiber Layer) analysis of the thickness of the nerve fibers of the retina, includes a circular scan of the retina around the disc n.II.

Myodesopsia is a condition involving the accumulation of various substances of any degree of mobility, transparency, density, thickness, found in the vitreous body of the eye. They can arise in the prenatal period, as well as as a result of degenerative changes in the eye's retina and the vitreous. Myodesopsia can affect the results of OCT scans.

Vitreolysis is a minimally invasive laser treatment involving the evaporation of vitreous floaters or their fragmentation and displacement.

Vitreolysis treatments are performed using a specially designed Nd: YAG laser

CASE REPORT:

The patient presented with several ophthalmic problems such as deterioration of near vision, history of glaucoma (takes drozolamide+timolol twice a day), and vitreous floaters. In the course of diagnostics, RNFL OCT was performed with a borderline result, IOP in the right eye: 14 mmH, in the left eye 15 mmHg, CCT(Central corneal thickness) : 600 µm. YAG vitreolysis of the left eye was performed, which resulted in the disappearance of floaters and an improvement in the thickness of the retinal nerve fibers in the OCT RNFL measurement. Glaucoma therapy was discontinued and a visual field was test was performed showing no defects.

CONCLUSION:

The patient was misdiagnosed with glaucoma based on an elevated IOP measurement that was not adjusted for the central corneal thickness and on a misread OCT RNFL examination.

Challenge of treating Still disease - strengths and weaknesses of tocilizumab therapy

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Tutor: dr n.med. Bogdan Kolarz

Tocilizumab is a humanized monoclonal antibody against receptors of IL-6, which is a pleiotropic pro-inflammatory cytokine. It plays an important role in immune response and is implicated in the pathogenesis of many diseases, f.e. Still disease. The effect of IL-6 is weakened by tocilizumab, usually administered by monthly intravenous infusion.

The patient we describe was diagnosed at the age of 26. Neither form of therapy of his illness was effective, only biological treatment in the form of tocilizumab brought positive long-term effects. However, this form had serious side effects such as impaired liver function, manifested by elevated levels of unbound bilirubin. For this reason, tocilizumab treatment was discontinued, but due to the deteriorating patient's condition and the lack of effects after alternative trials, it was necessary to return to previous scheme. Eventually tocilizumab was the only effective and approved drug that ultimately performed its targets well. Importantly, the results were better after the second try.

Despite the many options available and the high effectiveness of biological treatment, it does not lack side effects. Tocilizumab seems to be exciting new therapy, having great database on its effectiveness as monotherapy and strong clinical and economic standpoint. It is crucial to spread awareness that the key of effective cure is to establish strategies for individual patients. What is necessary is to check the outcomes, conduct systematic blood tests, check liver and kidney parameters. Sometimes there is no perfect option and the method that will give the most benefits and the least losses has to be chosen.

Unusual localization of NF1, urogenital manifestation - radiological challenge

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Tutor: Magdalena Machnikowska-Sokołowska, MD, PhD.; Agata Wisz, MD

Introduction: Neurofibromatosis type 1 (NF 1) is a genetic, autosomal, dominant disorder diagnosed with an incidence of 1:2500 to 1:3000. Clinical diagnosis of NF 1 includes the presence of 2 typical criteria. In diagnostic imaging besides typical CNS manifestations increased incidence of different tumours is reported, among them plexiform neurofibromas.

Case report: We report a 4 years old boy with atypical presentation of large neurofibromas in pelvic location, diagnosed in the first year of life after inflammatory changes in the prostate gland and urinary bladder appeared, with associated left hydronephrosis and megaureter, found in magnetic resonance imaging (MRI). We present follow-up MRIs and stress the importance of imaging during rare targeted therapy.

Conclusion: MRI is a very useful radiological examination to diagnose plexiform neurofibromas in difficult localization, but it still remains a challenge for radiologists. It can also be used to examine the effectiveness of an implemented treatment.

Multidisciplinary care of a breast cancer patient with a complicated cardiac history

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Tutor: Joanna Kufel-Grabowska, M.D., Ph.D.

Background:
Cardiotoxic chemotherapeutic agents such as doxorubicin, high-dose cyclophosphamide and trastuzumab are commonly used in anti-breast cancer regimens. In patients with pre-existing cardiac complications or poor lifestyle, these can lead to irreversible damage and heart failure. This has led to the emergence of cardio-oncology as a subdiscipline and the addition of a cardiologist to the multidisciplinary care of at risk patients. High risk patients should be identified and monitored throughout oncological treatment by a specialist team, with careful pre- and post-chemotherapy cardiac function monitoring including ejection fraction, strain imaging, and cardiac biomarkers. Appropriate, tailored therapy is also crucial for preventing cardiac complications.

Case presentation:
A 24-year old woman with congenital coarctation of the aorta and history of thoracic aortic aneurysm presented at the Breast Cancer Clinic in June 2015. She was subsequently diagnosed with invasive atypical medullary breast carcinoma of the right breast. To prevent cardiac complications, she undertook careful consultation with a cardiologist in November 2015 before chemotherapy. Her ejection fraction was 65%, with no abnormal findings on the valves. Liposomal doxorubicin (Myocet) was chosen and administered because it is associated with a lower cardiac burden. Echocardiography was performed after the completion of therapy, showing that her ejection fraction had been maintained similar to baseline, with normal valves. The patient remains on tamoxifen therapy to this day.

Conclusions:
Due to careful management, interdisciplinary teamwork, and the appropriate selection of a low cardiac burden chemotherapeutic agent, we avoided cardiotoxicity and cardiac complications in a young, high risk patient with a complicated cardiac history. Cardiac dysfunction can occur even several years after the onset of therapy, and she is also at increased risk of breast cancer relapse, thus ongoing follow-up should be maintained for this patient. Whether cardiac function should be monitored for life remains an open question.

A successful aortic valve implantation in a tortuous aorta using transcatheter approach: case report

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Tutor: Dr. n. med. Aleksandra Gąsecka

Background

Aortic stenosis (AS) takes first place as the most common valvular heart disease which requires medical intervention in adults. For years, surgical valve replacement (SAVR) was the only approach for AS treatment and still remains as a method of choice for patients under 75 years of age and with low surgical risk. However, in recent years, transcatheter aortic valve implantation (TAVI) has become a preferable procedure to SAVR for patients with severe symptomatic AS and with high surgical risk. As transfemoral access for TAVI yields best clinical outcomes, attempts are being made to apply this access in most cases.

Case report

65-year-old woman with severe symptomatic AS and a history of breast cancer was admitted to the hospital for interventional treatment of AS. Echocardiography and computer tomography (CT) was performed prior to the surgery. Echocardiography confirmed severe AS (V max 4.4 m/s, mean aortic valve gradient 43 mmHg, indexed aortic valve area 0.31 cm^2/m^2) and a normal left ventricle ejection fraction (60%). CT revealed severe scoliosis, chest wall deformation and extremely tortuous descending aorta. Despite low surgical risk (1,54% in Euroscore), the patient was qualified to TAVI. Decision was made by the Heart Team based on the complex anatomy which may impair effective sternotomy and latter rehabilitation. Despite the anatomical challenge, the patient was successfully treated with TAVI.

Conclusions

Successful implementation of aortic valve in patients with complex anatomical abnormalities is enabled by second generation TAVI delivery systems. The final decision considering the approach should be made by the Heart Team based on individual evaluation of patient's case.

LOSS OF VISUAL FIELD AFTER COVID-19 INFECTION: COINCIDENCE OR CONSEQUENCE?

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Tutor: Anna Puzewicz ,MD ; Marcin Stopa, MD, PhD, FEBO

BACKGROUND:

Non-arteric anterior ischemic optic neuropathy (NAION) is thought to develop from circulatory insufficiency of the posterior ciliary arteries supplying the optic nerve, though the exact pathogenesis is uncertain. Some well-documented risk factors are having a small, crowded optic disc (disc at risk) or other vasculopathic risk factors. This disease classically affects older patients with vasculopathic risk factors and sleep apnea. Patients may complain of visual field defect, usually as inferior hemianopsia in the affected eye.

There is abundant evidence that SARS-CoV-2 infection causes systemic inflammation, manifested by, inter alia, pulmonary embolism, deep-vein thrombosis, ischemic strokes, or myocardial infarcts. We present one of the first case - according to our knowledge -of NAION as a complication after SARS-CoV-2 infection.

CASE REPORT:

A 56-year-old patient has been admitted to an ophthalmic emergency room due to a visual field defect with his left eye for several days. Similar episodes have occurred several times in the past and lasted about 20 minutes. In an ophthalmological history, the patient reported glaucoma in both eyes. He does not use the recommended drops due to side effects.

In an examination:

OD: VIS 1.0; IOP 19mmHg OS: VIS 1.0; IOP 22 mmHg

Physical examination did not reveal any significant abnormalities.

The visual field examination showed a loss of vision in two inferior quadrants in the left eye.CT examination of the head revealed a 6mm hypodense vascular lesion in the corona radiata in the left hemisphere and 4mm subcortical hypodense vascular lesion in frontal lobe. In history, patient has confirmed SARS-CoV-2 infection 3 mouths prior to admission.

CONCLUSIONS: During a pandemic, it should be remembered that patients diagnosed with SARS-CoV-2 infection are exposed to numerous complications, not only from the respiratory and nervous systems but also from eye complications. They can manifest in the form of NAION.

21st ICYMS

Non-surgical Case Report III

Recurrent Febrile Urinary Tract Infections In A 5-Year Old Girl

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Tutor:

Background

Urinary tract infections (UTIs) are one of the most common bacterial infections in pediatric urology. Medical history, examination findings and clinical course does usually vary with the patient's age and so no specific symptoms are strictly associated with recurrent UTIs.This report presents a 5 year old female patient with spina bifida occulta and recurrent history of febrile urinary tract infections diagnosed with detrusor-sphincter dyssynergia over the last year.Urodynamic study confirmed an overactive uroflow pattern with bladder outlet obstruction (BOO) and high flow obstruction with long voiding time and terminal dribbling. Early management is imperative in decreasing the risk of future complications such as UTIs.

Case report/Presentation

A 5-year-old girl presented with recurrent episodes of recurrent febrile episodes of Urinary tract infections within the last year. complains of increased frequency of daytime urinary incontinence and foul-smelling urine since the age of 4. Past instances were diagnosed clinically, based on the presence of dysuria and abdominal pain. She was normotensive, looking nontoxic, and her physical examination of her abdomen and external genitalia was unremarkable. Her temperature was was 39.0°C and her growth measures were normal. Her past medical history revealed multiple episodes of constipation, and urinalysis revealed bacteriuria. Her blood tests showed a peripheral white blood cell count of 12.1 × 109/L , normal hemoglobin, normal platelet count and a high C-reactive protein of 60 µg/mL. She remained febrile for 2 days.

Conclusions

Renal function preservation and early resolution of nocturnal enuresis are imperative in improving the quality of life for spina bifida patients with recurring UTIs. This patient’s multiple UTIs are mainly due to intravesical pressure from post residual urine after incomplete voiding. Consequently, converting high-pressure bladder with outlet obstruction based on detrusor/ sphincter dyssynergia into a low-pressure storage that is safe for the upper urinary tracts and reducing that risk is the primary aim of therapy.

Acute tubulointerstitial nephritis in 10-year-old boy after COVID-19: case report

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Tutor:

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Tutor: Aleksandra Sobieszczańska-Droździel MD, PhD

Background:

A pandemic of coronavirus disease 2019 (COVID-19) caused by a novel coronavirus- severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) become a main public health problem worldwide. In children, the risk of a severe course of COVID-19 is low, however SARS-CoV-2 infection in this age group may be uniquely complicated by pediatric inflammatory multisystem syndrome temporally associated with SARS-CoV-2 (PIMS-TS) that occurs 2-6 weeks after COVID-19. Renal involvement is reported as a part of it.

Case report:

We report on a 10-year-old boy who several weeks after mild COVID-19 developed nonspecific symptoms including malaise, loss of appetite, polyuria, and significant weight loss. The medical evaluation performed at 10th-week post COVID-19 showed renal failure (eGFR 58,3 ml/min/1,73 m2), renal glycosuria and elevated inflammatory parameters (CRP 4,32 mg/dl, ESR 131 mm, ferritin 307 ug/l, fibrinogen 6,04 g/l). In addition, a mild increase of pro-BNP (884,6 pg/ml), hypergammaglobulinemia, and anemia were found. Ultrasound showed enlarged, hyperechoic kidneys with loss of corticomedullary differentiation. As other

infectious or toxic factors were excluded, post COVID-19 acute tubulointerstitial nephritis (ATIN) was diagnosed. Treatment with oral prednisone in a daily dose of 1 mg/kg led to complete recovery.

Conclusions:

The presented case showed a rare complication of SARS-CoV-2. Although it doesn't meet the criteria of PIMS-TS, the pathomechanism of ATIN, in this case, seems to be similar.

A therapeutic approach to hormone receptor positive metastatic breast cancer in a young female patient

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Tutor: Joanna Kufel-Grabowska (M.D. Ph.D)

Introduction: Breast cancer (BC) occurs in 1% of women below 35 years. At an early age diagnosis, the cancer is usually more aggressive and at an advanced stage with metastasis. Endocrine therapy (ET), either alone or concomitant with other agents, is the preferred first-line treatment for patients with metastatic BC because of its high efficacy and low toxicity. However, chemotherapy should be considered first in case of life-threatening metastasis.

Case Report: A 28-year-old woman was diagnosed with left estrogen and progesterone receptor-positive BC that has metastasized to her bones. In September 2019, the patient was hospitalized for five days due to acute renal failure. Her overall condition was very poor; she used a wheelchair due to severe back pain, dizziness, and a headache.

Due to her poor prognosis, chemotherapy was the first-line treatment with 550 mg of non-pegylated liposomal doxorubicin. In March 2020 she was switched to ET with letrozole and goserelin. Zoledronic acid was also added to this therapy as her bone scintigraphy presented SD (stable disease). The patient had a follow-up appointment in December 2020, where a metastatic progression was found in her bones and liver. Subsequently, she was shifted from ET to chemotherapy, using 80mg/m2 weekly of paclitaxel. It was noted that the patient's quality of life improved with no renal failure, weakness, or dizziness.

Conclusion: Treatment selection for patients with metastatic BC warrants thorough examination. Although several therapeutic options are available, choosing the optimal therapy and sequence continues to be a challenge. An increasing number of studies are being directed towards identifying the appropriate therapeutic modality for these cases. While many of these trials show promising results, their sample size has been relatively small due to a very low prevalence of metastatic BC in young women. Additional studies are necessary to improve therapeutic efficacy.

Heavy eye syndrome - a rare type of acquired strabismus seen in eyes with high myopia

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Background: Myopia is a serious global problem. This progressive condition is connected with anatomic changes in the eyes leading to various disorders. One of them is the heavy eye syndrome, which is a rare type of acquired strabismus. It is seen in eyes with increased axial lengths and high myopia usually more than 25 dioptres.

Case report: A 47 year – old man presented to ophthalmology department because of diplopia and poor vision. In the past he had been diagnosed with Grave's disease, high myopia (-34 dioptres) and secondary open-angle glaucoma. He had undergone orbital decompression, because of thyroid associated orbitopathy and cataract surgery of both eyes. Examination revealed esotropia, limited abduction and supraduction. Magnetic resonance imaging revealed displacement of lateral recti muscles downward and superior recti muscles medially. Axial lengths for eyes were over 30 mm (norm: 22 mm). Patient was diagnosed with heavy eye syndrome. The Yokoyama's surgery (union between total muscle bellies of superior rectus and lateral rectus muscles) and the medial rectus muscle recession, in the right eye, have been performed, what reduced esotropia, improved ductions and vision acuity.

Conclusions: High myopia is not only a defect of vision. It is related with eye globes elongation and sometimes can lead to exophthalmos or strabismus. It is relevant for all medical specialists to be aware of seriusness of the disease and to always remeber to differentiate between heavy eye syndrome, pseudo-exophthalmos (including thyroid eye disease) and sagging eye syndrome.

Challenges in treatment a fatal case of ketoacidosis with multiple comorbidities.

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Tutor: Dorota Zozulińska-Ziółkiewicz, PhD, DSc, Assoc. Prof.; Aleksandra Uruska, PhD, DSc.

Introduction: Ketoacidosis is a severe metabolic dysbalance that is rarely observed in type 2 diabetes. Detailed therapeutic protocols significantly reduced the mortality rate of ketoacidosis (0,2-2%). The following case considers the challenges of treatment severe ketoacidosis in type 2 diabetes with overlapping complications, in which attempts to restore disturbed homeostasis may be extremely difficult to achieve and ultimately led to treatment failure.

Case Report: 28-year old female was admitted to the hospital presenting severe ketoacidosis with coexisting morbid obesity, anxiety disorders, hypertension, hypothyroidism, and psoriasis. In the week preceding hospitalization, she refused three times admission to another hospital. Due to prolonged metabolic disturbances, the patient developed severe ketoacidosis (pH 6,988; pCO2 10,3 mmHg; pO2 81,6 mmHg; SaO2 95,2%; HCO3 6 mmol/l; BEecf -27,3 mmol/l), hyperglycemia over >500 mg/dl with significant dehydration and impaired consciousness demonstrating as acute confusion. On physical exam, pneumonia was suspected (SARS-CoV negative), lung X-ray on admission day revealed nonspecific inflammatory/atelectasis densities in the left lung. Empirical antibiotic therapy was administrated, and ketoacidosis treatment protocol was initiated, but no improvement was achieved. After two days of treatment, the metabolic acidosis worsened with no respiratory compensation and laboratory markers indicated acute kidney injury. Due to worsening respiratory failure, the patient was transferred to the intensive care unit, where elevated inflammatory markers and multiple organ failures were found with blood cultures indicating candidiasis. In the following days, multiple infections were confirmed: K. pneumoniae ESBL(+), P. aeruginosa, S. haemolyticus. After the 25th day of hospitalization, the patient died as a consequence of pulmonary thromboembolism.

Conclusion: A multiple comorbidities predispose to severe ketoacidosis in type 2 diabetes and worsen prognosis. Every delay in treatment may lead to fatal consequences.

Unusual development of a girl with lissencephaly

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Tutor: Karolina Gruca-Stryjak PhD MD, Marzena Wiśniewska PhD MD

Introduction

Lissencephaly is a brain malformation, caused by a deficient neuronal migration during embryonic development, which leads to unformed gyri. Also, dysmorphic features, neurological disorders. and drug-resistant epilepsy are observed. It may be an isolated impairment or a part of a genetic syndrome. There are more than 20 genes identified as responsible for lissencephaly, but the majority of cases are associated with *PAFAH1B1* (*LIS1)*. Prognosis in lissencephaly is severe: some of the patients die in the first years of life, others survive without any significant development and are completely dependent on care.

Case report

Parents of a 9-month-old girl with psychomotor development delay and seizures after normal pregnancy and labour went to the genetic counselling. At the age of 6 months the child was admitted to the neurology department, where lissencephaly, pachygyria, extendedness, uncorrect course and reduction of sulci and abnormalities in the cortex were diagnosed with a head MRI. In physical examination increased muscle tension, dysmorphic features, small head circumference and growth retardation were found. To determine a genetic cause of malformation, whole genome sequencing was performed and not previously described heterozygous variant *de novo* of gene *PAFAH1B1* was found.

Despite poor prognosis, development of our patient is quite satisfying and its progression is continuously observed: currently, the girl is sitting and eating by herself, standing with a support and communicating with short expressions. Last seizure was noticed at the age of 1 year.

Discussion

Majority of genetic disorders have a diversified clinical picture. As its reasons, locus heterogeneity, allelic heterogeneity, or changing expression should be considered. Due to this fact, it is difficult to forecast further development of a patient in details. If possible, detailed diagnostic of genetic variant type using high-throughput sequencing type should be implemented.

16-YEAR-OLD GIRL WITH KARYOTYPE 46,XY - CASE REPORT

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Tutor: Sawicka Beata MD, PhD, prof. Bossowski Artur MD, PhD

Background:
Androgen insensitivity syndrome (Morris syndrome) is a genetically determined disorder of sexual development most commonly caused by a mutation in the androgen receptor gene (AR gene). AIS is identified in women with a normal phenotype and primary amenorrhea. Due to the abnormal action of androgens (testosterone and DHT) during the fetal period, male genitalia do not develop and female internal and external genitalia develop. This syndrome occurs with an incidence of 1:20,000- 1:99,000 individuals with a 46,XY karyotype.

Case report:
We present a case of a 16-year-old 8 months female patient diagnosed in the Department of Pediatrics, Endocrinology, Diabetology and Cardiology at the Medical University of Bialystok because of primary amenorrhea. On physical examination, except for the absence of pubarche and adrenarche, no significant abnormalities were found. Hormonal studies revealed elevated gonadotropin levels and high androgen levels. Due to high level of testosterone, the diagnostics was extended to genetic testing - the result was a normal male karyotype - 46,XY. Mutation of AR gene was confirmed. On pelvic imaging gonads were found; no structures characteristic for uterus and ovaries were visualized. Based on these findings, androgen insensitivity syndrome was diagnosed. Due to the high risk of development of gonadal tumors, the patient is considered for preventive gonadectomy.

Conclusions:
1/.Genetic testing should be performed in patients with delayed puberty during the diagnostic process.
2/.Patients with Morris syndrome have female gender identification.
3/.Preventive gonadectomy is considered in female patients with a 46,XY karyotype.

„People think that I stink…" Olfactory reference syndrome - diagnostic problems. Case study.

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Tutor: Magdalena Flaga-Łuczkiewicz, MD

Authors: Wiktoria Zawadzka, Jakub Andryańczyk
Trustee of the Paper: Magdalena Flaga-Łuczkiewicz, MD

Background:
Olfactory reference syndrome (ORS) is a psychiatric condition characterised by the false belief that the individual emits foul or offensive body odor. It is estimated that 0,5-2% of the population might be affected by this disorder. Nevertheless, ORS is presumably not only underdiagnosed but also misdiagnosed.
In the upcoming International Classification of Diseases (ICD-11), ORS is for the first time distinguished as a separate diagnostic category and included in „Obsessive-Compulsive and Related Disorders" section.

Case report:
We present a case of a 25-year-old male with the diagnosis of olfactory reference syndrome with only partial insight. The patient presented to a psychiatrist for the first time at the age of 22 because of the preoccupation with his body odor. He had the impression that other people can smell his body odor, although he had never smelt it himself. He misinterpreted other's behaviours as being referential to him. The patient presented anxiety symptoms and compulsive behaviours.
Due to only partial insight, the patient was initially diagnosed with a psychotic disorder. He was started on treatment with risperidone which turned out to be inefficient.
A year later, on the basis of the same symptoms, he was diagnosed with OCD and prescribed fluvoxamine. The patient responded to this treatment.
A year after stopping the treatment he still didn't present ORS symptoms.

Conclusions:
This case illustrates the problems arising from the inconsistencies in defining obsessive disorders. According to ICD-10, in contrast to DSM-V, to diagnose OCD an individual needs to recognize symptoms as his own impulses. The lack of explicit diagnostic criteria may result in a delay in correct diagnosis and proper treatment. In this case, the family history, the course of the disease and the response to the treatment indicate considering ORS as one of OCD related disorders.

Case Report: Severe Pediatric Inflammatory Multisystem Syndrome in a Patient Negative for SARS-CoV-2

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Tutor: Anna Mania

Background

The Coronavirus disease 2019 (COVID-19) pandemic has caused catastrophic health consequences worldwide. Although the most significant impact has been on the elderly, it has the potential to cause life-threatening illnesses among children as well. For example, pediatric inflammatory multisystem syndrome temporarily associated with SARS-CoV-2 (PIMS-TS). PIMS-TS is acquired post-infection with severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), where patients present with systemic signs and symptoms of ongoing inflammatory reaction to the virus; such as persistent fever, conjunctivitis and/or others more distinctive like gastrointestinal manifestations. Here, we present a rare case of PIMS-TS in a patient with severe clinical manifestations and multisystem involvement.

Case Report

In December 2020, a 13-year old male presented with persistent fever, hemodynamic instability and shock. Additionally, he had gastrointestinal symptoms, conjunctivitis, lymphadenopathy and anuria. SARS-CoV-2 antigen test and Polymerase Chain Reaction (PCR) test were negative. However, antibody test was found positive in both IgG and IgA class. Other viral infections were ruled out. The patient's medical and family history was unremarkable. Laboratory studies revealed significantly elevated inflammatory markers, troponin, urea and creatinine, abnormal coagulation studies and hypoalbuminemia. Upon stabilization of his hemodynamic condition, he continued to present with multiorgan failure. Ultrasound examination revealed enlarged liver, kidney cortices and thin-walled dilated gallbladder. Additionally, echocardiography revealed contractility dysfunction. Subsequently, the patient was initiated on intravenous immunoglobulins, glucocorticoids, anticoagulants, diuretics, intravenous dopamine and albumin transfusions.

Conclusion

The patient was admitted with symptoms of shock and multiorgan failure. However, due to prompt treatment, the patient had a full recovery with stable parameters. Immunoglobulins and glucocorticoids are an effective treatment mode, and patients typically achieve recovery within a few days. Nevertheless, its long-term consequences remain unknown.

Prenatally diagnosed solitary pulmonary arteriovenous malformation

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Tutor: Ewa Płodzień, MD, PhD

Authors: Piotr Sikorski, Agata Mormul
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Background:

Solitary pulmonary arteriovenous malformation (PAVM) diagnosed in a newborn is a very rare condition reported only several times while most multiple PAVM cases are hereditary conditions associated with Osler-Weber-Rendu syndrome. This disorder is characterized by right-to-left shunt that leads to dyspnea and cyanosis. Diagnostic tools, that clinicians may use, are: chest x-ray, angio-CT and contrast echocardiography.

Case report:

An infant boy was prenatally diagnosed by ultrasound with arteriovenous malformation of the right lung and cardiomegaly. The patient was a second child, born from the second gestation with an APGAR score of 9 in 37 Hbd, by natural labor. After birth, he was intubated and immediately transported to the Children's Memorial Health Institute. On admission, he was in critical condition. He was hypoxemic (saturation 72%) and with general cyanosis. Due to declining saturation (below 60%) and blood pressure 60/30 mmHg, dopamine was administered. Normalization of blood pressure and saturation was obtained. Diagnostic cardiac catheterization was performed and revealed a large fistula (7.5 mm in diameter) between the interlobar branch and the right inferior pulmonary vein, and a small blood reservoir in the lower right lobe. The patient was urgently qualified for the closure procedure and the malformation was closed with the Amplatzer® Duct Occluder. The procedure was performed without complications. Saturation increased from 57% up to 97% (on 100% oxygen ventilation). A follow-up chest X-ray showed reduced lung aeration in the upper part of the left lung, which resolved within few days. Catecholamine infusion was gradually decreased, and the patient was extubated. The boy was discharged after 10 days.

Conclusions:

PAVM can be a serious condition leading to desaturation, cardiomegaly, and congestive heart failure. Although it is very rare in infants, it should be prenatally diagnosed to allow preparation for the malformation closure procedure. Percutaneous occlusion should be the first-line treatment.

A newborn with suspected Prader-Willi syndrome – case report

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Tutor: Agata Tarkowska MD, PhD

Introduction: Prader-Willi syndrome is a genetic disorder caused by paternal deletion of region 15q11.2-q13 (65-75% of individuals), maternal uniparental disomy of the chromosome 15 (20-30%) or imprinting defect (1-3%). It is characterized by hypotonia, poor ability to suck, hypogonadism, distinctive facial features, lack of satiety, obesity with an onset in early childhood and developmental retardation. Due to variety of symptoms and critical condition, patients with a diagnosis of Prader-Willi syndrome should stay under constant medical supervision.

Case report: 33 week premature male infant (pregnancy II, labor II) was born through a caesarean section being given 8 points according to the Apgar scale. During prenatal testing, an image of the corpus callosum was disturbing, an agenesis and high probability of a development of hydrocephalus were suspected. After an amniocentesis, an examination of the genotype was performed which showed a pathogenic aberration typical for Prader-Willi syndrome or Angelman syndrome. After birth, certain distinctive features were observed in a child: large head circumference, narrow palpebral fissures, deep set eyes, short and wide neck, gothic palate and absence of testes in the scrotum. Additionally, the newborn showed disturbed oral reflexes, respiratory failure, hypotonia and retarded psychomotor development. The above-mentioned clinical manifestations and result of the prenatal testing are correlated with characteristics of the Prader-Willi syndrome. Currently the baby is hospitalized in the Neonatal Pathology Ward, waiting for the results of the genetic test.

Conclusions: The Prader-Willi syndrome should be included in a differential diagnosis in infants who have hypotonia, hypogonadism, defects of central nervous system, dysmorphic facial features and problems with feeding. Huge significance can be attributed to prenatal testing which allows an early detection of disorders. This enables for parents to prepare beforehand to learn how to take care of an ill child and to have the baby delivered in a specialized facility, where the child will receive proper help.

Primary immunodeficiencies and COVID-19 - whether each patient is in the same danger? Two case reports and literature review.

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Background: SARS-CoV-2 pandemics put the entire world of medicine in an extremely difficult position. One of the basic tasks scientists faced was to identify groups of particularly high-risk of severe course of COVID-19 disease and fatal outcome. Primary immunodeficiencies (PID's) are rare diseases with varying degrees of the immune system impairment and heterogenous clinical course. We present two cases of extremely different course of SARS-CoV-2 infection in two patients with PIDs supplemented by a review of the currently available literature.

Case report: The first patient is a 30-year-old man suffering from Bruton's agammaglobulinemia, diagnosed at the age of 5. In January 2021, he had a contact with his grandfather diagnosed with COVID-19. Although the patient did was asymptomatic, the nasopharyngeal swab was performed and obtained a positive result. Patient was treated in the infectious diseases ward using Remdesivir with positive results. He was discharged home after a week in a good condition.

The second patient is a 50-year-old woman diagnosed with CVID. This patient developed mild, flu-like symptoms in February 2021. Two days later after receiving positive SARS-CoV-2 test result, she was admitted to the hospital and a pulmonary CT scan was performed with no significant abnormalities. After a week, unexpectedly, her health deteriorated sharply. Remdesivir and mechanical ventilation were applied, but after two days of treatment patient has died.

Conclusions: Both agammaglobulinemia and CVID are severe congenital immunodeficiencies. Unfortunately, the greater complexity of deficiencies in the immune system and chronic lung disease in CVID patient likely led to fatal outcome. Scientific reports are not unequivocal as to the course of COVID-19 in group of PIDs patients, however there are observations that PIDs involving mainly B lymphocytes result in less severe course of COVID-19. Also, other co-morbidities are very important in the risk stratification. More data is needed to create a clear guidelines.

Application of Ultrasound and antenatal management of congenital pulmonary airway malformation (CPAM)

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Background

Congenital pulmonary airway malformation (CPAM) is a rare congenital anomaly that includes a cystic mass of abnormal lung tissue. CPAM is reported to affect 1 in 100000 to 1 in 35000 live births. CPAM type III is the rarest subtype, diagnosed in about 10% of all CPAM cases, and is associated with the poorest prognosis, especially if complicated by fetal hydrops.

Case report

A 22-year-old primigravida presents for a routine fetal ultrasound (US) at 19 gestational weeks (GW). Large hyp lesion was identified in the left lung raising suspicion of CPAM type III ("microcystic") diagnosis. Concomitantly, hypoplasia of the right lung, dextroposition of the heart to the right, severe ascites were identified on ultrasound. An amniocentesis was performed at 19 GW and revealed normal 46 XX karyotype. Peritoneal-amniotic shunt was placed twice for the treatment of ascites. Severe polyhydramnios (26 cm) was first identified at 27 GW and was treated with amnioreduction, removing 2000 mL of fluid. Fetal hydrops was diagnosed at 28 GW. A course of maternal corticosteroid therapy was prescribed and resulted in stimulation of right lung development, however yielded only marginal reduction in fetal hydrops. At 33 GW, our patient went into labor spontaneously and delivered a female weighing 2814 g, with APGAR 2,6,6.

Conclusion

Our case highlights the importance of early diagnosis and management of CPAM pregnancies using serial ultrasound scans to identify progression or regression of the lesion and development of fetal hydrops. Presence of hydrops in a setting of CPAM indicates poor prognosis and requires prompt management with corticosteroids to avoid fetal demise and neonatal death, as well as reduce the risk of developing maternal mirror syndrome. Given the poor prognosis of CPAM, women should be counselled by maternal-fetal specialists in order to establish mutual expectations of pregnancy course and management.

Breastfeeding during SARS-CoV-2 infection - a case report

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Tutor: PhD Katarzyna Wszołek

Introduction: According to WHO and other organizations breastmilk is the best for newborns. Pandemic has significantly affected the breastfeeding decision making process and its environment. Many women would try breastfeeding enthusiastically while other would definitely refuse both direct breastfeeding and breast pumping. These cases encourage medical personnel to gain knowledge in lactation during coronavirus pandemic.

Case description: A 41 year old patient has been admitted to Obstetrics and Gynaecology Isolation Ward, fourth pregnancy, 38th pregnancy week with a positive test result for SARS-CoV-2. On the third day of hospital treatment the pregnancy has been ended with C-section as planned procedure. The mother was informed about the current recommendations related to breastfeeding during SARS-CoV-2 infection. The patient was instructed in how to use the hospital breast pump and about regulations in sanity and covering nose and mouth during breast pumping. The colostrum wasn't expressed on the first and second day because of poor patients' condition. After a meeting with lactation consultant the patient comprehended current pandemic regulations and recognised the aim of breastfeeding stimulation with breast pump. On the third day after C-section colostrum has been detected. The milk has been delivered to Neonatal Ward, where it was given to the newborn. The whole process was conducted according to the current epidemiological regulations. On the forth day quantity of breastmilk increased significantly. As the patient reported low mood she was offered a psychological support which she took advantage of. On the next days after C-section the patient expressed breastmilk correctly and effectively. After receiving a negative result for SARS-CoV-2 the mother was dismissed from the ward with medical recommendations.

Conclusion: The benefit of breastfeeding exceeds the risk related to virus. WHO and UNICEF encourage women to continue breastfeeding despite the suspicion of COVID-19 infection. It is important that midwives and nurses recognise false information and raise awareness within mothers infected with COVID-19.

Two cases of aortoiliac occlusive disease in COVID ICU

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Tutor: Anna Kluzik MD, PhD, Department of Anaesthesiology, Intensive Therapy and Pain Treatment, Heliodor Swiecicki University Hospital, Poznan University of Medical Sciences

Background

Leriche syndrome (aortoiliac occlusive disease) is a triad of claudication, decrease of femoral pulses and erectile dysfunction, linked with atherosclerosis. COVID-19 increases risk of thrombus due to endothelium disfunction.

Case report

Two male COVID-ICU patients developed Leriche syndrome.

A 59-year-old patient "A" was referred to ICU on day five of hospitalisation. On admission he presented with pallor and coldness of left toes that slowly progressed. Examination on day 3 in ICU revealed absence femoral pulse on both legs. Point-of-care ultrasound showed thrombus in both iliac arteries, with right artery occluded completely. In angio-CT occlusion of abdominal aorta beneath renal arteries, common iliac arteries and other arteries were described. Initially, patient was disqualified from surgical treatment because of critical condition (persistent ventricular tachycardia and multiple cardioversions) and IV heparin was administered. In the meantime, his oxygen requirements decreased significantly from FiO_2 100% to FiO_2 30%. Finally, on day 10 catheter was placed over aortic bifurcation and alteplase was administered. Left internal iliac artery remained occluded and alteplase infusion was maintained. Patient died 6 days later.

A 73-year-old patient "B", diagnosed with COVID-19 7 days prior to admission, was found unconscious and unresponsive at home. On day 5 he developed myocardial infarction. On day 10 patient presented with pallor and coldness of both lower limbs, progressing over time. Oxygen requirements fell from FiO_2 100% to 50-60%. Angio-CT revealed occlusion of abdominal aorta (beneath renal arteries) and common iliac arteries. Catheter was placed and alteplase was administered as well. Right common iliac artery remained occluded, so infusion was continued. Patient died 15 days post admission.

Both patients had history of hypercholesterolemia, nicotinism and coronary artery disease. Patient "B" had an ischemic stroke.

Conclusions

COVID-19 patients require thorough physical examination, focused on distal parts of their body. Ischemic complications may not corelate with severity of COVID-pneumonia.

Gestational choriocarcinoma treatment - case report.

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Tutor: dr Katarzyna Kawka-Paciorkowska

Gestational choriocarcinoma is germ cell tumour formed by trophoblastic elements and can occur after molar pregnancy, tubal pregnancy, spontaneous abortion, or antecendent normal pregnancy. In Europe about 1 in 40,000 pregnant patients will develop choriocarcinoma. Most important risk factors include prior complete hydatidiform mole (a 100-fold increased risk), advanced age, long-term oral contraceptive use and blood group A. Even high-risk gestational choriocarcinoma patients have 91% to 93% survival when utilizing multi-agent chemotherapy with or without radiation and surgery.

A 35 year-old woman was diagnosed as a case of missed miscarriage following amenorrhea with βhCG level at 300 mIU/mL. A year later due to the liver enlargement ultrasonography was performed and numerous iso- and hyperechogenic lesions alongside with atypical lymph nodes were detected. Additionally, CT scan revealed subpleural mass. With βhCG level at 27 289 mIU/mL, patient was referred to tertiary hospital and EMA CO II chemotherapy was administered. After initial response to the treatment, elevated βhCG level was noticed. Hence, Bagshawe's multiagent chemotherapy protocol was introduced. However, it could not be completed due to deteriorating overall condition of the patient. Despite severe leukopenia and anemia, patient declined PRBC transfusions for religious reasons (Jehovah witness). Furthermore, vegetarian diet was found challenging, when it comes to supplying adequate iron intake. Recently port has been implanted and EMACO NO III chemotherapy has been started. Unfortunately, with βhCG level at 5 mIU/mL, last, probably curing cycle, cannot be given – haemoglobin level oscillates around 3,8 g/dL.

Combination chemotherapy instead of single-agent one is required in the case of high-risk choriocarcinomas. Severe anemias are advised to be managed by recurrent PRBC transfusions. Prolonged drug free break in-between chemotherapy cycles is not recommended, as it may lead to gaining the resistance and no further response to the treatment. Nevertheless, the cure rate for EMA CO chemotherapy is greater than 90%, depending on a stage of disease.

21st ICYMS

Non-surgical Case Report IV

Heartburn as the first symptom of rare cardiac tumor localization. Is a multimodality imaging approach helpful?

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Tutor:

Background: Metastatic cardiac tumors are much more frequent than primary lesions. However, the most common primary cardiac neoplasm is myxoma. Although myxoma is widely known to grow in the left or right atrium, its localization can be very unusual and associated with uncommon manifestation.

Case Presentation: A 71-year-old man with a history of prostate cancer, complained of abdominal discomfort and heartburn lasting for two months. A gastroscopy was nonsignificant, but abdominal ultrasonography presented a mass at the border of the inferior vena cava and right atrium. Echocardiography confirmed a pedunculated, balloting tumor in right atrial inflow. Due to the unusual location and previous oncological history, further diagnostic workup focused on the metastatic tumor from inferior vena cava drainage area, myxoma, or thrombus.

Conclusion: The histopathology confirmed the myxoma diagnosis. The multimodal imaging approach was implemented and computed tomography scan turned out to be the most valuable technique. Magnetic resonance is considered as the most specific imaging method in the diagnosis of cardiac lesions however, it is important to apply other imaging approaches.

Female with 46, XY karyotype and dysgerminoma

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Tutor:

The disorders of sex development (DSD) are conditions characterized by an atypical sex. It may be related to the chromosomal, gonadal or phenotypic abnormalities. These disorders can be divided into two entities with different genetic backgrounds. First responds to pure gonadal dysgenesis with no development of testicles and the 46, XY genotype. The second one is a complete androgen insensitivity syndrome in which the synthesis and testicular development are correct.

We present a case of 24-year-old Eastern European female with 46, XY karyotype, complete gonadal dysgenesis and impairment of testicular development.

A 17-year-old girl was admitted to the Department of Obstetrics and Gynecology for the evaluation of primary amenorrhea. The physical examination revealed delayed puberty, while external genitalia which were correctly developed. The laboratory investigations showed the elevated levels of: Follicle-Stimulating Hormone (102,2 mIU/ml), Luteinising Hormone (39,5 MIU/ml) and Lactate dehydrogenase (755 U/l). The serum level of estradiol (<9 pg/ml) and anti-Mllerian hormone (<0,01 ng/ml) were lower than reference values. The ultrasound examination revealed a tumor in right ovary - 67 mm in the diameter, hypoplastic uterus and endometrium. The chromosomal analysis indicated 46, XY karyotype. The result of right ovarian biopsy revealed dysgerminoma. The patient underwent histerectomy with gonads, great omentum removal and pelvic lymphadenectomy. The patient underwent four courses of chemiotherapy with etoposide, cisplatine, bleomycin. After the first course of chemotherapy the hematological complications appeard. At a follow-up visit 2 months later, the patient reported no recurrence of symptoms. Nowadays the patient achieves estrogen hormone replacement therapy.

The occurrence of cancers in patients with gonadal dysgenesis is estimated at approximately 30% and it increases with age. The case of gonadal dysgenesis with dysgerminoma proves that rapid and accurate diagnosis leading to hysterectomy and surgical streak gonads removal allows to achieve the complete remission.

Problematic diagnosis – Dementia with Lewy bodies

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Tutor: Ewa Ferensztajn-Rochowiak MD, PhD

Background: Dementia with Lewy bodies (DLB) is acknowledged as the second most common cause of neurodegenerative dementia, after Alzheimer's disease. It is characterized by fluctuations in cognitive functions and alertness, visual hallucinations, parkinsonism and recently added, REM sleep behavior disorder. Deposition of α-synuclein in Lewy bodies and neurites is also a typical neuropathological change. There are many difficulties in establishing diagnosis of dementia with Lewy bodies, frequent misdiagnosed with other types of dementia, especially Parkinson's disease dementia. It is necessary to consider differential diagnoses as delirium, organic hallucinosis or Charles Bonnet syndrome. Proper diagnosis is crucial in this syndrome, as patients are hypersensitive to the treatment with antipsychotic drugs.

Case report: The patient is an 86 year-old male with significant impairment in vision and hearing, treated for the last 18 months by psychiatrist with risperidone because of visual hallucinations, with weak antipsychotic effect and induction of parkinsonism. The patient was admitted to the hospital due to intensification of complex visual hallucinations, behavioral problems and lack of criticism. Detailed clinical evaluation including head CT and MRI scans, EEG, neuropsychological and laboratory test was performed. Initially, the patient presented frequent disorientation, visual hallucinations and aggression, which required restraining. The MRI scans revealed generalized cortico-subcortical atrophy, EEG showed abnormalities and neuropsychological tests demonstrated significant cognitive impairment. The patient was treated with donepezil, memantine, olanzapine and carbamazepine, obtaining improvement including disorientation, hallucinations severity, reduction of aggression and agitation. The diagnosis of dementia with Lewy bodies was established. Delirium on somatic ground was excluded.

Conclusions: The presented case highlights equivocal clinical presentation of DLB, difficulties in proper diagnosis and importance of adequate treatment. It also shows significance of differential diagnosis in disorders including psychotic symptoms.

Optic disc pit maculopathy: a case report

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Tutor: Vilma Jūratė Balčiūnienė, MD, Department of Ophthalmology, Lithuanian University of Health Sciences Hospital Kaunas Clinics, Kaunas, Lithuania

Introduction: Optic disc pit (ODP) is a rare congenital cavitary anomaly of the optic nerve. Although ODP itself is mostly asymptomatic, visual disturbances can be caused by exudative retinal detachment (ERD) that forms due to intraretinal and subretinal fluid accumulation. Pars plana vitrectomy is considered the foremost ODP treatment tactic when maculopathy is present, however, some studies report that retinal changes can resolve spontaneously when laser photocoagulation is chosen.

Case report: We present a case report of a 16-year-old female who experienced sudden vision loss in the right eye (RE) and diplopia without any trauma or systemic diseases. The best-corrected visual acuity (BCVA) with -2,25D lenses was 0,4 in RE and 1,0 in the left eye (LE). On slit-lamp fundus biomicroscopy, clear ODP in RE was present, ERD covered the center and stretched to the medial side beyond the optic nerve disc. ODP with an ERD of RE was diagnosed. Expecting spontaneous resorption, a follow-up was planned in two weeks. Unfortunately, ERD enlarged significantly. Laser photocoagulation (LP) was performed and repeated three times due to positive symptom regression. BCVA reached 1,0 in RE. Two years later, symptoms occurred again and BCVA in RE decreased to 0,6. A wide central ERD with macular and peripapillary sight involvement was detected on fundus examination. Retinal LP was repeated and after that BCVA in RE worsened to 0,3. A decreased ERD was observed and the patient was left for monitoring with prescribed glucocorticosteroid drops. During the follow-up seven months later, the patient's BCVA improved to 1,0 in RE. ERD was absent and the patient's condition was stable.

Conclusions: Tactics for ODP maculopathy management should be selected individually after consulting a vitreoretinal surgeon. Although LP effectiveness described in the literature is controversial, our case report shows a significant visual improvement and ERD reduction after this treatment.

A patient with rare autoimmune demyelinating disease after tick-borne encephalitis

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Tutor: Adam Garkowski, MD

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Introduction: Acute disseminated encephalomyelitis (ADEM) is an immune-mediated demyelinating CNS disorder, which is usually monophasic. ADEM is often a post infectious disease. Brain lesions associated with this condition are typically multiple, bilateral but asymmetric, indicating demyelination. Isolated brain lesions, presented in this case are unusual.

Case report: A 51-year-old woman with a history of arterial hypertension and tick bite (3 weeks before admission) was hospitalized with a fever and headache, which lasted for 3 days. The diagnosis of tick-borne encephalitis (TBE) was made. Methods which were used included: MRI, CT, blood count, CSF testing. The patient was discharged home in good general condition. After 2 months, the patient complained about a two-week history of moderate headaches. This time, examination methods included: MRI, CSF testing, serological examination. Test results confirmed the diagnosis of acute disseminated encephalomyelitis (ADEM).

Discussion: ADEM is usually a disorder of the young, including children and young adults and rarely occurs in adults as in the patient described here. Brain lesions presented in this case are also atypical. Additionally, to our knowledge, this is the first case described in the literature of a patient with ADEM after TBE.

The recognition of initial symptoms of glycine encephalopathy provides the effective reduction of deleterious manifestation of the disorder.

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Tutor: prof. Jamsheer A. MD, PhD, DSc

Introduction: Glycine encephalopathy (nonketotic hyperglycinemia) is a rare, autosomal recessive disorder of glycine metabolism. The malfunction of glycine cleavage system is the main reason of pathology. The symptoms of the disorder are mainly reported among infants, i.e.: hyperglycinemia, hypotonia, seizures, psychomotor retardation, apnea. The onset of the disorder among older infants and children is less frequently observed and among such cases the course of the disease may be not as detrimental as in the early-infant onset.

Case report: The presented patient is 8 months old boy delivered at 39th week of uneventful gestation (3080g, Apgar 9). During the fourth day of life due to the respiratory distress and generalized hypotonia the intubation was required. The increased inflammatory reactions and inflammatory changes emblazoned at the chest X-ray opted for the combined antibiotic therapy. The assay of aminogram affirmed excessive glycine level in Cerebrospinal Fluid (CSF) and plasma. Positive plantar reflex and increased spasticity were indicative for bilateral upper motor neuron lesion. Agenesis of corpus callosum which is distinctive for glycine encephalopathy was confirmed. The gastroesophageal reflux disease was also reported. The elementary goals of treatment included the reduction of excessive glycine level and the administration of anticonvulsants. Whole-exome sequencing detected two abnormal variants in *GLDC* gene which finally confirmed the diagnosis of glycine encephalopathy. Due to the unfavorable prognosis the patient was referred to hospice.

Conclusions: The promptly initiated treatment is essential for the most appropriate management of the patient. Such treatment is prone to minimise the malignant effects of the abnormal glycine level on the central nervous system. The excessive glycine level in CSF is almost always associated with the severe phenotype. Genetic diagnostic tools are crucial for making a diagnosis and may be also applied in the prenatal tests during potential future pregnancies.

Delayed hypersensitivity after Dabrafenib/Trametinib administration when pretreated with pembrolizumab: A Case Report

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Tutor: Dr. Rama Koneru

Background: Melanoma accounts for only 5% of skin cancer diagnoses, however it is responsible for the most skin cancer related deaths. Metastatic melanoma is particularly difficult to treat because of a high profile of adverse effects associated with its immunotherapy. Due to limited therapeutic options, proper management of adverse effects is imperative.

Purpose: In this study, there was a novel presentation of a delayed hypersensitivity like reaction after the administration of Dabrafenib/Trametinib, a combined BRAF inhibitor, when pretreated with Pembrolizumab, an anti PD-1 inhibitor.

Case report: A 62-year-old Caucasian male presented with a left axillary mass, which was found to be BRAF V600E positive malignant melanoma upon biopsy. After surgical excision, the patient's immunotherapeutic treatment was delayed due to COVID-19. The patient presented, later, with progression of disease to abdominal subcutaneous metastases in April 2020. He was then started on pembrolizumab, but the metastases continued to progress. The patient opted to begin Dabrafenib/Trametinib, a combination BRAF inhibitor, and was started on a full dose in September 2020. Two weeks later, he showed significant reduction of metastases, however two days after the follow-up, he presented to the emergency room with diffuse non-pruritic hives all over the body without tongue or throat involvement. He was treated with 50 mg PO Benadryl and 50mg PO prednisone. Dabrafenib/Trametinib was discontinued. Due to the limited treatment options, the patient was carefully restarted on his Dabrafenib/Trametinib regimen with prednisone tapering. This regimen allowed the patient to have complete resolution of his subcutaneous metastases, and at his most recent CT, showed very little residual disease.

Conclusions: After a thorough literature search of OVID Medline and EMBASE, it was concluded that there was no presentation of dabrafenib/trametinib after pembrolizumab like this reported previously.

Unfulfilled Art Enthusiast With Schizoid Personality Disorder

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Tutor: Karolina Kamińska

The aim of this study is to discuss the case of a 27-year-old man with schizoid personality disorder (F60.1). Patients with this disorder appear as withdrawn people. They cannot find a balance between the desire of interpersonal contact or intimate attachment to others and the fear associated with it. It leads to their alienation and escape to internal fantasy world. These people are usually very creative.

This case study based on detailed interview with the patient, data from three hospitalizations in the day ward of neurosis in Upper-Silesian Medical Centre in Katowice, Sentence Completion Test, Symptom Checklists KO „O" and a Life Inventory. The man has been struggling with personality disorders since childhood mostly caused by his dysfunctional family. He used to go to psychologist for 13 years. Now for the third time he's attending group therapy in a day ward of neurosis. Initially, it was planned to refer the patient to The Center for People with Special Needs. Before starting group therapy, he had problems with basic activities enabling independent functioning. The patient has problems with building relationships and suffers from anxiety disorders related to it. The man considers himself unique because of his artistic and mathematical talent. He composes music, wants to write a book, set up a theatre and claims that he is able to discover a lot in math, but does not implement it while living in a fantasy world. The patient believes in the power of his intuition and having prophetic dreams.

Therapy brings results – the patient thinks more wisely about the future and begins to have interpersonal contacts.

SLIPPED CAPITAL FEMORAL EPIPHYSIS IN A 25-YEAR-OLD HYPOGONADIC MAN WITH A LARGE CRANIAL CHONDROMA: CAUSALITY OR COINCIDENCE?

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Tutor: Ass. Prof.NadiaSawicka-Gutaj,MD, PhD

Background:

Slipped capital femoral epiphysis is a frequent hip disorder occurring in adolescence however it is very rare in adults. Despite the fact that the underlying defect may be multifactorial (eg, mechanical and constitutional factors), slipped capital femoral epiphysis represents a unique type of instability of the proximal femoral growth plate.

We present the first case of an adult patient with slipped capital femoral epiphysis associated with autosomal recessive GNRHR-related hypogonadotropic hypogonadism.

Case presentation:

This is a case report of a 35-year-old man with a slipping of the left capital femoral epiphysis. An endocrine evaluation revealed primary hypogonadotropic hypogonadism. The patient was placed on hormonal therapy and an in-situ hip pinning was performed to prevent further slip. The operation was successful. The symptoms disappeared and all of the epiphyses were closed within one year.

Conclusions:

In an adult patient presenting with slipped capital femoral epiphysis, endocrine dysfunction should be suspected. Physicians should conduct an extremely detailed examination as these disorders may have a complex and varied etiology.

The Use of Repetitive Transcranial Magnetic Stimulation in Cervical Spondylotic Myelopathy

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Tutor: Dr Jānis Mednieks; Dr Marija Mihailova

Background

Transcranial magnetic stimulation (TMS) is a diagnostic as well as therapeutic procedure which involves the use of a strong alternating magnetic field to induce electric fields and thus stimulate parts of the brain. It has been widely used in treating various psychiatric and neurological diseases such as depression, parkinsonism etc.

Case Report

We present the case of a patient diagnosed with spondylotic myelopathy C6/C7 level and non-specific myositis. Repetitive TMS (rTMS) was used therapeutically with positive results. The initial symptoms were non-specific and started in 2011. In 2017, the patient was hospitalised for examination due to complaint of severe headache. There was already a history of hemi-hypesthesia in the left side with a light drooping of the corner of the mouth and urinary incontinence. Examination showed reduced muscle strength (-4) and diffuse muscle pain. On electromyography - changes typical to myositis. MRI of the spine led to a diagnosis of spondylosis, spondylarthrosis (C5-7), and myofascial pain syndrome. She was referred to immunologist and rheumatologist. In 2019 she underwent decompressive spondylodesis surgery (and revision) in the cervical spine. She underwent physiotherapy and used gabapentin. In late 2020, she started rTMS therapy, receiving 10Hz TMS with Vertex area as the target and 1Hz magnetic spinal cord stimulation of the lumbar spine. She has had 20 sessions so far while continuing gabapentin therapy. The patient’s condition has become better subjectively and objectively.

Conclusions

The patient has a rare set of conditions which have still not been clearly diagnosed. Current literature does not show rTMS or magnetic spinal stimulation as a routine treatment for spondylgenous myelopathy, but due to the theoretical background it was implemented for this patient and has shown positive outcomes. As a relatively novel technique TMS has a high potential, warranting continued research and progress.

Pembrolizumab-induced toxicity in patient with advanced lung adenocarcinoma

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BACKGROUND:
Lung cancer remains the main cause of cancer-related deaths worldwide and non-small cell lung cancer (NSCLC) with increased expression of programmed death-ligand 1 (PD-L1) accounts for about 24% to 60%. Nowadays development of chemotherapy seems to have limited possibilities left and immunotherapy involving monoclonal antibodies targeting immune checkpoints have become a new hope in treatment of advanced tumors. Use of nivolumab or pembrolizumab is a promising perspective of NSCLC management, however it should be taken into consideration, that wide range of adverse effect including skin toxicity, gastrointestinal toxicity, hepatotoxicity, endocrinopathies or rheumatological symptoms may also occur. Therefore, depending on their severity, they can significantly affect patient's condition and treatment requires particular supervision and vigilance.

CASE REPORT:
63-year old male patient diagnosed with advanced lung adenocarcinoma with expression of PD-L1 on 70% of cancer cells and meta changes in lymph nodes and adrenal glands has started treatment with programmed death receptor (PD-1) monoclonal antibody - pembrolizumab. Initially the patient did not report any side effects of immunotherapy, however after a second dose of the drug, painful arthritis located in palms and hip joints occurred. Even though computed tomography scans showed significant regression of the tumor, after the third dose the treatment had to be stopped due to additional severe drug-induced hepatitis.

CONCLUSIONS:
Immune checkpoint inhibition of PD-1 receptors presents an exceptional anticancer response in NSCLC without specific mutations, but with increased expression of the PD-L1 protein. However, the mechanism of PD-1 monoclonal antibodies affects not only tumor, but all the patient's tissues. In most cases toxic outcomes of the treatment are mild and the therapy may be continued as planned, yet when provoked autoimmunity causes life threatening adverse effects, clinical status of particular patient should be once again analyzed and modified in terms of benefits and threats of treatment continuation.

Central serous chorioretinopathy and challenging treatment - case report

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Introduction: Central serous chorioretinopathy is (CSC) a chorioretinal disease that causes idiopathic detachment of the retina, due to fluid accumulation through retinal pigment epithelium (RPE). Many authors use a distinction between acute CSC (aCSC) and chronic CSC (cCSC), based on the duration and structural changes visible on imaging. Acute CSC for most patients resolves spontaneously in 3 months on average, while chronic CSC is reoccurring and lasts longer than 4 – 6 months, however, there are no significant clinical differences between aCSC and cCSC. Currently, treatment options include laser photocoagulation, transpupillary thermotherapy, subthreshold micropulse laser, photodynamic therapy, intravitreal injection of anti–vascular endothelial growth factor, antagonists of mineralocorticoid and glucocorticoid receptors.

Case report: We present a case report of a 41-year old man who presented with deteriorated visual acuity and central scotoma of the left eye lasting for two weeks. He was using non-steroidal anti-inflammatory eye drops. His visual acuity of the left eye was 1.0 and during optical coherence tomography (OCT) central serous retinal detachment was observed with filtration in fluorescein angiography. The patient was treated with laser coagulation of the left eye. After two months his visual acuity of the left eye was 0.9 so laser coagulation of the left eye was repeated. After three months his visual acuity improved to 1.0 and no treatment was prescribed. The patient came back after 8 months with deteriorated visual acuity of the left eye with 0.7 and reoccurring serous retinal detachment on the macula on OCT so photodynamic therapy was performed. After two months macular swelling of the left eye decreased from 436 mcm to 249 mcm. Visual acuity increased to 1.0.

Conclusion: The primary aim of treatment is to achieve complete resolution of SRF and intraretinal fluid. It is recommended to have individualized treatment for every patient. Occasionally, more than one treatment option can be utilized.

Epithelioid angiosarcoma: untangling a diagnostic challenge

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Epithelioid angiosarcoma is a highly aggressive malignancy of endothelial origin that is notorious for its poor prognosis and a challenging diagnostic approach. These tumors usually occur in association with trauma, foreign bodies, history of radiotherapy and chronic lymphedema. The neoplasm mostly occurs in older individuals with a peak incidence at 70 years of age.
We present a 19-year old man who developed an epithelioid angiosarcoma within 6 months after a traumatic injury to the right half of the face. Initially he presented with facial nerve palsy and traumatic fractures of the mastoid process, styloid process and the temporal bone.
After repeated refusals of postsurgical care and antibiotic regimens he was finally readmitted after 7 weeks with a recurrent abscess in the right parotid region which developed into a neck phlegmon. During a wound revision surgery a hematoma on the right side was discovered and the attempts of evacuation resulted in poorly controlled bleeding from the internal jugular vein. Despite a variety of treatment interventions the hematoma continued to grow and granulation tissue was rapidly forming. The ineffectiveness of multiple medical interventions raised a high degree of suspicion leading to a biopsy of the granulation tissue and the patient was diagnosed with an epithelioid angiosarcoma. We suspect that the etiology of this condition is multifactorial. While it may be attributed to trauma, it was exacerbated by treatment non-compliance and a delay in diagnosis. Furthermore, rare epithelioid vascular tumors such as angiosarcomas are a diagnostic challenge. Physicians should be aware of this clinical entity and maintain a high index of suspicion in non-healing wounds after trauma in otherwise healthy individuals.

: Almost complete response after hypofractionated radiotherapy with hyperthermia in a patient with unresectable low-grade pelvic fibromyxoid sarcoma

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Background: The primary treatment for low-grade STS is resection, sometimes combined with chemotherapy, radiotherapy. However, low-grade STS seem to be chemo-radioresistant. Thus, the management of locally advanced or unresectable disease is challenging. We believe that the addition hyperthermia(HT) to hypofractionated RT allow obtaining good local control with acceptable treatment toxicity (prospective phaseII clinical trial SINDIR- NCT03989596). The aim of the study was to present a case from the aforementioned study of a patient with unresectable pelvic low-grade fibromyxoid sarcoma with almost complete response after RT+HT.

Case report: A 52- year old women was admitted to Institute of Oncology with a low-grade fibromyxoid sarcoma of pelvis. In MRI a 9 cm pelvic mass in contact with a right iliac bone was visible. The tumor was unresectable. Due to the extent of the disease, anthracycline-based chemotherapy was proposed. She received three courses according to AI regimen, however, no satisfactory response has been achieved. Then participation in SINDR trial was proposed(December2018). After obtaining an informed consent, she began the first part of RT+HT, namely 3.25Gy per fraction-total dose 32.5 Gy + four deep HT(BSD-2000hyperthermia system). The treatment tolerance was good, grade 2 intestinal and skin toxicity according to Common Terminology Criteria for Adverse Events v4.0 was observed. After 6 weeks(February2019), the next MRI revealed the tumor regression, however, only an attempt of very extensive surgery with permanent stoma was possible. Then it was decided to add a boost of RT+HT according to SINDIR protocol without surgery. She received 4Gy per fraction-total dose of 16Gy +2 deep HT. In December2019 a gradual regression of the tumor was observed.

Conclusions: The case shows that RT+HT may be an effective treatment in patients with locally advanced potentially chemoresistant STS. It provides a good local disease control with acceptable toxicity. The full results of SINDIR are awaited.

Cardiac fibroma presenting as ventricular tachycardia - a case of 5-year-old patient with Gorlin-Goltz syndrome

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BACKGROUND:
Primary cardiac tumours in paediatric population are rare and mainly benign. Cardiac fibroma is the second most common primary heart tumour after rhabdomyoma in childern. Cardiac tumours affecting children are often associated with genetic disorders, for example about 3% of patients with Gorlin- Goltz syndrome have a cardiac fibroma.
Cardiac fibroma may be associated with ventricular arrythmia, as presented in our case of 5-year-old boy.

CASE REPORT:
From birth, a patient had a noticeable dysmorphic features and then the developmental delay was observed. In the fifth year of life he was hospitalised for several episodes of ventricular tachycardia. The heart rate of one of them reached 270 bpm. The patient also had a polymorphic ventricular arrhythmia throughout the observation period. The episodes of ventricular tachycardia were unresponsive to pharmacological treatment. Tachycardias subsided only after electrical cardioversions. Despite treatment escalation, the polymorphic ventricular arrhythmia could not be reduced. Echocardiography revealed an arrhythmogenic tumour, located in the left ventricle. The patient was operated on and a partial resection of the tumour was performed.
After excision of the tumour, ventricular tachycardia subsided and a polymorphic ventricular arrythmia was significantly diminished. Histopathological examination confirmed the diagnosis of cardiac fibroma. Some of patient's abnormalities like syndactyly correlated with the diagnosis of cardiac fibroma and with his mother's oncological history gave rise to the suspicion of Gorlin- Goltz syndrome. Genetic tests confirmed this diagnosis.

CONCLUSIONS:
Cardiac tumours are not common in paediatric population but their clinical consequences may be severe. Dysmorphic features correlated with a heart defect are an indication for genetic counselling.

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The case of a patient with scleroderma-like syndrome due to travertine exposure

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Background: Systemic sclerosis is a rare disease. It is characterized by progressive skin fibrosis that develop in the distal extremities and extends proximally into a generalized form. Although the etiology of scleroderma is still unknown, there have been increasing reports of work-related or drug-induced environmental factors The scleroderma-like syndrome has been reported in patients exposed to organic solvents and epoxy resins. **Case report:** A 58-year-old female was admitted to the Rheumatology Clinic in November 2019 in order to perform further assessment of systemic connective tissue disease. In 2017, the patient was treated at the Allergology Clinic for skin lesions accompanied by severe itching and erythematous-edematous lesions on the skin: swelling of the lips, eyelids, and changes on the limbs. She reported hardening of the skin of the trunk, forearms, lower legs, periodically recurrent joint pain and swelling of the fingers since January 2019. Physical examination revealed shiny hardening of the skin of both hands proximally to the metacarpophalangeal joints with reddening and hardening of the skin on the trunk and lower legs. On the last day of the hospitalization, she reported that the lesions developed after she moved to a new home, where a large area was covered with travertine preserved with organic resin. Since the beginning of hospitalization she noticed a significant improvement of her condition. Then a suspicion of scleroderma-like syndrome was raised due to allergies.The patient was discharged in good general condition with appropriate treatment. **Conclusions:** The patient developed scleroderma-like syndrome after exposure to substances (probably epoxy resins) within travertine. After longer hospitalization, in the absence of contact with the triggering factor her general condition improved. Due to the ambiguous picture of symptoms it is important to carry out a proper differential diagnosis between systemic sclerosis and scleroderma-like conditions to avoid misdiagnosis. Keywords: scleroderma-like syndrome, organic solvents.

Effectiveness of Doppler ultrasound and stent implantation in the superior vena cava syndrome

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Background: Superior vena cava syndrome (SVCS) is a set of symptoms caused by an obstruction in the outflow of blood from the superior vena cava to the right atrium of the heart, mainly caused by narrowing, infiltration of the vein by a neoplastic or non-neoplastic process.

Case report: In a 77-year-old man with disseminated neoplastic process, symptoms of dyspnoea, chest and upper limbs oedema, CT showed narrowing of superior vena cava exerted by the tumor. Phlebography revealed obstruction of the right brachiocephalic vein and the critical narrowing of superior vena cava. Outflow of left brachiocephalic vein was unobstructed. Additionally, abundant collateral circulation from the right side of the thorax to the left brachiocephalic vein.
The patient underwent implantation of 3 overlapping stents. Control angiography depicted complete restoration of SVC lumen.
3 days following the procedure, massive oedema of the right upper limb occured. Doppler ultrasound showed on the right: the subclavian, axillary and brachial veins were filled with clots and dilated. The basilic vein with the presence of thrombus from the level of the elbow joint proximally, the cephalic vein filled with thrombus from the level of the axilla also proximally. On the left, perimural clots were visible only within the cephalic vein in the proximal segment of the forearm.

Conclusion: In SVCS, it is crucial to dilate the stenosis due to the complications of blood stagnation above the narrowing. A relatively minimally invasive and highly effective procedure is stenting. In the event of upper limb oedema in a patient with disseminated and advanced neoplastic process, after properly performed superior vena cava stenting, thrombosis or neoplastic progression with compression of the vessels should be considered. Doppler ultrasound is a highly sensitive examination in such cases. It allows for the unequivocal determination of the cause of blood stagnation and its location.

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