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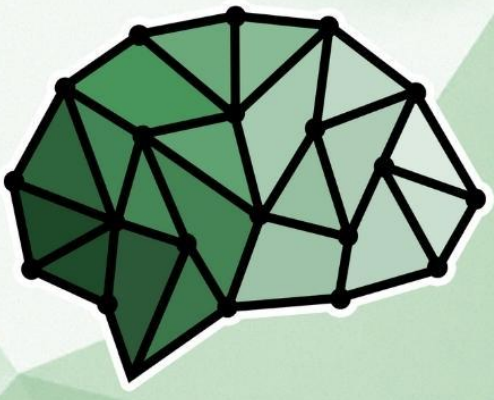

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BASIC SCIENCE

12th of May 2022

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The effect of human rhinovirus HRV16 and coronavirus HCoV229E co-infection on the inflammatory activation of human lung vascular endothelium

Marta Chuncia

Presenting author: Marta Chuncia

Tutors: Mateusz Gawrysiak, M.Sc., Maciej Chałubiński, MD, PhD, Prof. UM

Affiliations: Medical University of Łódź

Introduction: Rhinoviruses (HRV) and Coronaviruses (HCoV) are pathogens causing common upper respiratory infections in humans. The seasonal peaks for HRV and HCoV are overlapping, thus the risk of co-infection may be high, and, epidemiologically and clinically, even underestimated. As we have shown that HRV16 and HCoV229E are able to infecting endothelial cells and inducing inflammatory responses in vitro. However, nothing is known about the possibility of co-infection of the lung endothelium with HRV16 and HCoV229E.

Aim of the study: The aim of the study is to assess the effect of HRV16 and HCoV229E co-infection on the lung vascular endothelium.

Materials and methods: Human pulmonary microvascular endothelial cells (HMVEC-L) were infected with HRV16, HCoV229E or both HRV16 and HCoV229E simultaneously in an in vitro model. The cytopathic effect was assessed in the light microscope, metabolism in MTT assay, antiviral response (IFN-β, RIG-I), inflammatory response (RANTES, IL-8), prothrombotic activity (TF) and intracellular mechanisms of antiviral resistance (OAS-1, PKR, MX-1) and viral copy number in the real time PCR.

Results: The results show that a single infection with HRV contributes to a rapid and stronger expression of IFN-β and interferon-dependent genes – OAS-1, PKR, MX1 compared to a single infection with HCoV. The increase of expression after HCoV infection is prominent only 72 hours after infection. Regarding the co-infection, expression of IFN-β, OAS-1, PKR, MX1 is comparable to a single HRV infection, but not single HCoV infection. In addition, the expression of inflammatory and pro-thrombotic genes is also comparable only to a single HRV infection. Assessing the cytopathic effect under light microscopy, it can be noticed that in a single infection with HRV16 especially at 48 and 72 hours after infection, there are more detached cells compared to the control. Furthermore, the results shown in the MTT test indicate that at certain time points the cell viability is greater in co-infection than in single viral infections.

Conclusions: It seems that HRV16 and HCoV229E have different effects on endothelial cells - HRV16 induces a strong and rapid antiviral and proinflammatory response, but HCoV229E has delayed effects on HMVEC-L cells and this effect is not as strong as HRV16. Co-infection does not seem to have any greater effect on the cells.

Composition of bone regenerate forming in the tibia after repeated fracture in diabetic rats

Nadezhda Mosyagina, Dmitry Astrakhantsev, Anna Skriabina

Presenting author: Nadezhda Mosyagina

Tutors: Prof. Vladyslav Luzin

Affiliations: SE "Lugansk State Medical University", Ukraine, O.O. Bogomolets National Medical University, Kyiv, Ukraine

Introduction: Diabetes exerts many adverse effects on bone fracture healing though it's not quite clear how chemical composition of bone tissue changes in diabetic animals after repeated fracture.

Aim of the study: Aim of the study is to test composition of bone regenerate forming in the tibia in rats with type 2 diabetes.

Material and methods: Female rats (n=60; mean weight – 160g) were distributed into 3 groups. Group 1 comprised intact animals, group 2 comprised animals with fractures of the femur and the tibia. Fracture of the femur (2mm round opening) was applied in the shaft above the distal epiphysis. After healing of the first fracture the second fracture was applied to the shaft of the tibia below the proximal epiphysis. Animals of the group 3 underwent the same interventions after 60-day adipogenic diet that was not discontinued after interventions. Observation terms were 7, 15, 30, and 60 days beginning from tibia surgery. Upon expiration of observation terms animals were withdrawn from the experiment by means of anaesthetized decapitation and tibiae were collected. Shares of maim fractions of regeneration area (water, organic substances, and bone minerals) were measured by consecutive weighing of samples immediately after excision, after drying at 105°C, and after burning at 650°C. Statistical analysis was performed with the help of MS Excel software.

Results: In animals of the group 2 in comparison with intact animals, water share in the samples in the period from the 7th to the 30th day increased by 12.68%, 13.40%, and 7.55%. Share of organic substances initially (by the 7th day) decreased by 3.94% yet later, by the 15th and the 30th days it increased by 11.40% and 9.59%, which is due to formation of bone cuff around fracture area. Bone mineral share in the period from the 7th to the 30th day decreased by 6.95%, 17.02%, and 11.68% respectively. These alterations signs are typical for fracture. Moreover, absence of recovery testifies for slow fracture healing in the case of repeated fracture. In animals of the group 3 in comparison with the group 2, water share exhibited significant increase only by the 60th day of observation – by 5.80%. Share of organic substances in the period from the 7th to the 30th day increased by 6.37%, 22.23%, and 12.14% respectively. Bone mineral share by the 15th and the 30th days increased by 15.57% and 6.48% yet on the 60th day it decreased by 4.38%. Such an increase does not testify for recovery because of persistent organic substances deficiency.

Conclusions: Non-diabetic animals with repeated fracture exhibit slow bone regeneration due to post-fracture osteoporosis. In diabetic animals healing of repeated facture is slower than in non-diabetic animals due to combined effects of osteoporosis and diabetes.

A new look at quadriceps tendon - is it really composed of three layers? - pilot study

Nicol Zielinska, Adrian Balcerzak

Presenting author: Nicol Zielinska

Tutors: Łukasz Olewnik, D.P.T, PhD, Professor of University

Affiliations: Medical University of Lodz, Department of Anatomical Dissection and Donation

Introduction: It might seem that the quadriceps femoris has already been thoroughly studied and all its morphological variations have been also identified. However, it turns out that both for the proximal and distal attachments it is variable, and the relations of its parts to each other are different. This muscle is used as a graft source for example during ACL reconstruction, so good knowledge about its distal attachment is very important.

Aim of the study: The purpose of this study was to qualitatively and quantitatively describe the anatomy of the QT including its size, its layers and relationship between layers. Another aim was to estimate the potential safe length, width, thinckess of the tendon harvest.

Materials and methods: Fourty lower limbs (10 females (mean age 81.1) and 10 males (mean age 82.8 years)) fixed in 10% formalin were examined. Anatomical dissection was carried out according to established protocols. Upon dissection, the following morphological features of the quadriceps femoris tendon were assessed: the arrangement of the layers of each of the tendons, morphometric measurements of the tendons of quadriceps femoris, and the potential safe length, width and thickness of the tendon harvest.

Results: In all dissected specimens, the quadriceps femoris was composed of 4 layers: superficial (first layer), middle (second layer), middle-deep (third layer) and deep (fourth layer). The first layer (superficial) was formed by the rectus femoris tendon and fascia. The second layer was composed of tendons of the vastus medialis and superficial part of the vastus lateralis. The third layer was formed by the intermediate part of the vastus lateralis. The fourth layer was composed of the tendon of the vastus intermedius.

Conclusions: The findings of this study provide a detailed anatomy of the quadriceps tendon. There were 4 different layers of this muscle consistently found in all specimens. The first layer was independent and composed by the rectus femoris tendon, the second was formed by the superficial part of the vastus lateralis and vastus medialis. The third layer was formed by the intermediate part of the vastus lateralis, and the deepest fourth layer was composed of the vastus intermedius. This knowledge allows for improvement of safety during surgical procedures like ACL reconstruction.

Aberrant hepatic arteries - frequency, clinical significance and new classification proposal

Adrian Balcerzak, Nicol Zielinska

Presenting author: Adrian Balcerzak

Tutors: prof. Łukasz Olewnik, prof. Richard Shane Tubbs

Affiliations: Medical University of Łódź, Poland, Tulane University, USA

Introduction: Aberrant hepatic artery (AbHA) is an artery, which originate from an anomalous trunk and supplies a portion of the liver. Depending on related vascular pattern it can be classified as accessory hepatic artery (when supplying with other vessel) or replaced hepatic artery (when supplying solely). Changes in the vascularity of crucial internal organs located in abdominal region may not only create problems during diagnostic imaging, but also be part of the clinical problem and the source of the patient's health issues.

Aim of the study: The aim of this study was to determine frequency of occurrence, characterize the origin of the AbHA, standardize often ambiguous nomenclature and also create a new classification, which seems to by necessary for clinicians performing surgery in this area, as well as diagnosticians.

Materials and methods: The presence and anatomical variations in the AbHA origin were examined in 54 cadavers fixed in a 10% formalin solution. The study was carried out with classical dissection techniques, during which the aberrant hepatic artery morphology, the point where it branched off the corresponding trunk in reference to the abdominal aorta, its total length, width and additional branches parameters were evaluated. Morphometric measurements were then obtained twice by two researchers. Basic descriptive statistics were calculated with Excel for the collected data.

Results: The AbHA was present in 25,93%. Due to proposed classification system, Type I characterized by AbHA originating from superior mesenteric artery included 35,71% of cases, Type II characterized by AbHA originating from coeliac trunk included 35,71% of cases, Type III characterized by AbHA originating from left gastric artery included 21,43% of cases and Type IV characterized by AbHA originating from common hepatic artery – no cases. Type V – AbHA originating from proper hepatic artery included 7,14% of cases. Type VI – rare cases, not observed in research subjects. The overall AbHA presence was equal to 25,93%. The difference in AbHA diameter was not statistically significant between genders.

Conclusions: Aberrant hepatic arteries are relatively common vessels, however characterized by a great variability in its origin and course. Nomenclature standardization. The introduction of a new, structured, anatomical classification seems necessary for all clinicians.

The cerebrospinal fluid concentration of matrix metalloproteinase-3 (MMP-3) in Alzheimer's disease

Daria Arslan

Presenting author: Daria Arslan

Tutors: Agnieszka Kulczyńska-Przybik, MD, PhD, Izabela Winkel, MD, PhD, Prof. Barbara Mroczko, MD, PhD

Affiliations: Scientific Club, Department of Neurodegeneration Diagnostics, Medical University of Białystok, Poland;

Department of Neurodegeneration Diagnostics, Medical University of Białystok, Poland; Research-Scientific-Didactic Centre of Dementia-Related Diseases, Wrocław Medical University;

Department of Biochemical Diagnostics, Medical University of Białystok, Poland, Department of Neurodegeneration Diagnostics, Medical University of Białystok, Poland

Introduction: Alzheimer's disease is a heterogeneous and progressive neurodegenerative disease. In addition to the accumulation of Aβ and tau, neuroinflammatory processes in the early stage of Alzheimer's disease (AD) are accompanied. Mounting evidence indicates that uncontrolled activity of MMPs might play an important role in the pathology of neurodegenerative and neuroinflammatory diseases, including AD. It has been shown that MMP-3 might be involved in the degeneration of neurons and the formation of neurofibrillary tangles. Moreover, the activity of MMP-3 in the cerebrospinal fluid (CSF) tended to be higher in AD patients than in the healthy controls.

Aim of the study: The study aimed to measure the cerebrospinal fluid concentration of MMP-3 in patients with AD and assess its potential diagnostic usefulness as a biomarker.

Materials and methods: The study group consists of 43 patients, including 25 patients with AD and 18 controls without cognitive impairments. The CSF concentrations of MMP-3 and classical AD biomarkers were measured using the ELISA method.

Results: The CSF concentrations of MMP-3 were significantly higher in AD patients than in the controls. MMP-3 revealed high specificity but moderate sensitivity in differentiation AD from subjects without cognitive impairments.

Conclusions: Our findings suggest that MMP-3 might play a role in the development of Alzheimer's disease and allow for the differentiation between Alzheimer's disease and normal aging subjects without cognitive impairment, although further studies are necessary.

Assessment of the anti-inflammatory effect of monocarbonyl analogs of curcumin on LPS-induced monocytes

Sylwia Księżak, Alicja Walewska, Damian Pawelski

Presenting author: Sylwia Księżak

Tutors: Andrzej Eliaszewicz, MD, PhD, prof. Marta E. Płońska-Brzezińska, MD, PhD

Affiliations: Medical University of Bialystok

Introduction: Curcumin is a compound that occurs naturally in the rhizome of Curcuma longa. It exhibits anti-inflammatory, antioxidant, and neuroprotective properties. However, poor water solubility and low stability make the use of curcumin as a potential drug challenging. Nevertheless, it is believed that curcumin analogs may possess higher therapeutic usefulness.

Aim of the study: Our study was designed to investigate the immune-modulatory properties of novel aminocarbonyl curcumin analogs in vitro.

Materials and methods: First, we tested the cytotoxicity of novel aminocarbonyl curcumin analogs using MTT assay. In addition, endotoxin level in the analyzed compounds was assessed. Finally, the immunomodulatory effect of compounds was analyzed after 24h in vitro stimulation of peripheral blood mononuclear cells with lipopolysaccharide (LPS). The levels of IL-1B, IL-10, INFy, and TNFa were measured by commercially available immunoassays. Statistical analysis was performed using GraphPad Prism software.

Results: The results of the MTT assay indicated the concentrations at which the tested compounds showed no cytotoxicity. We found that all tested compounds significantly decrease pro-inflammatory IFNy after LPS stimulation. In addition, we observed that some compounds increased anti-inflammatory IL-10 in cell culture supernatants.

Conclusions: Here we showed that the novel curcumin analogs show low cytotoxicity. More importantly, we found that tested compounds possess anti-inflammatory potential. However, further studies are needed to better understand the mechanisms of anti-inflammatory effects and to test their therapeutic potential.

Nanosecond Pulsed Electric Field Affects the Growth of Pancreatic Cancer in 3D Cell Culture Model

Wojciech Szlasa

Presenting author: Wojciech Szlasa

Tutors: Olga Michel

Affiliations: Faculty of Medicine, Wroclaw Medical University, Wroclaw, Poland;

Department of Molecular and Cellular Biology, Faculty of Pharmacy, Wroclaw Medical University, Wroclaw, Poland

Introduction: Pancreatic cancer (PCa) remains a serious oncological problem due to the late diagnosis and local infiltration to the surrounding tissues. Nanosecond Pulsed Electric Field (nsPEF) was proved to evoke cytotoxic and immunomodulatory effects in cancer cells, including PCa. Among patients with high grade PCa there is no effective treatment regimen to reduce the growth and infiltration of the cancer, thus more research has to be focused on novel anticancer therapies.

Aim of the study: The aim of the current study was to evaluate the potential of low voltage nanosecond pulsed electric field (nsPEF) on the reduction of tumor growth and formation in the 3D cell culture studies.

Materials and methods: The experiments were performed on EPP85-181RDB, EPP85-181RNOV and EPP85-181P pancreatic cancer cell lines. Molecular dynamics simulations and Yo-Pro-1 uptake studies were performed to evaluate the differences in membrane permeabilization following nsPEF treatment. Further, we analysed cells' morphology with the holotomographic microscopy and analysed the cytotoxic effect of nsPEF on cells via MTT assay. In the end tested the influence of nsPEF on the spheroid formation in 3D cell culture models.

Results: Exclusively EPP85-181RDB cell line released membrane vesicles after electric field treatment. Besides, the cells were more sensitive towards paclitaxel treatment. EPP85-181RNOV cells reduced the spheroid's growth. In EPP85-181P cells nsPEF treatment exerted no anticancer effect.

Conclusions: Low-voltage nsPEF can act on EPP85-181RDB pancreatic cells by reducing their growth and sensitizing them to chemotherapy.

Relations between the deep fibular nerve and the muscles of the anterior compartment of the leg. A pilot study.

Andrzej Węgiel, Krzysztof Koptas

Presenting author: Andrzej Węgiel

Tutors: Prof. Łukasz Olewnik

Affiliations: Medical University of Łódź

Introduction: The human anatomy seems to have no secrets for us and is sometimes considered as the completely explored field. However, this statement is still far from the truth. Up to this day many topics remain unclear and even the simplest structures have potential to surprise us. The peripheral nervous system shows great variability of patterns and the new types are being constantly discovered. One of these areas are relations between the muscular and nervous structures in the lower limb. The precise knowledge about them is considered as important not only from the anatomical but also the clinical point of view.

Aim of the study: The purpose of this study was to identify the pattern of relations between the deep fibular nerve and the muscles of the anterior compartment of the leg: the tibialis anterior, the extensor hallucis longus, the extensor digitorum longus and the fibularis tertius muscles. The identified variants were meant to be divided into types with the specific traits and the frequency of occurrence.

Materials and methods: The careful dissection of the 50 lower limbs was performed. The skin and the subcutaneous tissue were removed as well as the superior extensor retinaculum and the inferior extensor retinaculum. Afterwards, the deep fibular nerve was separated from the neurovascular bundle and the nervous branches were exposed. The line between the upper border of the malleoli was established. The type of the deep fibular nerve relation was determined based on its location while crossing the line. The final step was to take careful measurements of the nerve in relation to the other structures and determine the number and the thickness of its branches.

Results: The three types of relations were discovered and described. The type I stands for the deep fibular nerve located between the tibialis anterior and the extensor hallucis longus muscles and is represented by 50% of specimens. In the type II, which occurs in 40% of cases, the nerve is situated between the extensor hallucis longus and the extensor digitorum longus. The type III represents the least common variant. The deep fibular nerve courses between the extensor digitorum longus and the fibularis tertius muscles. It was observed in 10% of cases. In 96% of cases the deep fibular nerve had two final branches and only in 4% of cases the variant with the three branches was identified.

Conclusions: The course of the deep fibular nerve in the ankle is not homogenous among the population and shows important variability. The provided classification helps to identify its most common location as well as the expected number of its branches and extends our knowledge about the anatomy of the human ankle.

The comparison of efficacy of terbinafine and recently synthetized lipopeptides against clinical Candida strains

Patrycja Brzozowska, Paulina Czechowicz

Presenting author: Patrycja Brzozowska

Tutors: Joanna Nowicka, PhD

Affiliations: Wrocław Medical University

Introduction: Candida spp. are saprophytes commonly responsible for opportunistic infections of skin, mucosa and even blood, i.e., candidosis and candidemia. Among this genus the most common species is C.albicans, yet more frequent occurrence of NCAC (non-Candida albicans Candida) infections is gaining attention. The outcome is increasing drug resistance and therapeutic difficulties resulting from it, thus further research for treatment options is necessary. In this study examples of antifungal agents are being examined: terbinafine, which constrains the synthesis of ergosterol (a component of fungal cell wall) and AMPs (antimicrobial peptides), whose antibacterial activity has been documented.

Aim of the study: The focus of this research is to determine the effectiveness of terbinafine and AMPs against clinical Candida strains. Combination of terbinafine and AMPs is being reviewed in order to resolve if simultaneous use of these substances extends their efficacy.

Materials and methods: 16 clinical Candida strains, including referential strains such as ATCC 90028 C.albicans, ATCC 15126 C.glabrata i PCM 2709 FY C.tropicalis, were examined. MICs (the minimal inhibitory concentration) and FICIs (the fractional inhibitory concentration index) of terbinafine and 4 recently synthetized lipopeptides (linear: C16-KKKK-NH2 and C16-KRKK-NH2 and their cyclic analogues: C16-CKKKKC-NH2 and C16-CKRKKC-NH2) were determined for each isolate. The tests were carried out using the microdilution method in liquid RPMI 1640 according to CLSI guidelines. The effect of combination of both substances on the fungi was determined using the checkerboard method.

Results: Lipopeptides being fungicidal agents have shown distinctly better activity against all examined Candida species than fungistatic terbinafine, which is not so commonly administered. The outperformance of cyclic analogues compared to linear ones in terms of antifungal activity is also noteworthy. Moreover, results of FIC index seem to be promising - they imply potential additive or even synergistic activity when applied together.

Conclusions: In search of new antifungal medications against Candida it is worth considering the use of already existing drugs intended to treat infections of different than Candida etiology - such as terbinafine. Lately developed lipopetides appear yet again to be an encouraging group of compounds effective against yeast-like fungi, as evidenced in this study. It should be emphasized that combination of compounds of different mechanisms might emerge as synergistic or additive towards each other in treatment of infections caused by Candida and it requires more attention. The positive response would allow to administer lower drug concentrations compared to applying them separately - and that directly affects the treatment safety.

Is the infraspinatus muscle variable? The new classification of the infraspinatus muscle.

Krzysztof Koptas, Nicol Zielinska, Andrzej Węgiel

Presenting author: Krzysztof Koptas

Tutors: Łukasz Olewnik, D.P.T, PhD, Professor of University

Affiliations: Medical University of Łódź

Introduction: The infraspinatus muscle (IFM) is the part of the rotator cuff. It is medially attached to the vertebral three-quarters of the infraspinous fossa and runs under scapular spine. It is laterally attached to the middle impression and the lateral impression of the greater tubercle of the humerus. It is perfused by the suprascapular artery and the scapular circumflex artery. The IFM is innervated by suprascapular nerve. The IFM acts as shoulder external rotator and humerus lateral rotator. Together with the supraspinatus, teres minor and subscapularis, it contributes to the dynamic stabilization of the glenohumeral joint.

Aim of the study: The purpose of this study was to analyse morphological variabilities of the IFM. Our aim was to create new classification based on the anatomical variations of the IFM.

Materials and methods: During research we have dissected 92 human upper limbs fixed in 10% formaline solution.

Results: We have defined three variations of the IFM. One head type, with origin in medial part of the infraspinatus fossa and end on the greater tubercle of the humerus, with frequency of 88%. Type with two heads – superior and inferior – and two tendons, with frequency of 10.9%. The superior head occupies the superior half of the medial part of the infraspinatus fossa and ends on the greater tubercle of the humerus. The inferior head occupies the inferior half of the medial part of the infraspinatus fossa and ends on the greater tubercle of the humerus. Last type has two heads – superior and inferior – and one tendon, with frequency of 1.1%. Heads have the same origins as described above, but shared tendon ends on the greater tubercle of the humerus. The infraspinatus minor muscle is described in literature as a differentiation of the superior bundles of the IFM. It has its origin on the scapular spine and insertion on the greater tubercle of the humerus or on the tendinous part of the IFM. We have observed it in 7.6% of cases.

Conclusions: The IFM is characterised by the morphological variability. Variations have an outflow on the muscle biomechanics. Hence, it may be crucial in planing operations in the rotator cuff region. It also remains essential for physiotherapists, in order to perform a more effective treatment of the IFM pathologies.

A comparison of extracellular matrix metabolism in cardiac fibroblast using hanging drop or monolayer techniques

Hoang Bao Ngoc Tran, Lucyna Piera

Presenting author: Hoang Bao Ngoc Tran

Tutors: Professor Jacek Drobnik, Małgorzata Gałdyszyńska, M.Sc.

Affiliations: Medical University of Łódź

Introduction: Fibroblasts play a significant role in development of fibrosis. Monolayer techniques are commonly used in spite of multiple limitations of this method. Cells cultured in a monolayer environment tend to lose their polarity, morphology, and overall, their original characters. Spontaneous activation of fibroblast to myofibroblast was described in monolayer cultures. Hanging drop technique is one of the most approachable 3D culturing techniques that resembles more physiological environment comparing to monolayer culture. Cells are observed to form spheroids which enhance cell-cell and cell-extracellular matrix interaction, hence embracing more nature characters of cells.

Aim of the study: The present study is aimed at comparison of glycosaminoglycans (GAG) and collagen metabolism in 2D or hanging drop (3D) cultures of human cardiac fibroblasts.

Materials and methods: The study was performed using stable cardiac fibroblasts cell line cultured in DMEM medium supplemented with 10% FBS, gentamycin, amphotericin B, insulin and vitamin C. Cells were cultured for 48h and 96h. Glycosaminoglycans level was measured using Farndale method. Both collagen protein and gene expression were measured using Woessner's method and qPCR respectively.

Results: There was a significantly higher level of GAG in the hanging drop groups in comparison to normal culture samples at both time points ($p<0.05$). As for collagen measurement and collagen expression, we observed a higher expression in the hanging drop culture, while the level of collagen measure was higher in normal monolayer culture. There are higher Col1A1 gene expression level at 96h time point in conventional cell culture when compared with 48h time point. No statistical difference was observed in hanging drop culture between time points. Collagen level in both groups hanging drop and conventional culture was higher at 48h.

Conclusions: These results suggest different metabolism of collagen and glycosaminoglycans in the two applied techniques of fibroblast culture. In hanging drop cultures the increased glycosaminoglycans and decreased collagen level was reported comparing with monolayer technique.

Collagen glycation effect on the interleukin-6 secretion by human cardiac fibroblast.

Marta Drobnik

Presenting author: Marta Drobnik

Tutors: Ewa Bojanowska, MD, PhD, Prof. UM, Bożena Stempniak, MD, PhD

Affiliations: Medical University of Łódź

Introduction: In diabetics, a diffuse cardiac fibrosis within the heart was reported. Accumulation of glycated collagen within the heart impairs it function and may participate in diabetic cardiomyopathy development. The mechanism of fibrosis remains unclear. In hyperglycemic conditions glucose is non-enzymatically and covalently attached to proteins, collagen including. After glycation collagen structure of some residues is modified. Decreased triple helix solubility and flexibility is also observed. Glycation of collagen influences on its interaction with receptors. The interleukin-6 (IL-6) is the proinflammatory cytokine participating also in regulation of fibrosis.

Aim of the study: The present study is aimed at evaluation whether glycation of collagen may modify the interleukin-6 (IL-6) secretion by human cardiac fibroblasts. Cell count and proliferation was additionally investigated.

Materials and methods: The experiments were carried out on human cardiac fibroblasts. The cells were divided into three groups: cultures settled on bovine albumine (1st group), those applied on collagen (2nd group) or glycated collagen (3rd group). Collagen was glycated by treatment with methylgloxal. The following measurements were performed: total and necrotic (stained with thrypane blue) cells counts, intracellular and extracellular IL-6 level (ELISA) as well as the fibroblasts proliferation (BrdU).

Results: The extracellular concentration of IL-6 was twice higher in cells grown on glycated collagen comparing with cultures growing on collagen or bovine albumines ($p<0.001$). Moreover, the intracellular level of IL-6 was higher within fibroblasts cultured on glycated collagen than in cells settled on unmodified collagen ($p<0.001$). Intracellular level of IL-6 in both glycated collagen and bovine albumine groups were similar. Total cell number was decreased within cultures grown on glycated collagen comparing with those settled on collagen ($p<0.001$). The proliferation of cardiac fibroblasts was reduced by glycosylated collagen comparing to both cultures settled on unmodified collagen or bovine serum albumine ($p<0.002$).

Conclusions: Glycation of collagen may modify cardiac fibroblasts' function. Thus, glycated collagen increased secretion of IL-6 and by this phenomenon may modify signal regulating heart fibrosis. Moreover, unmodified collagen decreases intracellular IL-6 content. This effect is cessated by glycation of collagen. Glycated collagen decreases cell count within the cultures. This effect was accompanied by reduction of the fibroblasts proliferation in cultures settled on glycated collagen.

CARDIOLOGY

12th of May 2022

Coordinators:

Ksenia Skrobek

Łucja Hanna Biały

Jury:

Katarzyna Glibov, PhD

Adam Poliwczak, PhD

Monika Różycka-Kosmalska, MD, PhD

Piotr Kaźmierczak, MD

Weight-loss management following catheter ablation of atrial fibrillation

Łukasz Zarębski, Aleksandra Burbelka, Aleksandra Pawlik

Presenting author: Aleksandra Burbelka

Tutors: Piotr Futyma, MD, PhD, Prof. UR

Affiliations: Medical College of Rzeszów University

Introduction: Overweight and obesity are modifiable risk factors for atrial fibrillation (AF). Pulmonary vein isolation (PVI) is an established method of AF treatment, but in overweight and obese patients, the long-term effects of AF catheter ablation are imperfect. There is evidence that pre-ablative weight loss is beneficial, but there is no data on weight management in post-ablative follow-up.

Aim of the study: To determine the degree of weight loss in overweight and obese patients before AF ablation and to determine the trends of BMI in long-term follow-up after AF ablation.

Materials and methods: Consecutive patients with BMI> 25 undergoing PVI were included into the analysis. After the first visit, patients received comprehensive dietary and lifestyle modification recommendations. Anthropometric measurements were taken at the first visit (BMI-pre-PVI), on the day of surgery (BMI-PVI) and at the last follow-up visit (BMI-post-PVI).

Results: 68 patients (27 women, age 59 ± 11 years) were included into the study. On average, men undergo AF ablation at a younger age (56±11 years) than women (64±8 years), p = 0.003. The time between pre-PVI and PVI was 23 ± 22 months, and during this time the study group achieved an average BMI reduction of 0.7 (BMI-pre-PVI vs BMI-PVI, 29.5 vs 28.8, p = 0.23). In the long-term follow-up of 17 + 16 months, the control BMI was 28.9 (BMI-PVI vs BMI-post-PVI, 28.8 vs 28.9, p = 0.84). The dynamics of weight loss significantly decreased after the procedure, both in the group of women and men (difference between BMI-pre-PVI and BMI-PVI vs BMI-PVI and BMI-post-PVI, -0.7 vs +0.1, p=0.00047).

Conclusions: After the AF ablation, patients are inclined to be less strict about weight reduction. Excessive body weight increases cardiac workload, which predisposes to arrhythmias.

Effect of 3-months cardiac rehabilitation program on metabolic parameters in patients with acute myocardial infarction

Alicja Skrobucha, Julia Haponiuk-Skwarlińska, Agata Antoniak, Michalina Ciurla

Presenting author: Alicja Skrobucha

Tutors: Dominika Klimczak- Tomaniak, MD, PhD;

Affiliations: Students' Scientific Association at the Department of Cardiology, Arterial Hypertension and Internal Medicine, Faculty of Medicine, Medical University of Warsaw, Mazovian Bródno Hospital, Warsaw, Poland;

Department of Cardiology, Arterial Hypertension and Internal Medicine, Faculty of Medicine, Medical University of Warsaw, Mazovian Bródno Hospital, Warsaw, Poland

Introduction: According to ESC Guidelines on management of acute myocardial infarction, participation in a cardiac rehabilitation program (CR) is strongly recommended for all STEMI and NSTEMI patients.

Aim of the study: The aim of this study was to evaluate the effect of 3-months cardiac rehabilitation (CR) program on metabolic parameters in patients with acute myocardial infarction.

Materials and methods: In this retrospective study we included 104 patients enrolled into the one-year cardiac rehabilitation program at our cardiology department between August 2021 and March 2022. In this analysis, we focus on 54 patients who completed 3-months of CR (36 sessions, 2-3 times per week) and were subjected to the measurement of metabolic parameters before and after 3 months of CR, including: LDL-C, TC, triglycerides, blood glucose. We also evaluated the achievement of LDL-C goals according to ESC 2019 guidelines. Due to the limited study population and relatively short period of lipid-lowering therapy, we assumed a target of 55 mg/dl irrespective of % change from baseline LDL-C. Statistical analysis was performed with the use of the SPSS program. Statistical significance was assumed for P values of less than 0.05.

Results: The mean age of the study group was 62±7 (mean, ±SD), 45 patients were male (83%), mean LDL-C level was 117 (83, 136) mg/dl. We observed a significant decrease in levels of total cholesterol [137 (118,156) vs 184 (151,211), P <0,001], LDL-C [72 (55, 84) vs 117 (83, 136), P <0,001], triglycerides [97 (78,124) vs 124 (98, 178), P<0,001], body mass [83 vs 86, P=0,013] and BMI [28 vs 29, P=0,017] after 3 months of CR compared to baseline values. We found a significant increase in MET (metabolic equivalents) after 3 months of observation [7 vs 6, P=0,004]. 22,22% (n=12) of patients achieved LDL-C treatment goal. Those patients presented with significantly lower baseline TC [159 (128, 185) vs. 190 (158, 222), P=0,001], and LDL-C [77 (66, 106) vs.124 (92, 142), P=0,007] levels, compared to patients who did not achieve LDL-C treatment goals. Patients who achieved LDL-C goal (n=12) were on statin monotherapy (with a mean rosuvastatin dose 40mg/day and atorvastatin dose 40 mg/day) with no modifications after three months. Among 42 patients who did not attain LDL-C goal, 37 were on statin monotherapy (mean rosuvastatin dose 22mg/day, mean atorvastatin dose 40mg/day) and 4 received combination of ezetimibe and statin at the start of CR.

Conclusions: We found that relatively small group of AMI patients reach LDL-C treatment goals after 3 months of CR. Patients with high baseline LDL-C levels may require more potent anti-lipid treatment than they do receive in the real-life population of our center. Earlier statin dose escalation may be favourable in these patients.

Predictive value of cardiac biomarkers in heart failure

Edward Kothalawala

Presenting author: Edward Kothalawala

Tutors: M.D. Arnold Péter Ráduly; M.D. Ph.D. habil. Attila Borbély

Affiliations: University of Debrecen

Introduction: In recent years, several new biomarkers have emerged in the diagnosis of heart failure (HF). Soluble ST2 (sST2) and galectin-3 (GAL3) levels are associated with the severity of left ventricular remodelling and tissue fibrosis. The prognostic information they provide is independent from that of the natriuretic peptides (NPs) widely used in clinical practice. Angiotensin-converting enzyme 2 (ACE2), which is involved in the breakdown of angiotensin II, is also an important biomarker in HF. Combined measurement of sST2, GAL3, ACE2 and NPs may improve prognostic accuracy.

Aim of the study: Our aim was to measure the levels of sST2, GAL3, ACE2 and NT-proBNP in patients with HF treated at the University of Debrecen Clinical Center, Department of Cardiology and Cardiac Surgery. We studied groups of HF patients with different risk factors, comorbidities and etiologic backgrounds. We then investigated the correlation between the biomarkers, functional (NYHA) stage and left ventricular ejection fraction (LVEF).

Materials and methods: Biomarkers were measured with ELISA assays (number of patients: 147). Statistical analysis: Shapiro-Wilk and Mann-Whitney test, Pearson and Spearman correlation, regression analysis, $p<0.05$.

Results: The levels of biomarkers tested did not differ between subgroups based on comorbidities and risk factors. In patients with advanced stage (NYHA III-IV) compared to early stage HF (NYHA I-II), significantly higher levels of all four biomarkers were measured (median values; sST2: 24.8 vs. 14.5 ng/ml; GAL3: 1.1 vs. 0.8 ng/ml; ACE2: 110.1 vs. 91.9 mU/L; NT-proBNP: 3956 vs. 982 ng/L; $p<0.05$). A correlation was detected between each biomarker and the LVEF. However, the value of the correlation coefficient for the new variables created by combining biomarkers (multiplication, sum) was higher than when the biomarkers were tested individually. The regression models created with these variables fitted the LVEF data set better than the model including NT-proBNP alone.

Conclusions: Based on our regression analysis, monitoring of other HF biomarkers (or combinations of them) in addition to NT-proBNP, contributes to a more accurate prediction of LVEF, which may be of prognostic significance.

Co-morbidities – a particular problem in the group of patients with valvular heart disease.

Michał Kuźma, Katarzyna Maciorowska, Monika Lewkowska, Maciej Łapiński

Presenting author: Michał Kuźma

Tutors: Łukasz Kuźma, MD, PhD

Affiliations: Medical University of Białystok

Introduction: Acquired valve defects remain a common cause of morbidity and mortality. They are a diagnostic challenge in all age groups, and due to their etiology, they are often associated with multi-morbidity.

Aim of the study: Assessment of frequency of selected co-morbidities with particular focus on patients with acute coronary syndromes (ACS) in the population of patients with valvular heart disease.

Materials and methods: The study population included 2589 patients with valvular heart disease. The study was conducted at the Department of Invasive Cardiology of the Medical University of Bialystok between 2006 and 2016. The analysis of clinical data was performed using XL Stat and MS Excel. A p-value <0.05 was considered statistically significant.

Results: The average age of the analyzed group was 69.69 years (SD=10.68), with the highest percentage of patients in the range from 60 to 75 years of age. Hypertension was found in 70.49% (N=1825), hyperlipidemia was reported in 60.14% (N=1557), heart failure in 59.31% (N=1475), atrial fibrillation in 39.82% (N=1031) in patients with valvular heart disease. In the study group, 18.69% of patients(N=484) had a history of ACS, of which 63.64% (N=308) were patients with MVI. Among acute coronary syndromes, NSTEMI (11.2%, N=290) prevailed over STEMI (8.77%, N=227). In the case of MVI defect, the difference between patients with previous STEMI and NSTEMI is not noticeable, unlike in the case of other valve defects (AVS, AVI, MVHD), where the number of patients with a history of NSTEMI is on average twice as high as the number of patients with a history of STEMI. Most PCIs were performed in the group of patients with MVI.

Conclusions: Among patients with valvular heart disease, the most common defect was mitral regurgitation and the most common coexisting disease was hypertension. Patients with MVI have the greatest burden of coronary artery disease, which results from the etiology of this defect.

D-dimer levels in patients with COVID-19: a single centre study.

Joanna Wojtania

Presenting author: Joanna Wojtania

Tutors: Anna Polanska, MD; Lukasz Chrzanowski, MBBS, MD, University Professor of Medicine

Affiliations: Medical University of Lodz, Poland

Chair and 1st Department of Cardiology, Medical University of Lodz. Poland; Director: Professor Jaroslaw D. Kasprzak, MD, PhD

Introduction: Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), an etiologic factor of coronavirus disease 2019 (COVID-19), has induced an ongoing world health crisis. In affected patients (pts), thromboembolic disease is known to present among primary lung involvement complications. Although D-dimer testing has traditionally been applied in the diagnostic strategy of acute pulmonary embolism (PE), the levels may also be elevated in response to infection or inflammatory disease.

Aim of the study: The aim of the study was to provide the characteristics of D-dimer plasma levels in pts with COVID-19 admitted to the single cardiology centre.

Materials and methods: Consecutive pts hospitalized from October through December, 2020 were included, all with non-critical COVID-19 at baseline. D-dimer tests were performed on admission and subsequently, as needed for medical management. The age-adjusted cut-off was used: age x 10 μgFEU/L, for patients aged >50 years, and 500 μgFEU/L otherwise. PE diagnosis was established by multidetector computed tomography pulmonary angiography (CTPA).

Results: Data from 195 pts were available, with mean age of 68 years, median 70 years (range 18-91 years), 128 (66%) men. In the majority of the entire study population, 160 pts (82%), D-dimer values on admission were increased; subsequent measurements in 170 pts (87%) reached a peak level with a mean of 9025 μgFEU/L and standard deviation (SD) 20535 μgFEU/L, median 2298 μgFEU/L (interquartile range 996-6632 μgFEU/L). Acute PE was identified in 45 pts (23%) with mean age of 65 years, 35 (78%) men vs mean age of 69 years, 93 (62%) men in remaining pts without PE. There was statistically significant difference between D-dimer peak level measured in the subsets with and without PE: mean 18797, SD 25307 μgFEU/L, median 7497 μgFEU/L (interquartile range 3608-21548 μgFEU/L) and mean 6094, SD 17957 μgFEU/L, median 1700 μgFEU/L (interquartile range 877-4878 μgFEU/L), respectively, $p<0.00001$.

Conclusions: Although not representative for broader populations, the data indicate that in most non-critical COVID-19 pts D-dimer levels are elevated from the time point of hospital admission. Those with acute PE on CTPA demonstrate significantly more increased D-dimer concentrations comparing to pts without acute PE, however wide dispersion within measurement datasets has been noticeable.

Sacubitril/valsartan (ARNI) improves clinical and haemodynamic parameters in patients awaiting heart transplantation

Edward Kothalawala

Presenting author: Edward Kothalawala

Tutors: M.D. Ph.D. habil. Attila Borbély; M.D. Arnold Péter Ráduly

Affiliations: University of Debrecen

Introduction: Heart transplantation (HTX) remains the definitive treatment for advanced and end-stage (NYHA III-IV) heart failure (HF). Angiotensin receptor neprilysin inhibitor (sacubitril/valsartan, ARNI) is a new therapeutic option for the treatment of systolic HF, which significantly reduces HF hospitalization and mortality compared to conventional renin-angiotensin-aldosterone system (RAAS) acting agents (ACE inhibitors, ARBs). There is insufficient data available regarding the haemodynamic effects of ARNI in end-stage HF.

Aim of the study: To assess the laboratory, echocardiographic and haemodynamic parameters relevant to HF of patients who are on the verge of being placed on the HTX waiting list, and those already on the waiting list at the University of Debrecen Clinical Center, Department of Cardiology and Cardiac Surgery between 2018-2021. In each case, the assement was done both before and after the transition to ARNI.

Materials and methods: To assess drug efficacy, left ventricular ejection fraction (LVEF, echocardiography), NT-proBNP plasma levels and haemodynamic parameters (Swan-Ganz catheterization, SG) were determined. Statistics: paired t-test, $p<0.005$.

Results: During the study period, there were 10 patients on the HTX waiting list (or on the verge of being placed on the waiting list) who were transitioned to ARNI therapy (2 women, 8 men; mean age 57.8±7 years, etiology of HF: 50% dilated, 50% ischemic cardiomyopathy). Plasma NT-proBNP levels were unchanged. In contrast, LVEF (26.2±3.4% vs. 23.8±2.5%, $p=0.02$), pericardial volume measured with SG catheterization (CO: 4.7±1.2 L/min vs. 3.8±0.8 L/min; $p=0.017$), and left ventricular blood volume (SV: 69.4±21.3 mL vs. 55.3±15.7 mL; $p=0.007$) were significantly increased and systemic vascular resistance (SVR: 1210±274 vs. 1574±340 DS/cm5); $p=0.005$) was significantly decreased after switching from an ACE inhibitor or ARB to ARNI. Central venous pressure (CVP), pulmonary arterial systolic and diastolic (PAPs and PAPd), pulmonary capillary wedge pressure (PCWP) and pulmonary vascular resistance (PVR) remained unchanged after switching to ARNI.

Conclusions: ARNI has a beneficial effect on clinical and haemodynamic parameters in patients with advanced heart failure. This novel drug therapy contributes greatly to the improvement and stabilization of the condition of this vulnerable group of patients.

When technology meets cardiology - artificial intelligence in assessing the therapeutic effectiveness of cardiac resynchronization therapy

Daniel J. Rams, Nikola Fajkis-Zajączkowska, Mariusz Mąsior, Rafał Samborski

Presenting author: Daniel J. Rams

Tutors: Nikola Fajkis-Zajączkowska - PhD Candidate; Rafał Samborski, PhD

Affiliations: Cardiomatics, 31-339 Cracow, Poland,

Jagiellonian University Medical College

Introduction: Among the many cardiovascular diseases, heart failure is a growing problem amongst aging populations around the world, affecting up to one in ten patients over the age of 70. According to the guidelines of the European Society of Cardiology, for the management of heart failure with reduced ejection fraction, pharmacological treatment should be implemented first followed by cardiac resynchronization therapy (CRT) to maintain electrical cardiac function and avoid further possible hemodynamic consequences. Evaluating the effectiveness of therapy is much more difficult with CRT because it requires time-consuming analysis of diagnostic imaging results from processes such as electrocardiography (ECG) and echocardiography.

Aim of the study: Due to the increasing amount of data involved in cardiac treatments, the aim of this study was to automate the process for assessing the effectiveness of CRT using artificial intelligence (AI) from patients' ECG signals.

Materials and methods: For this purpose, 1241 short half-minute ECG recordings from adult patients with a mean age of 68.6 ± 14.5 were used. They were assigned by senior cardiologists to four different classes of CRT stimulation – effective, ineffective, the patient's own rhythm and a control group. Each signal was then processed by an algorithm that segmented the recording into smaller 2-second windows that indicated R-wave-based heartbeats. This allowed each window to be given an appropriate label indicating the effectiveness of CRT pacing. The resulting database was used to train the deep convolutional neural network in different clinical scenarios. Verification of the algorithm was performed on 31 randomly selected Holter signals.

Results: The automation of the process which had previously been predicted was achieved during the study. The algorithm was programmed to detect a successful recording of CRT pacing, for which 99.2% sensitivity and 92.4% precision were achieved. Due to their questionable quality, 2.6% of the ECG recordings were excluded.

Conclusions: Continuous advances in technology are creating more and more opportunities to improve daily clinical work. Given the sensitivity and specificity obtained in this study, there are good reasons to believe that using AI to assess the efficacy of CRT can be beneficial in the daily practice of clinicians. Optimizing this process will allow the largest possible group of patients to benefit from CRT while also saving clinicians’ time.

A Retrospective Comparative Study of Risk Factors on Frailty Patients Cohort Presenting Atrial Fibrillation

Andrada-Georgiana Nacu

Presenting author: Andrada-Georgiana Nacu

Tutors: Lecturer Dr. Maria Cristina Tatar

Affiliations: University of Medicine, Pharmacy, Science and Technology Targu Mures

Introduction: Atrial Fibrillation is an arrhytmia, which is charactarized as an irregular and very rapid heart rhythm, that can lead to blood clots formation in atrium. This patology increases the risk of stroke, heart failure and other complications.

Frailty defines a group of older people, who present a high risk of adverse outcomes as falls, disability, frequently hospital admissions and also, long-term care necessity.

Aim of the study: The aim of this study was to compare the effects of different parameters and risk factors on atrial fibrillation evolution in two groups of patients – pre-fragile and fragile.

Materials and methods: In this retrospective study was included a cohort of 255 patients with atrial fibrillation (197 over 60 years old and 57 under 60 years old), who were hospitalized in Targu Mures Emergency Clinical Hospital during 2019-2021. Collected data of pre-fragile and fragile patients consisted of: age, body mass index, cholesterol, creatinine, chronic smoking and cardiovascular pathology history. In addition, we tried to divied the patients in two groups and to compare the medical differences between them according to atrial fibrillation evolution.

Results: In the group of patients over 60 years old, the rate of chronic smokers was about 56,1 % comparing with those under 60 years old- 50.9% (p value -0.488). According to cardiovascular pathology history, patients under 60 years old had a higher rate – 63,2 % than the other group- 60% (p value - 0.780). The cholesterol rate was higher in patients under 60 years old- median 4.62, while in the oder group, the median was 3.78. The creatinine level was almost the same in both groups with a median of 1.01.

The body mass index was about the same in both groups (median 29.5).

Conclusions: Atrial fibrillation is highly associated with chronic smokers and cardiovascular patology history. Both pre-fragile and fragile patients groups have some risk factors, but there are not significant differences according to some relevant medical parameters. We can state that, for atrial fibrillation development, cardiovascular history and smoking are highly incriminated, regardless of the age of patients.

Predictive factors of exercise capacity improvement in patients following myocardial infarction after 3-month cardiac rehabilitation program in Poland – single-center experience.

Alicja Skrobucha, Julia Haponiuk Skwarlińska, Agata Antoniak, Michalina Ciurla

Presenting author: Alicja Skrobucha

Tutors: Dominika Klimczak Tomaniak, MD, PhD

Affiliations: Students' Scientific Association at the Department of Cardiology, Arterial Hypertension and Internal Medicine, Faculty of Medicine, Medical University of Warsaw, Mazovian Bródno Hospital, Warsaw, Poland.

Department of Cardiology, Arterial Hypertension and Internal Medicine, Faculty of Medicine, Medical University of Warsaw, Mazovian Bródno Hospital, Warsaw, Poland.

Introduction: According to ESC 2021 Guidelines participation in a medically supervised, structured, comprehensive cardiac rehabilitation (CR) after atherosclerotic cardiovascular disease events, including myocardial infarction (MI), is recommended to improve patients outcome. Modifiable, life-style, cardiovascular risk factors including smoking, obesity, hypercholesterolemia, diabetes mellitus etc. may play a role in prediction the patients functional activity improvement after the cardiac rehabilitation (CR) program, which is monitored by the exercise capacity (measured by metabolic equivalents [METS]).

Aim of the study: We aim to assess the effect of life-style predictive factors on the MET increase in patients following MI and a 3-month CR program.

Materials and methods: Initially, a retrospective data was collected from 104 patients with MI enrolled into the CR program in one cardiology department between August 2021 and March 2022, but finally only for 45 the 3-month follow-up was complete. All patients were submitted to exercise testing before and after CR (36 sessions, 2-3 times/week). The final study group was assessed for the following risk factors: sex, BMI, smoking, diabetes mellitus (DM), lipid profile, hypertension as well as the ejection fraction (EF) in the post-MI period. All the patients were subjected to the exercise test and laboratory tests at the beginning of CR and after 3-month CR. All specimens were examined at the local laboratory. Statistical analysis was performed with a use of SPSS program. Statistical significance was assumed for P values of less than 0.05.

Results: The study group consisted of 7 females (15%) and 38 males (85%) and 33% of which presented with BMI>30(n=15), 15(33%) of the patients were current smokers and 23(51%) quit smoking in the past, 9(20%) patients had DM, 23(51%) had hypercholesterolemia (defined as LDL >115 mg/dl) and 25(55%) had hypertension. The mean age was 61,49±1,09 years old, mean ejection fraction (EF)=48,96±8,00% and mean LDL=110,38±34,77 mg/dl. None of the patients died during the 3-month program. We found a significant increase in MET after 3 months in the study population (mean, ±SD) 6.15±1.45 to 6.62±2.00(p=0.02). Significant improvement was also observed for subgroups including: male patients 6,33±1,37 to 7,01±1,68(p<0,001); non-obese patients with BMI<30 6,26±1,33 to 6,85±1,63(p<0,001); smokers 6,02±1,56 to 6,73±1,94(p<0,001); patients with hypercholesterolemia 6,45±1,44 to 7,18±1,78(p<0,001) and patients with hypertension 5,79±1,48 to 6,49±1,78(p<0,001). Females, non-smokers, patients with BMI>30 showed no significant increase.

Conclusions: Exercise capacity of patients who pursue comprehensive CR program after MI improves irrespectively of DM or hypertension. Modifiable risk factors such as smoking and obesity may influence the rehabilitation functional outcome among patients after MI during comprehensive care program.

DERMATOLOGY

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Coordinators:

Layal Salame

Klaudia Kożuchowska

Jury:

Prof. Joanna Narbutt, MD, PhD

Prof. Agnieszka Żebrowska, MD, PhD

Małgorzata Skibińska, MD, PhD

Cutaneous mastocytosis in paediatric patients - retrospective evaluation

Klaudia Lipińska, Natalia Bień

Presenting author: Klaudia Lipińska

Tutors: Prof. Aleksandra Lesiak, MD, PhD; Justyna Ceryn, MD

Affiliations: Medical University of Lodz

Introduction: Cutaneous mastocytosis (CM) is a rare medical condition that appears in approximately 1 per 10 thousand people. It is caused by the abnormal accumulation of mast cells in the skin. It can be divided into three types: mastocytoma, maculopapular CM and diffuse CM, that differ in number of lesions and severity of symptoms.

Aim of the study: The aim of our research was to perform a retrospective analysis of the paediatric patients with confirmed or suspected cutaneous mastocytosis who were admitted to the dermatological department between 2017 and 2021. Moreover, the aim was to raise the awareness of the need of an individual clinical approach to patients with cutaneous mastocytosis.

Materials and methods: 84 pediatric patients, who were being diagnosed with cutaneous mastocytosis, were enrolled in our study. The acquired data were analyzed for different factors such as age, gender, comorbidities, presence of Darrier's sign, results of skin biopsies, and some laboratory findings such as the level of serum tryptase, cholesterol fractions, creatinine and total bilirubin.

Results: Out of the 84 children included in our research there were 51 males (60.7%) and 33 females (39.3%). The mean age in the group was 2.13 years. The diagnosis was confirmed by the results of skin biopsies or typical clinical image in 73 patients (86.9%). Out of that, there were 18 patients with mastocytoma and 55 with maculopapular CM. 31 of diagnosed patients had positive Darier's sign. The mean level of serum tryptase was 9.06 ug/l (norm 1-10 ug/l). It was higher in patients with urticaria pigmentosa than in patients with mastocytoma and higher in patients with earlier onset of the disease (≤2 years of age). The most common comorbidities were atopic dermatitis and anemia.

Conclusions: According to our study, a more common type of cutaneous mastocytosis is urticaria pigmentosa. Skin biopsy is an important tool in diagnosis of cutaneous mastocytosis. Every patient with cutaneous mastocytosis must be observed regarding systemic type. Due to the high risk of allergic reactions and presence of skin lesions in the systemic mastocytosis, patients with cutaneous mastocytosis need the interdisciplinary approach during the diagnostic and treatment period.

The effectiveness of the omalizumab therapy on patients with chronic spontaneous urticaria - own experiences

Natalia Bień, Klaudia Lipińska

Presenting author: Natalia Bień

Tutors: Prof. Aleksandra Lesiak, PhD, MD; Irmina Olejniczak-Staruch, PhD, MD

Affiliations: Department of Dermatology, Paediatric Dermatology and Oncology, Medical University of Lodz

Introduction: Chronic spontaneous urticaria (CSU) is a common disease, which is defined as the spontaneous development of itchy hives and/or angioedema due to unknown causes that last for at least 6 weeks. It is reported that CSU impacts quality of life (QoL) more than coronary artery disease or respiratory allergy. The only approved drug for antihistamine refractory CSU is omalizumab which is a recombinant, humanised anti-immunoglobulin-E antibody. The refund of therapy with omalizumab in Poland has been available since January 2020 for up to 6 months of treatment.

Aim of the study: The aim of the study was to perform retrospective analysis of the patients with chronic spontaneous urticaria treated with omalizumab in the Department of Dermatology, Paediatric Dermatology and Oncology, Medical University of Lodz.

Materials and methods: A two-year retrospective analysis of patients with a chronic spontaneous urticaria undergoing the therapy with omalizumab was conducted. Patients' data were analysed for age, gender, medical diagnosis (ICD-10), severity indexes (UAS7, DLQI), duration and effects of the therapy with omalizumab, comorbidities and results of the diagnostic tests.

Results: 34 patients with chronic spontaneous urticaria have been treated with omalizumab in the dermatological department since the beginning of 2020. The number of female patients -23 (67.65%) significantly dominated over the number of male patients -11 (32.35%). Mean age among admitted patients was almost 44.5 years. The mean UAS7 at the beginning of the treatment was 33.05 and 1.46 after 6 months of treatment. Moreover, the mean DLQI at the beginning of the treatment was 18.59, and after 6 months of therapy 1.42. From 29 patients that have already ended a cycle of a 6 month therapy, 22 (64.71%) of them have to restart a therapy due to the exacerbation of the skin lesions after omalizumab withdrawal. The mean length between end of treatment and readmitting omalizumab was 2.7 month. Comorbidities such as thyroid diseases, mental disorders or atopic diseases have been reported in 24 (70.59%) patients.

Conclusions: Our study confirmed that omalizumab is an effective medicine, which improves physical, as well as psychological condition of the patients with antihistamine resistant CSU. Due to the high number of patients with the worsening of the skin symptoms after withdrawal of the drug, extension of the length of refunded therapy should be definitely considered. The common comorbidities observed during the course of CSU such as atopic diseases have been observed in our patients, too.

Acne during covid 19 - the effect of pandemic and quarantine on skin care of patients with acne.

Patrycja Niewinna, Aleksandra Kuźniar

Presenting author: NOT PRESENTED

Tutors: Prof. Adam Reich, MD, PhD

Affiliations: Dermatology Scientific Circle, Colegium of Medical Sciences, University of Resovia

Introduction: Acne vulgaris is a chronic, inflammatory disease of pilosebaceous unit, that is caused by the increased production of sebum. It is one of the most common diseases in the World and affects about 85% of people between 12 and 25 years of age. Moderate to severe cases constitute 15 – 25% of all.

Materials and methods: A total of 484 respondents were included in the study (female – 97%, male – 3%). A self-administered online questionnaire was applied using Google Forms. It contained 25 closed questions. The first 4 were about gender, age, residence and education. The another 21 concerned the studied problem. The study group included patients who suffered from acne before the pandemic and people who developed it during the pandemic (from March 2020).

Results: During the COVID-19 pandemic 43% of respondents started acne treatment for the first time and 32.4% of respondents report the change of previous dermatological treatment, that they found inefficient. In addition, 76.9% of respondents increased their interest in the subject of acne, 81.5% of respondents increased their spending on skin care products, and 70.5% of respondents began to pay more attention to the composition of this products.

Conclusions: The conducted research confirms, that the restrictions introduced during the COVID pandemic 19 (face masks, social restrictions) had a significant impact on the skin condition of patients with acne, so as their care habits. Patients' interest in the subject of acne and involvement in the treatment has increased significantly, that is a positive trend.

Evaluation of methods for dealing with acne vulgaris and the satisfaction with the results of dermatological treatment in secondary school adolescents – a survey study

Urszula Kobus, Julia Nizgorska

Presenting author: Urszula Kobus

Tutors: Magdalena Trzeciak, MD, PhD, prof. GUMed

Affiliations: Dermatological Students Scientific Association, Department of Dermatology, Venereology and Allergology, Faculty of Medicine, Medical University of Gdansk,

Department of Dermatology, Venereology and Allergology, Faculty of Medicine, Medical University of Gdansk

Introduction: Acne vulgaris is a common, chronic inflammatory skin disease that can affect people at any age, but most often between 15 and 19 years of age.

Aim of the study: The aim of the study was to determine methods of treatment of acne vulgaris in adolescents in secondary school and the type of recommended treatment as well as to evaluate the regularity of use and the satisfaction with the results of dermatological treatment.

Materials and methods: An anonymous survey was conducted using Google Forms. A total of 112 secondary school students, of both genders, unaffected and acne-affected individuals participated in the study. Statistical analysis was performed using the chi-square test, assuming a statistical significance level of $p<0,05$.

Results: 112 respondents participated in the study – 82 women (73,2%) and 30 men (26,8%). The median age was 16,875 years. At the time of the study, 62 patients (55,4%) had acne vulgaris, and 19 patients (17%) could not say whether they had this disease. 54 respondents (48,2%) sought medical advice due to acne vulgaris. Fifty of these patients (92,6%) had been prescribed treatment – 47 patients (94%) received topical treatment, 21 patients (42%) received oral antibiotics, 12 patients (24%) received oral isotretinoin and 1 patient (2%) received hormonal contraceptives. 26 patients (52%) reported taking medications exactly as prescribed, 20 patients (40%) rarely missed the dose and 4 patients (8%) reported taking the medicines irregularly. The most common reasons for irregular use were forgetting to take the medicine (16 people), experiencing side effects such as dryness, deterioration of skin condition (14 people), 5 people felt that the treatment was not successful and 2 people said that they did not like the form of the medicine. Average satisfaction with treatment on a scale of 1 to 10 was estimated to be 6,22.

Conclusions: Emphasizing the importance of regular use of treatment and educating patients about possible side effects of the therapy may help to achieve more systematic use of treatment. When choosing the type of treatment, the form of the medicinal product should be adapted to the patient's preferences as far as possible.

Atopic dermatitis during the COVID-19 pandemic: a web-based survey

Weronika Zysk

Presenting author: Weronika Zysk

Tutors: Magdalena Trzeciak, MD, PhD, prof. of University;

Affiliations: Medical University of Gdańsk, Poland

Introduction: Atopic dermatitis (AD) is a chronic inflammatory skin disorder with periods of remissions and exacerbations. Strong emotions and stressful events are mentioned among the factors exacerbating the course of AD. Psychosocial stress induced by the current pandemic can potentially lead to exacerbations of AD.

Aim of the study: The study aimed to examine the effects of the COVID-19 pandemic on the disease condition of AD in adult and pediatric patients.

Materials and methods: The study was based on an anonymous questionnaire consisting of 17 questions prepared by the authors. A total of 90 AD patients responded to the survey.

Results: The population was made up of 74 (82.2%) females and 16 (17.8%) males. The mean age of participants was 24.7 years. Answers show that 55.6% of patients reported worsening AD during the COVID-19 pandemic. Deterioration of mental health was noticed by 62.2 % of respondents. Among all the respondents 82.2% reported that they experienced negative feelings about the COVID-19 pandemic. The most common were anxiety, depressed mood, and irritability present in 62.2%, 47.8%, and 46.7%, respectively. About 26.4% of the patients reported an increase in alcohol consumption and smoking. Topical treatment and systemic therapy were used by 95.6% and 30% of patients, respectively. 34.4% of patients discontinued or reduced the dosage of the prescribed treatment without consulting the doctor. 41.1 % of patients tested positive for SARS-CoV-2 and 40.5% of them experienced an exacerbation of AD symptoms during the infection.

Conclusions: The COVID-19 pandemic had a negative impact on the course of AD. Factors that could have negatively influenced the course of AD were forced life changes and increased psychosocial stress, which could lead to an exacerbation of AD and could also expand the psychological problems of such patients.

Could YouTube serve as a source of information for hidradenitis suppurativa treatment?

Zuzanna Świerczewska, Miłosz Lewandowski

Presenting author: Zuzanna Świerczewska

Tutors: Prof. Wioletta Barańska – Rybak, MD, PhD

Affiliations: Practical and Experimental Dermatology Scientific Circle at the Department of Dermatology, Venereology and Allergology, Faculty of Medicine, Medical University of Gdansk;

Department of Dermatology, Venereology and Allergology, Medical University of Gdansk

Introduction: Hidradenitis suppurativa (HS) is a chronic, inflammatory skin disease characterized by the significant decrease in the patients' quality of life. Due to the enormous IT development made in recent years, patients are increasingly looking for information about hidradenitis suppurativa on social media, including YouTube. However, in the literature the quality of the videos focused on other diseases has been often scored as poor.

Aim of the study: The aim of the study was to evaluate the usefulness and the quality of HS YouTube videos.

Materials and methods: YouTube was searched for the keywords 'hidradenitis suppurativa' and 'acne inversa'. For videos quality assessment validated DISCERN instrument and the Global Quality Score were applied. The popularity of each video was evaluated using the Video Power Index score.

Results: After applying the exclusion criteria, 34 videos were analyzed. We found that video quality was poor regardless of video type. The mean DISCERN score between the raters was 34.65 ± 10.7, and the mean GQS score was 2.6 ± 0.98. There was no significant correlation between the DISCERN, GQS and Video Power Index, the number of views, likes, dislikes, comments, and video duration. However, healthcare source videos had notably higher GQS scores – 2.9 mean than non-healthcare source ones – 2.15 mean ($p=0.044$).

Conclusions: Our study highlights the relatively high interest in HS among YouTube users and the gaps of knowledge regarding hidradenitis suppurativa treatment on this platform. The conducted study can be useful to create superior educational content in social media in the future.

The assessment of the effectiveness of etanercept treatment in paediatric patients with plaque psoriasis

Emilia Knez, Paulina Ziewiec-Gronowska

Presenting author: Emilia Knez

Tutors: Prof. Aleksandra Lesiak MD, PhD; Katarzyna Paczyńska MD

Affiliations: Department of Dermatology, Paediatric Dermatology and Oncology, Medical University of Lodz, Poland

Introduction: Psoriasis is a chronic, autoinflammatory skin disease. The social and psychological impact of psoriasis on life is significant. Most important role in effectiveness of the treatment is based on the knowledge of the pathogenesis of this disorder. Etanercept is the only biologic therapy available for reimbursement under the B.47 drug program for psoriasis in the paediatric population. It is a fully human monoclonal antibody which inhibits activity of tumor necrosis factor (TNF) and reduces the inflammatory response.

Aim of the study: The aim of the study was to assess the efficacy and safety of etanercept in paediatric patients with moderate-to-severe plaque psoriasis.

Materials and methods: A retrospective analysis in patients between 6 to 17 years old, treated with etanercept (50 mg per week). Response to the treatment was assessed according to Psoriasis Area and Severity Index (PASI), Body Surface Area (BSA) and Children's Dermatology Life Quality Index (CDLQI). Safety was evaluated on adverse event reports gathered in each patient's medical records. The primary endpoint was 75% or higher of the improvement from baseline PASI at week 16. Reasons for discontinuation were classified as ineffectiveness, serious adverse events, or other reasons.

Results: Our study population involved 24 patients - 13 female (54%) and 11 male (46%). Patients were hospitalized every three months. During each stay laboratory tests were performed and PASI, BSA and CDLQI were recorded.

At the end of the 16-week therapy, the mean percentage improvement shown by each measure varied, ranging from 17 to 2 (PASI), 24 to 4 (BSA) and 17 to 5 (DLQI). At week 16, 87,5% of patients receiving etanercept achieved PASI 75 and 58% of all PASI 90. Adverse events were not reported. Two patients (8%) discontinued the treatment due to insufficient response to therapy and three patients (12,5%) turned 18 years old during the study which excluded them form the study. Following re-evaluations are going to take place in the 40th, 64th and 88th weeks.

Conclusions: Etanercept was an effective and well-tolerated treatment in our group of patients. Significant improvement of the quality of life as well as reduction of skin lesions was observed. Numerous biologic drugs have been introduced recently but there is still limited data on the efficacy of them in psoriasis in children. Our retrospective study shows that registration of biologic treatment vastly improves clinical condition and quality of life of children with moderate to severe plaque psoriasis.

Autoimmune bullous skin disorders - retrospective cohort study

Laura Eliszewska, Adrianna Pyrek, Natalia Rutecka

Presenting author: Laura Eliszewska

Tutors: Agnieszka Owczarczyk-Saczonek, MD, PhD, prof. UWM; Prof. Waldemar Placek, MD, PhD

Affiliations: Medical University of Olsztyn

Introduction: Autoimmune bullous disorders is a group of chronic diseases. Bullous pemphigoid is the most common autoimmune bullous disease of all, affecting mainly elderly people in the 8th decade of life, without gender predilection. Pemphigus manifests usually between 45 and 65 years of age, with a female predilection reported in most epidemiological studies.

Aim of the study: Assessing the prevalence of bullous diseases with respect to their types in different age groups, coexistence with neoplasms and other diseases.

Materials and methods: Retrospective analysis of medical histories of patients hospitalized in the Department of Dermatology, Sexually Transmitted Diseases, and Clinical Immunology at the University of Warmia and Mazury in Olsztyn with a diagnosis of bullous diseases between 2015 and 2021.

Results: 72 patients diagnosed with autoimmune bullous diseases were treated in the Department of Dermatology from 2015 to 2021. The mean age of patients was 76 years for pemphigoid diseases and 58 years for pemphigus. A causative agent such as drugs or consumption of bulbous plants was suspected in 10 patients (13.9%). Coexisting neoplasms were present in 11 patients (15.3%). The subjects also had comorbidities, the most common of which was hypertension (23 patients).

Conclusions: The study confirmed most of the epidemiological data: bullous pemphigoid mainly affects the elderly, in the 8th decade of life, while pemphigus usually manifests itself before the age of 65. Symptoms can be provoked by external factors such as drugs, pathogens, UV light, diet, and stress. They can also coexist with other autoimmune and cardiovascular diseases.

Interleukin-17 Genes Polymorphisms are Significantly Associated with Cutaneous T-cell Lymphoma Susceptibility

Karol Kołkowski, Berenika Olszewska, Monika Zabłotna

Presenting author: Karol Kołkowski

Tutors: Małgorzata Sokołowska-Wojdyło MD, MSc, PhD, Proffesor; Jolanta Gleń MSc, PhD

Affiliations: Dermatological Students Scientific Association, Department of Dermatology, Venerology and Allergology, Faculty of Medicine, Medical University of Gdansk, Poland;

Department of Dermatology, Venereology and Allergology, Faculty of Medicine, Medical University of Gdansk, Poland;

Introduction: Tumor microenvironment has an important effect on the progression of cutaneous T-cell lymphomas (CTCLs).

Aim of the study: The aim of the study was to establish, whether certain interleukin-17 (IL-17) genes variants are significantly more frequent in patients having CTCLs.

Materials and methods: Using the polymerase chain reaction with sequence-specific primers (SSP-PCR), we have analyzed the single nucleotide polymorphisms (SNPs) in the IL-17 genes of 150 CTCL patients.

Results: GG homozygote rs8193036 A/G of interleukin 17A gene has occurred less commonly in CTCL group, however, patients with this SNP experienced significantly intensive pruritus. On the other hand, the rs2397084 AG heterozygote of IL-17F has been more common in the lymphoma population. Also, we have noticed significant differences in the IL-17 genotypes frequency when comparing first (Ia and Ib) and next stages (II, III and IV) of this neoplasms. A similar result has been shown in comparison between Sézary syndrome and other lymphomas.

Conclusions: Presented data may serve as one of the possible explanations for the increased bacterial infection rates in the course of CTCL, especially caused by Staphylococcus aureus. In summary, we have shown that specific SNPs occur with different frequencies between CTCL and healthy patients. Moreover, genetic predisposition of several IL-17 SNPs may be one of the factors causing impaired immune defense in cutaneous lymphomas.

Cutaneous adverse drug reactions (CARDs) - statistical analysis of the causal relationship between the drug, comorbidities, cofactors and the cutaneous reaction.

Natalia Joanna Machoń, Julia Alicja Lewandowska

Presenting author: Natalia Joanna Machoń

Tutors: Waldemar Placek, Professor, MD, PhD, DSc

Affiliations: Student Research Circle of Dermatology and Venereology, Collegium Medicum, University of Warmia and Mazury in Olsztyn, Poland

Department of Dermatology, Sexually Transmitted Diseases and Clinical Immunology, The University of Warmia and Mazury in Olsztyn, Poland

Introduction: Cutaneous adverse drug reactions (CARDs) are the most common types of drug hypersensitivity reactions. They can manifest in different ways depending on the drug administered, comorbidities or cofactors.

Aim of the study: The purpose of this study is to retrospectively evaluate the clinical spectrum of CADRs in patients over the past 10 years and to determine the causal relationship between the drug, comorbidities, cofactors and the cutaneous reaction.

Materials and methods: A retrospective hospital-based study over a period of 10 years was carried out at the Department of Dermatology, Sexually Transmitted Diseases and Clinical Immunology at the University of Warmia and Mazury in Olsztyn to record various CADRs, comorbidities, cofactors, and the suspected drug of the hospitalized patients. Only drugs having certain and probable causal association to the reaction were considered for analysis. The data was subjected to statistical analysis.

Results: The total 140 patients (32.14% males and 67.86% females) were diagnosed as CADRs. The mean age was 66.33 years. Observed ADRs include maculopapular rash 23.57%, drug-induced hypersensitivity syndrome 37.14%, drug - induced urticaria 12.86%, erythema dyschromicum perstans 9.29%, erythema multiforme 5.00%, acute generalized exanthematous pustulosis 2.86%, post - drug phototoxic and photoallergic reactions 2.86%, symmetrical drug - related intertriginous and flexural exanthema 2.86 %, Stevens - Johnson syndrome 2.14%, drug - induced vasculitis 1.43%. The most common drugs suspected of causing CARDs were Allopurinol 12,86%, Amoxicillin with clavulanic acid 10%, Amoxicillin 9.29%, Paracetamol 6,43%, Metronidazole 5%, Carbamazepine 5%.

Conclusions: Drugs that have a higher incidence of CADRs are prescribed on a wide scale. Attention should be given to the possibility of using a substitute if CADRs arise, or discontinuing a drug that is unjustifiably overused.

GYNECOLOGY AND OBSTRETRICS

12th of May 2022

Coordinators:

Julia Stokowiec

Martyna Grabowska

Jury:

Prof. Agata Karowicz-Bilińska, MD, PHD

Prof. Piotr Sieroszewski, MD, PHD

Prof. Małgorzata Świątkowska-Freund, MD, PHD

Vulvar cancer – still silent killer?

Aleksander Rycerz, Mateusz Lec, Konrad Molisak

Presenting author: Aleksander Rycerz

Tutors: Maria Szubert, MD, PhD, Anna Nowak, MD

Affiliations: Students Science Club at 1st. Department of Gynecology and Obstetrics Medical Univesity of Łódź;

Medical Univesity of Łódź

Introduction: Vulvar cancer belongs to the group of malignant neoplasms that occur relatively seldom and make 1% among women, still in recent years an increasing trend in the incidence of this cancer has been noticed. The peak (of morbidity) affects women between 60 and 75.

Aim of the study: The aim of the study was to investigate risk factors, treatment protocols, treatment outcomes, the prevalence of histopathological types and the quality of life of patients with vulvar lesions.

Materials and methods: The case-control study involved 138 patients hospitalized in 2010-2020 at the Department of Surgery and Gynecological Oncology, Medical University in Łódź. The follow-up was carried out in the form of a telephone survey. The patients were divided into two groups: with benign lesions (Gr.B) and malignant (Gr.M).

Results: Among 138 women hospitalized for changes at vulva, 43 (31.16%) had malignancies and 95 (68.84%) had benign lesions. Squamous cel carcinoma is often described in group M and diagnosed in 4.65% of women (pie chart). Vulvar melanoma as well as extramammary Paget's disease had 1 woman (2.33%) and 2 of examinated had no histopatological type classified. Keratinizing cancer subtype has been diagnosed most frequently among squamous cell carcinoma (37; 58.14%). In a telephone interview patients were asked about the change of their quality of life after hospitalization in comparison to the one before (hospitalization). Additionally, women from group were asked about further treatment after hospitalization (bar graph). In both cases statistically significant differences between the groups were not observed. ($p=0.6604$ and $p=0.9115$). 72 women were interviewed (52.17%), where 18 with malignancies (41.86 % of women with tumor) and 54 with benign lesions (56.84% of women with mild lesion). 14 women with malignancies survived (77.78%) and 4 women died (22.22%).

Conclusions: Analysis of data collected during the study allows to conclude about necessity of administering a treatment of this rare tumor of the female reproductive system by multidisciplinary gynecologic oncology team in centers which provide an appropriate equipment. Combining surgical procedures with chemo- and radiotherapy remains very essential, where surgery is the key element in the treatment of this cancer. Risk factors of vulvar cancer are highly nonspecific and their influence on the occurrence of cancer cannot be determined. Treatment undertaken does not significantly improve the quality of life of the patients therefore new forms of therapy should be sought in the treatment of both benign and malignant lesions.

Correlation of endometriosis with selected allergic and autoimmune diseases and eating habits.

Katarzyna Kwas, Aleksandra Nowakowska, Angelika Fornalczyk, Kornelia Kołodziejczyk

Presenting author: Katarzyna Kwas

Tutors: Maria Szubert, MD, PhD

Affiliations: Medical University of Łódź

Introduction: Endometriosis is a hormone-dependent chronic inflammatory disease, with serious reproductive and general health consequences. It is viewed as a multifactorial problem, facing matters related to altered immunity and genetics. Currently, it is believed that diet and lifestyle can also impact the risk of developing endometriosis, which justifies the fact that nutrition may influence the presence of inflammation in the body.

Aim of the study: Aim of this research was to determine the dependence of endometriosis and allergies or autoimmune diseases in patients in reproductive age.

Materials and methods: Patients were assessed with the use of online survey distributed on websites related with gynecological problems. The questionnaire was composed of 63 questions open and multiple-choice questions concerning the course of endometriosis, diet, allergies, and autoimmune diseases. Obtained data was assessed with statistical tests.

Results: 504 female patients (mean age 31,1 SD= 6,8) were included into the study. The control group (n=155, mean age= 27,45, SD=6,8) were healthy allergic females, whereas the study group (n=346, mean age= 32,48, SD =5,98) consisted of allergic females with endometriosis. Statistical analysis showed that positive family history influenced the study group (p=0,0002). Patients of the study group observed the allergic symptoms earlier than those in the control group (p=0,0003). Abdominal symptoms were more frequent in the study group than in the control group (p=0,00625). Also, abdominal pain lasting over 1 day per week occurred more often in the study group (p=0,0000) as well as defecation disorders (p=0,0006). Asthma was more common in the control group (p=0,00611). Group of patients with endometriosis and allergy had high median of consumption of red meat (p= 0,0143), fish (p=0,0016) and dairy products (p=0,0001).

Conclusions: Developing of endometriosis were not affected by asthma, autoimmune diseases, or their courses and endometriosis did not worsen autoimmune diseases. Dietary conditions had an influence on the occurrence of endometriosis.

Oral Contraceptive Pills – Concerns and discontinuation patterns among polish women

Katarzyna Mączka, Natalia Karpowicz, Adrian Skoczylas, Natalia Pacocha

Presenting author: Katarzyna Mączka

Tutors: Monika Grymowicz, MD, PhD

Affiliations: Medical University of Warsaw

Introduction: Over the last few decades the variety and effectiveness of contraception methods have greatly improved resulting in increased popularity of hormonal contraception. Those changing tendencies can be also observed in polish population. Oral contraceptive pills (OCPs) are reported to be the most commonly chosen pregnancy prevention measure by polish women (nearly 40% of women), surpassing even the exclusive use of condoms (25% of women). However, hormonal contraception carries the risk of multiple side effects. The lack of sufficient knowledge among female patients often leads to the development of unnecessary health concerns what can have an impact on adherence to OCPs or even result in their discontinuation.

Aim of the study: The purpose of our research was to assess most frequent concerns and reasons for discontinuation of OCPs as well as side effect profile in polish hormonal contraception users.

Materials and methods: A cross-sectional, questionnaire-based study was carried out from 29 April 2021 to 15 May 2021. The survey addressing polish women was distributed online on social media platform. The questionnaire included inquiries regarding OCPs utilization patterns, side effects, health concerns and attitude of the responders. Anonymity of participants was ensured. The statistical analysis of variables was conducted using Statistica software.

Results: The study group consisted of 1699 responders eventually included in our analysis. The majority of them (58%) were aged between 20 and 25 years. About two thirds of women admitted to current OCPs intake and 22% used them in the past. Side effects, mentioned by 79% of all OCPs users, were the main motivation for stopping hormonal birth control. Decreased libido, weight gain and mood swings were the most significant reasons. About 14% of responders reported having concerns associated with safety and potential adverse effects of taking hormonal contraception with fear of weight gain being the most common one (74% of women who had concerns). Most frequent concerns and least accepted side effects varied in different age groups. Moreover, age and level of education proved to be related to the occurrence of anxiety ($p<0.05$).

Conclusions: Health care professionals prescribing OCPs should provide their patients with comprehensive counseling regarding hormonal contraception. Understanding and addressing the concerns of young women can improve their compliance and reduce the number of unintended pregnancies. The method of contraception should be properly adjusted to patient's needs and thus serve its purpose.

Fetal Heart Biventricular Diameter/ Foot Length index as a Diagnostic Marker of Fetal Macrosomia in the Second and Third Trimester of Pregnancy

Sławomir Witkowski, Iwona Strzelecka

Presenting author: Sławomir Witkowski

Tutors: Prof. Maria Respondek-Liberska, MD, PhD

Affiliations: Collegium Medicum in Bydgoszcz

Medical University of Łódź

Introduction: Fetal macrosomia may have serious effects on both mother and newborn, so it is important to correctly evaluate the fetal weight before delivery. Fetal routine biometry, height of the fundus of uterus, interventricular septal thickness seems to be very good but still not perfect. The study presents the relation between fetal biventricular (AP) diameter and fetal foot length was elaborated in the 2nd and 3rd trimester of pregnancy.

Aim of the study: The aim of this study is to elaborate an additional ultrasound marker for the assessment of fetal weight during prenatal life and thus evaluate the weight of a newborn in a more precise manner.

Materials and methods: The analyzed group (n= 423 fetuses) was divided into 2 subgroups: Control group (n=109 fetuses) with normal biometry, normal heart anatomy and normal cardiac function, no extracardiac malformation, no extracardiac anomalies, gestational age ranged from 17.5 to 37.1 weeks of gestation, born at term with birth weight 3000-3600g, and study group of fetuses with macrosomia (n=20 fetuses). Control group was used to generate normograms on fetal AP, foot length and AP/Foot Index. The study group (n= 314 fetuses) had gestational age 17.5 - 39.5 weeks and there were 20 patients with macrosomia: neonatal birth weight was > 4000g. The MedCalc software was used to calculate the sensitivity, specificity, positive predictive value and negative predictive values.

Results: In control group the mean biventricular fetal heart (AP) measurement was 23 mm (12.9 – 38 mm) and the mean foot length was 43 mm, range min 24 - 71 mm max., the mean AP /Foot Index was 0,52, range 0.40 - 0.65. The use of standard fetal biometry, resulted in the prediction of macrosomia in 20%, the AP/Foot index in addition to standard fetal biometry enabled the detection of 65% of macrosomia.

Conclusions: AP/Foot Index > 0,52 has greater sensitivity and negative predictive value to detect macrosomia, compared to standard ultrasound fetal biometry.

IMMUNOLOGY AND ONCOLOGY

13th of May 2022

Coordinators:

Ewa Kreft

Zeineb Garmeh

Noor Elkurwi

Jury:

Prof. Józef Kobos, MD, PhD

Hanna Romańska-Knight, MD, PhD, prof. UM

Joanna Połowniczak - Przybyłek, MD, PhD

Aleksandra Wardzyńska, MD, PhD

Monika Jędrzejczak-Czechowicz, MD, PhD

γδ T cells in Multiple Sclerosis- focus on NKRP1A and PECAM-1.

Natalia Lehman

Presenting author: Natalia Lehman

Tutors: Michał Zarobkiewicz, MD

Affiliations: Students' Scientific Society at the Department of Clinical Immunology, Medical University of Lublin;

Department of Clinical Immunology, Medical University of Lublin

Introduction: Multiple Sclerosis (MS) is an immune-mediated inflammatory disease of the central nervous system (CNS), which is the most common cause of permanent disability among young adults. γδ T cells constitute a small subset of T cells, containing T cell receptor (TCR) composed of γ and δ chains. γδ T cells establish a bridge between innate and adaptive immunity. Natural killer cell surface protein P1A (NKRP1A/ CD161) is a member of an NKRP1 human family, expressed for instance on a subset of CD3+ T cells. Previous studies have reported expression on γδ T cells as well. Platelet endothelial cell adhesion molecule (PECAM-1/CD31), known as a cellular adhesion and signalling receptor, is expressed on most leukocytes, platelets and at high levels in endothelial cell intercellular junctions. Both receptors are important for transmigration through vascular endothelium.

Aim of the study: This study aims to further evaluate γδ T cells in MS with a focus on the expression of two adhesion molecules - PECAM-1 and NKRP1A.

Materials and methods: The study involved 29 patients diagnosed with relapsing-remitting MS (6 during relapse, 23 during remission) and 22 healthy volunteers (HV). Collected peripheral blood (PB) samples were stained with anti-human antibodies: anti-TCRγδ, anti-Vδ1, anti-Vδ2, anti-CD161, anti-CD31 and anti-PD-1. Samples were analysed with CytoFlex LX (Beckman Coulter). Isolated PBMCs were stained with anti-CD3 and anti-TCRγδ and then γδ T cells were sorted with BD FACS Aria II. Real-Time qPCR was performed. Total RNA was isolated and probes for CD31 and CD161 were used to quantify mRNA expression. Results were statistically analyzed using GraphPad Prism 8. Statistical significance was assessed using the Kruskal-Wallis's test and U Mann-Whitney.

Results: Based on the analysis of γδ T cells in PB, significant downregulation of CD3 expression was observed, especially in relapse. The expression of NKRP1A and PECAM-1 had similar expression levels in all groups. The study of the Vδ1 subset shows CD3 expression was statistically significantly almost 3-fold lower in relapse than in the control group. PECAM-1 was slightly down-regulated in remission compared to the relapse and control group, while NKRP1A showed a very slight up-regulation in remission. Moreover, CD3 expression in Vδ2 cells was lower in relapse compared to control too. PECAM-1 mRNA is down-regulated while NKRP1A mRNA is up-regulated in γδ T during relapse.

Conclusions: Taken together, these results suggest a significant activation of γδ T cells in MS patients, especially during relapse. The most important observation from the current study is a significant decrease in CD3 expression in γδ T cells from MS patients.

Immunogenetic predictors of perinatal pathology

Liudmyla Turova, Maksym Horiachok

Presenting author: Maksym Horiachok

Tutors: Liudmyla Turova, Joanna Połowniczak - Przybyłek, MD, PhD

Affiliations: Department of Clinical Immunology, Allergology with Section of Medical Genetics National Medical University named after O. Bohomolets, Ukraine;

Bukovinian State Medical University, Ukraine

Introduction: The problem of miscarriage in perinatal medicine is one of the most important. It can be considered as a multifactorial pathology, which is a universal integrated reaction of the female body to any problems with the health of pregnant women and fetuses, and the action of external and internal environmental factors. Premature termination of pregnancy is a significant cause of perinatal pathology. One of the main systems that ensures the adaptation and physiological functioning of the fetoplacental complex is immune system. Immunogenetic markers that adversely affect the development of complications of pregnancy and perinatal pathology in newborns have a practical importance for the development of preventive measures and maintaining the health of the baby in the future.

Aim of the study: To study the relationship between single nucleotide polymorphisms (SNPs) of the cytokines IL-6 and IL-10, genes CYP1A1, GSTP1, MTHFR and eNOS of mothers which gave birth prematurely, with the development of perinatal pathology in newborns.

Materials and methods: The study was performed in 133 women which gave birth at 28-36 weeks of gestation. Division into groups depending on gestational age, type of pathology and degree of morpho-functional maturity:

Group I - 32 women which gave birth with HII of CNS according to their gestational age;

Group II - 38 women which gave birth from the HII of CNS and IUGR:

Group III - 30 surveyed women which gave birth with childrens' diagnose of VTI;

Group IV - 33 women which gave birth to infants with diagnose of IRDS.

The group of comparison consisted of 30 women with physiological pregnancies and relatively healthy premature infants with a relatively successful neonatal period which were with their mothers and received on-demand breastfeeding.

Results: Each pathology has its own immunogenetic portrait. The most common gene interactions were the following combinations:

- Heterozygous of polymorphic variant 1082G\A of the IL-10 gene, + IL-6, polymorphic variant CYP1A1 + homozygote of variant A313G of the GSTP1 gene and homozygote of polymorphic variant C677T of MTHFR67 gene = prematurity and perinatal pathology

- Heterozygous of polymorphic variant 4a\4b of eNOS gene + polymorphic variant (592 C\A) of IL-10 gene + polymorphic variant 1082G\A of IL-10 gene + polymorphic variant (174G\C) of IL-6 gene = prematurity with IUGR and perinatal pathology.

Conclusions: Thus, certain polymorphic gene variants are important pathogenetic factors in the development of perinatal pathology in premature infants and have a prognostic value. Further comprehensive research is needed to assess the feasibility of using identified markers in pregnancy planning and in the preclinical diagnosis of preterm birth and the development a new methods of treatment.

Assessment of the impact of Polish natural honey on the viability and proteolytic activity of non-small-cell lung cancer

Maciej Szymański

Presenting author: Maciej Szymański

Tutors: Katarzyna Góralska, PhD, prof. Ewa Brzeziańska-Lasota, Joanna Połowniczak - Przybyłek, MD, PhD, Jolanta Kryczka, MSc

Affiliations: Department of Biomedicine and Genetics, Chair of Medical Biology and Microbiology, Medical University of Lodz

Introduction: Lung cancer, including non-small-cell lung cancer (NSCLC) is one of the most frequent cancers and is related to the highest number of deaths worldwide. NSCLC is an aggressive type of cancer that disseminates vigorously and presents a dismal prognosis. Importantly, metastasis of NSCLC correlates with acquisition of the chemoresistant phenotype by cancer cells and their high proteolytic activity that enables crossing of anatomical barriers during intra- and extravasation. Thus, novel and more effective therapies are desirable. Many pharmaceutical agents have been discovered by screening natural products. Among them, researchers focus on honey, which is an immunomodulating product, contains numerous biologically active compounds, including phenolic acids, flavonoids, vitamins and minerals. Therefore, honey may be recommended as a promising substrate for therapeutic alternatives as potential adjuvants to cancer therapy.

Aim of the study: Aim of the study was to verify potential anticancer properties of Polish natural honey using in vitro model.

Materials and methods: A) NSCLC cell lines: lung adenocarcinoma A549 cell line (ATCC) and its cisplatin resistant variant A549CisR. B) two Polish natural honeys: buckwheat and honeydew honeys were obtained from Research Institute of Horticulture Apicultural Division in Puławy. The impact of Polish natural honeys on viability of both cell lines was analyzed using WST-1 assay (#8038 ScienCell). Additionally, cell viability and morphology were visualized by light microscopy. The impact of tested honeys on NSCLC proteolytic activity was evaluated using zymography in situ by Fluorescent Dequenching (DQ) Gelatine Assay (Life Technologies).

Results: Buckwheat and honeydew honey significantly decreases viability of A549 and A549CisR cancer cells. Additionally, both tested Polish natural honeys were proven to show impact on proteolytic activity of tested NSCLC cell lines.

Conclusions: Ingredients of Polish natural honey, other than sugar, present significant anticancer potential, thus proving their usefulness as potential supplement to the standard NSCLC therapy.

Predictors of outcome and adverse events profile in relapsed/refractory multiple myeloma treated with lenalidomide and dexamethasone (Rd) regimen. Real-life results of a large single-center study.

Wiktoria Ryżewska, Kamila Stańczak, Kacper Kościelny

Presenting author: Wiktoria Ryżewska

Tutors: Paweł Robak, MD, PhD

Affiliations: Medical University of Łódź; Department of Experimental Hematology, Medical University of Lodz

Introduction: Relapsed/refractory multiple myeloma (RRMM) is a challenging setting for management and treatment. In Poland, lenalidomide and dexamethasone (Rd) was one of the first novel drug regimens reimbursed for this indication. As a substantial fraction of RRMM patients is treated with Rd currently in Poland, establishing predictors of treatment-related complications and poor response are crucial for further optimal treatment decision-making.

Aim of the study: The study aimed to identify predictors of outcome and adverse events profile in RRMM patients treated with Rd regimen in the Department of Hematology, Medical University of Lodz, Poland.

Materials and methods: This retrospective study included all patients who received the Rd regimen according to the Ministry of Health's drug reimbursement program for multiple myeloma patients (B.54.) between 2017 - 2021. Inclusion and exclusion criteria, drug dosing, and monitoring were done accordingly to the reimbursement program. Response to treatment and relapse/progression were classified according to the International Myeloma Working Group (IMWG). Adverse events were assessed according to the CTCAE (NCI Common Terminology Criteria for Adverse Events) v. 5.0.

Results: The study group consisted of 116 patients, and the mean age was 67.6 ± 8.2 years. The majority of patients (n=80, 69%) received the Rd treatment at the time of the first relapse/progression (2nd line treatment), 32 patients (27.6%) were treated with Rd regimen in the third line of treatment, and four patients (3.4%) received Rd in the 4th line of treatment. The median PFS was 17.6 months and the median OS was 29.0 months. The overall response rate was 76.7%. Fifteen patients (12.9%) achieved complete response (CR), and 21 patients (18.1%) had a very good partial response (VGPR). The most prevalent adverse events in the study group were serious infections (27.6%), polyneuropathy (12.9%), and thromboembolic events (9.5%). In multivariate logistic regression analysis, hypoalbuminemia (OR 3.3, 95%CI: 1.1-10.1, p=0.034) and achievement of CR after 6 cycles (OR 7.4, 95%CI: 1.2-44.6, p=0.029) were independent factors related to the occurrence of serious infections. Among hematological adverse events, the most common were neutropenia (25.0%), followed by anemia (18.1%) and thrombocytopenia (16.4%). In multivariate Cox regression analysis for PFS, age >70 (HR 1.8, 95%CI: 1.0-3.1, p=0.038) and achievement of CR/VGPR (HR 0.3, 95%CI: 0.1-0.5) were independent prognostic factors. Similarly, age >70 years (HR 2.2, 95%CI: 1.2-4.0, p=0.013), presence of active bone disease (HR 2.1, 95%CI: 1.0-4.4, p=0.048) were related to poorer OS, whereas achievement of CR/VGPR was related to improved OS (HR 0.2, 95%CI: 0.1-0.5, p=0.001).

Conclusions: RRMM patients who did not achieve CR/VGPR and are >70 have inferior outcomes following Rd therapy and should be candidates for novel drugs administration (daratumumab, pomalidomide) or enrolled in clinical trials.

Profile of neoplastic diseases causing anemia in patients of the Department of Internal Diseases at Republic Hospital of Klaipėda, Lithuania

Vilius Jocys, Emilija Milašiūtė

Presenting author: Vilius Jocys

Tutors: Giedrė Valdonė Sakalauskienė

Affiliations: Lithuanian University of Health Sciences, Kaunas, Lithuania;Republic Hospital of Klaipėda, Klaipėda, Lithuania

Introduction: Anemia occurs due to decreased concentration of hemoglobin (Hb) and/or red blood cell (RBC) numbers. It subsequently leads to the impaired delivery of oxygen to tissues negatively affecting multiple organs. Recently, clinicians more often face cancer–related anemias that are multifactorial, directly related to the inflammatory processes provoked by the neoplastic disease or occurred due to cancer therapy.

Aim of the study: To identify the profile of neoplastic diseases causing anemia and evaluate their prevalence in patients admitted to the Republic Hospital of Klaipėda

Materials and methods: The retrospective study evaluated the medical records of 548 patients admitted to the Department of Internal Diseases at Republic Hospital of Klaipėda (Lithuania) due to anemia of uncertain etiology from January 2016 to December 2020. Statistical analysis was performed using SPSS v.26 Chicago: SPSS Inc. The study was approved by the Bioethics center of LUHS (no. BEC-MF-229).

Results: Neoplastic diseases as the cause of previously uncertain anemia were identified in 103 patients (18.8%). The females composed 51.5%. The mean age of investigated patients in a sample was 71.5 (SD, 12.06) years. Examination of the total subsample revealed that stomach cancer caused anemia in 35% of patients, intestinal cancer and prostate cancer – in 19.4% and 6.8%, respectively. Anemia related to cervical and uterus neoplastic diseases composed 4.9% as well as anemia due to kidney cancer, while anemias caused by lung, esophageal, ovarian, liver and pancreatic cancer each formed 3.9% respectively. Each type of other neoplastic diseases resulting anemia reached 1.9%. Comparing the prevalence of cancer-related anemia between the sexes, it was revealed that anemia due to stomach cancer composed 46% in males and 24.5% in females, $p<0,05$ whereas anemia due to intestinal cancer reached 26.4% in females and 12% in males, $p<0,05$. Among males stomach, prostate and intestinal cancers composed 46%, 14% and 12%, respectively, and was statistically significant between the stomach and intestinal cancer groups, $p<0,05$, while prostate cancer-related anemia was statistically insignificant between both stomach and intestinal cancers groups, $p>0,05$. In females, anemia due to intestinal, stomach neoplastic diseases formed 26.4% and 24.5% respectively, which was statistically significant, $p<0,05$. In addition, uterus, cervical and ovarian neoplastic diseases made up 16.9%., and were significantly less common than stomach cancer-related anemia, $p<0,05$.

Conclusions: Stomach cancer was the most common cause of neoplastic disease-related anemia among all participants of the investigated subsample and among males, while the predominant cause of anemia in females was intestinal cancer. The second and third causes of cancer-related anemias in males were prostate and intestinal cancer, while in females – stomach and uterus, cervical and ovarian neoplastic diseases.

Assessment of metabolomic profile of wasp venom hyperreactivity patients and its response to antigen-specific immunotherapy implementation.

Zuzanna Parfienowicz, Magdalena Krętowska, Aleksandra Starosz

Presenting author: Zuzanna Parfienowicz

Tutors: Kamil Grubczak, MD, PhD

Affiliations: Medical University of Bialystok

Introduction: Hymenoptera venom allergy may be considered as one of the most frequent causes of anaphylactic reactions in adults (around of 48%). A single wasp sting is sufficient to develop a potentially severe systemic reaction in the venom allergic patients. Characteristic composition of venom compounds with potential to induce hyperreactivity is the cause of subsequent severe systemic reactions. Desensitization with allergen-specific immunotherapy (AIT) focuses on inducing tolerance to the specific allergen using its increasing concentrations on patients. Despite numerous studies on that topic, there are still numerous aspects including metabolome which association with allergy has not been yet described.

Aim of the study: The aim of our study was evaluation of the metabolome profile among patients allergic to wasp venom. Changes in metabolites in response to AIT were also analyzed.

Materials and methods: Whole blood samples were collected from the allergic patients prior and after therapy application to isolate plasma. At the Clinical Research Center, Metabolomics division the metabolome profile was established using LC-MS and FIA. Biostatistical analysis was applied to visualize differences in metabolomic profile. In addition, correlations between selected metabolites and routine laboratory parameters were performed.

Results: We reported significantly different metabolites profiles between wasp venom allergic patients and healthy control group. Following correlation analysis of the obtained data and laboratory parameters several essential compounds were distinguished for further analysis. Those included inter alia sphingomyelins, as well as carnitine and its derivatives. Among the sphingomyelins group, we noticed a tendency for a high increase after venom-specific immunotherapy implementation within first 3 months of therapy. In long-term observation the values were reduced but still maintained at significantly elevated level compared to the admission. Furthermore, we observed enhanced levels of carnitine and its derivatives after ultra-rush treatment protocol. Noteworthy, parameters in this group of metabolites remained similar or slightly increased in the subsequent years of therapy.

Conclusions: To sum up, unquestionably characteristic profile of metabolome demonstrated in patients allergic to wasp venom might play crucial role in the course of hyperreactivity. Interestingly, selected metabolites demonstrated promising potential value as future monitoring or prognostic markers of AIT. Further research, however, is required for in-depth evaluation of these data and confirmation of hypothesis on possible use of metabolomic parameters in wasp venom allergy monitoring.

The effect of IL-33 on rhinovirus-induced activation of arachidonic acid enzymatic pathway in the human lung vascular endothelium - possible implications for asthma exacerbations.

Kinga Klimczak

Presenting author: Kinga Klimczak

Tutors: Maciej Chałubiński, MD, PhD, Prof. UM, Aleksandra Likońska, MD, Robert Szewczyk, MSc

Affiliations: Medical University of Lodz

Introduction: Human rhinovirus (HRV) may cause severe asthma exacerbations, which is accompanied by increased airway IL-33 release. IL-33 has been recently shown to enhance HRV 16 uptake by human vascular endothelium, thus leading to markedly enhanced inflammatory cytokine response. Arachidonic acid (AA) enzymatic pathway activity and eicosanoid production by the vascular endothelium infected by HRV alone or in the presence of IL-33 is not known, yet.

Materials and methods: Human pulmonary microvascular endothelial cells (HMVEC-L) were exposed to HRV- 16 (MOI 3) alone or upon the pre-stimulation with IL-33 (10 ng/ml) and cultured for 72 h. The mRNA expression of enzymes involved in the arachidonic acid enzymatic pathway was assessed in Real-Time PCR. ICAM-1 expression was analyzed in the flow cytometry and confocal microscope.

Results: HRV-16 caused 2,5-fold increase of the mRNA expression of PLPA2, 9,7-fold increase of COX-2, 10,5-fold increase of 5-LOX in HMVEC-L ($p<0,05$), respectively. In contrast, HRV16 caused 0,5 and 0,3 down-regulation of LTC4S mRNA expression ($p<0,05$), respectively. IL-33 further enhanced HRV16-induced mRNA expression of PLPA2, COX-1, COX-2 ($p<0.05$), but not affected 5-LOX and LTC4S. IL-33 caused 10-fold increase of ICAM-1 expression ($p <0.05$), which was confirmed in the confocal microscopy. HMVEC-L infection with HRV was confirmed by the 6000- fold (24h) and 5300-fold (72h) increase of RANTES mRNA expression.

Conclusions: IL-33 may potentiate the effect of rhinovirus on the cyclooxygenase mediated inflammatory activity of the pulmonary vascular endothelium and thus facilitate severe asthma exacerbations.

Covid-related delay in oncological care of patients with incidentally diagnosed chest tumor

Klaudia Krzyzaniak

Presenting author: Klaudia Krzyzaniak

Tutors: Mariusz Sieminski, MD, PhD

Affiliations: Medical University of Gdansk

Introduction: The COVID-19 pandemic resulted in health care being less available globally. Oncologists raised alarms about current scarcity in oncology care.

Aim of the study: Our research on patients at the Emergency Department of Medical University of Gdansk aimed to determine the differences between detection, diagnosis and treatment of chest tumors detected de novo in the period of pre-pandemic and pandemic time.

Materials and methods: We have compared the data from March 15, 2020 (when COVID-19–related procedures were established at the hospital) to November 30, 2020, with data collected from the period between March 15 and November 30, 2019. The study was performed in an ED in a tertiary university hospital, with 1100 beds, 120,000 hospitalizations per year, and approximately 30,000 ED visits annually. In total, 29,140 and 24,323 patients were admitted to the ED during 2019 and 2020, respectively.

Results: In 2019 we diagnosed 17 tumors de novo, in 2020 it was 27. Those numbers correspond to 0,06% and 0,11% of all patients in that period. Histological diagnosis was established for 64,7% and 63% patients with result: small-cell lung carcinoma 11,8%, non-small cell lung carcinoma 52,9% in 2019, accordingly 14,8% and 48,1% in 2020. In 2020 29,6% of patients had metastases at the moment of diagnosis, in 2019 only 11,8%. The therapy was started by 47% of the patients in 2019 and 40% in 2020.

Conclusions: The SARS-CoV2 pandemic caused patients to have a higher stage of the disease at the moment of diagnosis. The percentage of subjects among whom surgery, chemotherapy, or radiotherapy was performed or initiated within three months from ED diagnosis was lower in 2020, although the difference did not reach statistical significance.

Ability assessment of lung vascular endothelium from asthmatic patient to generate inflammatory and antiviral response during Human Coronavirus 229E infection.

Anastasiia Nosulenko, Robert Szewczyk

Presenting author: Anastasiia Nosulenko

Tutors: prof. Magdalena Mikołajczyk-Chmiela, MD, PhD; Maciej Chałubiński, MD, PhD, Prof. UM

Affiliations: Medical University of Łódź

Introduction: Asthma is a chronic inflammatory disease of the respiratory system. Many factors contribute to the development of asthma - one of which are viral infections. Additionaly, respiratory viral infections may also play an important role in the pathogenesis of asthma exacerbations due to increased susceptibility to infection and reduced ability to antiviral response of asthmatic cells. However, it is unknown whether these reduced antiviral mechanisms also occured in „asthmatic" endothelium in response to low pathogenic coronaviruses, especially Human Coronavirus 229E (HCoV-229E).

Aim of the study: To evaluate the ability of pulmonary vascular endothelial cells from patient with established asthma to generate inflammatory and antiviral response during in vitro infection with Human Coronavirus 229E.

Materials and methods: In the first phase of the study pulmonary vascular endothelial cells isolated from patient with bronchial asthma (HMVEC-AS) (Lonza) were seeded at 24-well plate at the density of 2x10^5/well. After obtaining a uniform layer, HMVEC-AS were incubated for 3 hours with HCoV-229 at infectious doses: MOI 0.1; MOI 1.0 and MOI 3.0 (MOI-Multiplicity of infection - the ratio of the number of viral particles to the number of target cells). Then, at the scheduled time points (24, 48, 72h after infection), the cell lysates and supernatants (SN) were collected to isolate the mRNA and protein detection. The next part of the experiment was to perform reverse transcription and obtain cDNA. Then, using real-time PCR technique mRNA expression for RANTES, IFN-b, IL-6, MX-1 and viral copy number were assessed. ELISA was used to measure protein concentration in SN. Cytopathic effect (CPE) was detected by inverted light microscope.

Results: In HMVEC-AS incubated with HCoV-229E, virus copies were detected (MOI 0.1; 1.0; 3.0) in hour 48: 2,0x10^4; 3,14x10^5; 2,11x10^6 copies/ul, respectively; $p<0.05$. Cytopathic effect at 48h was observed only for MOI 3.0 dose of virus. The assessment of mRNA expression for antiviral IFN-β and MX-1 shown the substantial increase only after 72h in MOI 3.0-treated cells (13- and 148- fold increase, respectively). Furthermore, 15- and 187-fold increase mRNA expression of RANTES and IL-6 was also detected. Additionally, IL-6 mRNA expression was also accompanied by 993 pg/ml protein release in the same time point. Compared to normal endothelial cells, asthmatic cells showed smaller expression of RANTES, IFN-b, IL-6 and MX-1 at the same doses of MOI virus.

Conclusions: HMVEC-AS infected with HCoV-229E induce late and probably ineffective antiviral response. High proinflammatory and antiviral cytokine secretion occurred in to late time point after infection may be the reason for massive cytopathic effect and main feature of endothelium from asthmatic patients.

INTERNAL MEDICINE

13th of May 2022

Coordinators:

Jakub Majcherek

Alicja Kowalczyk

Jury:

Anna Lewandowska-Polak, MD, PhD, Prof. UM

Grzegorz Piotrowski, MD, PhD

Melania Mikołajczyk-Solińska, MD, PhD

Anna Mokrowiecka, MD, PhD

Risk factors and non-surgical treatment methods in urinary stones disease – a comparison of the knowledge and attitudes of medical and dietetic students and graduates.

Marta Jankowska, Jakub Narożnicki, Sara Godyńska

Presenting author: Marta Jankowska

Tutors: Krystian Kaczmarek, PhD

Affiliations: Pomeranian Medical University in Szczecin

Introduction: Urolithiasis is a common and highly recurrent condition which occurrence depends on many factors. Surgical treatment is crucial to actively remove stones from urinary tract. Whereas a conservative management play an essential role in prevention of the recurrence. Interdisciplinary approach for treatment of urinary stone disease is needed including a strict collaboration between urologists, nephrologists and dieticians. Nevertheless, a knowledge of guidelines on urolithiasis might differ between medical professions what can affect the provision of health care.

Aim of the study: The objective of this study was to determine knowledge and attitudes regarding urolithiasis among medical and dietetics students.

Materials and methods: The study population consisted of 103 respondents – university students and graduates, that were divided into 2 groups: 54% (n=56) represented Faculty of Medicine (FM) and 46% (n=47) represented Faculty of Dietetics (FD). Online questionnaires were sent via social media. The survey was divided into 3 sections. The first part collected demographic data and exposure to urological appointments. The second part included 10 knowledge-related questions on dietary habits, risk factors and non-surgical treatment of urolithiasis. The third part included 3 attitude statements towards urolithiasis. A five-point Likert scale was used to scale the attitudes. Pearson's chi-squared test and the non-parametric ANOVA Kruskal-Wallis test were used to assess potential differences. Statistical analyses were performed using the Statistica 13.0 package with significance set at $p < 0.05$.

Results: The average age of respondents was 24 years. 7 out of 10 knowledge-related questions were estimated as difficult or very difficult (the easiness ≤ 0.49). The mean knowledge score was 3.8. None of the participants scored 0 or 10 points. Most respondents answered ≤50% of the questions correctly (75% FM vs 87% FD). 66% of FM and FD responders correctly indicated calcium oxalate stones as the most common type. Whereas only few students knew that urate stones have the highest recurrence rate. FM more often than FD perceive large volume of urine as the most important factor inhibiting stone formation (61% vs 38% p=0.020). Additionally, more FM than FD responders properly answered that acidic urine is the most common abnormality in uric acid stone formers (30% vs 13% p=0.001). In regarding to attitudes only 23% FD responders strongly believe that urolithiasis is curable in comparison to 38% FM (p=0.011).

Conclusions: The results of our study revealed that students have little knowledge of non-surgical management of urolithiasis. It was especially pronounced in responders who represented the Faculty of Dietetics. Therefore, more effort should be put into the teaching of future physicians and dieticians to improve care of patients with urolithiasis.

Six-minute walk test in patients with pulmonary complications after COVID-19

Martyna Martka, Adam Popiołek

Presenting author: Martyna Martka

Tutors: Assoc. Prof. Adam J. Białas, MD, PhD; Joanna Miłkowska-Dymanowska, MD, PhD

Affiliations: Medical University of Łódź

Introduction: In 2019 whole world has been challenged with the SARS-Cov-2 pandemic. However, with an increasing number of convalescents, we are now facing new challenges associated with post-COVID syndrome. Most of the serious symptoms of this syndrome are related to the pulmonary system. The duration of their persistence may vary, sometimes they are observed even a year after the acute phase of the disease, making post-COVID syndrome socially and clinically challenging.

Aim of the study: To assess the correlation between the 6-minute walk test (6MWT) and clinical data: pulmonary function tests (PFTs) and body composition parameters in patients after COVID-19.

Materials and methods: The study group consisted of 47 patients of a pulmonology outpatient clinic, who presented post-COVID pulmonary symptoms. The collected data included the following tests performed at the clinic: spirometry, lung transfer for carbon monoxide (TLCO), 6MWT, bioimpedance of body composition. The main analysis was based on the stratification of the patients into two groups: hospitalized and non-hospitalized, which expresses the severity of the initial disease.

Results: The groups were not different according to age 61.5 [55-67] vs 59 [51.25-62.25] years; (p=0.22) and sex (p=0.15). The distance in 6MWT was significantly lower in patients who were hospitalized – 426 [369.5-466.5] vs 528.5 [493.88-582.75] meters (p<0.0001). We also observed significantly higher BMI in this group – 29.8 [26.7-32.3] vs 25.33 [22.68-28.83] kg/m2 (p=0.005), what was also reflected in body composition parameters: higher body fat percentage – 31.93 (6.93) vs 26.51 (4.96) % (p=0.005), higher visceral fat index – 10 [8.5-14] vs 6 [5-8.25] % (p=0.0008), as well as lower body muscle percentage – 63.93 (6.37) vs 69.79 (4.7) % (p=0.001). According to PFTs, we observed significantly lower forced vital capacity expressed as percent of reference value (%rf) in patients who were hospitalized – 79.5 [72.5-88.5] vs 88 [85.25-91.75]; p=0.02. We observed significant correlations between 6MWT and following demographic and clinical data: age (p=0.004), length of hospitalization (p=0.000003), BMI (p=0.00007), water content (p=0.01), visceral fat index (p=0.0007), body fat percentage (p=0.0008), body muscle percentage (p=0.0003), forced vital capacity (p=0.0005), and forced expiratory volume in 1 second (p=0.04).

Conclusions: Patients with pulmonary complications of post-COVID-19, who required hospitalization during an active phase of the disease presented significantly worse physical exercise tolerance in 6MWT and unfavorable profile of body composition – with higher BMI, body fat, including visceral compartment, and lower muscle mass. 6MWT distance seems to be related to body composition parameters and PFTs in the analyzed group.

The assessment and attitude towards to teleconsultations among patients of Nephrology and Posttransplant Outpatient Clinics in pandemic era

Paweł Edyko, Krzysztof Edyko

Presenting author: Paweł Edyko

Tutors: Prof. Ilona Kurnatowska, MD PhD; Maja Nowicka, MD

Affiliations: Medical University of Lodz, SKN Transplant Nephrology,

Department of Internal Medicine and Transplant Nephrology

Introduction: COVID-19 pandemic necessitated rapid development of remote services including healthcare. To reduce infection spread and due to numerous sanitary restrictions, patients and doctors were forced to replace stationary appointments by teleconsultations (TC). Gained experience can be used to improve telemedicine quality.

Aim of the study: To investigate prevalence, level of satisfaction and attitude towards TC among patients of Nephrology and Posttransplant Outpatient Clinics.

Materials and methods: We created a questionnaire including 1 open and 32 multiple choice questions regarding patients' demographics, digital fluency, participation, satisfaction level and attitude towards TCs. Survey was created by an expert group, validated in 25 subjects and conducted during routine visits in Nephrology and Posttransplant Outpatient Clinics at two Lodz hospitals.

Results: Questionnaires were completed by 200 adult patients of mean age 57.44 (SD=16) years, 116 (58.2%) males. Seniors (>60 years old) were the predominant group (45%, n=90). Most respondents were pensioners (63%, n= 126), (47%, n= 94) had secondary education. 68% (n=136) used TC with their family doctor and 76.5% (n = 153) in any specialist clinic. Only 15% (n= 30) never used telemedicine. Subjects using Patient Internet Accounts were significantly more willing to contact their doctor via TC in the future (75% vs 25%; p=0.007). Subjects were divided into two groups: those who participated in TC in Nephrology/Posttransplant Outpatient Clinics (TCs, 65%, n= 130) and those who did not (nTCs, 35%, n= 70). In TCs the most common aim of teleconsultations was a routine follow-up appointment (61.4%, n= 78) and only 27,6% (n= 35) for new complaints. For 78.4% (n= 98) patients information received during TC were comprehensible. The main reported advantage was the ability to get counsel from home (63.78% n= 81); several respondents saw no benefits of telemedicine (10.24% n= 13). The most reported disadvantage was the lack of physical examination (63.71% n=79). Despite 70% (n= 84) TCs rating specialist teleconsultations positively (5 on a 1-5 scale), they preferred traditional visits over TC in: discussing laboratory results (66.4% vs 20.8%); routine follow-up visits (80.2% vs 14.3%) and when new symptoms occur (90.4% vs 5.6%). They preferred TC for prescriptions (46.8% vs 42.8%). Participating in, level of satisfaction and attitude towards TC were unrelated to age, sex, educational status, living place or digital fluency.

Conclusions: Most respondents rated TC positively and were willing to get remote medical counsel in the future; despite that, they prefer stationary appointments. Unexpectedly, patients' profile and demographic data, even such as distance from home to clinic, have no statistically significance on their assessment of teleconsultations.

Ferritin as a potential prognostic factor associated with poorer disease COVID-19 prognosis

Stanisław Jesionek, Michał Żabiński, Ewelina Woźniak, Paulina Gorzelak-Pabiś, Marlena Broncel

Presenting author: Stanisław Jesionek

Tutors: Ewelina Woźniak, MD, PhD

Affiliations: Medical University of Lódź

Introduction: A hyperinflammatory environment has been a hallmark of COVID-19 infection and is thought to be a key mediator of morbidity. Elevated ferritin has been observed in many patients with COVID-19.

Aim of the study: The aim of the study was to analyse a ferritin level in patients with COVID-19 and its correlation with selected indicators related to the severe course of COVID-19.

Material and methods: Clinical and laboratory data of COVID-19 patients were collected retrospectively and analysed on admission. All subjects were admitted to the Department of Internal Diseases and Clinical Pharmacology, Bieganski Hospital between 10.10.2020 and 05.03.2021. In order to rule out bacterial infection, we focused on patients with normal procalcitonin. We analysed the following factors, which were measured on admission to hospital: age, saturation, lymphocytes count, neutrophils count, D-dimer, CRP, ferritin, IL6. Additionally, we analysed the difference between ferritin levels in patients who achieved and did not achieve the composite endpoint (HFNOT, intubation, death). We checked the normality of distribution using the Shapiro-Wilk test. Statistical analysis was conducted using the Manna-Whitneya test and Spearman rank correlation. The results are presented as the median±Q1-Q3.

Results: In total, 159 patients enrolled in the study were 75 women and 84 men admitted in median age 69±59-79. 66 (78%) men and 67 (89%) women had higher than normal levels of ferritin (>400 ng/ml for men, and >150 ng/ml for women). Mediane parameters in enrolled patients were: ferritin 652,0±332-1092 ng/ml, neutrophils count 5050±3600-6675/ul; lymphocytes count 800±600-1300/ul, IL-6 56,60±21,31-100,5 pg/mL, CRP 60,55±19,76-106,9 mg/l, D-dimer 1206,0±732,0-3446,0 ugFEU/l; saturation 96±93-98%.

The higher levels of ferritin, correlate with the lower levels of saturation on admission ($r=-0,30$, $p=0,0001$) and lymphocytes count ($r=-0,30$, $p<0,0001$), and the higher levels of: D-dimer ($r= 0,24$, $p=0,0021$), IL-6 ($r= 0,36$, $p<0.0001$) and CRP ($r= 0,46$, $p<0,0001$).

Moreover, a statistically significant difference was found between ferritin levels in patients who achieved the composite endpoint - median 872,5±615,8-1567,0 versus patients who did not achieve it - median 584,0±271,0-949,0 ($p=0,0039$).

Conclusions: Ferritin may be a potential prognostic factor for the severity of Covid-19. Higher the ferritin level is closely associated with achieving the composite endpoint (HFNOT, intubation, death).

Association between circadian clock genes expressions, symptoms of insomnia, depression and sleep quality in inflammatory bowel diseases patients

Marta Ditmer, Szymon Turkiewicz

Presenting author: Marta Ditmer

Tutors: Agata Gabryelska MD PhD; Agata Binienda MSc; Professor Ewa Małecka-Wojciesko MD PhD; Professor Piotr Białasiewicz MD PhD; Professor Jakub Fichna; Professor Renata Talar-Wojnarowska MD PhD; Marcin Sochal MD PhD

Affiliations: Department of Sleep Medicine and Metabolic Disorders, Medical University of Lodz;

Department of Biochemistry, Medical University of Lodz;

Department of Digestive Tract Diseases, Medical University of Lodz

Introduction: Inflammatory bowel disease (IBD) patients often complain of low sleep quality and insomnia, which are associated with depression symptoms. The cause of sleep disorders in IBD might be disruption of circadian rhythm via inflammation. Circadian rhythm is regulated by expression of genes, such as Circadian Locomotor Output Cycles Kaput (CLOCK), BMAL1 (Brain and Muscle ARNTL like), Nuclear Receptor Subfamily 1 Group D Member 1 (NR1D1) which form feedback loops. As transcription of clock genes might be affected by mediators of inflammation (eg.TNF), IBD might disrupt it, impairing sleep.

Aim of the study: The aim of this study is to compare expressions of CLOCK, NPAS2, NR1D1 between IBD patients with exacerbation and healthy controls in peripheral blood mononuclear cells (PBMCs) as well as assess the association between levels of selected genes' expressions and disease severity, sleep quality, insomnia, depression.

Materials and methods: The study group consisted of 44 patients with IBD (13 UC- ulcerative colitis, 31 CD - Crohn's disease) and 19 healthy controls. Venous blood samples as well as questionnaires: Athens Insomnia Scale (AIS), Harvey-Bradshaw index, partial Mayo score (scales assessing disease activity), Beck's Depression Inventory (BDI), Visual Analogue Scale (VAS) were collected. RNA isolation from PBMCs was performed using the Trizol method. Synthesis of cDNA was conducted with a reverse transcription kit. The level of expression of chosen genes was determined by qRT-PCR. Amplification of the studied genes was compared to the reference gene β-actin. Relative expression was calculated using ΔΔCt method.

Results: Patients with IBD showed a lower expression of CLOCK mRNA (0,0007, IQR 0,0003-0.001 vs 0.001, IQR 0.001-0.002, p<0,001), NPAS2 mRNA (0.00005, IQR 0.00002-0.0001 vs 0.0001, IQR 0.00007-0.0002, p=0.001), NR1D1 mRNA (0.001, IQR 0.0005-0.002 vs 0.002, IQR 0.002-0.004, p<0.001) in comparison with control group. There were no differences between the UC and CD group as well as patients in exacerbation or remission. Expression of CLOCK mRNA was negatively correlated with BDI (p=0.006, r=-0.34), AIS (p=0.019 r=-0.32), VAS (p=0.005, r=-0.35) and positively with TNF mRNA (p<001, r=0.58). Expression of NPAS2 mRNA was negatively correlated with BDI (p=0.007, r=-0.34), AIS (p=0.007, r=-0.34), however not VAS or TNF mRNA. Expression of NR1D1 mRNA was negatively correlated with BDI (p=0.002, r=-0.38), AIS (p=0.022, r=-0.28), VAS (p=0.005, r=-0.40) and positively with TNF mRNA (p<0.001, r=0.60).

Conclusions: IBD might be associated with decreased expression of clock genes, which does not depend on disease activity, but pain, insomnia and depressive symptoms. It appears that reduced clock genes' expression is related to severity of inflammation.

COVID-19 and necessity for beta-blockers treatment

Tomasz Jędrasek, Aleksandra Jędrasek

Presenting author: Tomasz Jędrasek

Tutors: Jakub Gawryś, MD, PhD

Affiliations: Wroclaw Medical University

Introduction: Manifestation of Sars-CoV-2 infection is observed not only in the respiratory system but also in other organs, with frequent cardiovascular symptoms. Recent data indicates that arterial hypertension and cardiovascular diseases (CVD) are the most prevalent comorbidities in patients infected with Sars-CoV-2. Many patients who have recovered from COVID-19 still experience symptoms and suffer from cardiovascular complications.

Aim of the study: The aim of the study is to examine if patients with CVD that recovered from Sars-CoV-2 infection, need additional treatment with beta-blockers or changes in previous dosage.

Materials and methods: We conducted retrospective study of 70 pts (age above 18); 33 women and 37 men, with CVD hospitalized due to COVID-19 from October 2020 to February 2022 in temporary ward of Department and Clinic of Internal and Occupational Diseases and Hypertension and in Temporary Hospital in Wrocław. The aim of the study was to assess a profile of COVID-19 patients with CVD and to compare whether and how the dose of beta-blockers changed before and after Sars-CoV-2 infection. Collected data included patient gender, age, medical history, medication taken before and after COVID-19, course of COVID-19, measurements of respiration rate, pulse rate, and blood pressure during Sars-CoV-2 infection. When making a statistical analysis we used Wilcoxon signed-rank test (for related qualitative variables).

Results: Selected study group of 70 patients was divided into two groups: the first (n = 50) without increase or initiation of beta-blocker therapy, the second (n = 20) with the administration or increase of the dose. The Wilcoxon paired sequence test showed a significant difference between the groups (before and after infection) with p = 0,000196. In the second group (n=20) 4 patients were treated with beta-blockers before COVID-19 and a dose increase was recommended after they had recovered and 14 patients who had not taken beta-blockers before infection were prescribed after infection with beta-blockers.

Conclusions: The results of our study suggest that patients after recovery from Sars-CoV-2 infection need additional treatment with beta blockers or increase in previous beta-blocker dosage due to post-COVID-19 complications.

Lp(a): stable atherogenic particle turns out to be modified by an acute inflammation

Julia Warzywoda

Presenting author: Julia Warzywoda

Tutors: Paulina Gorzelak-Pabiś, MD, PhD; Agnieszka Pawlos, MD; Professor Marlena Broncel, MD, PhD

Affiliations: Medical University of Łódź

Introduction: Lipoprotein(a) is a plasma lipoprotein that consists of low-density lipoprotein and apolipoprotein(a) and it is considered pro-atherosclerotic, pro-inflammatory, pro-thrombotic and anti-fibrinolytic due to its many characteristics. Lp(a) is a well-established cardiovascular risk factor and according to recent cardiovascular recommendations it should be measured once in a lifetime in every individual. It is believed that Lp(a) concentration is genetically determined and stable during the lifetime, however single latest studies indicate that acute inflammation may have an influence on Lp(a) concentration.

Aim of the study: This study aimed to evaluate Lp(a) levels in patients during acute inflammatory state which was COVID-19 infection and a year after.

Materials and methods: We have analyzed the data of patients with PCR-confirmed COVID-19 during the severe infection - on the first day of hospitalization and a year after. The correction of LDL with Lp(a) was performed with the formula: LDLcor = LDL [mg/dl] - 0,3 x (Lp(a)nmol/l/2.5).

Results: In our study we included 19 patients – 9 women and 10 men at the mean age 66.5 ± 9. The mean values of the parameters during COVID-19 and a year after were for: Lp(a) 256.54 ± 125 vs. 177.98 ± 118nmol/l (30.6% decrease p=0.0008); TCH 146 ± 35 vs. 185.56 ± 45mg/dl (27.1% increase p=0.01), LDL 79.82 ± 31 vs. 106.44 ± 39mg/dl (24.9% increase p= 0.04), LDLcor 56,64 ± 29 vs. 85,21 ± 46mg/dl (50.4% increase p=0.04), HDL 38.91 ± 11 vs. 58.51 ± 16mg/dl (33.5% increase p <0.0001), non-HDL 107.24 ± 35 vs. 127 ± 45mg/dl (18.5% increase p= 0.16), TG 136.77 ± 42 vs. 163.13 ± 95mg/dl (19.2% increase p=0.39), IL-6 80.53 ± 150 vs. 4.25 ± 5pg/ml (94.7% decrease p<0.0001), GFR 72.75 ± 26.61 vs. 73.05 ± 16ml/min/1,73 m2 (0.4% increase p= 0.5), PLT 194.2x10^3/µl ± 82.2x10^3/µl vs. 189.7x10^3/µl ± 62.5x10^3/µl (2.34% decrease p=0.96), leukocytes 6.2 x10^3/µl ± 1.9x10^3/µl vs. 5.9x10^3/µl ± 1.4x10^3/µl (4.5% decrease p=0.79), lymphocytes 876.47 ± 486/µl vs. 1906.25 ± 637/µl (117.5% increase p<0.0001), neutrophils 4782,35 ± 1938/µl vs. 3000 ± 1470/µl (37.3% decrease p=0.009).

Conclusions: Lp(a) level decreased significantly in patients a year after COVID-19 infection, which suggests that Lp(a) level can depend on the ongoing inflammation and may be considered as an acute-phase protein. The Lp(a) decrease was associated with a significant increase in blood concentrations of TCH, HDL, LDL, lymphocytes count and significant decrease in IL-6 concentration and neutrophils count. Interestingly, the concentrations of Lp(a) and other lipid levels during inflammation and a year after were inversely proportional. The influence of the inflammatory state on Lp(a) concentration should be taken into account while assessing its blood concentration.

The state of knowledge and opinions on the prevention of SARS-CoV-2 infections among students of universities in Poland

Gabrielle Saden, Aleksandra Jastrzębska

Presenting author: Gabrielle Saden

Tutors: Prof. Brygida Knysz, MD, PhD

Affiliations: Wroclaw Medical University

Introduction: The COVID-19 pandemic has been the cause of unprecedented disruption in medical and general education worldwide and has underlined the importance of targeting medical students as one of the most exposed group to SARS-CoV-2, the main target for vaccination and the ones expected to exhibit safe behaviors in pandemic times.

Aim of the study: The purpose of this study was to investigate correlation between students' knowledge about the pandemic and the presence of suitable curricula at their Universities. It was also to apprehend their fears towards vaccinations, their perspective regarding emerging variants, their preferred ways of being educated about the pandemic, their usage of personal protective equipment and the presence of a clear system of monitoring infections at different universities. This is the first study to evaluate the vaccination rate and state of knowledge among medical students in Poland, comparing English and Polish divisions.

Materials and methods: Two identical questionaries were created, Polish version for students at Polish divisions and English for international students. We used Survio for designing the survey which was then shared on social media and through the different medical and health sciences universities in Poland in a two-months period from 21.12.2021 to 18.02.2022. The ethical approval was granted by the Bioethical Committee of Wroclaw Medical University before the study initiation.

Results: A total of 1521 surveys were collected: 273 students from the English division and 1248 students from the Polish division answered the survey. Nearly all of students who replied to this survey were vaccinated (95.33%). Among students who didn't wear masks, 46% were not vaccinated. Those students were also less compliant with social distancing regulations (21.3% of them never practice social distancing). Only 27,09% of students answered correctly to the question about SARS-CoV-2 transmission ways, choosing droplet, direct contact, airborne one and through surfaces. According to Chisquare test, University is not statistically significant in determining if a student knows all ways of COVID-19 transmission.

Conclusions: A high vaccination rate was observed among medical students of both divisions. It means that most students understood the seriousness of the pandemic and were aware of the need of prophylaxis. However, students who were unwilling to be vaccinated also tend to neglect forms of nonspecific prophylaxis, which makes them the most vulnerable group for infection. Students' knowledge about the pandemic does not depend on the University they attend, therefore University role might be only the supportive, but not the main instigator for getting educated about the word situation. The information obtained will help identify the potential concerns to be addressed to ensure the development of good communication between students and their universities regarding COVID-19 issues and possible future dilemmas.

Screening assessment of Lp(a) in patients with elevated cardiovascular risk

Piotr Szczupak, Natalia Krakowska

Presenting author: Piotr Szczupak

Tutors: Paulina Gorzelak-Pabiś, MD, PhD; Agnieszka Pawlos, MD; Professor Marlena Broncel, MD, PhD

Affiliations: Medical University of Łódź

Introduction: Lipoprotein(a) is proinflammatory, prothrombotic and proatherogenic molecule. It is an undervalued but very important cardiovascular risk factor in patients with values ≥75nmol/L. Lp(a) concentration is considered as stable during the lifetime and there are no therapies dedicated to lowering its concentrations. Among available lipid-lowering drugs iPCSK9 are able to lower Lp(a) concentration only by 30%.

Aim of the study: The aim of the study was the screening assessment of the Lp(a) level in patients hospitalized at the Department of Internal Diseases and the comparison of groups with elevated and non-elevated Lp(a).

Material and methods: We performed retrospective analysis of 45 patients hospitalized at the Department of Internal Diseases and Clinical Pharmacology between 02.07.21 and 29.12.21(we excluded acute inflammation). Lp(a) was measured once at the day of the admission to the hospital and in patients on iPCSK9 it was measured also after 3 months of treatment. The level of Lp(a)≥75 nmol/L was regarded as elevated. LDL was corrected with Lp(a):LDLcor=LDL-0.3x(Lp(a)/2.5)

Results: Study included records of 45 patients, average Lp(a) level for them was 113.9±152nmol/l, mean age 66±12years, mean LDL 99.4±65mg/dl, mean LDLcor 88.4±65mg/dl. Regarding the Lp(a) level the patients were divided into two groups: 1) patients with Lp(a)≥75nmol/L, n=17 (37.7%), mean age 65±12 years; mean Lp(a) 267.7± 149nmol/l, mean LDL 99.7±57mg/dl, mean LDL corrected with Lp(a) 67.6±40mg/dl and 2) patients with Lp(a)<75nmol/L, n=28 (62.2%), mean age 66±13years; mean Lp(a) 20.5±19nmol/l, mean LDL 99.3±71mg/dl, LDLcor 96.8±68mg/dl. In the study group, there were 17 cardiovascular incidents including: STEMI(n=4) at the average age of 54±18 years with mean Lp(a) levels 177.4±156nmol/l; NSTEMI(n=6), mean age 62±9, mean Lp(a) 143.3±183nmol/l and UA(n=7), mean age 48±11, mean Lp(a) 156.9±254 nmol/l. The frequency of cardiovascular incidents in two study groups: 1) with elevated Lpa(a) vs 2) with normal Lp(a) was: 7/17(41.2%) vs. 6/28(21.4%). Mean age for both groups: 1) with elevated Lp(a) vs 2) with normal Lp(a) was 53±13.8 vs 56±12. Among 45 patients, 8 were treated with iPCSK9 (alirocumab n=7, ewolocumab n=1). Average Lp(a) level before treatment was 281.6±227 and after 3 months: 210.7±171 (p=0.03). It has dropped by 70.9nmol/L(25,2%).

Conclusions: Lp(a) was elevated among 37.7% of patients hospitalized at the Department of Internal Diseases. Elevated Lp(a) was associated with higher frequency of cardiovascular incidents regardless of age and LDL concentration. Patients treated with PCSK9 experienced 25.2% reduction of Lp(a) after 3 months. Lp(a) concentration should be assessed in every healthy individual and especially in patients at increased cardiovascular risk. People with elevated Lp(a) should be monitored for the premature development of atherosclerosis.

NEUROLOGY AND OPTHALMOLOGY

13th of May 2022

Coordinators:

Klaudia Szatanik

Karolina Pendrasik

Jury:

Michał Wilczyński, MD, PhD

Zofia Pniakowska, MD, PhD

Karol Jastrzębski, MD, PhD

One-sided closing of the eyelid as a key to the development of eye-tracking.

Sebastian Stuczyński, Katarzyna Skrzypczak

Presenting author: Sebastian Stuczyński

Tutors: Prof. Ewa Brzeziańska-Lasota, MD, PhD, Justyna Kiszałkiewicz, PhD, Katarzyna Góralska, PhD, Dorota Pastuszak-Lewandoska, PhD

Affiliations: Student's Scientific Society of Genetics and Molecular Medicine, Department of Biomedicine and Genetics, Chair of Medical Biology and Microbiology, Medical University of Lodz;

Department of Biology and Parasitology, Chair of Medical Biology and Microbiology, Medical University of Lodz;

Department of Microbiology and Laboratory Medical Immunology, Chair of Medical Biology and Microbiology, University Laboratory of Three-Dimensional Anthropometry, Medical University of Lodz;

Department of Biomedicine and Genetics, Chair of Medical Biology and Microbiology, Medical University of Lodz.

Introduction: In everyday life, we can see certain disproportions in the structure and functioning of our body. The most characteristic of them is the domination of one upper limb over the other. Many objects like: computer mouse, scissors, and even furniture have a dedicated version for left-handed persons, although it is estimated that left-handed people constitute only 10% of the world's population. The eyes, apparently symmetrical in terms of anatomical structure, are also characterized by functional lateralization. It manifests as a more difficult or impossible one-sided closure of the eyelid. This functional inequality may have implications for the development of eye-tracking technology, which is playing an increasingly important role in innovative medicine. Using an eye tracking system, disabled patients can control a wheelchair, computer screen, and even communicate with other people. However, some people will not be able to take advantage of any functions assigned to unilateral closure of the eyelid.

Aim of the study: Assessment of the frequency of the ability to alternate voluntary closing of the eyelids.

Materials and methods: 21 participants were examined (12 women and 9 men). The mean age was 23.86 years (range 19-27). Dolman's test was used to assess the dominance of one eye over the other. We also used the criterion of ocular dominance according to Walls.

Results: 71.43% of people (n=15) showed the ability to alternate eyelid closure, 14.29% (n = 3) were able to independently close only the right eyelid, 9.52% (n = 2) only the left eyelid, 4.76% (n=1) was unable to unilaterally close any eyelid. A total of 28.57% of the respondents (n=6) were unable to alternately close the right and left eyelids.

Conclusions: The inability to alternately close both eyelids is more common than left-handedness. Further development of new eye-tracking features should take this into account and adapt the new options to as many people as possible.

Clinical features and surgical treatment of peripheral nerve sheath tumours: a retrospective study of 45 cases from a single centre.

Weronika Lusa, Natalia Siwecka

Presenting author: Weronika Lusa

Tutors: Professor Maciej Radek, MD, PhD; Jakub Jankowski, MD; Piotr Wawrzkiewicz, MD; Marek Grochal, MD, PhD

Affiliations: Department of Neurosurgery, Spine and Peripheral Nerves Surgery, Medical University of Lodz

Introduction: Peripheral nerve sheath tumours (PNSTs) represent a heterogenous group of neoplasms with a wide spectrum of morphological and biological features. According to the newest WHO classification (2021), such tumours may range from benign and completely curable (e.g. schwannoma, perineurioma) to the highly aggressive types like malignant PNST (MPNST). Most of the tumours, despite being non-cancerous, can lead to pain, nerve damage and loss of function in the affected area. Treatment of PNSTs usually involves surgical removal, which still remains challenging due to high risk of damaging the adjacent healthy tissue.

Aim of the study: The current study aimed to retrospectively analyse the clinical characteristics and course of PNSTs in Polish patients treated at the Department of Neurosurgery at USK-WAM Hospital, Medical University of Lodz over a 7-year period.

Materials and methods: A cohort of 49 patients with clinical diagnosis of PNST, admitted from 2015 to 2022, was identified in the database of USK-WAM Hospital, Lodz, Poland. 4 patients were excluded from study due to absence of tumour in histopathological examination (n=2) or presence of non-related tumours (sarcoma and plasmacytoma; n=2). Overall, the study included 45 patients (25 females and 20 males), mean age was 48 (17–77) years old. The collected data was reviewed regarding the clinical examination, symptoms, localization, diagnosis, surgical management and treatment outcomes.

Results: In the analysed cohort, the clinical manifestation of PNSTs comprised: palpable mass (57,8%), shooting pain upon tapping (55,6%), persisting pain (37,8%), paraesthesia (20,0%) or no symptoms (2,2%). A total of 32 patients showed no neurological deficits (71,1%), whilst the rest was affected with paresis (n=4), sensory disturbance (n=5) or both (n=4). The most common tumour locations included the sagittal nerve (28,9%), the brachial plexus (20,0%) and the sciatic nerve (15,6%). Primary surgery was performed in 64,4%, and secondary surgical procedures (reoperation, prior biopsy) were performed in 35,6% of cases. A histopathological examination revealed schwannoma (38/45), neurofibroma (5/45) and MPNST (2/45). A total resection was performed in 86,7% and subtotal resection in 13,3% patients. The rate of positive treatment outcome was 93,3% (n=42). Worsening occurred in 3/45 cases, of which 1 patient experienced slight paresis and the other 2 – spread of the disease.

Conclusions: Surgery is the method of choice for treatment of PNSTs. During resection, of utmost importance is achieving either removal of the entire tumour or preservation of the functional nerve integrity. Preoperative biopsy is not recommended as it prolongs the time of treatment and may even worsen the patient's neurological status. The scope and type of resection depends on the morphology of the lesion. Overall, surgical treatment is associated with a success rate higher than 90%.

Thrombophilia as a risk factor in patients with central retinal artery occlusion

Radosław Dziedzic, Ada Gradzikiewicz, Alicja Dworak, Weronika Nedza

Presenting author: Radosław Dziedzic

Tutors: Jerzy Dropiński MD, PhD; Stanisława Bazan-Socha MD, PhD

Affiliations: Jagiellonian University Medical College, Students' Scientific Group of Immune Diseases and Hypercoagulation;

Jagiellonian University Medical College, Faculty of Medicine, Department of Internal Medicine

Introduction: Central retinal artery occlusion (CRAO) causes sudden and painless visual loss. The etiology of CRAO is varied, although in most cases is due to embolic material blockage. However, among other risk factors for CRAO, thrombophilia is also mentioned. Although several reports on thrombophilia in CRAO have been published, it is difficult to find a study that examined several thrombophilic factors in a large group of patients.

Aim of the study: Our objective was to evaluate the prevalence of thrombophilic risk factors using laboratory and genetic tests in CRAO patients.

Materials and methods: In 126 CRAO patients and 107 well-matched controls the occurrence of several thrombophilic risk factors including hyperhomocysteinemia, protein C (PC), protein S (PS) and antithrombin-III (ATIII) deficiency, elevated factor VIII (FVIII), antiphospholipid antibodies including lupus anticoagulant (LA), anticardiolipin (ACL) and anti-beta-2-glycoprotein (Aβ2GPI) antibodies, but also factor V Leiden (FVL) and factor II (FII) G20210A mutations was investigated.

Results: Altogether, 126 patients with CRAO episode (66 men [52.4%], 55.7±11.4 years, BMI: 26.8±2.7 kg/m2) and 107 healthy subjects (56 men [52.8%], 53.7±9.2 years, BMI: 26.1±3.0 kg/m2) were evaluated. Both groups were well matched for sex, age and body mass index ($p>0.05$, all). At least one thrombophilic risk factors were observed in 77.8% (n=98) CRAO patients. Hyperhomocysteinemia, PC and PS deficiency occurred more frequently in the CRAO group compared to controls (22.2% vs. 11.2%, $p=0.026$; 17.5% vs. 1.9%, $p<0.001$; 19.8% vs. 6.5%, $p=0.003$; respectively). Furthermore, the prevalence of ACL and Aβ2GPI antibodies was higher in patients (15.9% vs. 0.9%, $p<0.001$; 37.3% vs. 4.7%, $p<0.001$; respectively). Additionally, the FVL mutation was detected more frequently in CRAO (13.5% vs. 5.6%, $p=0.044$). There were no statistical differences between groups according to ATIII deficiency, elevated FVIII, LA presence and FII G20210 mutation.

Conclusions: Our findings suggest that several thrombophilic risk factors occur more often than in controls without thromboembolic events in their medical history. Therefore, thrombophilic screening might be investigated in some cases, as it could catch patients from the risk group.

Timely arrival in vertebrobasilar stroke - mission impossible?

Daiva Milmantienė

Presenting author: Daiva Milmantienė

Tutors: Teaching assistant Aleksandra Ekkert, MD

Affiliations: University of Vilnius;

Neurology Center, Vilnius University Hospital Santaros Klinikos

Introduction: 20% of the lesions accounted for ischemic strokes occur in the vertebrobasilar circulation. Reperfusion therapy (RT) of carotid stroke is widely studied, however, the number of data on vertebrobasilar stroke RT is still insufficient. Society's knowledge about this stroke type's symptoms is scarce, and therefore RT is rarely used to treat it, as a consequence of the late arrival to the hospital. Not all of the vertebrobasilar stroke symptoms are included in the National Institutes of Health Stroke Scale (NIHSS) and medical professionals are hesitant to treat vertebrobasilar stroke with RT, as a result of the lower scores.

Aim of the study: To analyze absolute and relative contraindications for reperfusion therapy of subjects hospitalized to the Vilnius University Hospital Santaros Klinikos (VUHSK) 2018-2020 with vertebrobasilar stroke.

Materials and methods: The data were analyzed using R Commander and MS Excel programs after receiving approval from the Institutional Review Board.

Results: Data of 500 subjects were analyzed. Median age - 69±18, NIHSS - 4±4. RT was done to 120 (24%) subjects: thrombolysis - 72 (14,4%), thrombectomy – 37 (7,4%), combined therapy - 11 (2,2%). Median door-to-needle time (DNT) 60 ± 30 min, median door-to-puncture time - 87 ± 86 min. Median onset-to-door time - 12±24,5 hours. Of 343 (68,6%) subjects who had absolute contraindications (AC), 288 (68,6%) arrived too late. Paresis, disturbance of speech and face asymmetry increased the chance of timely arrival, odds ratio - 0,43; 95% CI[0,29-0,62]; 0,57; 95% CI[0,39-0,83]; 0,65; 95% CI[0,43-0,99] respectively. 105 (21%) subjects were considered not suitable for RT due to relative contraindications: 62 (59%) had NIHSS <5, 36 (34%) – age >80. RT group was characterized by longer hospital stay (8 versus 7 days), higher baseline NIHSS (7 versus 3) compared to AC and RC groups. RG, AC, RC groups differed significantly in terms of these outcomes – delirium (most common in AC group - 5%), intracranial hemorrhage (most common in RT group - 2,6%), infection (most common in RT group - 39,5%), and stroke (most common in RT group - 4,3%) during hospitalization.

Conclusions: The majority of subjects, who did not receive RT, had absolute contraindications. The most common AC - late arrival, RC – low NIHSS score. A widely used type of RT – is thrombolysis. RT, AC, RC groups differed significantly in terms of NIHSS on arrival. RT group had the highest NIHSS scores. Thrombectomy, thrombolysis, combined therapy, and no RT groups also differed significantly in terms of NIHSS on arrival. The thrombectomy group had the highest NIHSS scores. Paresis, disturbance of speech, face asymmetry were the symptoms, that increased the chance of treatment with RT. It is important to educate society about BE FAST stroke scale.

Women's awareness of the ophthalmological contraindications of natural childbirth – analysis

Anna Skoczek–Wojciechowska, Jakub Chryn, Natalia Zalewska

Presenting author: Anna Skoczek-Wojciechowska

Tutors: Joanna Ciszewska MD PhD

Affiliations: Medical University of Warsaw, First Department of Ophthalmology

Introduction: It is still commonly believed that natural childbirth in patients with some eye diseases (myopy included) can worsening the ophthalmic conditions with irreversible decrease of visual acuity. In Poland the most common ophthalmologic indication to terminate pregnancy by caesarean section is myopia (57%), whereas in most cases of the myopic patients' natural labour does not have an impact on vision's quality. In 2014 Polish Ophthalmological Society released guidelines on ophthalmological indications for pregnancy termination by caesarean section.

Aim of the study: The study was conducted in order to assess and compare the awareness of the official ophthalmological contraindications of natural labour among Polish women.

Materials and methods: The original, structured, anonymous, online survey was performed. The survey, distributed in social media, included nineteen, both open and closed questions. The data were analysed separately for each participant and in selected comparative groups, including women affected by visual impairments, women that had already given birth and women in general.

Results: In the study 624 women were involved, including 409 (65,5%) with myopia. Participants were asked if they agree with the statement that refractive error -_ mostly myopia is a contraindication of natural labour - 463 respondents (74,20%) agreed at some point or absolutely with this sentence. The most common contraindication (181 answers - 38,66%) shown by those respondents was some degree of myopia, supposedly worsening the visual acuity irreversibly. Only 13 respondents (2,08%) gave answers correct with the official indications. Myopic respondents were also asked if they were ever suggested that it is not recommended for them to give birth by natural labour - 130 (31,78%) answered positively. Only 18 respondents (4,93%), who have been pregnant, confirmed that a caesarean section was performed due to ophthalmological indications.

Conclusions: About one third of all respondents (31,57%) replied that any myopia or some degrees of myopia are indications to pregnancy termination by caesarean section. Due to still low awareness among Polish women about ophthalmological conditions predisposing to caesarean section, it is crucial for ophthalmologists and gynecologists to educate women about real medical contraindications of natural labour in those patients.

Prevalence of sensory integration disorders in patients with multiple sclerosis with the relapse-remitting form - a preliminary study

Krystian Mross, Marta Jankowska

Presenting author: Krystian Mross

Tutors: Wioletta Pawlukowska, MD, PhD; Marta Masztalewicz, MD, PhD

Affiliations: Pomeranian Medical University in Szczecin

Introduction: Multiple sclerosis (MS) is an autoimmune chronic disease with a progressive course. Its main symptoms are, among others, deficits in motor weakness, motor coordination, surface sensation disorders, as well as disorders of perception, cognitive function and social behaviour. Sensory Integration (SI), which play an important role in the perception and processing of stimuli, may also be dysfunctional in patients with multiple sclerosis.

Aim of the study: Assessment of the prevalence of SI disorders in people with MS, taking into consideration duration of the disease, degree of disability according to Expanded Disability Status Scale (EDSS), gender and handedness.

Materials and methods: 83 patients diagnosed with relapse-remitting MS were enrolled in the study. The mean age was 39.52 ± 9.83. Women constituted 69% and men 31% of the subjects. The Sensory Integration Scale for the Assessment of Sensory Integration in Adults (SPD) was used to examine sensory integration. A questionnaire including information on age, gender, handedness and disease duration was used as well in the study. Statistical analysis was performed with Statistica 13.0 package while Mann-Whitney U and Kruskal-Wallis tests were used to calculate statistical significance.

Results: A significant positive relationship was found between higher degree of disability and the occurrence of sensory hypersensitivity ($p=0.0338$) and impairment in motor skills ($p=0.0004$). Motor skills impairment ($p=0.014$) and sensory hypersensitivity ($p=0.0508$) were significantly more frequent in left-handed patients compared to right-handed patients. Significance of sensory discrimination impairment ($p=0.067$) in left-handed had a borderline p value. Men significantly more often than women declared the presence of motor impairment in the past ($p=0.0206$). No significant relationship was found between the duration of the disease and the occurrence of SI disorders.

Conclusions: Patients with MS exhibit somatosensory integration disorders, with motor dysfunction and sensory hypersensitivity being particularly noteworthy. The occurrence of these impairments is significantly associated with the severity of disease-related damage. Handedness is important for the occurrence of these disorders. The gender of the patients is also not without significance.

ORTHOPEDICS

12th of May 2022

Coordinators:

Katarzyna Kwas

Aleksandra Zielińska

Jury:

Prof. Andrzej Borowski, MD, PhD

Prof. Marcin Domżalski, MD, PhD

Sebastian Żabierek, MD, PhD

Anatomical description of the pericruciate fat pad (PCFP) - a cross-sectional cadaveric study.

Michał Kanak, Marcin Mostowy

Presenting author: Michał Kanak

Tutors: Jędrzej Lesman, MD, PhD, prof. Marcin Domżalski, MD, PhD

Affiliations: Department of Orthopaedics and Traumatology, Veterans' Memorial Teaching Hospital in Łódź, Medical University of Łódź

Introduction: Fat pads of the knee joint are involved in multiple knee pathologies. The pericruciate fat pad (PCFP) is a structure already known to be associated with knee osteoarthritis or anterior cruciate ligament rupture, however its morphological characteristics are not well defined.

Aim of the study: To study the anatomy of the PCFP and to gather data pertaining its size and volume as well as to assess presence and morphology of the middle genicular artery (MGA) within the PCFP.

Materials and methods: Four male cadaveric lower limbs were dissected. The PCFP was excised, its anteroposterior (AP) and proximal-distal (PD) lengths and volume were measured. The presence of MGA was assessed and its internal diameter was registered. For descriptive statistics arithmetic mean, standard deviation (SD) and range were used. For analytic statistics Shapiro-Wilk test was performed to assess the normality of distribution of the acquired data.

Results: The PCFP was located in the intercondylar fossa. Its superior, inferior, collateral and posterior borders were formed by: intercondylar roof, tibial plateau, femoral condyles and posterior knee capsule, respectively. The anterior part of the PCFP was enveloping the posterior cruciate ligament (PCL). It was connected to the PCL with a fibrous process. The PCFP presented gelatinous consistence and had homogenous appearance of a yellowish adipose tissue with small lobules. The mean AP, PD lengths and volume were 56,85±3,4mm (range 52,1-60,2mm), 42,8±5,8mm (range 34,2-46,1mm) and 43,75±4,79ml (range 40-50ml), respectively. The MGA was present in all four excised PCFPs and its mean diameter was 1,2±0,33mm (range 0,8-1,55mm). It entered the PCFP in the upper half of its posterior border with no visible exit point in the anterior part.

Conclusions: The PCFP is a relatively large structure, with MGA present within all examined cases. Care must be taken when performing surgeries involving the posterior compartment of the knee, because due to the presence of the MGA the PCFP presents an underestimated potential for oedema and bleeding.

How do alpha angles change in femoroacetabular impingement (FAI)?

Antoni Raciborski - Król, Tomasz Noras, Jakub Wąsik, Katarzyna Kwas, Grzegorz Maciąg

Presenting author: Antoni Raciborski - Król

Tutors: Radosław Grabowski, MD, PhD

Affiliations: Students' Scientific Circle of Orthopedy and Traumatology in Medical University of Łódź;

Department of Orthopaedics and Traumatology, Veterans' Memorial Teaching Hospital in Łódź, Medical University of Łódź

Introduction: Femoroacetabular impingement (FAI) is a pathological condition when contact between femur and acetabulum is increased, leading to gluteal pain and acceleration of osteoarthritis process. In order to stop these changes, the surgical management is necessary. The most common technique used is arthroscopic osteoplasty. Diagnosis of FAI is based on multiple parameters. According to the literature, angle created by long axis of femoral neck and line that connect center of the head of femur, socalled alpha angle may be helpful with FAI determination.

Aim of the study: The aim of the study was to determine the correlation between alpha angle and neck-head ratio in patients with femoroacetabular impingement (FAI).

Materials and methods: Adult patients with diagnosed FAI, with set of X-ray pictures, leaded for hip arthroscopic osteoplasty were included into the study. 3 independent researchers with the use of RadiAnt Programme assessed X-ray pictures of alpha angles and neck-head ratios in affected sides before and after the surgery. Statistical analysis was performed, bioethics committee approval was acquired.

Results: 101 patients (mean age = 47 years, SD= 10,2, MIN= 20, MAX=73) were included into the study. 73% of patients were males only 27% patients were females. 50,5% of patients had FAI in the right hip, and 49,5% left hip joint. The mean alpha angle presurgically was 83,4°(SD=20,2°) and postsurgically was 69,5°(SD=23,5°). The mean neck-head ratio before was 0,91 (SD=0,068) and after was 0,84 (SD=0,081). Positive correlation between postsurgically head-neck ratio and alpha angle was statistically insignificant and equalled (rs=-0,08, p=0,4). Positive weak correlation between these presurgical factors was observed (rs=0,125, p=0,11).

Conclusions: Observed results show that there was positive weak correlation between alpha angle and neck-head ratio. The normalization of the alpha angle was observed after the surgery as well as neck-head ratio values. Such results may indicate the positive effect of hip arthroscopic osteoplasty on measured parameters. However is worth carrying out further research to observe the changes of mental and physical health of the patients who underwent surgery.

The analyze of degenerative lesions in old meniscus traumas.

Kacper Kopeć, Konrad Szalbot, Katarzyna Kwas, Marcin Mostowy

Presenting author: Kacper Kopeć

Tutors: Jędrzej Lesman, MD, PhD

Affiliations: Medical University of Łódź

Introduction: Osteoarthritis is a serious disorder that may affect and impair knee joint with chronic pain, stiffness, or reduced mobility. Pathology such as meniscus injury might cause acceleration of degenerative processes. Meniscus is a structure with a lot of functions to prevent degenerative disorder of knee joints like shock absorption, load bearing or joint stability. if not treated, those functions can decrease and, the osteoarthritis occurred faster rather than with healthy meniscus.

Aim of the study: The aim of our study was to assess degenerative changes during old isolated meniscal traumas in knee joint on the injured and non-injured side with the differences in lesions between them.

Materials and methods: In this retrospective clinical study patients with old isolated meniscal lesions were included with age more than 15 years old. Patients with any different injury, treatment or intervention in the knee joint were excluded. Existing lesions in the articulation were compared and analyzed statistically along with p value less than 0,005 was considered significant.

Results: Among 174 analyzed patients (62 females, 115 males, mean age=44,46 SD=13,07) 89% occurred to have damage medial meniscus (MM) and 11% of them had lateral meniscus (LM) trauma. Along with MM traumas, on tibia 64 patients had no lesions and 91 had on injured side while on non-injured it was 86 vs 69 (p=0.014). Concomitantly 86% patients with 0-2 grade chondromalacia and 14% with chondromalacia 3-4 grade on the injured side while on the non-injured side it was 97% vs 3% (p=0.0006). At the same time on femur 60 did not experience lesions and 95 did on the injured side and on the non-injured the ratio was 90 vs 65 (p=0,0005). Simultaneously 81% patients had 0-2 grade chondromalacia and 19% of them had 3-4 grade on damaged side while on not damaged the ratio was estimated at 97% vs 3% (p=0.00001). Within lateral meniscus traumas all analyzed data was not statistically significant.

Conclusions: Outcomes of our study suggest that there is an association between damage to the medial meniscus and arise lesions such as chondromalacia. It may lead to osteoarthritis in knee articulation. Due to not enough patients with lateral meniscus traumas, we cannot assess if there is the same association in this case. More study should be provided on a larger cohort. Moreover, there is a need to analyze more factors that also have an impact among with our study.

A new point of view on coracoacromial ligament - proposal for a new classification based on anatomical analysis and imaging diagnostics - Pilot study

Adrian Balcerzak, Nicol Zielińska

Presenting author: Adrian Balcerzak

Tutors: Prof. Łukasz Olewnik, D.P.T, PhD, Kacper Ruzik, MD

Affiliations: Medical University of Łódź, Poland

Introduction: Coracoacromial ligament (CAL) is a strong, triangular structure lying between the coracoid process and the acromion. It forms an osseoligamentous static restraint stabilizing the head of the humerus and thus the glenohumeral joint (GH). It plays an important role in shoulder biomechanics and proprioception - it is proved, that CAL is involved in mechanosensory feedback loops that assist dynamical stabilization of the shoulder through its full arc of motion. CAL is implicated as contributing to the pathophysiology of pain associated with painful movement of the rotator cuff against the coracoacromial arch, or classic external impingement syndrome. There is a clear association between rotator cuff tears and straight collagen patterns within CAL. Apart from the histological arrangement of the fibers, their position may also be influenced by the macroscopic, morphological, various anatomical variants. The current CAL classification does not allow for an accurate overall assessment, disregarding the multiband variability. Accurate classification allowing for a reliable determination of the ligament morphology is required to conduct further studies on the correlation between the type of CAL and the tendency to pathology.

Aim of the study: The main aim of this pilot study was to investigate morphology of coracoacromial ligament and present classification, that allow a precise morphological description of individual CAL bands in terms of their variability and topographic relationships. Second scope of interest was to evaluate compliance of the morphological features observed during anatomical preparation and in imaging diagnostics (USG/MRI).

Materials and methods: The anatomical variations of CAL were examined in 40 cadavers fixed in 10% formalin – 20 female (F) and 20 male – from Central European population, mean age of the cadavers at death was 60.1 years (range 38–85). Morphometric measurements were then obtained twice by two researchers. The results of the imaging diagnostics (15 MRI and 15 USG) were analyzed according to the guidelines by two independent researchers and compared with the results of anatomical preparation.

Results: In the proposed classification system Type I, characterized by single band - occurred in 52.50% of the specimens. Type II, characterized by presence of two bands, was present in 25%. Type III, characterized by presence of three bands, was present in 2.5%. Type IV, characterized by a presence of four bands, was observed in 2.5%. Type V, which is characterized by presence of more than four bands was observed in 17.5%. Type V was divided into 3 subgroups. The results of the imaging diagnostics were consistent with the results of anatomical preparation.

Conclusions: The CAL is characterized by high morphological variability, the variants being associated with distinct clinical aspects. The introduction of a new, structured and more advanced classification seems necessary for orthopedists operating in this area.

Do the angles matter? Analysis of the types of fractures of the distal radius and their influence on the position of the fractures.

Agata Brzyska, Rafał Ejsner, Katarzyna Kwas, Grzegorz Maciąg

Presenting author: Agata Brzyska

Tutors: Łukasz Lipiński, MD, PhD

Affiliations: Medical University of Łódź;

Medical University of Warsaw;

Orthopedics Clinic with the Pediatric Orthopedics Subdivision, Central Clinical Hospital of the Medical University of Łódź

Introduction: Distal radius fractures are one of the most common, accounting up to 18% of all fractures among adults. Society is getting older and therefore more prone to injuries. This fact shows that it is an increasing problem not only for the healthcare system but also for a patient themselves. Volar tilt is described as the tangential line of the distal radial articular surface on a standard lateral radiograph compared with a line perpendicular to the radial shaft axis. This normally measures approximately 15 degrees (between 10 and 25). Restoration of volar tilt is clinically important, if not restored could result in a shortened radius with increased ulnar loading and ulnar-sided wrist pain, migration of radiocarpal force transmission, and the possibility of degenerative joint disease.

Aim of the study: The aim of our study is to show the impact of the type of used treatment on the change of volar tilt angle.

Materials and methods: Adult patients with diagnosed distal radius fracture hospitalized between February 2015 and February 2021, were included into the study. Patients' data were taken from the hospital's medical record and volar tilt angles were measured on Xrays before and after the surgery by two independent researchers. Statistical analysis was performed, bioethics committee approval was acquired.

Results: A total of 60 patients were included in this study, 78,3% women and 21,6% men (mean age= 60,6, SD=16,7). Fixation of distal radius fractures were performed using 3 different techniques. The most common was reposition using LCP plates (51,5%). The fracture was treated using closed reposition (28,3% cases) and closed reposition using Kirscher's wires (20% cases). According to our study, more common were left upper limb fractures (73,4%) than the right one (26,5%). In 92,2% cases both radius and ulna were fractured during the injury. The highest angle before the fixation was 41,45(SD=8,8) the lowest 4,0(SD=8,8). After the reposition, the highest angle was 22,45 and the lowest 4,25 (SD=4,4). Before any treatment in 40% cases volar tilt was off the charts, from which 30% was too low (<10) and 70% too high (>25). After fixation, in 30% of cases, volar tilt angles were abnormal, all of which were too low. Only 11,6% patients suffered from complications after the procedure among which 57% were swelling and 43% patients needed to be performed with another reposition procedure due to unsatisfactory bone alignment. There was a statistically significant difference between the preoperative and postoperative volar tilt ($p<0.024$).

Conclusions: The type of used fixation does have an impact on optimized volar tilt. After fixation the volar tilt angle is mainly within the normal range but it also happens to be lower. At this point to evaluate a patient's long term postoperative movement, further research is compulsory.

Duration of immobilisation and time of recovery in first time ankle sprains.

Jędrzej Kudzin, Szymon Musiał, Katarzyna Kwas, Grzegorz Maciąg

Presenting author: Jędrzej Kudzin

Tutors: Łukasz Lipiński, MD, PhD

Affiliations: Students' Scientific Circle of Orthopedy and Traumatology in Medical University of Łódź;

Medical University of Łódź;

Medical University of Warsaw;

Orthopedics Clinic with the Pediatric Orthopedics Subdivision, Central Clinical Hospital of the Medical University of Łódź

Introduction: Ankle sprains are one of the most common injuries that occur among people of all ages. Although they are sometimes considered minor contusions, they can lead to complications such as persistent instability, pain, hypokinesis or worse sports performance. Literature usually suggests treatment with methods such as rest, ice, compression and elevation (RICE), but there is no consensus about optimal duration of the treatment.

Aim of the study: The purpose of this study was to analyse the relationship between duration of immobilisation and time of return to preinjury activity in first time ankle sprains.

Materials and methods: Adult patients with diagnosed first time ankle sprains between May 2020 and September 2020 were included into the study. The patients' data were obtained from the medical records. Further examination was performed by telephone contact. Patients were asked about the duration of immobilisation, time of recovery and possible complications. Statistical analysis was performed, bioethics committee approval was acquired.

Results: The study included a group of 70 patients (mean age= 30,9, SD= 14,9), 38,6% of whom were males and 61,4% females. Duration of immobilisation ranged from 0,43 to 6 weeks, while time of recovery varied from 1 to 52 weeks. Results showed statistically significant correlations between these two variables ($p<0,0001$; $Rs=0,66$). Statistically significant impact of age was not observed. When the study group was divided into subpopulations the correlation analysis showed statistical significance in a group with grade I ankle sprain ($NI=60$; $p<0,0001$; $Rs=0,56$), while in a grade II ankle sprain group such correlation was not statistically significant ($NII=10$; $p=0,72$; $Rs=0,13$).

Conclusions: There is a correlation between duration of immobilisation and time of recovery in first time ankle sprains. However, correlation is not causation so we can't tell if the longer immobilisation causes longer time of recovery or the other way around or there is another factor that determines both analysed variables.

Treatment of congenital clubfoot with the Ponseti method - the parents' perspective.

Julia Kulbacka, Katarzyna Kwas, Michalina Prowotorow

Presenting author: Julia Kulbacka

Tutors: Błażej Pruszczyński, MD, PhD

Affiliations: Medical University of Łódź;

Department of Orthopedics and Pediatric Orthopedics, Central Clinical Hospital of the Medical University of Łódź

Introduction: The Ponseti method is the gold standard treatment for congenital clubfoot in pediatric patients. The process of treatment consists of a sequence of a serial long-leg casts, Achilles tenotomy and the abduction brace which are applied for a total of 4-5 years. Such a technique is a feasible method for clubfoot treatment, however, since it consists of multiple long-term steps that affect daily functioning, it may be demanding for patients and their parents.

Aim of the study: The aim of our study was to analyze the parents' perception of children diagnosed with clubfoot regarding the Ponseti method of treatment.

Materials and methods: 161 families with children, of which 51 girls and 110 boys participated in the study. All patients were diagnosed with clubfoot and were treated privately. In the course of our study, they answered 63 questions about difficulties that occurred during treatment time. Statistical analysis was performed, bioethics committee approval was acquired.

Results: Results shown that during casting phase, 5% of families reported a problem with child insomnia and irritation, 40% of them had difficulties while bathing and maintaining their child's hygiene. Skin problems were reported in 33.5% of cases. The bracing phase was found difficult by 63.5% of families. Most of the problems occurred in the period of the first six months of the therapy. 21% of parents had troubles with proper brace alignment and proper using of the brace. In general, 87.6% of the overall number of treatments were successful.

Conclusions: The Ponseti method is a demanding treatment for patients and their parents. Identification of associated difficulties may make it possible to prevent them and better educate parents about the treatment and possible related problems. It may result in better compliance and lower dropout rate, which can significantly improve the treatment process and decrease the likehood of relapse.

Is sport healthy? Epidemiology and etiology of injuries of the locomotor system in contact sports.

Adrian Gutowski, Filip Bracichowicz, Katarzyna Kwas, Marcin Mostowy

Presenting author: Adrian Gutowski

Tutors: Jędrzej Lesman, MD, PhD

Affiliations: Medical University of Łódź

Introduction: Injuries of the locomotor system among amateurs athletes are the main reason of detaining or ending their sport career. 81,94% athletes training contact sports suffered injury of locomotor system. Each discipline has its own types of traumas with different etiology. Gathered information may help to find means of prevention and treatment of injuries in that field.

Aim of the study: The purpose of the study was to determine the etiology and epidemiology of injuries among young athlete competing in high level contact sports.

Materials and methods: An online questionnaire survey was conducted with use of websites associating amateurs athletes. Participants were asked about their BMI and medical status, amount of time spent on training, preparation for intensive training, causation of an injury and its type, as well as the process of treatment and the effects. Results were collected over 3 months. The inclusion criteria were active participance in at least one training a month of football or basketball or handball; experienced injury due to previously chosen discipline.

Results: 102 athletes (mean age=22,55 SD= 4,32) responded, 59 of them met inclusion criteria. The most common injured area was a knee joint among handball (43,49%) and soccer (44,83%) when an ankle was mostly affected among basketball players (65,37%). The most common upper extremity injury, that occurred in 7,69% of injured basketball and 8,7% handball players and didn't occur among soccer players was metacarpophalangeal joints dislocation. Joint dislocation was the most common (53,85%) type of injury among basketball players, while among soccer (31,03%) and handball (52,18%) the most common type of injury was a sprain. The ACL rupture occurred in 17,24% of soccer players, 13,04% of handball players and in none of basketball players. The most common etiology of injury among all disciplines was improper placement of a foot. The second most common etiology of injury among basketball players (15,38%) and football players (24,14%) was collision with another player while among handball players it was third most common etiology (8,70%). There was a correlation between the BMI of an athlete and injury occurrence during t-student test (p=0,030563), the higher BMI the higher is a chance of injury.

Conclusions: The discipline of trained sport affects the type and etiology of locomotor system injuries. A larger BMI increases the chance of an injury among young athlete competing in high level contact sports.

PEDIATRICS

13th of May 2022

Coordinators:

Julita Tokarek

Zuzanna Partyka

Jury:

Prof. Paweł Majak, MD, PhD

Beata Mianowska, MD, PhD, prof. UM

Renata Stawerska, MD, PhD, prof. UM

Renata Szmigielska, MD, PhD

The neutrophil to lymphocyte ratio as an index of inflammation in children with bronchial asthma

Monika Żybowska, Klaudia Ostrowicz, Agnieszka Fitas

Presenting author: Monika Żybowska

Tutors: Ewelina Wawryk-Gawda, MD, PhD

Affiliations: Students' Scientific Group at the Department of Department of Paediatric Pulmonology and Rheumatology, Medical University of Lublin;

Department of Paediatric Pulmonology and Rheumatology, Medical University of Lublin

Introduction: Asthma is one of the most common chronic respiratory diseases among children worldwide. A significant problem is finding a marker of airway inflammation that will correctly identify the condition and its phenotype. The solution may be the determination of the neutrophils to lymphocytes ratio (NLR), which could be a useful diagnostic marker supporting more invasive methods that already exist. The NLR can be quickly and easily calculated based on basic laboratory research.

Aim of the study: The aim of the study was to investigate the role of the neutrophil-lymphocytic index in the diagnosis and differentiation of the types of asthma in children.

Material and methods: The study included a group of pediatric patients admitted to the Department of Paediatric Pulmonology and Rheumatology in University Children's Hospital in Lublin from 2017 to 2020. The results of 482 children, including 299 boys and 183 girls, were analyzed. According to ICD-10, patients with allergic (J45.0), non-allergic (J45.1) and undefined (J45.9) asthma were selected. 107 results of children without allergic disease symptoms were chosen as the control group. The relationship between the NLR value and the age, gender, BMI and body temperature of the patients was also assessed. The values of the laboratory parameters were obtained from the blood count on the first day of the patient's stay in the hospital ward.

Results: The mean NLR in patients with asthma was 3.42 ± 4.05 and in the control group 1.94 ± 1.91. In the group J45.0 it had a value of 4.09 ± 4.57, in J45.1 it was 2.72 ± 3.27, and in J45.9 it was 3.48 ± 4.20. The difference between the NLR in allergic and non-allergic asthma was statistically significant ($p = 0.003350$) and in allergic asthma and control group ($p = 0.000015$). There was no statistically significant difference between NLR and body temperature, BMI, and gender ($p > 0.05$).

Conclusions: The value of NLR is significantly higher in the group of patients suffering from asthma compared to the control group. The NLR was the highest among patients with allergic asthma. Introducing it into daily practice may facilitate the diagnosis and differentiation of the type of asthma, especially when the results of other tests are inconclusive

The epstein-barr virus infection status among patients treated in pediatric oncology department between 2017-2021

Aleksandra Gieras, Patrycja Kałuziak, Aleksandra Kubas

Presenting author: Aleksandra Gieras

Tutors: Bartosz Szmyd, MD, Julia Kołodrubiec, MD, Prof. Wojciech Młynarski, MD, PhD, Agata Pastorczak, MD, PhD

Affiliations: Medical University of Łódź

Introduction: The World Health Organization estimates that 15.4% of all cancers develop as a consequence of infection and 9.9% are specifically related to viruses such as Epstein-Barr virus (EBV), human papillomavirus, or human immunodeficiency virus. They contribute to cancer development interfering with different biological processes. EBV has been widely described as an infectious agent linked to childhood lymphoma. Despite clear coincidence between EBV infection and many malignant tumors, the underlying nature of EBV-host interaction remains unclear.

Aim of the study: The assessment of the EBV infection status in pediatric oncology patients treated at the Department of Pediatrics, Oncology, and Hematology of the Medical University of Lodz in 2017-2021.

Materials and methods: To achieve this goal, we analyzed medical records of pediatric patients treated in the Department of Pediatrics, Oncology, and Hematology (Medical University of Lodz) between 01/01/2017 and 12/31/2021. We collected the following data: sex, age during the diagnosis, diagnosis, treatment protocol, second neoplasm, the death of patients, and parameters indicating EBV infection (IgG and IgM antibodies as well as the presence of EBV DNA). Further, EBV infection status was secondly checked in the DIAGNOSTYKA database. Statistical analysis was performed using Statistica 13.1PL (StatSoft, Poland, Krakow).

Results: We analyzed records from in total of 405 children (212, 52.35% males) treated due to malignancy. The most frequent diagnosis was leukemia (107, 26.42%), central nervous system tumor (58, 14.32%), and lymphoma (36, 8.89%). Parameters indicating on EBV infection were tested among 207 (51.11%) patients for IgG, 207 (51.11%) patients for IgM, and 8 (1.98%) for EBV DNA. IgG antibodies were not detected among 69 (33.33% of tested children). IgG was positive in 137 (66.67%; including 14 (6.77%) tests exceeded test range). The most frequent diagnosis among IgG(+) patients were: leukemias 66 (47.82%) and lymphoma (15.94%). IgG(-) patients were significantly younger than IgG(+): 5y.o. (IQR: 2-9) vs. 9y.o. (IQR: 4-13; $p<0.001$). IgM antibodies were not detected among 179 (86.47% of tested children). There were 28 (13.53%; 4 (1.93%) exceeded test range) IgM(+) patients. The most frequent diagnosis among IgM(+) patients were: leukemias 12 (43.29%) and nephroblastoma 2 (7.14%). There was no significant age difference between IgM(-) and IgM(+) children. EBV DNA was not detected in any case.

Conclusions: EBV antibodies are commonly measured parameters in pediatric oncohematologists' practice when EBV DNA remains practically unused. IgG(+) EBV status is a frequent finding among children treated in the oncological department, especially in patients older than 9 years.

Usage of volBrain software in the evaluation of brain structures volume in pediatric patients with epilepsy

Katarzyna Drelich, Olga Pustelniak, Monika Zbroja, Weronika Cyranka

Presenting author: Katarzyna Drelich

Tutors: Magdalena Maria Woźniak, MD, PhD

Affiliations: Students' Scientific Society at the Department of Pediatric Radiology, Medical University of Lublin;

Department of Pediatric Radiology, Medical University of Lublin

Introduction: Epilepsy is one of the most frequent serious brain disorders. It is a combination of somatic, vegetative, and psychiatric symptoms resulting from both morphological and metabolic changes in the brain. Magnetic resonance (MR) is the method of choice for diagnosing and monitoring patients with epilepsy.

Aim of the study: The aim of the study was to evaluate anatomic structures' volume of the brain in pediatric patients with epilepsy.

Materials and methods: A group of 50 pediatric patients with clinical symptoms of epilepsy (study group) and 30 healthy patients (control group) aged 1-17 years were enrolled in the study. Brain MR imaging without contrast agent administration was performed in all children between 2018 and 2021. Individual anatomical structures of the central nervous system were analyzed on the basis of T1-wieghted 3D isometric 1 mm sequence and volume changes of specific structures were compared between the study group and the control group.

Results: The ratio of brain tissue to CSF was 89.34% to 10.66% in the study group and 90.7% to 9.3% in the control group. In the results presented, comparing the study group to the control group, the volumes of individual brain structures were as follows: cerebrum – 78,19%/79,22%, cerebellum – 9,72%/9,98%, lateral ventricle – 1,18%/0,52%, caudate – 0,54%/0,54%, putamen – 0,63%/0,66%, thalamus – 0,84%/0,89%, globus pallidus – 0,19%/0,18%, hippocampus – 0,47%/0,51%, amygdala – 0,11%/0,11%, accumbens – 0,04%/0,05%.

Conclusions: In the course of epilepsy in children, a decrease in the volume of brain tissues such as the thalamus and hippocampus are observed. In addition, an increase in the volume of cerebrospinal fluid and lateral ventricles is observed. These data have important clinical and prognostic significance but need to be confirmed on a large study group, taking into account changes in the volume of anatomical brain structures in relation to age and duration of the disease.

Pediatric patients in maxillofacial surgery department

Shin-Yi Lin, Maiken Wang, Aya Kraiz

Presenting author: Shin-Yi Lin

Tutors: Aleksy Nowak, MD, Łukasz Słowik, DDS

Affiliations: Chair and Department of Maxillofacial Surgery Poznan University of Medical Sciences
Doctoral School of Poznan University of Medical Sciences

Introduction: The aim of this study was carried out in children and adolescents of both sexes, aged 5-17 years, seeking from 2018 to 2021 before and after the COVID-19 era at the Department of Maxillofacial Surgery at Szpital Kliniczny im. Heliodora Święcickiego, Poznań, Poland.

Aim of the study: We conducted this study involving pediatric patients aged 5-17 years admitted to the maxillofacial surgery department Szpital Kiniczny im. Heliodora Swiecickiego with facial fractures, oral cancer, abscess, and disturbances. The following parameters were evaluated by age, gender, and etiology of trauma.

Materials and methods: From March 14th, 2018 to March 14th, 2019, 45 cases have been checked in to the hospital in the age between 5 to 17, female to male ratio was 1.36: 1, and the majority of the etiology of trauma are facial fractions. March 15th, 2019 to March 14th, 2020, there are 31 cases with ages between 6 to 18, female to male ratio was 0.82:1, and the majority of the etiology of trauma is the tumor. From March 15th, 2020 to March 14th, 2021, there are 26 cases within the age between 8-17, female to male ratio was 0.44: 1, and the majority diagnosis injury are tumor as well. Cancer was most commonly involved during the Covid, including neoplasms and abscesses. Fractures, including maxilla and mandible.

Results: Therefore, we conduct that the Covid era has significantly decreased the pediatric patients' incoming rate due to the restrictions and the threat of Covid.

Conclusions: Thus, the purpose of this study was to identify types of traumatic dental injuries in primary and permanent dentition, sex and age distributions, and the comparison of before and after when COVID-19 has hit with the hospital's restrictions in Poland. In addition, this study aimed to analyze the patterns of pediatric cases in children and adolescents admitted at the maxillofacial surgery department in Szpital Kliniczny im. Heliodora Święcickiego, Poznan City, Poland, retrospectively from 2018 to 2021 before and after the covid era.

Comparison of clinical outcome of oligoarticular JIA and Lyme arthritis among children

Joanna Męczyńska, Nadia Miga, Małgorzata Miazga

Presenting author: Joanna Męczyńska

Tutors: MD, PhD, Violetta Opoka - Winiarska

Affiliations: Student Scientific Circle of Pediatric Pneumology and Rheumatology, Medical University of Lublin;

Department of Pediatric Pneumology and Rheumatology, Medical University of Lublin

Introduction: A word arthritis does not come along with a word child in most parents' opinions. However arthritis affects circa about 15% pediatric population. The most common disease is Juvenile Idiopathic Arthritis, defined as a chronic, inflammatory disorder which causes progressive joint destruction as well as systemic manifestations. One type of JIA – oligoarthritis attacs single joints, therefore it may resemble articular Lyme disease.

Aim of the study: The aim of the study is to compare main clinical manifestations and laboratory tests of oligoarticular juvenile idiopathic arthritis and Lyme arthritis.

Materials and methods: The study included 49 patients identified using ICD-10 codes – M08.4 - referred to Pauciarticular juvenile idiopathic arthritis – 28 children and A69.2 -referred to Lyme disease – 21 children. All of them were hospitalized over the period 2007-2021 in Department of Pediatric Pulmonology and Rheumatology, Medical University of Lublin due to articular symptoms.

Results: In both diseases girls were the dominant sex, however the difference was less significant in JIA (67% vs 57%). Patients were diagnosed with JIA at the average age of 6 years 11 months, while children with Lyme disease got the diagnosis almost twice later, at the average age of 12,5. First symptoms of both diseases were quite similar. Significant signs of JIA in physical examination were: swelling (96%), warmth (68%) and motor deficit (64%) of the affected joints. Whereas patients with LA complained predominantly about pain (81%), motor deficit (57%) and morning stiffness (9,5%) and their physical examination revealed prevailingly swelling (71%) and warmth (52%) of affected joints. Patients with diagnosis of JIA complained about symptoms coming from 1 to 6 joints, however majority (68%) had disfunction of 1 joint, whereas among patients with Lyme arthritis indisposition of 1 joint compared to more than one joint was similar. Both JIA and Lyme arthritis referred predominantly to knees, that was affected in 79% of children with JIA and 71% of children with borreliosis. In most patient's history of Lyme disease there hadn't been noted a tick bite, which deepened diagnostic difficulties.26 patients with JIA diagnosis were tested for Borrelia burgdorferi antibodies. In 23 of them antibodies were not revealed, while in 2 cases the results were uncertain. Regarding to serological tests, in 18 of 26 tested patients with JIA antinuclear antibodies were detected, whereas among 10 patients with Lyme arthritis tested for ANA, it was detected in 3 of them.

Conclusions: Both JIA and LA occur in similar way, therefore proper laboratory tests are significant to recognise etiology of the inflammation and hopefully, implement adequate treatment that will prevent progressive joint destruction. Lyme disease should be ruled out in every child with suspected JIA with an oligoarticular onset, regardless of a history of confirmed exposure to ticks.

Clinical features of congenital cytomegalovirus infection- a five year retrospective study

Mary Abba, Mari Esho

Presenting author: Mary Abba

Tutors: Karolina Śledzińska, MD, PhD, Prof. Jolanta Wierzba

Affiliations: Medical University of Gdansk

Introduction: Cytomegalovirus (CMV) is one of the most common causes of intrauterine infection with leading role in childhood disability, especially deafness. Until recently, prenatal CMV infection was not treated due to high toxicity of valganciclovir. Currently, there is more and more evidence of beneficial role of valaciclovir in the treatment of prenatal CMV, yet it is not included into prenatal care guidelines. Therefore, it is interesting to evaluate current congenital CMV symptoms in neonates, before potential routine introduction of prenatal treatment with valaciclovir.

Aim of the study: Our aim of study was to evaluate the spectrum of congenital CMV infection presentation in neonates and infants.

Materials and methods: The retrospective analysis of hospital admissions due to suspicion of congenital CMV infection was performed. Between years 2017-2021 there were 877 neonates referred to the Department of Neonatal and Infantile Pathology and Metabolic Diseases UCK, Gdansk, Poland for further diagnostics. Medical data regarding symptoms and medical history of congenital CMV infection were analysed. Congenital CMV infection was confirmed with PCR CMV DNA urine analysis.

Results: A total number 60 patients was diagnosed with congenital CMV infection (14,6% of referred patients). There were 17 patients (28.3%) born prematurely, APGAR scores ranged from 3 to 10 (mean=8.08), 9 (15%) patients had low birth weight. The majority of children were treated with valganciclovir, and only few had short periods of ganciclovir treatment (11.7%). Among most common complications full blood count abnormalities were documented: anemia 23 (38.3%), neutropenia 35 (58.3%) and thrombocytopenia 15 (25%). However, only 14, 22 and 12 patients had these abnormalities initially, the remaining 9, 13 and 3 patients developed them in following months. Next, liver function tests were found abnormal: bilirubin, AST, ALT and GGTP were raised in 14 (23%), 12 (20%), 9 (15%) and 20 (33.3%) patients, respectively. There were 15% of patients with the presence of CMV in the CSF. On the abdominal USS, hepatomegaly and splenomegaly were found in 2 (3.33%) and 4 (6.67%) of patients, respectively. Head USS abnormalities showed various results, with choroid plexus cysts (38.3%) and striato-thalamic vasculopathy (28.3%) as the predominant findings. On the ophtalmological examination 21.7% of neonates had eye abnormalities. The other common clinical manifestation found was skin abnormality in 20% of patients.

Conclusions: Our study showed the necessity of neonatal laboratory blood tests and abdominal and head USS in patients with the suspicion of congenital CMV infection. The further detailed analysis is needed of the abnormalities found in the selected group of patients to draw more valuable conclusions.

The impact of the COVID-19 pandemic on children's mental health in the middle of the second year of quarantine in Lithuania

Martyna Bakutyte, Emilija Milasiute, Vilius Jocys

Presenting author: Martyna Bakutyte

Tutors: Prof. Darius Leskauskas

Affiliations: Lithuanian University of Health Sciences, Kaunas Clinics, Lithuania

Introduction: The necessity of understanding the relevance of the possible negative long-term consequences of the pandemic caused by COVID-19 on children's mental health is relevant. Our study is focused on children's perspectives on their emotional and behavioural changes during the quarantine.

Aim of the study: To evaluate the impact of the pandemic related restrictions on the mental health of 11-17-year-old children in the second year of the pandemic.

Materials and methods: 389 11-17-year-old children from 4 schools participated in our study. Data was collected from March 9, 2021, to April 30, 2021, using a cross-sectional study. Children answered questions about their emotional state, changes in emotions, behaviour, and relationships during quarantine. Children were divided into groups by gender (girls and boys) and age (11-14 and 15-17 years old). The qualitative variables (children) and responses (less than average, average, more than average; positive, neutral, negative) in the study sample were categorized and differences were assessed. The nationwide quarantine was announced in Lithuania in November 2020. During our survey the restrictions on movement between municipalities were lifted, children studied only remotely. In the beginning of the year 2021, some of the restrictions were removed. Firstly, from March allowing non-formal education activities outdoors, secondly, since the middle of April, allowing cultural events.

Results: Girls statistically significantly more frequently felt anxiety (21.6% vs 12.8%), stress and tension (15.8% vs 8.8%), fatigue (27.4% vs. 18.2%), got angry more easily (22.4% vs. 17.6%) and their overall emotions were more negatively affected (56.8% vs. 45.9%) than boys. Boys statistically significantly more frequently were not able to engage in daily activities (39.2% vs. 29.5%) than girls. Children aged 15-17-year-old statistically significantly more often stated loneliness (30.7% vs 14.9%), the impaired concentration of attention (56.4% vs 28.4%), used physical aggression less frequently (82.2% vs 63.5%), and their overall behaviour was more negatively affected (46.9% vs. 33.8%) than 11-14-year-old children. 11-14-year-old children's relationships with their siblings were statistically significantly more negatively affected by quarantine (19.6% vs 9.9%) than those aged 15-17-year-old.

Conclusions: Pandemic caused by COVID-19 infection had an extensive negative impact on children's mental health by disturbing their behaviour, emotions, and relationships. As the pandemic continues it is important to monitor its impact on children's and adolescents' mental health and to find factors improving their mental health outcomes.

Glucose control changes following a switch to MiniMed 780G system in paediatric patients and young adults with type 1 diabetes

Zofia Lesiak, Aleksandra Bilińska, Wiktoria Krzesłowska, Julia Wykrota

Presenting author: Zofia Lesiak

Tutors: Prof. Agnieszka Szadkowska MD, PhD, Arkadiusz Michalak, MD

Affiliations: Medical University of Łódź;

Medical University of Lodz, Department of Pediatrics, Diabetology Endocrinology and Nephrology;

Medical University of Lodz, Department of Biostatistics and Translational Medicine

Introduction: MiniMed 780G represents the most Advanced Hybrid Closed Loop systems currently available in pediatric and adult subjects with Type 1 Diabetes (T1D). Semi-automatic insulin dosing can be especially useful in youth who have the most difficult time achieving good glycaemic control.

Aim of the study: The aim of the study was to assess the changes in glucose control parameters in children and young adults with T1D started on MiniMed 780G compared with previous modes of insulin pump therapy.

Materials and methods: This was a single-centre prospective study. Patients were enrolled according to the following inclusion criteria: age below 26 years and duration of diabetes above 6 months. T1D treated with insulin pump and CGM. Data were collected at the initial visit with the MiniMed 780G and after 3 and 6 months of therapy. The assessment included HbA1c, time spent in loop mode, CGM-based glucose parameters (Time in Range — TIR; Time below Range — TBR Time above Range — TAR) and BMI. Statistical analysis of results was performed using Statistica 13.1 and $p<0.05$ was considered statistically significant.

Results: The study included 18 patients [8 boys, 44%, median age 12.0 (25-75%: 10.2-14.5) years, median HbA1c 6.5% (6.3%-7.3%), median BMI-z-score 0.5]. MiniMed 780G therapy was associated with a significant and sustained improvement in mean glucose levels (start: 151±28mg/dl; 3-months: 136±11mg/dl; 6 months: 136±10mg/dl; p=0.0057), TIR (start: 70±15%; 3-months: 79±6%; 6 months: 80±7%; p=0.0006) and TAR (>180mg/dl - start: 25±16%; 3-months: 17±7%; 6 months: 17±6%; p=0.0048), >250mg/dl – start: 7±8%; 3-months: 3±2%; 6 months: 2±2%; p=0.0037). TBR and glucose variability did not improve significantly. We did not note any significant change in BMI z-score (mean change -0.04) or HbA1c (-0.2%) between start and end of observation.

Conclusions: MiniMed780G therapy was associated with a significant improvement in hyperglycaemia control but no significant reduction of hypoglycaemia burden.

The role of antioxidants in the developement of allergic diseases

Khadijah Sanad , Daniela Podlecka, Monika Bobrowska-Korzeniowska, Kinga Polańska, Agnieszka Brzozowska

Presenting author: Khadijah Sanad

Tutors: Joanna Jerzyńska, MD, PhD

Affiliations: Medical University of Łódź

Introduction: In past few years there has been increasing interest in the role of nutrition in the development of allergic diseases. Micronutrients and vitamins, believed to have an immunomodulatory effect and have become a particular object of interest.

Aim of the study: The study aims to establish the role of antioxidants (vitamins A, E, D) and micronutrients such as copper (Cu), selenium (Se), and zinc (Zn) levels in the development of allergic diseases in children aged 9-12 years old from our previously described cohort.

Materials and methods: We evaluated 80 children (40 with and 40 without allergy/asthma diagnosis) aged 9 to 12 years, from the Polish Mother and Child Cohort Study. Mothers were interviewed during pregnancy to collect demographic and socioeconomic data, medical and reproductive history. Nine to twelve years after the birth, the child's concentrations of microelements and vitamins, and health status (including skin-prick test and spirometry, urine cotinine level) were examined.

Results: The risk of asthma occurrence was significantly related to the level of Cu and the level of Zn in children 9-12 years. The level of Cu was also significantly related to the occurrence of allergic rhinitis and was indicated as a significant predictor of food allergy.

Conclusions: All these micronutrients have a significant impact on the functioning of the immune system and, especially the level of Cu and Zn, can influence the immune system and may be considered as the risk factors for the development of asthma, allergic rhinitis and food allergy.

PHARMACY

12th of May 2022

Coordinators:

Oliwia Grygorczuk

Kamila Wanat

Jury:

Prof. Marek Mirowski, PhD

Dagmara Szmajda-Krygier, PhD

Beata Skibska, MD, PhD

Essential oils as substances with potential fungistatic properties

Jarema Wódka, Julia Tama, Piotr Kowalik

Presenting author: Jarema Wódka

Tutors: Prof. Ewa Brzeziańska-Lasota, MD, PhD; Katarzyna Góralska, PhD

Affiliations: Medical University of Łódź

Introduction: Intensive studies are currently being conducted on natural substances that may potentially have fungistatic and/or fungicidal activity and that could be used as new therapeutic agents or therapeutic aids for fungal infections. Recently, there has been a renewed interest in substances of plant origin, such as essential oils and birch stem sap, as an alternative to the pharmaceutical products that are currently in use. In addition to their fragrant properties, essential oils show antioxidant and antimicrobial activity. Some studies also point to their antifungal potential. In turn, the sap extracted from the birch trunk contains a rich composition of vitamins (of the B group, vitamin C), salicylic acid derivatives, calcium, potassium, zinc, phosphorus, copper and iron, as well as organic acids, flavonoids and terpenic compounds.

Aim of the study: The study was to establish fungistatic properties of chosen essential oils against fungi of genus Candida.

Materials and methods: Study materials were essential oils: rose geranium oil (Pelargonium graveolens), Indian sandalwood oil (Amyris graveolens) and arabica coffee oil (Cofea arabica). Additionally, the fungistatic activity of natural sap from the stump of the common birch (Betula pendula) was tested. In the study we used reference strains of fungi: Candida albicans CBS 2312, C. albicans ATCC 10231, C. parapsilosis ATCC 22019, C. parapsilosis CBS 10947 and Meyerozyma guillermondi ATCC 6260. At the same time, evaluation of the susceptibility of the tested strains to fluconazole was performed. In order to determine Minimal Inhibitory Concentration (MIC) microdilution method by The European Commitee on Antimicrobal Susceptibility Testing (EUCAST) was used.

Results: Minimal Inhibitory Concentration (MIC) of Indian sandalwood oil was 2.75 mg/mL and MIC of rose geranium oil was 7.25 mg/mL. However, arabica coffee oil did not inhibit growth of fungi. In the case of natural sap from the stump of the common birch inhibitory effect was noted only against the strain C. parapsilosis ATCC 22019. The tested strains were sensitive to fluconazole, MIC was 0,0013 mg/mL. Detailed results will be presented during the conference.

Conclusions: The Indian sandalwood oil and rose geranium oil show lower fungicidal activity than fluconazole towards tested strains of fungi. Natural birch sap shows limited fungicidal activity against some fungi. Substances of plant origin like essential oils may be a source of fungistatic and fungicidal substances and thereby be used to support the therapeutic effect of antimicotics.

Effects of novel biguanidines on selected biochemical aspects of alzheimer's disease

Dominik N. Borguś

Presenting author: Dominik N. Borguś

Tutors: Magdalena Markowicz-Piasecka, PhD

Affiliations: Medical University of Łódź

Introduction: Alzheimer's disease (AD) is an irreversible neurodegenerative disease. The newest research point, there is an increased risk of developing AD in patients with Type 2 Diabetes Mellitus (T2DM) in contrast to control group without that disease. One of the most widely used drug in T2DM is metformin, multidirectional activity biguanide derivative. Despite all benefits, use of metformin is limited due to its incomplete absorption so also moderate bioavailability. Taking under consideration these unfavourable pharmacokinetic features the team of Huttunen (University of Eastern Finland) designed and synthesized a few series of sulfonamide derivatives of metformin which were examined toward the selected biochemical aspects of AD.

Aim of the study: Detailed research objectives of this project was to assess the effects of six newly designed sulfonamide based metformin derivatives on the activity of butyrylcholinesterase (BuChE), establish kinetic parameters of enzymatic reactions, indicate the type of inhibition, and estimate potential synergism with rivastigmine towards BuChE. Additionally, the impact of metformin derivatives on β-amyloid aggregation and ROS generation in cellular model were assessed.

Materials and methods: The subject of this study was six metformin derivatives differing in the alkyl substituents in the aromatic ring. Anti-cholinesterase potential, kinetic parameters, and synergism with rivastigmine were examined using a modified Ellman's method [1]. The effect of metformin derivatives on Aβ aggregation was investigated using fluorescence method. The antioxidant potential of biguanides were assessed in cellular model with spectrophotometric measurements of cell viability in experimentally induced oxidative stress.

Results: The greatest ability to inhibit BuChE was shown by biguanides substituted in the aromatic ring with methyl groups at the 2,5 and 3,5 position (IC50=0,080 mmol/L and IC50=0,140 mmol/L respectively). According to Hanes-Woolf equation all of tested compounds are characterized by mixed type of inhibition BuChE. The potential synergism between the compounds and rivastigmine depends on their concentration. Importantly, the tested derivatives showed statistically significant properties towards reduction of Aβ aggregation. In cellular model metformin derivatives were found to ameliorate the cell viability in oxidative stress conditions.

Conclusions: Conducted in vitro studies confirmed that examined metformin derivatives beneficially affect some biochemical aspects of AD, and represent a good starting point for the future synthesis of biguanides with anti-neurodegenerative properties.

[1] F. Worek, U. Mast, D. Kiderlen, C. Diepold, and P. Eyer, "Improved determination of acetylcholinesterase activity in human whole blood," Clinica Chimica Acta, vol. 288, pp. 73–90, 1999

The role of GPR18 activation in the course of experimental colitis

Michalina Jurkiewicz, Greta Steć

Presenting author: Michalina Jurkiewicz

Tutors: Marta Zielińska, MD, PhD, prof. UM, Prof. Jakub Fichna, PhD

Affiliations: Department of Biochemistry, Faculty of Medicine, Medical University of Łódź, Poland

Introduction: Inflammatory bowel diseases (IBD) are a group of chronic disorders of the gastrointestinal (GI) tract with unknown etiopathogenesis, that mainly comprise ulcerative colitis (UC) and Crohn's Disease (CD). The IBD prevalence gradually increases, whereas available therapeutic options are still insufficient as they do not always provide disease remission. Therefore, there is a strong need for a search of novel pharmacological targets in IBD. GPR18 belongs to the family of endocannabinoid receptors, whose ligands have been reported to participate in various mechanisms of inflammatory response.

Aim of the study: We aimed to evaluate the role of GPR18 receptor in development and treatment of the intestinal inflammation in a dextran sodium sulfate (DSS) induced, murine model of ulcerative colitis.

Materials and methods: We aimed to evaluate the role of GPR18 receptor in development and treatment of the intestinal inflammation in a dextran sodium sulfate (DSS) induced, murine model of ulcerative colitis.

Results: We demonstrated that the expression of GPR18 was significantly higher in early and moderate stages of the colonic inflammation as compared to the control group. In the acute model of ulcerative colitis, MZ1415 at the dose of 1 mg/kg tended to reduce the total inflamed length of the colon and the intestinal wall thickness as compared to mice with colitis. It also decreased the MPO activity. We observed no significant difference in anti-inflammatory activity of MZ-1415 depending on the route of administration, either intraperitoneal or intracolonic. In the chronic model of colitis, a potent anti-inflammatory effect of MZ1415 was observed as evidenced by decreased total inflamed length and bowel thickness, compared to inflamed animals.

Conclusions: The results of our study indicate that the GPR18 receptor may become a potential target for modulation in the treatment of IBD.

Horses, heists and herbs - the pharmacology of Red Dead Redemption

Maria Naruszewicz, Grzegorz Waliszczak, Michał Okarski

Presenting author: Maria Naruszewicz

Tutors: Prof. Tomasz Rogula, MD, PhD, Aneta Myszka, MD

Affiliations: Jagiellonian University Medical College

Introduction: The Red Dead Redemption game series, set in southern United States (early 20th century), allows a player to experience the world of the famed 'Wild West' with a great emphasis on realism. It has received interest from researchers, regarding its lifelike depiction of geography, history and wildlife.We analysed the medical content, its correctness and educational value for the general audience, in Red Dead Redemption 2.

Aim of the study: To assess if the Red Dead Redemption 2 game includes verifiable information about medical herbalism and known pharmacological effects of herbs and fungi. Can pop-culture promote knowledge of pharmacology?

Materials and methods: Red Dead Redemption 2 game, RDR2Wiki (https://reddead.fandom.com) were the sources regarding herb appearance and their in-game use. The use of fungi and plant derivatives was also acknowledged. Kew Science Plants of the World Online was used as the basis of plant identification and their visual archetypes (conversely, MykoWeb and University of Michigan Herbarium for fungi). The herbs were graded with an accuracy scale (0-5pts., 0-1 for correct item (detailed picture of plant's part) graphics, 0-1 for correct object (general depiction of the plant in game environment) graphics, 0-3 for number of medical properties shown: 0 - none, 1 - one, 2 - two or three, 3 - more than three).

Results: The game presents 61 species of plants and fungi, 30 featured medical uses. Mean overall accuracy scale score equaled 3.07 (SD±0.64). The best depictions include American ginseng (5 pts.), Alaskan ginseng, burdock root, blackberry, milkweed (4 pts. each), the worst creeping thyme, violet snowdrop, hummingbird sage, desert sage (2 pts. each). Although the mean score is high (≥3 pts. was deemed a 'good depiction', according to scale), it is based on correct imaging of the herbs; the medical uses are appropriate, but are described imprecisely. Several plants have never been scientifically researched and data on them is lacking.

Conclusions: The game features a correct depiction of medical herbs and can be informative for the general public, although the shown effects are simplified. The depictions contain no admixture of fictional uses (ubiquitous in games), which increases their educational value. Poorly known herbs with acknowledged traditional/native uses should undergo pharmaceutical screening - the value of such practice was historically proven in the therapy of infectious diseases and neoplasms.

Buprenorphine derivative (BU06009) impact on inflammation parameters in DSS-induced mouse model of colitis

Mikołaj Świerczyński

Presenting author: Mikołaj Świerczyński

Tutors: Associate professor Maciej Sałaga, PhD, DSc,

Affiliations: Department of Biochemistry, Faculty of Medicine, Medical University of Łódź, Poland

Introduction: Ulcerative colitis (UC) is a globally occurring chronic condition causing symptoms like abdominal pain, diarrhea or bloody stools. The etiology of IBD is not fully understood, however the role of several factors like genetic predisposition, environmental influence or intestinal microbiome is documented. Importantly, current treatment strategies of UC and UC-related pain pose high risk of serious adverse effects or lack expected efficiency. There are three main types of opioids receptors: μ-, κ-, and σ-opioid receptors (MOP, KOP and DOP) that have documented expression in various cells within gastrointestinal tract: neurons, muscle and immune cells. Recently, opioids' impact on inflammation gains progressively more attention with strong proofs of anti-inflammatory properties of MOP and KOP agonists, suggesting that double-agonistic compounds should be promising therapeutic agents in UC. In this project, we assessed the therapeutic potential of new buprenorphine derivative – BU06009, which is KOP and MOP agonist.

Aim of the study: The aim was to assess anti-inflammatory properties of BU06009 in dextran sulphate sodium (DSS)-induced mouse model of UC depending on route of administration.

Materials and methods: Male Balb/C mice were divided into control and three DSS groups treated with vehicle or BU06009 at the dose of 5mg/kg administered intraperitoneally (i.p.) or intragastrically (i.g.). The DSS groups underwent a 7-day model with 3% DSS drinking solution (days 0-4). On day 7, mice were sacrificed to evaluate macroscopic inflammation score and obtain samples for further analyses – microscopic score, myeloperoxidase (MPO) activity and IL-1β expression.

Results: DSS groups had significantly higher macroscopic and microscopic inflammation scores than control, however no significant effect of the treatment was recorded. Macroscopic damage score was in line with the MPO activity. The group treated with i.p. injection of BU had tendency to decreased IL-1β expression, while group with i.g. BU administration had the most disrupted mucosal architecture. These tendencies were visible, however none of them has reached statistical significance. Moreover, in microscopic assessment both BU-receiving groups had notably more spared goblet cells within mucosa comparing to inflamed DSS-only group.

Conclusions: Observed tendencies suggest that BU06009 may have positive impact on inflammation observed in UC. While i.p. injections mostly affect IL-1β expression, the i.g. administration seem to affect macroscopic score and MPO activity in the colon, however negatively affecting mucosal architecture after its direct contact with the drug.

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PhD

12th of May 2022

Coordinators:

Julia Ryniecka

Magdalena Wasilewska

Jury:

Małgorzata Brauncajs, PhD

Prof. Andrzej Bednarek, MD, PhD

Prof. Jakub Fichna, MD, PhD

Cytokines involved in the T-helper cell type 17 immune response pathway as novel biomarkers of food allergy in young children with atopic dermatitis

Kacper Packi, Joanna Matysiak, Sylwia Klimczak, Eliza Matuszewska

Presenting author: Kacper Packi

Tutors: Prof. Anna Bręborowicz, Prof. Jan Matysiak

Affiliations: Department of Inorganic and Analytical Chemistry, Poznan University of Medical Sciences, 60 -780 Poznan, Poland;

Faculty of Health Sciences, Calisia University - Kalisz, 62-800 Kalisz, Poland;

AllerGen, Center of Personalized Medicine, 97-300 Piotrkow Trybunalski, Poland;

Department of Pulmonology, Pediatric Allergy and Clinical Immunology, Poznan University of Medical Sciences, 60-572 Poznan, Poland

Introduction: Food allergic patients constitute a heterogeneous group. The causes of symptoms, pathogenesis and the course of the disease are varied. The strongest and most established risk factor for the development of food allergy (FA) is atopic dermatitis (AD), that is most common in children. The diagnostic methods of FA are not fully reliable. In vitro and in vivo tests investigate the IgE-mediated hypersensitivity, there are no laboratory methods for diagnosing other types of hypersensitivity e.g. delayed FA. The correlation between commercial assays for identifying allergen-specific IgE is poor (low sensitivity and specificity, high risk of false-negative and false-positive results). A breakthrough in the history of FA diagnostics is the development of component-resolved diagnosis (CRD), which allows for more precise diagnosis of sensitization and creates the possibility of personalizing therapeutic recommendations. As CRD is only applicable to type I hypersensitivity, before using its advanced and expensive tools like ALEX test, ISAC assay, it should be possible to distinguish the mechanism of FA. Therefore, it is still needed to search for new, more precise and accurate diagnostic methods.

Aim of the study: This research aimed to discover new biomarkers of IgE-mediated and delayed-type FA in young children with AD. We search for novel biomarkers in a group of cytokines involved in the T-helper cell type 17 immune response pathway.

Materials and methods: The study involved 76 children (0-5 years old) with chronic symptoms of AD. We used a Bio-Plex Pro Human Cytokine Assay. The adoption of novel methodology based on Luminex/xMAP technology enabled simultaneous determination of serum levels of 15 different cytokines in one experiment. Thanks to complete dermatological and allergological examination, including the investigation of the sensitization to molecular components with ALEX2 Allergy Explorer, the participants were divided into 3 groups: IgE-mediated FA; delayed-type FA; control group - lack of FA. The data were analyzed by applying uni- and multivariate statistical tests.

Results: In the IgE-mediated FA group, circulating level of IL-1beta cytokine was significantly increased (the Mann–Whitney U test: $p < 0.05$) when comparing to patients without IgE-mediated hypersensitivity. Moreover, the difference in the concentration of this protein between 3 groups of participants (IgE-mediated FA, delayed-type FA, controls) was statistically significant too (Anova rang Kruskala-Wallisa: $p < 0.05$). According to receiver operating characteristic (ROC) curves, IL-1beta cytokine can be considered as effective prognostic factors of IgE-mediated FA in atopic children.

Conclusions: The obtained data may contribute to modification and improvement of the diagnostic algorithm of FA in children with AD. Furthermore, large-scale studies are still needed to explain mechanisms of action of IL-1beta and to definitively prove its usefulness in clinical practice.

The quality of life of patients with an intestinal stoma

Wiktoria Paszyńska

Presenting author: NOT PRESENTED

Tutors: Prof. Violetta Skrzypulec – Plina, MD, PhD, Katarzyna Zborowska, PhD

Affiliations: Śląski Uniwersytet Medyczny w Katowicach

Introduction: The main reason for the appearance of the intestinal stoma is colorectal cancer. Surgical procedures with the creation of an artificial anus are often the only chance for oncological patients and others with chronic inflammatory conditions of the gastrointestinal tract to achieve clinical remission, avoid progression, and have a longer life. Unfortunately, the quality of life deteriorates, which is a challenge for support groups.

Aim of the study: The aim of the study was to assess the quality of life of patients with an intestinal stoma.

Materials and methods: The study involved 45 patients in the age range from 31 to 70 years after intestinal osteoarthritis surgery in various periods of time. Patients who underwent ostomy surgery from 0.5 months to over 4 years were included in the study.

Results: Most of the respondents (69% of the total) were afraid after the operative treatment of intestinal stoma, and 70% had a sense of harm. 61% of patients struggled with pain, 82% experienced weakness, and 70% experienced tiredness, which had an impact on the increase of difficulties associated with performing daily activities, mainly among patients a short time after surgery (78% of people 0.5 up to 1 year after the procedure).

Conclusions: The quality of life of patients after an intestinal stoma was correlated with the time that elapsed from the surgery; the longer it was, the more the patients adapted to life with a stoma.

Newly proposed insulin resistance indexes called TyG-NC and TyG-NHtR show efficacy in diagnosing the metabolic syndrome

Małgorzata Mirr, Damian Skrypnik, Paweł Bogdański

Presenting author: Małgorzata Mirr

Tutors: Maciej Owecki

Affiliations: Department of Public Health, Poznan University of Medical Sciences, Rokietnicka St. 4, 60-806 Poznań, Poland;

Department of Treatment of Obesity, Metabolic Disorders and Clinical Dietetics, Poznan University of Medical Sciences, Szamarzewskiego St. 82/84, 60-569 Poznań, Poland

Introduction: Obesity and insulin resistance are considered crucial to the pathophysiology of metabolic syndrome and its components. Several simple indexes of insulin resistance calculated from biochemical or anthropometric variables have been proposed so far.

Aim of the study: The study aimed to assess the diagnostic accuracy of indirect insulin resistance indicators in detecting metabolic syndrome in non-diabetic patients, including TG/HDLc, METS-IR, TyG, TyG-BMI, TyG-WC, TyG-WHtR, and novel indicators TyG-NC (TyG-neck circumference) and TyG-NHtR (Tyg-neck circumference to height ratio), which we propose in this research.

Materials and methods: The diagnostic accuracy of eight insulin resistance indexes were assessed using the receiver operating characteristic curves (ROC curves) in 665 adult non-diabetic patients. Then, the analysis was performed after the division into groups with proper body mass index, overweight and obese.

Results: All indexes achieved significant diagnostic accuracy, with the highest AUC (area under the curve) for TyG (0.888) and Tg/HDLc (0.874). The highest diagnostic performance in group with the proper body mass index was shown for TyG (0.909) and TyG-BMI (0.879). The highest accuracy in the group of overweight individuals was presented by TyG (0.884) and TG/HDLc (0.855). TG/HDLc and TyG showed the highest AUC (0.880 and 0.877, respectively) in the group with obesity. Both TyG-NC and TyG-NHtR reached significant areas under the curve, which makes them useful diagnostic tests in metabolic syndrome.

Conclusions: Indirect indices of insulin resistance, including proposed TyG-NC and TyG-NHtR, show an essential diagnostic value in diagnosing metabolic syndrome. TyG and TG/HDLc seem to be the most useful in the Caucasian population.

Estrogen receptor α participates in aternariol-induced toxicity in ovarian cancer cells

MSc Marta Kozieł, MSc Dominika Ewa Habrowska-Górczyńska, MSc Kinga Anna Urbanek, Assoc. Prof. Kamila Domińska

Presenting author: MSc Marta Kozieł

Tutors: Prof. Agnieszka Wanda Piastowska-Ciesielska, PhD Karolina Kowalska

Affiliations: Medical University of Łódź, Department of Cell Cultures and Genomic Analysis;

Medical University of Łódź, Department of Comparative Endocrinology

Introduction: Ovarian cancer consititutes the 5th most common neoplasms in Poland. In recent years, an increased morbidity has been observed which possibly might be associated with exposure to enviormental xenoestrogens. Xenoestrogens are the wide group of chemical compounds that act via modulation of hormonal balance in the human body. Mycotoxins, the secondary metabolites might trigger an estrogenic effect in cells. Alternariol (AOH) is produced by Alternaria species and is present in everyday food products like cereals, fresh fruits and vegetables. Previous studies reported that AOH might have estrogenic activity in cells via estrogen receptor α (ERα), therefore we decided to verify if this effect is in ovarian cancer cells.

Aim of the study: The study aimed to check whether AOH toxicity is associated ERα in ovarian cancer cells (SKOV3).

Materials and methods: SKOV3 cells were treated with AOH and A selective ERα antagonist (MPP) for 24 hours. The viability of cells was determined with MTT assay. Apoptosis of cells was tested with Muse Annexin V & Dead Cell Kit (Luminex). The concentration of reactive oxygen species (ROS) was evaluated with Muse Oxidative Stress Kit (Luminex). For statistical analysis, One-way ANOVA test was used. $p < 0.05$ was considered as statistically significant (GraphPad Prism software).

Results: The results showed that the AOH induces oxidative stress and apoptosis in ovarian cancer cells and that effect is partially dependent of the activation of ERα in cells.

The relevance of serum inflammation-based scores in patients with newly diagnosed acromegaly in relation to the clinical and radiological parameters

Joanna Szydełko

Presenting author: Joanna Szydełko

Tutors: Prof. Beata Matyjaszek-Matuszek, MD, PhD

Affiliations: Medical University of Lublin

Introduction: Acromegaly is a rare disease caused by overproduction of growth hormone (GH) by a pituitary adenoma, and subsequent insulin-like growth factor 1 (IGF-1) excess. Several studies have proved the importance of supraphysiological doses of GH and IGF-1 in initiating persistent, subclinical inflammation. Complete blood count (CBC)-derived parameters are suggested to be novel, non-invasive, and widely accessible inflammatory markers in various endocrine tumors, however their usefulness in pituitary adenomas remains unclear.

Aim of the study: The aim of the study was to investigate the differences in neutrophil-to-lymphocyte (NLR), platelet-to-lymphocyte (PLR) ratios, and systemic immune-inflammation index (SII) in GH-secreting adenomas as compared to non-functioning pituitary adenomas (NFPAs) concerning clinical and radiological parameters.

Materials and methods: Medical history of 196 patients with newly diagnosed acromegaly (n=62) and NFPAs (n=134), hospitalized in the Department of Endocrinology, Diabetology and Metabolic Diseases (Lublin) in the period between 01.2005 and 01.2020 were retrospectively analyzed. The control group consisted of 120 healthy volunteers. Pituitary tumors were assessed using clinical, biochemical and radiological features. All patients with acromegaly were divided according to the treatment method: transsphenoidal surgery (n=41) and pharmacotherapy (n=21). The exclusion criteria from both study and control groups were infections, autoimmune diseases, malignancy, hematological disorders, intracranial trauma, pregnancy, constitutional tall stature, pseudoacromegaly, ectopic secretion of GH-releasing hormone/GH by neuroendocrine tumor, using drugs with the proven effects on blood counts. NLR, PLR, and SII were calculated in all patients. The Statistica 13.0 software package was used for statistical analysis. P-value <0.05 was considered as statistically significant.

Results: NLR, PLR, SII values, and neutrophil count were significantly higher ($p \leq 0.001$), whereas lymphocyte count was lower in acromegaly than in NFPAs ($p=0.001$). No significant differences between NFPAs and controls were observed in analyzed ratios. Macroadenoma was found in 73% of patients with acromegaly and 57% of subjects with NFPAs ($p=0.034$). Among all patients with pituitary tumors, none of the correlations between CBC-derived ratios, GH/IGF-1 and adenoma maximum diameter was noted. Higher preoperative NLR, PLR, SII values were found in patients who failed to achieve a cure with surgery ($p<0.05$).

Conclusions: The results of our study indicate that NLR, PLR, and SII differ significantly in patients with acromegaly as compared with NFPAs and controls. The initial value of analyzed CBC-derived parameters did not differ in patients with acromegaly if the occurrence of its comorbidities was taken into consideration, although these ratios were observed to be significantly higher in individuals who failed to achieve cure with transsphenoidal surgery.

Analysis of cognitive dysfunctions differences and neurodegeneration disturbances in asthma and COPD patients with neuropsychologic tests assessment.

Magdalena Figat, Aleksandra Wiśniewska, Martyna Martka, Michał Karbownik

Presenting author: Magdalena Figat

Tutors: Michał Panek, MD PhD, Professor Piotr Kuna, MD PhD

Affiliations: Department of Internal Medicine, Asthma and Allergy, Medical University of Lodz;

Department of Pharmacology and Toxicology, Medical University of Lodz

Introduction: The main types of chronic inflammatory pulmonary diseases are asthma and Chronic Obstructive Pulmonary Diseases (COPD). Incurable nature and lack of appropriate symptomatic treatment for many patients indicate renew consideration of their pathophysiology. Distinct character of inflammation in both diseases is already known. Followed newest scientific notification the inflammation might be spread in whole organism, even in brain tissue. Foremost prerogative of cognitive disturbances in every of them through non-invasive examinations methods facilitate subsequent researches and better understanding of influence on brain tissue in case of both inflammation types.

Aim of the study: Measuring cognitive functions in asthma and COPD patients. Comparing the influence of each disease on cognitive dysfunction.

Materials and methods: Cognitive functions were assessed with usage of: Mental State Examination [MMSE], Abbreviated Mental Test Score [AMTS], Hachinski Ischaemic Score [HIS] and Clock Drawing Test [CDT]. Achieved results were adjusted to age, education degree, residence, reading books, crosswords, sudoku, underwent anesthesia, nicotine addiction, obesity. In the study having excluded diagnose or suspicion of neurodegenerative disorder, the patient formed two groups. The first one consisted of 26 patients with asthma. 42,31% of them were women and 57,69% of them were men. Their average age amounted to 55 years. The second group gathered 27 participants with COPD. The female patients constituted 48, 15%, and male 51,85%. Their average age equaled 66 years.

Results: Non-adjusted results in MMSE, AMTS, HIS, CTD turned out statistically no remarkable. Despite adjusting, results MMSE, AMTS, HIS and CDT didn't remain statistically noticeable.

Conclusions: Having conducted presented project, asthma patients' group did not differ from COPD group in cognitive functions tests. The type of inflammation in chronic obstructive pulmonary diseases does not have significant influence for neurodegeneration course of the disease what constitutes remarkable clinical finding. Ultimately, despite of distinct type of inflammation consisting the pathogenesis in asthma and COPD, they do not have any influence to cognitive dysfunction or neurodegeneration. Nevertheless, both of them may also have no plausibility of cognitive disturbances and risk of neurodegeneration. To clarify, further researches are required.

Evaluation of lung resident mesenchymal stem cells in eosinophilic and neutrophilic experimental asthma models

Alicja Walewska, Sylwia Księżak, Marlena Tynecka

Presenting author: Alicja Walewska

Tutors: Prof. Marcin Moniuszko, MD, PhD, Andrzej Eljaszewicz, MD, PhD

Affiliations: Medical University of Bialystok

Introduction: Allergic asthma is a chronic inflammatory disease triggered by inhaled allergens such as house dust mites (HDM). Despite significant progress in understanding the mechanisms of asthma, the role of lung resident Mesenchymal Stem Cells (lrMSC) remains elusive.

Aim of the study: Here we aimed to analyze the effects of allergic lung inflammation on the composition and heterogeneity of lrMSC in a mouse model of asthma.

Materials and methods: Allergic lung inflammation was induced by intranasal application of HDM for 14 days. Freshly obtained lungs were dissociated with gentleMACS Dissociator and stained with a panel of monoclonal antibodies. The cells were analyzed with a FACSCanto II flow cytometer. Data analysis was performed using FlowJo software with classical gating and the tSNE algorithm. The composition and heterogeneity of lung resident Mesenchymal Stem Cells (lrMSC) were evaluated.

Results: We found a significant decrease in lrMSC numbers in allergic asthma lungs. Moreover, we found intriguing differences in integrin 1 (CD29) expression on the surface of lrMSC among analyzed groups.

Conclusions: We revealed that the number of lrMSC is significantly reduced in HDM-induced neutrophilic experimental asthma. Additionally, we observed increased heterogeneity and CD29 expression in lrMSC from neutrophilic asthma. Further studies are needed to understand the role of lrMSC in asthma.

Searching for objective indicators of cognitive functions changes in asthma patients in neurodegeneration process.

Magdalena Figat, Aleksandra Wiśniewska, Karolina Pendrasik, Michał Karbownik

Presenting author: Magdalena Figat

Tutors: Michał Panek, MD PhD, Professor Piotr Kuna, MD PhD

Affiliations: Department of Internal Medicine, Asthma and Allergy, Medical University of Lodz;

Department of Pharmacology and Toxicology, Medical University of Lodz

Introduction: Defailment in finding efficient treatment for all asthma types and its numerous phenotypes suggest more complicated pathophysiology as this already known. Followed the chronic inflammation in lungs occurring in asthma, latest literature advocated hypothesis of generalized inflammation which might also affect the brain tissue. The better recognition of cognitive dysfunctions facilitates ulterior researches, wider understanding of inflammatory mechanisms in asthma and its treatment improvement.

Aim of the study: Comparing cognitive functions in assessment tests of in asthma patients with control group. To establish objective indicators of cognitive functions changes in asthma patient.

Materials and methods: Taking under consideration cognitive functions, four questionnaires were conducted. Each patient was examined with usage of Mental State Examination [MMSE], Abbreviated Mental Test Score [AMTS], Hachinski Ischaemic Score [HIS] and Clock Drawing Test [CDT]. Achieved results were adjusted to age, education degree, residence, reading books, crosswords, sudoku, underwent anaesthesia, nicotine addiction, obesity. The participants were separated into two groups. The first one included 26 patients with asthma. In this group the women were 42,31% and men 57,69%, their average age was 55 years. The control group counted 25 people without asthma, in which participated female in 56% and male in 44%. 53 years was average age for them. For both the diagnose or suspicion of any neurodegenerative disease was an excluding criterion.

Results: Non-adjusted results in MMSE test was statistically significant (p=0,02). The next remarkably analytically test turned out HIS (p=0,04). Before adjusting the result of AMTS and CDT turned out no significant statistically. In adjusted results of statistical analysis in MMS and HIS, no remarkable statistically differences asthma vs. control group were stated. In AMTS statistically significant distinction was claimed (p=0,017) between afflicted and unafflicted participants on the level of □=0,33. Having compared asthma and control group with CDT, statistically noticeable dissimilarity was asserted (p=0,039) with HR=0,05.

Conclusions: In conducted project the patients with asthma do not differ from control group in range of cognitive functions in MMSE and HIS tests. Noticeable correlation between asthma and control group were claimed in deterioration of cerebrovascular parameters with usage of AMTS and CDT. Asthma remarkably impair higher cognitive functions.

Investigation of the novel myosin activator danicamtiv on canine left ventricular isolated cardiomyocytes

Arnold Péter Ráduly, Fruzsina Sárkány

Presenting author: Arnold Péter Ráduly

Tutors: Attila Borbély, Attila Tóth

Affiliations: Department of Cardiology, Department of Clinical Physiology, Faculty of Medicine, University of Debrecen, Hungary

Introduction: Advanced stage heart failure (HFrEF) has a poor prognosis, and is difficult to treat. Myosin activators (e.g. omecamtiv mecarbil) have been developed to improve systolic function. The present study is focused on danicamtiv, a new myosin activator.

Aim of the study: The aim was to investigate the effects of danicamtiv and its concentration-dependency on systolic and dyastolic function.

Materials and methods: Enzymatically isolated left ventricular myocytes were loaded with Fura-2 AM calcium sensitive fluorescent dye. Contractions and relaxations were monitored at room temperature while treating with ranging danicamtiv concentrations (10 nM - 2 μM). Cell contraction was induced by field excitation (0.5-0.1 Hz), and the shortening of the sarcomere length and the changes in intracellular Ca2+ concentration were recorded parallelly.

Results: In the presence of 0.5 Hz stimulation and 2 μM danicamtiv, both the contraction duration (2.0±0.7 s vs. 0.8±0.2 s, mean±SEM, $P<0.05$) and the systolic ejection time were prolonged (1.6±0.6 s vs. 0.6±0.1 s, $P<0.05$), while the kinetics of contraction and relaxation were both decelerated (0.21±0.19 μm/s vs. 0.94±0.49 μm/s and 0.22±0.18 μm/s vs. 1.30±0.75 μm/s, $P<0.05$, respectively) (n=18). Treatment with 2 μM danicamtiv showed a positive ionotropic effect, a shortening could be observed in diastolic (1.59±0.13 μm vs. 1.90±0.03 μm $P<0.05$, n=18), as well as in systolic sarcomere lengths (1.46±0.08 μm vs. 1.68±0.0 μm $P<0.05$, n=18). The lowest effective danicamtiv concentration was 0.01 μM. Danicamtiv treatment was not associated with an increase in intracellular Ca2+ concentration, regardless of the frequency of stimulation.

Conclusions: The results suggest that the positive inotropic effect of danicamtiv is accompanied by a significant reduction in resting sarcomere length of isolated myocardial cells and a deceleration of relaxationkinetics, which may impair diastolic function. All these may limit the clinical efficacy of the agent.

PHYSIOTHERAPY

12th of May 2022

Coordinators:

Julia Michalak

Olga Kowalczyk

Jury:

Anita Sikora-Szubert, PhD

Joanna Kostka, PhD, prof. UM

Joanna Kapusta, PhD

Kamila Gworys, PhD

The assessment of the linea alba thickness and width in nulliparous and postpartum women.

Kamila Grabek, mgr Marta Karbowiak, Anna Tokarska

Presenting author: Kamila Grabek

Tutors: Katarzyna Glibov, PhD

Affiliations: Medical University of Łódź

Introduction: The paper will focus on comparing the functional status of the rectus abdominis muscle in nulliparous and postpartum women by the assessment of the linea alba and the occurrence of diastasis recti abdominis (DRA). The diastasis recti abdominis is a common and significant clinical problem, affecting both nulliparous and postpartum women. Undertaking appropriate physical activity before, during and after pregnancy as well as an appropriate prophylaxis may help to reduce complications or accelerate the regression of changes resulting from the physiological stretching of the anterior abdominal wall in pregnant women.

Aim of the study: The aim of this study was to compare the condition of the rectus abdominis muscle and the linea alba in nulliparous and in postpartum women. The influence of pregnancy and the type of sports activity undertaken before and after pregnancy on the size of the diastasis was examined.

Materials and methods: The study involved 44 women - 22 nulliparous women and 22 women one year after pregnancy in the age range from 19 to 45. The patients were asked to fill a questionnaire and were palpated and subjected to ultrasound examination of the abdominal integrum.

Results: None of examined nulliparous women had DRA, while as many as 27% women one year after pregnancy had DRA which was confirmed in ultrasound examination. All of those women had diastasis at the hight of belly button which had on average 42 mm in rest examination.

Conclusions: Patients after pregnancy who have taken inappropriate physical activity or had none of activity before labour had a greater predisposition for diastasis recti.

Influence of pulmonary rehabilitation on sleep apnea indicators.

Alicja Gałeczka-Turkiewicz, Dagmara Galle, Martyna Górka, Justyna Kulpa

Presenting author: Alicja Gałeczka-Turkiewicz

Tutors: Dariusz Jastrzębski, MD, PhD

Affiliations: Medical University of Silesia

Introduction: Sleep apnea is a widespread condition affecting day-to-day life in a negative way. Taking into consideration a growing number of patients with obesity that is a causal factor for sleep apnea, as well as the number of underdiagnosed cases, the importance of rehabilitating affected patients may be crucial.

Aim of the study: The aim of the study was to compare sleep apnea indicators in patients with coexisting lung diseases before and after pulmonary rehabilitation.

Materials and methods: We qualified 26 patients with diversified pulmonary diseases who underwent a three-week-long pulmonary rehabilitation. We used a respiratory sleep diagnostic system, The Nox T3s System, for monitoring and The Noxturnal analysis software to collect and analyze data about sleep apnea in patients. In our analysis, we considered the following aspects: age, gender, BMI, type of pulmonary disorder including SARS-CoV-2 infection in the past.

Results: From the group of 26 patients attending pulmonary rehabilitation in our department, the cohort of 15 pts (57.69%) with confirmed obstructive sleep apnea was determined. Median pts' age was 63.73 years (range: 33-78) and 33.33% of them were female (5/10). Median pts' Body Mass Index was 33.11 (range: 22.4-44.9). 1 patient (6.67%) had normal weight, 3 pts were overweighted (20%) and 11 pts (73.33%) were obese, of whom 1 patient (6.67%) had third class obesity. Patients were referred to pulmonary rehabilitation due to: idiopathic pulmonary fibrosis (n=5; 33.33%), chronic respiratory failure (n=3; 20%), COPD (n=1; 6.67%), asthma (n=1; 6.67%), lung cancer (n=1; 6.67%) and other types of interstitial lung diseases (n=3; 20%). 6 pts (40%) had symptomatic SARS-CoV-2 infection in the past, of whom 1 patient did not have any coexisting pulmonary disease. Based on AHI score, pts were qualified to the following groups: mild (n=6; 40%), moderate (n=2; 13.33%) and severe (n=7; 46.67%) sleep apnea. After rehabilitation patients' AHI scores have changed, resulting in rearranging groups: no sleep apnea (n=2; 13.33%), mild (n=5; 33.33%), moderate (n=2; 13.33%) and severe (n=6; 40%) sleep apnea. The correlation between BMI and AHI (p=0.111) was found.

Conclusions: Majority of patients qualified for pulmonary rehabilitation have sleep apnea that has not been previously diagnosed. There is a correlation between BMI and AHI, which may indicate the need for education about risk factors for developing sleep apnea.

Assessment of functional fitness of people recovered from COVID-19 disease.

Martyna Zydorowicz

Presenting author: Martyna Zydorowicz

Tutors: Katarzyna Glibov, PhD

Affiliations: Medical University of Łódź

Introduction: The Covid-19 pandemic conceives new challenges for social health protection system. It's obligatory to analyse functional fitness of convalescents to provide them the best quality of health care.

Aim of the study: The aim of this study was to analyse the impact of recovering from Covid-19 on a functional fitness of young adults.

Materials and methods: The study included 25 people aged 18-28 who recovered from Covid-19 in the period from May 2020 to April 2021 and 25 people aged 18-28 who have never suffered from Covid-19. The respiratory condition of participants was evaluated by forced spirometry, pulse oximetry and measurment of maximum inspiratory pressure and maximum expiratory pressure (MIP/MEP). The physical and cardiovascular fitness of participants was evaluated by measurment of resting blood pressure and heart rate, 2-min step test and measurment of exertional blood pressure and heart rate. The level of mental wellness was measured by Polish version of SF-36 questionnaire.

Results: Convalescents reported symptoms that have been continuing for more than a month after infection, such as: exhaustion (60% of convalescents), loss of smell (32%), loss of taste (24%), muscle pain and cough (20%), dyspnoea (16%), headache (12%), joint pain, rhinorrhoea, chest tightness (8%), sore throat, exanthema (4%). Measurment of resting and exertional blood pressure, resting and exertional heart rate and saturation didn't demostrate any relevant differences between studied and control group. Vital signs of both group was normal. Spirometry and respiratory muscle strength was comparable in both groups. In studied group average results amount to: FEV1 – 3,69 l, FVC – 4,16 l, PEF – 434 l/min, FEV1/FVC – 91,44%, FEF25-75 – 4,37 l/s, FET – 1,87 s, MIP – 114, MEP – 90. In control group average results amount to: FEV1 – 3,76 l, FVC – 4,18 l, PEF – 407 l/min, FEV1/FVC – 90,5%, FEF25-75 – 4,17 l/s, FET – 1,84 s, MIP – 92, MEP – 72. Participants from studied group more often than participants from control group complained of: noticeable exhaustion for the most of the time, worse health state in comparison to previous year, limitations of vigorious activities, limitations of climbing several flights of stairs and worse general sensation than expected. Dyspnoea was 20% more often in treatment group than in control group. The level of mental wellness is comparable in both groups. 2-min step test result was worse in treatment group by about 30 steps.

Conclusions: 1. Covid-19 consequences can last more than a month after infection in young adults.

2. Getting over Covid-19 doesn't mostly compound vital signs in young adults.

3. Getting over Covid-19 can cause a chronic exhaustion and lower physical fitness in young adults.

4. Convalescents assess their quality of life similarly to their age-mates in control group.

5. Getting over Covid-19 can cause the occurence of dyspnoea in young adults.

Assessment of the level of knowledge about work ergonomics among students of dentistry, physiotherapy and cosmetology.

Klaudia Skonieczna

Presenting author: Klaudia Skonieczna

Tutors: Katarzyna Glibov, PhD

Affiliations: Medical University of Łódź;

Internal Medicine and Cardiologic Rehabilitation Clinic, USK WAM-CSW in Łódź

Introduction: Every job carries certain occupational risks, which can adversely affect future health of the worker. The professions of dentists, physiotherapists and cosmetologists are predisposed to occurence of musculoskeletal disorders. Therefore, it is worth following the rules of work ergonomics to prevent possible disorders. Back pain in the lumbar and cervical spine is the most common complaint in these occupations. The study was focused primarily on musculoskeletal ailments as the most important factors for lack of job satisfaction, absenteeism, and even the need to change the job by the workers.

Aim of the study: The aim of the study was to check and compare the level of knowledge about work ergonomics depending on the field and the level of education.

Materials and methods: To collect data for the study the author's questionnaire was used which was shared electronically. In the first part of the questionnaire, the respondents completed basic information about the field of and year of studies. The second part consisted of questions evaluating students' level of knowledge about work ergonomics in their future profession. Each student could earn a maximum of 21 points.

Results: A total of 132 students of the Medical University of Lodz participated in the study: dentistry - 51 students, physiotherapy - 49 students and cosmetology - 32 students. The questionnaire was completed by 29 first-year students, 24 second-year students, 16 third-year students, 33 fourth-year students, and 30 fifth-year students. The level of ergonomics knowledge considering the field of education was as follows: dental students - 12.88±2.03, physiotherapy students - 14.06±1.78 and cosmetology students - 13.5±1.92, and considering the year of education: year I (12.83±2.35), year II (13.08±1.95), year III (13.38±1.63), year IV (13.7±1.74), year V (14.2±1.81).

Conclusions: After analyzing the above results it was found that:

1. Physiotherapy students have the highest level of knowledge, next cosmetology and dentistry students.

2. It was confirmed that the knowledge of work ergonomics increases with the longer time of studies.

Assessment of supraspinatus muscle thickness in post-stroke patients using rehabilitative ultrasound imaging - comparison of the affected and non-affected limb

Natalia Pawłuś

Presenting author: Natalia Pawłuś

Tutors: Prof. Marta Woldańska-Okońska, Katarzyna Glibov, PhD

Affiliations: Medical University of Łódź

Introduction: The supraspinatus of the shoulder is a relatively small muscle of the upper part of the shoulder joint with a very important function. Together with the deltoid muscle, it is responsible for the abduction of the upper limb, but its other function is external rotation. What is important, it is also largely responsible for stabilising the shoulder joint, i.e. protecting it from subluxation or dislocation. Increased muscle tension after stroke can result in non-physiological and ineffective positioning of the upper limb. The consequences of a stroke also affect the supraspinatus muscle, limiting its function.

Aim of the study: The aim of the study was to assess the thickness of the supraspinatus muscle using rehabilitative ultrasound imaging (RUSI) on the affected side and compare it with the muscle on the non-affected side.

Materials and methods: The study was conducted on a group of 20 patients hospitalized in the Department of Rehabilitation and Physical Medicine due to stroke and resulting hemiplegia. The patients' motor functions were assessed according to the Motricity Index Scale - both upper and lower limbs were evaluated. The thickness of the supraspinatus muscles was measured with a rehabilitation ultrasound imaging (RUSI).

Results: Sonographic findings showed a lower thickness of the supraspinatus muscle on the affected side than on the unaffected side. The reduced muscle thickness showed a positive correlation with patient age.

Conclusions: Up to the present time, strokes were one of the most pessimistic areas of neurology. There is no doubt that rehabilitative ultrasound imaging is an important investigation that will provide physiotherapists with an accurate view of the patients' musculoskeletal status and thus contribute to a more effective physical recovery of stroke patients.

Analysis of factors affecting the quality of cooperation with a physiotherapist in opinion of nursing personnel employed in hospitals in the łódzkie voivodeship.

Aleksandra Al-Askari, Julia Michalak, Beata Czechowska, Marta Karbowiak

Presenting author: Aleksandra Al-Askari

Tutors: Katarzyna Glibov, PhD

Affiliations: Internal Medicine and Cardiologic Rehabilitation Clinic, USK WAM-CSW in Łódź

Introduction: Each medical profession, despite many common features, has separate qualifications and different methods of patient care. It is worth looking at these differences and taking into account the views of other healthcare professionals on overall cooperation in hospitals. It is obligatory to emphasize the importance of cooperation between healthcare coworkers in order to ensure the best possible treatment.

Aim of the study: The aim of the study was to analyze selected factors influencing the quality of cooperation with a physiotherapist, based on the subjective assessment of nursing staff working in hospitals in the Łódź voivodeship.

Materials and methods: In 2019, a survey was conducted. The study included 355 (342 F, 13 M) people of nursing staff working in hospitals in the Łódź voivodeship. The study was based on the proprietary questionnaire.

Results: Almost 44% of the respondents declared direct cooperation with a physiotherapist, but as many as 56% declare no direct cooperation with a physiotherapist, despite the fact that they are employed at their workplace. Among the nursing staff cooperating with physiotherapists, 51% assess this cooperation as good. According to the respondents, the most important factors influencing the quality of cooperation with a physiotherapist are: the level of knowledge of physiotherapists, the ability to work in a team and interpersonal competences. 50% of respondents believe that in their current workplace, measures should be taken to improve cooperation between members of the therapeutic team. According to the respondents, the most important elements requiring improvement are: information exchange, interpersonal communication, involvement of all team members at a similar level, team integration and a sense of belonging to the team.

Conclusions: The vast majority of nursing staff consider cooperation with physiotherapists as good. Most nursing staff believe that a physiotherapist should be a member of every treatment team.

PSYCHIATRY AND PSYCHOLOGY

13th of May 2022

Coordinators:

Agata Twardowska

Magdalena Szczerkowska

Jury:

Prof. Dominik Strzelecki, MD, PhD

Magdalena Kotlicka-Antczak, MD, PhD, Prof. UM

Tomasz Pawełczyk, MD, PhD

Agata Gabryelska, MD, PhD

Health anxiety, General Anxiety Disorder and Depression in different study programmes

Agnese Krūze, Rūdolfs Krēgers

Presenting author: Agnese Krūze

Tutors: Artūrs Utināns, MD, PhD

Affiliations: Riga Stradins University;

University of Latvia

Introduction: Anxiety and depression are highly prevalent worldwide.There is an inconclusiveness of whether medical students experience Health Anxiety, General Anxiety and Depression more commonly than students of other programms.

Aim of the study: This study aims to measure whether medical students have highter Health Anxiety, General Anxiety and Depression symptoms.

Materials and methods: We asked multiple universities in Latvia to give students to fill a questionnaire electronically, voluntarily. We received 900 valid responses. The questionnaire consists of demographic data, Health Anxiety Inventory (HAI), General Anxiety Disorder-7 (GAD-7) and Patient Health Questionnaire-9 (PHQ-9).

Results: We used the t-test to compare Health Anxiety in medical students and in non-medical students. There wasn't any statistically significant differences between the groups (p value = 0.83). Similarly, we tested General Anxiety Disorder differences between medical students and the rest - no significant differences. There are significant statistical differences in the Depression score (p-value = 0.009). Health students are having lower depression scores. If we compare study programs (after p-value adjustments), we noticed that law students might have higher Health Anxiety than social work program students (p-value = 0.046) and cultural and art program students also are having statistically higher Health Anxiety than the social work program students (p-value = 0.055). We noticed similarities comparing the study groups: law students have significantly higher Health Anxiety than pedagogy students (p-value = 0.04 after adjustments). Pedagogy students might have lower General Anxiety than philology students (p-value = 0.045). Law students have statistically higher Depression levels than pedagogy students (adjusted p-value = 0.006).

Conclusions: We reject the hypothesis that medical students have higher Health Anxiety. There are no higher General Anxiety Disorder and Depression symptoms in medical students than non-medical students.

Impact of daily life changes and mental health challenges on the onset of depression and anxiety symptoms post-quarantine (continuous work)

Gabrielė Gogelytė, Ieva Radavičiūtė

Presenting author: Gabrielė Gogelytė

Tutors: Rima Viliūnienė, MD, PhD

Affiliations: Vilnius University, Faculty of Medicine

Introduction: COVID-19 infection affected people‘s mental health by causing anxiety and depression symptoms. The daily life changes and its impact on health challenges in the post-COVID-19 era have also been noticed.

Aim of the study: To determine which changes in daily life and new mental health challenges had the biggest impact on the manifestation of anxiety and depressive symptoms post-quarantine and compare it to the previous work.

Materials and methods: November-March 2022 an anonymous online survey was carried out. The study interviewed 135 students and a medical resident. The questionnaire consisted of 39 questions. The anxiety and depression symptoms were evaluated through the Hospital Anxiety and Depression Scale (HADS).

Results: 72,6% of respondents had anxiety and 34,1% of depression. Most of them spent post-quarantine at home with their parents (43%). The study found a correlation between certain changes in daily life in post-quarantine and the manifestation of anxiety and depression: increased food intake and increased depression ($p=0.03013$; 2021 yr. $p=0.00038$); increased internet time and increased depression ($p=0.01181$; 2021 yr. $p=0.0002$); decreased communication with friends, peers and increased anxiety ($p=0.04927$; 2021 yr. $p=0.001$) and depression ($p=0.009702$; 2021 yr. $p=0.00007$); reduced sports time and more expressed depression ($p=0.04836$; 2021 yr. $p=0.03$). No correlation between these changes in daily life and the manifestation of anxiety or depression in post-quarantine was observed as it was during quarantine: increased food intake and increased anxiety (2021 yr. $p=0.038$); increased internet time and increased anxiety (2021 yr. $p=0.009$); prolonged sleep time and more expressed depression (2021 yr. $p=0.001$). The most common challenges affecting mental health during post-quarantine were anxiety 75.2%, boredom 67%, uncertainty 64.2% and sadness 64.2%. As in quarantine, in the period of post-quarantine mental health challenges such as loneliness, anxiety, fear, sadness, disagreements with loved ones and uncertainty (all $p<0.05$) correlated with a stronger manifestation of anxiety. Loneliness, anxiety, fear, sadness, disagreements with loved ones correlated with a stronger manifestation of depression (all $p<0.05$). It was also observed that the more challenges the interviewees faced, the stronger were the symptoms of anxiety ($p<0.05$) and depression ($p<0.05$). Moreover, people with chronic diseases had a more expressed depression ($p=0.04086$).

Conclusions: Daily life changes such as decreased communication with friends, peers were significantly associated with increased expression of anxiety and depression symptoms. Increased food intake, increased internet time, reduced sports time were associated with increased depression. All above mentioned daily life changes can be interpreted as early signs of anxiety and depression. Also, chronic diseases correlated with depression.

COVID-19 pandemic consequences among individuals with eating disorders in Poland

Alicja Jodczyk

Presenting author: Alicja Jodczyk

Tutors: Daniel Śliż PhD

Affiliations: Lifestyle Medicine Academic Circle Medical University of Warsaw;

3rd Department of Internal Medicine and Cardiology, Medical University of Warsaw

Introduction: The COVID-19 pandemic has disrupted the functioning of social, economic, and healthcare systems. During the COVID-19 pandemic, eating disorders (ED) symptoms could be exacerbated by disruption to daily activities, routine and structure, social isolation, media exposure and increased fear of food shortages or contagion. In addition access to protective sources and treatment was limited.

Aim of the study: This study aimed to investigate the impact of prolonged COVID-19 pandemic and lockdowns on patients with the diagnosis of ED (AN-Anorexia Nervosa, BN-Bulimia Nervosa, AAN-atypical anorexia nervosa, BED-binge eating disorder, and other specified or non-specified eating disorders) in Poland.

Materials and methods: The survey containing the authors' questions was distributed between7th April and 12th June 2021 in the tertiary care psychiatric clinic and via online methods. Sociodemographic data such as age, gender, diagnosed ED, living and occupational situation were collected. Other questions involved: the history of COVID-19 infection, the consequences of the pandemic on previous symptoms of ED and onset of the new ones, the impact of the confinement on the treatment of the ED, general psychopathology symptoms and the impact of the pandemic and social media (SM) usage on mental health.

Results: 248 participants fulfilled the form, 198 (79.84%) of them met the study conditions. 195 were women (98.97%) and 3 did not want to specify their gender (1.53%). The mean age was 21.72±9.00 years and the median was 22 years. 50.51% (n=100) of our participants suffered from AN, 22.73% (n=45) BN, 11.62% (n=23) BED, 1.52% (n=3) AAN, 13.64% (n=27) other specified or non-specified ED. 74.75% (n=148) reported previous or past SARS-CoV-2 infection. 78.79% (n= 148) of participants agreed that the pandemic resulted in worsening of their ED symptoms, 42.93% (n=85) reported the onset of new symptoms of the ED. The negative impact of the pandemic on the treatment of ED was reported by 57.58 % (n=114) participants. 81.82% (n=162) of respondents claimed that the pandemic caused a general deterioration in the quality of their life. Negative changes in mental health were reported by 88.89% (n=176) of participants. 91.92% (n=182) of participants increased the time spent on SM and 54.04% of them claimed that it harmed their mental health.

Conclusions: The results of this study indicate the magnitude of deterioration in eating disorders symptoms during the COVID-19 pandemic and suggest the possibility of increased help-seeking of individuals with ED after the pandemic. Raising the awareness of the problem in Poland and worldwide is crucial to provide comprehensive care for individuals with eating disorders and to apply an appropriate treatment strategy.

How biomarkers of stress could indicate potential risk of developing depression?- preliminary study

Agnieszka Brzezińska, Justyna Nowaczek, Weronika Perczyńska

Presenting author: Agnieszka Brzezińska

Tutors: Prof. Hanna Karakuła- Juchnowicz, MD, PhD, Joanna Róg, MD, PhD

Affiliations: Students' Scientific Association I Department of Psychiatry, Psychotherapy and Early Intervention, Medical University of Lublin;

I Department of Psychiatry, Psychotherapy and Early Intervention, Medical University of Lublin

Introduction: Students entering the competitive environment of universities are exposed to multiple stressors which could affect their mental health. Data from model and epidemiological studies show that exposure to chronic stress may trigger symptoms of mood disorders. The level of the stress reaction in the body could be determined by measuring biomarkers such as cortisol. Only limited studies have assessed the relationship between stress symptoms, mental health status, and their biological indicators in university students.

Aim of the study: The study aimed to assess 1) the relationship between stress symptoms and depression in the population of students from Lublin and 2) the possibility of determining poor mental health by blood cortisol levels.

Materials and methods: The examined group consisted of 80 students (76% of women) from the Lublin universities between 19 and 28 years old. The blood sample was obtained to assess the concentration of cortisol. Perceived Stress Symptoms Scale (PSS-10) and Beck Depression Inventory (BDI) were used to determine students' stress and depressive symptoms. To assess the differences in the cortisol blood levels between groups with high and low levels of depression and stress U-Man Whitney test was applied. Rho Spearman rank correlation was used to determine the relationship between examined variables.

Results: 48 students (60%) experienced stress on a high level, and 20 (25%) showed depression symptoms. There were no differences in the cortisol levels between students with high and low stress severity. Students who experienced depressive symptoms were characterized by lower cortisol concentration ($p=0.019$). Higher PSS-10 total score indicated a higher level of depression ($R=0.42$, $p<0.05$). The BDI total score was inversely associated with cortisol levels ($R=-0.29$, $p<0.05$).

Conclusions: In our study, more than half of students experienced high stress levels, and blood cortisol was not a good predictor of these symptoms. Lower cortisol indicates the possibility of depressive symptoms, which are positively related to stress symptoms. The obtained results suggest the need to determine more sensitivity and reliability biomarkers of stress.

Strategies to overcome anxiety and depression post-quarantine (continuous work)

Ieva Radavičiūtė, Gabrielė Gogelytė

Presenting author: Ieva Radavičiūtė

Tutors: Rima Viliūnienė, MD, PhD

Affiliations: Vilnius University, Faculty of Medicine

Introduction: Quarantine due to COVID-19 infection caused anxiety and depression symptoms. It was noticed that post-quarantine also set challenges for people‘s mental health. In order to feel better people search for new effective ways to fight these emerging symptoms.

Aim of the study: To discover which ways to overcome anxiety and depression were the most effective post-quarantine and compare results to previous work.

Materials and methods: In November-March of 2022 an online anonymous questionnaire survey was conducted. During it, 135 students and medical residents were interviewed. The relevant information of participants was collected by a self-designed questionnaire. The anxiety and depression symptoms were evaluated through the Hospital Anxiety and Depression Scale (HADS).

Results: The most common challenges to mental health during post-quarantine were anxiety 75.2%, boredom 67%, uncertainty 64.2% and sadness 64.2%. The study showed that 72,6% of respondents had anxiety and 34,1% had depression. It was found a correlation between respondent‘s subjective method‘s evaluation and frequency of usage. The more the method was evaluated as effective, the more frequently it was used. As during quarantine the most effective methods during post-quarantine were communicating with relatives or friends online or by the phone, positive thinking strategies, sports in nature or at home, routine development and adherence (all $p<0.05$). In addition, things that helped to feel better were dedication to work, profession; devotion to activities, hobbies; following government recommendations; watching TV or movies; social networks (all $p<0.05$). The least number of respondents consulted a psychologist (13.3%) and a psychiatrist (10.4%). The same trends were observed during quarantine. All the methods and subjects listed above have a significant value of $p<0.05$.

Conclusions: During post-quarantine, the most effective strategies to overcome anxiety and depression were communication with relatives or friends online, by phone; positive thinking strategies; sports in nature or at home; creating and following a routine; dedication to work, profession; devotion to hobbies; following government recommendations; watching television or movies; social networks. Also all mentioned methods and subjects were effective during quarantine.

Personality traits and health-related behavior in medical students under psychological stress – a prospective cohort study

Julita Tokarek

Presenting author: Julita Tokarek

Tutors: Michał Karbownik PhD, Agnieszka Heftowicz MD

Affiliations: Medical University of Łódź

Introduction: Leading a healthy lifestyle may be challenging under psychological stress, which is currently very prevalent. In particular, undergraduate students face multiple psychological stressors that may negatively affect their health behaviors. Moreover, their personality traits may have an impact on the propensity to change and maintain favorable lifestyle habits. This issue has been raised by multiple studies to highlight the link between personality traits and the tendency to consume specific food groups. However, populations under psychological stress have not been well studied.

Aim of the study: The aim of the present study was to investigate the link between personality traits and health related behaviors such as dietary intake of specific food products, physical activity, and the use of cigarettes in medical students under psychological stress.

Materials and methods: The study included a cohort of third-year medical students from the Medical University of Lodz, Poland, facing a stressful subject exam in the first COVID-related lockdown. Initially, personality traits were evaluated with the use of the Polish version of the Big Five Inventory-Short questionnaire; some sociodemographic and health-related questions were also asked. Then, consumption of selected food products was monitored with the use of seven-day electronic dietary record. General linear modeling was applied in data analysis.

Results: Four hundred forty four students completed the study; their mental health before the subject examination in COVID-related lockdown was worrisome: 75% presented at least mild depressive symptoms and 69% presented at least mild anxiety symptoms at that time. Two-factor pattern of food consumption was discovered by the exploratory factor analysis in the study group (34% of the variance explained). Higher conscientiousness, but not the other personality traits, was found to be associated with generally healthier lifestyle manifested by higher consumption of vegetables, wholegrain products, fruits and nuts (adjusted beta 0.16, 95%CI 0.06 to 0.26, p=0.0015) and less cigarette smoking (adjusted beta -0.17, 95%CI -0.27 to -0.07, p=0.0006).

Conclusions: Severely stressed medical students expressing high conscientiousness tend to present healthier behaviors. The results are consistent with the literature reports performed on other populations, which may suggest the high versatility of the phenomenon. Therefore, interventions aimed at improving lifestyle habits in students with low conscientiousness might be useful.

Views and beliefs among vaccinated and unvaccinated adult Polish population - comparison of people with and without children, the survey

Katarzyna Ulaszewska

Presenting author: Katarzyna Ulaszewska

Tutors: Daniel Śliż, PhD

Affiliations: Students' Scientific Group of Lifestyle Medicine, 3rd Department of Internal Medicine and Cardiology, Medical University of Warsaw;

Polish Society of Lifestyle Medicine;

3rd Department of Internal Medicine and Cardiology, Medical University of Warsaw;

School of Public Health, Postgraduate Medical Education Center

Introduction: The topic of vaccination against Covid-19 is still controversial among the public. Despite the passage of time, part of the population is still unvaccinated or unsure of the efficacy of vaccination against Covid-19. This is also a difficult topic for parents who do not know how to protect their children from infection.

Aim of the study: To assess the impact of the public's knowledge and beliefs about vaccination against Covid-19 on the decision to vaccinate, a survey was conducted.

Materials and methods: The survey consisted of 29 questions about the lifestyle of respondents, education status, economical status, and several statements about vaccination itself. The survey was conducted during period from 13 January 2022 to 14 February 2022. A total of 7018 adult Poles completed questionnaire: 5396 women, 1575 men, while 47 did not specify their gender, the mean age was of 48 years (from 18 to 68). Among the studied population 5742 persons (81.8%) were vaccinated against Covid-19 and 1276 (18.2%) were not vaccinated.

Results: Among the respondents there were 2826 parents [PAR] (the median number of children is 2), 2369 women, 452 men and 5 did not specify their gender. 4192 people who filled in the questionnaire do not have children [Non-PAR]. The vaccinated parents were 2279 [PAR-VAC] (80.6%), the unvaccinated 547 [PAR-NotVAC] (19.4%). When asked if they would vaccinate their children or vaccinate them whenever possible, PAR-NotVAC replied that 93% would not vaccinate their children, 5.5% would vaccinate, and 1.5% did not respond; among PAR-Vac, 4.2% will vaccinate their children, 14.9% will not vaccinate, and 1% will not respond. When asked about the use of personal protective equipment (masks, gloves, social distancing) 4.7% did not use any protection (4,5% PAR, 4,9% Non-PAR). The 37,5% of PAR and 44,2% Non-PAR expressed the need of deeper and better information regarding the immunizations. When asked about the sources of knowledge about vaccination against Covid-19, 68.7% of PAR and 24.1% of Non-PAR responded that they seek information from doctors. Statistically, Non-PAR, unlike PAR, consider WHO more of a trusted source of knowledge, while PAR more than Non-PAR believe that vaccines alter DNA and contain harmful substances.

Conclusions: The research results show that many of the issues still remain unexplained or misunderstood by the respondents. More effort should be made to explain to people what concerns them about vaccination against Covid-19. We should educate people more about immunization against Covid-19, including those who have children.

Prevalence of depression among students of different fields of study in Latvia during the COVID-19 pandemic

Julija Vorobjova

Presenting author: Julija Vorobjova

Tutors: Asst. Prof. Jelena Vrublevska, Prof. Konstantinos N. Fountoulakis

Affiliations: Rīga Stradiņš University, Faculty of Medicine, Latvia;

Rīga Stradiņš University, Department of Psychiatry and Narcology;

3rd Department of Psychiatry, School of Medicine, Aristotle University of Thessaloniki, Greece;

Mental Health Section, Research Institute, Panhellenic Medical Association, Thessaloniki, Greece

Introduction: The COVID-19 pandemic has been particularly difficult for vulnerable populations such as students. During the pandemic, fear and uncertainty about the future are factors that can contribute to anxiety and depression. Few studies have been conducted to show variance prevalence of depression among students from various study fields.

Aim of the study: To identify the prevalence of depression among students of different fields of study in Latvia during the COVID-19 pandemic.

Materials and methods: This was a cross-sectional study where university and college students in Latvia were asked to fill out the self-report questionnaire electronically, voluntarily. Students' were classified into three groups depending on their field of studies, group A included health and biological sciences, group B technical sciences, group C arts, literature, education, and related sciences. This study is based on a questionnaire developed as part of an international study. Data were analysed using SPSS Statistics (Pearson's chi-square test and binomial logistic regression).

Results: In total 1047 students filled the questionnaire, 79,08% (n=828) of the respondents were women, 20,25% (n=212) were men, 0,67% (n=7) of the respondents did not want to indicate their gender. The prevalence of depression among all participants was 33.8% (n=354). Prevalence of depression among women were 35,99% (n=298) and among men 24,06 (n=51). The association between depression prevalence and gender is statistically significant ($p<0.001$). Data reveal that depression prevalence among group A students were 33.33% (n=133), group B 27,83% (N=64), group C 37,56% (n=157). The results show that education group B has 0.77 (95% CI 0.54-1.10) times lower odds to develop depression and group C has 1.21 (95% CI 0.90-1.60) times higher odds to develop depression compared to group A.

Conclusions: The present findings confirm that the prevalence of depression is high among students. Results demonstrated that women are more likely to develop depression compared to men. Results between groups A, B, and C were quite similar. Depression prevalence was highest among students who study arts, literature, education, and other related sciences. Lowest among students who study technical sciences. It is important to deepen the understanding of the causes of depression among students. Because early detection and treatment can help prevent socio-emotional disorders.

RADIOLOGY AND NUCLEAR MEDICINE

13th of May 2022

Coordinators:

Olga Racińska

Kacper Kuczyński

Jury:

Łukasz Olewnik, D.P.T, PhD, prof. UM

Paweł Cichocki, MD, PhD

Tomasz Szpotan, MD

Importance of MRI in the diagnosis of CNS lesions in the case of neuroborreliosis.

Monika Zbroja

Presenting author: Monika Zbroja

Tutors: Magdalena Woźniak, MD, PhD

Affiliations: Students' Scientific Society at the Department of Pediatric Radiology, Medical University of Lublin;

Department of Pediatric Radiology, Medical University of Lublin

Introduction: Neuroborreliosis is an infection of the central nervous system caused by Borrelia burgdorferi. The main symptoms are fatigue, drowsiness and depression. Symptoms may appear several weeks after the tick bite. There is a progressive inflammation of the nervous tissue, and patients usually consult a doctor only when joint or psychosomatic complaints appear. Imaging diagnostics is therefore extremely important in making a diagnosis. Magnetic resonance imaging (MRI) is an useful tool to visualize changes in the brain in the case of neuroborreliosis.

Aim of the study: The aim of the study is to evaluate the importance of MRI in the diagnosis of CNS lesions in the case of neuroborreliosis.

Materials and methods: The study included a group of 13 patients referred for brain MRI with suspected neuroborreliosis. All patients, up to 5 months before the MR examination, underwent Lyme infection after a tick bite, which was confirmed by positive serological tests. Clinical symptoms such as muscle and joint pain, paresthesia, fatigue, somnolence and headache were observed in all patients.

Results: In 3 patients (23%), the MR image of the brain was normal. The remaining 10 patients (77%) had multiple, diffuse hyperintense foci in white matter in T2 weighted images and in the FLAIR sequence. In 2 cases, the morphology of the meningeal signal was changed, suggesting meningitis. The previous infection with Lyme disease, positive neurological symptoms in correlation with MRI allowed for diagnosis of 10 patients with neuroborreliosis.

Conclusions: In summary, MRI is the method of choice in the diagnosis of neuroborreliosis. It allows for the assessment of changes in the brain and, together with the patient's clinical symptoms and laboratory tests, for a final and unambiguous diagnosis.

Prevalence of arterial and venous vascular variants based on head angio-CT scans

Maria Ozga, Laura Peisert

Presenting author: Maria Ozga

Tutors: Anna Saran, MD

Affiliations: Medical University of Silesia

Introduction: The arterial circle of Willis is the system of vessels that supplies blood to the brain. The arteries which form this cerebral arterial circle originate from the internal carotid arteries and vertebral arteries, thereby forming the collateral circulation. The primary function of the cerebral circulation is to provide neurons with oxygen. Structural variants may occur in the described vessel system. These variations may carry significant implications in the course of vascular diseases, affecting their clinical picture.

Aim of the study: The aim of this study was to determine the most frequent anatomical variants of cerebral vessels in both arterial and venous systems based on retrospective evaluation of angio-CT scans of the head.

Materials and methods: Retrospective analysis of the descriptions of head angio-CT scans from 1104 patients (681 women and 423 men) aged 0.5 years to 97 years was conducted. Patients with brain tumors or implants located within the head and neck, that resulted in artifacts onto the study area, were excluded from the study.

Results: The most common reasons for referring patients for a head angio-CT scan were: headache (22.6%), hemiparesis (6.0%), and visual (3.2%) or speech (2.9%) disorders. Among a total of 1104 patients, 702 arterial variants (63.5%) and 51 venous variants (4.6%) were diagnosed. The most frequent anatomical variants of the cerebral arterial circle in both sexes were: absence of contrast in the left posterior communicating artery (17.8%), asymmetry of the vertebral arteries with the dominant left vertebral artery (16.3%), and lack of visibility of the right posterior communicating artery (15.4%). Carotization of the right posterior artery (11.2%) and left posterior artery (7.1%) was relatively common in the studied group. Kinking occurred mainly in the right carotid artery (2.9%), left carotid artery (2.6%), and basilar artery (1.8%). Anterior artery triplication was found in 26 patients (2.3%). Venous variants occurred in 4.6% of patients, and the most common variants were: right transverse sinus dominance (37.2%), right sigmoid sinus dominance (29.4%), and left transverse sinus dominance (25.4%).

Conclusions: Arterial variants were diagnosed more often than venous variants. The absence of contrast visualization of the left posterior communicating artery was observed most often. Among venous variants, transverse sinus asymmetry (wider on the right side) was the most common.

Contrast-enhanced ultrasound in assessment of focal liver lesions perfusion

Adam Dobek

Presenting author: Adam Dobek

Tutors: Prof. Ludomir Stefańczyk MD, PhD

Affiliations: Medical University of Łódź

Introduction: Hepatocellular adenoma (HCA) is one of benign liver tumors. It is a tumor which requires to differentiate with Focal nodular hyperplasia (FNH), hemangioma and hepatocellular carcinoma (HCC) in which it can progress. In most cases, it requires observation due to growth potential. HCA has potential to rupture and according to it should be monitored. FHN also should be observed due to the possibility of growth and compression potential of surrounding tissues and organs. Diagnosis of the tumors mentioned above should be provided using Magnetic resonance imaging (MRI)/Computed tomography (CT). In this aspect Contrast-enhanced ultrasound (CEUS) is out of recommendation and for this moment can be inefficient because of possibility to overlook some changes apart from main lesion, however it can be fantastic way to monitor evolution of tumors.

Aim of the study: Aim of study is comparison of tumors perfusion in CEUS. This method can be used in serial control of eventual tumor evolution, however we wanted to show that CEUS can be useful in diagnostic and differentiation of focal liver lesions as well as MRI/CT simultaneously with lower cost of examination and better availability and safety.

Materials and methods: Retrospective study was performed in Department of Radiology of Medical University of Łódź. The study included 4 HCA and 7 FNH confirmed by MRI in standard abdominal protocol for confirmation of focal liver lesions. In the next step CEUS was performed according to guidelines for CEUS in liver – 2020 update. Examination included standard grey scale US examination and color-doppler, in last step of examination CEUS was performed with 2,4ml contrast agent (SonoVue) injection. Four phases of acquisition were noticed: arterial (10-45 seconds), portal venous phase (30 – 120), late venous phase (120-640). Enhancement of tumor was compared to liver parenchyma and contrast inside veins.

Results: Both HCA and FNH present wash-in and absence of wash-out effect. In comparison to liver parenchyma enhancement of tumors presents in following way: in arterial phase lesions are enhanced stronger than parenchyma and in portal venous phase and late venous phase enhancement is similar to liver parenchyma. Differentiation between HCA and FNH in CEUS is performed similarly like in MRI by presence of central scar in case of FNH. In case of presence of wash-out effect malignant lesion can be diagnosed.

Conclusions: CEUS can be considered as a great alternative method in diagnostic of focal liver lesions. In conjunction with the high percentage of occurrence of typical enhancement patterns of focal liver lesions they can be correctly diagnosed with high probability, however MRI or CT with contrast enhancement should be performed at the beginning of diagnostic.

Artificial Intelligence-Based Pneumonia Classification of Chest X-Ray Images

Dovydas Matuliauskas, Indrė Stražnickaitė

Presenting author: Dovydas Matuliauskas

Tutors: Karolis Šablauskas, MD

Affiliations: Vilnius University, Faculty of Medicine;

Vilnius University Hospital Santaros Klinikos, Centre of Hematology, Oncology and Transfusiology

Introduction: Deep learning is a promising tool in healthcare that can lead to a quicker and more accurate diagnosis by being able to swiftly and automatically classify normal and pathologic studies in medical imaging. It can be applied in chest X-ray (CXR) imaging for an effective triage of normal and pneumonia cases to increase the patient throughput and the workflow of radiology department.

Aim of the study: In this study we aimed to assess if an algorithm trained on one dataset can be effectively used to accurately classify normal and pneumonia CXR studies from an external dataset.

Materials and methods: The model was trained to perform a classification of pneumonia and normal chest X-ray images. A total of 5224 CXR images from a publicly accessible dataset was used for model training (normal - 1345, pneumonia - 3879) and validation (238 - normal, 394 pneumonia). Training was performed using an open-source deep learning framework Fast-AI, and using restNet34 for the classification. For model's accuracy testing, a separate external open access dataset was obtained from NIH Clinical centre (Bethesda, Maryland) that contained a total number of 3076 pneumonia CXR images (normal - 2754, pneumonia - 322).

Results: The model was trained for 10 epochs to establish an optimal learning rate. The model's performance was saved and later trained using the optimal learning rate. The final accuracy achieved by the model was 62% (0.618661). The True Positive rate was 184/3076 (6%), True Negative - 1719/3076 (56%), False Positive rate was 1035/3076 (34%) and False Negative rate was 138/3076 (4%).

Conclusions: The model showed a mediocre accuracy on an external dataset, suggesting that deep learning models are poorly generalisable. This highlights the importance of using heterogeneous datasets in studies or real-life scenarios for better generalisability. This study can be further expanded to other thorax diseases.

Outcomes of TACE alone versus TACE combined with other treatment modalities in patients with hepatocellular carcinoma

Zofia Jankowska

Presenting author: Zofia Jankowska

Tutors: Krzysztof Bartnik MD

Affiliations: Faculty of Medicine (4th year's student), Medical University of Warsaw, Poland;

Doctoral School, Second Department of Radiology, Medical University of Warsaw, 02-091 Warsaw, Poland

Introduction: Transarterial chemoembolization (TACE) is first-line treatment modality for many patients with hepatocellular carcinoma (HCC) who are not surgical candidates. Multiple TACE sessions alone or combined with other treatment modalities are necessary for most patients according to the treatment stage migration strategy.

Aim of the study: In this study we aimed to compare the clinical effectiveness of TACE alone or in combination with various HCC specific therapies including: liver resection, orthotopic liver transplantation (OLTx), other locoregional therapies, sorafenib treatment and drug-eluting beads transarterial chemoembolization (DEB-TACE).

Materials and methods: In this retrospective study, we analyzed data of 267 consecutive patients (TACE monotherapy, n=169; TACE with other modalities, n=98) with HCC Barcelona Clinic Liver Cancer (BCLC) stage A/B who are not eligible for a treatment other than TACE at baseline. The outcome analyses were performed using Kaplan–Meier method with log rank test (Sidak correction) and the Cox proportional hazard model, while the overall survival (OS) was the primary study endpoint.

Results: OS of the entire cohort was 27 months (range 1-81). Median OS in TACE alone group (22 months) was significantly higher than in DEB-TACE group (16 months, p=0.049), but lower than in subjects that subsequently underwent OLTx (75% subjects censored, p=<0.001), resection (43 months, p=0.002) or other locoregional therapy (38 months, p=0.021). No significant association was noted between TACE combination with other locoregional therapy and survival in adjusted analysis (HR = 0.763 [95%CI: 0.48-1.21], p=0.25). There was significant association between initiation of sorafenib therapy and OS in TACE-monotherapy cohort (HR = 2.46 [95%CI: 1.37–4.41], p = 0.003).

Conclusions: The use of TACE as a bridging therapy for surgery provides the best treatment outcomes, underlining the importance of multidisciplinary patient management. Moreover, the combination of TACE with other locoregional therapies is not superior to TACE monotherapy in selected groups of patients and the therapy should be focused primarily on achieving local tumor control using treatment stage migration strategy. Unfavorable prognosis of patients who received sorafenib is probably due to inclusion criteria, which include disease progression.

The diagnostic importance of contrast agents in cardiac magnetic resonance imaging

Agata Macionga, Paweł Pobudejski

Presenting author: Agata Macionga

Tutors: Ewa Kluczewska, MD, PhD, prof. ŚUM, Zuzanna Jackowska, MD, PhD, Jan Głowacki, MD, PhD

Affiliations: Medical University of Silesia

Introduction: Cardiac magnetic resonance imaging (CMRI) is a safe method of imaging. Because of the possibility of dynamic imaging in any plane, it allows to assess the function and vitality of the organ, visualize the configuration of the streamflow through large vessels, recognize valve defects and assess the myocardium's morphology. Gadolinium contrast agents enable the MRI examination to differentiate between normal and pathological images by reducing the T1 relaxation time of the tissues in which it accumulates.

Aim of the study: The study aims to present the diagnostic significance of contrast agent administration in cardiac magnetic resonance imaging (CMRI).

Materials and methods: Determining the significance of contrast administration was based on 8 patients' cases referred for CMRI with contrast agent administration. All subjects involved in the analysis had established or suspected heart disease. Two females and six males were enrolled in the observation group. The average age of the subject equalled 60 years.

Results: Patient referrals, descriptions of diagnostic tests, and CMRI images were analyzed. In all of the cases, administration of a contrast agent revealed pathologies such as myocarditis, myocardial infarction, tumour, thrombus within the left ventricle, as well as pericarditis. MRI also enabled functional assessment of myocardial viability after the infarction.

Conclusions: MRI is an effective, non-invasive method of heart imaging. The use of a contrast agent additionally allows revealing a pathology that is not available in a non-contrast examination, thus allowing for a correct diagnosis or confirmation of clinical suspicion.

Coexistence of vascular variants with aneurysms located within the cerebral arterial circle based on head angio-CT scans

Laura Peisert, Maria Ozga

Presenting author: Laura Peisert

Tutors: Anna Saran, MD

Affiliations: Medical University of Silesia

Introduction: Aneurysms are the result of pathological enlargement of arteries and may be the cause of neurological disorders. The most serious complication of this pathology is an aneurysm rupture. Their pathogenesis is not fully known, but they have been associated with hemodynamic disorders and vascular variants, among other factors. The occurrence of structural variations in arteries can cause disproportionate blood flow, increasing the risk of damaging vessel walls and formation of aneurysms.

Aim of the study: The aim of this study was to evaluate the frequency of aneurysms and coexisting vascular variants.

Materials and methods: The analyzed materials consisted of head angio-CT scan descriptions of 1104 patients, which were then retrospectively evaluated. The study included 423 men (38.3%) and 681 women (61.6%) aged between 0.5-97 years. Patients with brain tumors or implants located within the head and neck, that resulted in artifacts onto the study area, were excluded from the analysis.

Results: Out of a total of 1104 patients, 117 (10.6%) were diagnosed with aneurysms within the circle of Willis. This pathology tended to occur more frequently in women (59%) than in men (41%), and patients were between 27 and 89 years of age. The most common locations of aneurysms were: anterior communicating artery (36.8%), left internal carotid artery (20.5%), right internal carotid artery (16.2%), and right anterior cerebral artery (16.2%). Vascular variants were present in 69% of patients with aneurysms. Aneurysms of the anterior cerebral arteries (18%) were most frequently accompanied by carotization of the right or left posterior cerebral artery (29%) or hypoplasia of the right anterior cerebral artery (29%). Anterior connecting artery aneurysms (36.8%) often occurred with carotization of the right or left posterior artery (25.6%). With internal carotid artery aneurysms (35%), the left or right posterior communicating artery lack of contrast was the most common anatomical variation (24.4%). Patients with posterior communicating artery aneurysms (6%) usually also had the right posterior artery carotization (28.6%) or asymmetry of the vertebral arteries (28.6%). Among patients with posterior cerebral artery aneurysms (6%), the most common variants included lack of contrast of both posterior communicating arteries (28.6%) and asymmetry of the anterior cerebral arteries (28.6%).

Conclusions: Circle of Willis aneurysms were most commonly located within the anterior communicating artery. Aneurysms were often coexistent with vascular variants, and their frequency differed depending on their location.

Does transthoracic fine-needle biopsy of lung nodule lesions improve the diagnostic value of the procedure compared with core-needle biopsy alone?

Marek Legaszewski, Julia Koronczok

Presenting author: Marek Legaszewski

Tutors: Tomasz Legaszewski, PhD

Affiliations: Medical University of Silesia in Katowice, STN by Chair and Dept. of Radiology, Clinical Hospital No. 1, Zabrze, Director: Prof. Ewa Kluczewska

Introduction: Image guided Core Needle Biopsy (CNB), Fine Needle Aspiration (FNA) or both are used as standard point of care in lung nodule diagnosis. Chosen method(s) depend on the lesion size, location and institution guidelines.

Aim of the study: Determine whether additional cytological material from FNA adds valuable diagnostic information to already collected material in CNB.

Materials and methods: We identified 321 patients that underwent combined FNA/CNB under CT control in Radiology Department in 2021. The group consisted of 144 women and 177 men. Collected samples (histopathology, cytological material, smear) were properly secured and then assessed by a histopathologist. We calculated percentage of samples from CNB and FNA that were used for Immunohistochemical (IHC) assessment. We also looked for cases where material from FNA gave positive result for tumor whereas CNB gave negative result.

Results: Consistency between FNA and CNB was 84,4%. We identified, that in 7,1% of cases CNB gave potentially false negative result (FNA result was positive). Material from FNA and CNB accounted for 38.4% and 61.6% of all IHC examinations respectively.

Conclusions: FNA may complement the CNB procedure reducing the false-negative result rate. Additional cytological material may in some cases enable extended IHC/molecular testing without repeated lung needle biopsy.

SURGERY AND TRANSPLANTOLOGY

12th of May 2022

Coordinators:

Gabriela Adamczak

Alton Ajay Mathew

Jury:

Michał Mik, MD, PhD

Przemysław Przewratil, MD, PhD

Krzysztof Szwedziak, MD, PhD

Impact of treatment of Crohn's Disease on postoperative complications of ileocecal resection

Aleksandra Sosińska, Agata Grochowska, Jacek Burzyński, Bartłomiej Czerwiński

Presenting author: Aleksandra Sosińska

Tutors: Marcin Włodarczyk, MD, PhD

Affiliations: Medical Univeristy of Lodz;

Medical Univeristy of Lodz, Department of General and Oncological Surgeryl

Introduction: Crohn's disease is a chronic, inflammatory disease of the gastrointestinal tract, which affects mainly the small intestine and the colon. The treatment includes both surgical and pharmacological methods depending on the clinical stage of the disease. Pharmacological treatment involves mostly immunosuppressive drugs such as corticosteroids and biological therapies. Nevertheless, more than 50% of the patients require a surgical approach due to development of complications such as strictures, fistulae, abscesses or inflammatory tumors. The risk of postoperative complications associated with intestinal surgery remains significantly high, thus it is crucial to identify potential preoperative factors which may reduce or exacerbate this issue.

Aim of the study: To determine if the type of pharmacological management of CD prior to surgery influences the incidence and severity of postoperative complications of ileocecal resections performed in CD patients.

Materials and methods: A retrospective analysis of medical records from 2008-2019, was performed. The study group consisted of 83 patients (including 58 female and 25 male) with Crohn's disease exacerbation who underwent ileocecal resection in the Department of General and Colorectal Surgery at the Medical University of Lodz. Patient data were analyzed for age, gender, type and number of drugs administered for management of CD before the admission to the ward, and type and severity of postoperative complications. Severity of the complications was assessed using the Comprehensive Complication Index (CCI).

Results: Individuals receiving systemic corticosteroids developed statistically more complications compared with patients treated with other agents (62,5% vs 37,5%, p=0,029). Moreover, corticosteroids usage was associated with higher CCI score (p=0,023). Usage of sulfasalazine and budezonid were associated with decreased rate of postoperative complications, but without statistical significance (rate of postoperative complications for patients receiving other medicaments vs. patients receiving sulfasalazine or budezonid respectively: 45,21% vs. 33,33%, p=0,73; 45,21% vs. 33,33%, p=0,73). Furthermore, rate of postoperative complications was higher in patients receiving azathioprine and mesalazine, though without statistical significance (rate of postoperative complications for patients receiving other medicaments vs. patients receiving azathioprine and mesalazine respectively: 38,98% vs. 56,52%, p=0,22; 36,36% vs. 46,67%, p=0,56).

Conclusions: Our research revealed that patients receiving systemic corticosteroids may have an increased risk of developing postoperative complications. These results indicate that preoperative use of corticosteroids should be taken into account when evaluating the risks associated with surgery.

General characteristic of patients hospitalized in the 2nd Department of General Surgery, Orthopaedics and Trauma of the University Hospital in Kraków due to gastrointestinal bleeding.

Zuzanna Oleniacz, Joanna Ożga, Bartosz Roś, Nastassia Chakhovich

Presenting author: Zuzanna Oleniacz

Tutors: Mirosław Dolecki MD, PhD

Affiliations: Students' Scientific Group at 2nd Department of General Surgery, Jagiellonian University Medical College, Kraków, Poland;

2nd Department of General Surgery, Jagiellonian University Medical College, Kraków, Poland

Introduction: Gastrointestinal bleeding is a group of acute abdominal conditions that are often highly dynamic and life-threatening. Therefore they often require immediate surgical intervention.

Aim of the study: The aim of the study was to characterize and describe the population hospitalized due to gastrointestinal bleeding in the 2nd Department of General Surgery, Orthopaedics and Trauma of University Hospital in Kraków and to evaluate applied treatment methods and their results.

Materials and methods: This was a retrospective analysis of 222 patients who were hospitalized due to gastrointestinal bleeding. Assessed factors included: age and gender, ASA and APACHE 2 scales, other physiological parameters, laboratory results, determination of the cause and starting point of bleeding, presentation of treatment methods, assessment of the number of patients requiring a stay in the Intensive Care Unit and mortality.

Results: The group included 132 (59.5%) men and 90 (40.5%) women, mean age was 66.5 years (SD=17.7). In 186 (83.8%) patients the cause of hospitalization was upper gastrointestinal bleeding, in 36 (16.2%) - lower gastrointestinal bleeding. 16 patients (7.2%) required surgery, endoscopic methods were used to stop the bleeding in 153 (68.9%) patients, and conservative treatment was used in 53 (23.9%) patients. Twenty-seven (12.2%) patients required stay in the intensive care unit. Mortality in the studied group was 14% (31 patients).

Conclusions: Gastrointestinal bleeding is a serious surgical problem. It requires rapid and effective diagnostic and therapeutic measures. Endoscopic methods remain the leading approach for bleeding management. In spite of modern methods and early therapeutic action, this disease is still associated with a high mortality rate.

Short-term outcomes of emergency surgery during COVID-19.

Piotr Pawłowski, Barbara Siejkowska, Klaudia Leszto, Igor Pawlak

Presenting author: Piotr Pawłowski

Tutors: Marcin Włodarczyk MD, PhD, Jakub Włodarczyk MD

Affiliations: Medical University of Łódź

Introduction: One of the most common reasons for emergency surgeries are acute appendicitis (AA) and gastrointestinal (GI) perforations. The pandemic of COVID-19 has deeply influenced the reality of emergency surgery services, including the clinical picture of AA and GI perforations in patients being admitted to surgical wards, and also occurrences of complicated cases like suppurative and gangrenous AA.

Aim of the study: The aim of the study was to analyze changes in the performance of emergency surgeries of AA and GI perforations and to verify the hypothesis that the first year of the pandemic would be characterized by increased ratio of severe and complicated cases as compared to pre-pandemic time.

Materials and methods: The aim of the study was to analyze changes in the performance of emergency surgeries of AA and GI perforations and to verify the hypothesis that the first year of the pandemic would be characterized by increased ratio of severe and complicated cases as compared to pre-pandemic time.

Results: There were 111 operations for AA during the study period. In the first year, 46 cases. Of these, 37 (80%) without complications, 6(13%) suppurative, and 1(1,4%) gangrenous. In the second year, 36 cases were operated on. There is a noticeable increase in the percentage of complicated cases. 13 (36%) cases were suppurative, 4(5%) were gangrenous, and only 18(50%) were operated in the early stage of AA. In the following year, 29 surgeries were performed. There was a slight increase in the percentage of early stage AA -17 cases (58%). The percentage of complicated suppurative cases has decreased to 4(14%). There have been more cases of gangrenous AA - 7(12%). 85 operations on GI perforations (stomach, small and large intestine) were performed. 26 procedures in the first, 31 in the second and 31 the third year. In the first year 16(62%) cases were accompanied by peritonitis. In 19(73%), abdominal lavage was performed. In the second year more cases were accompanied by peritonitis - 20(65%). In 25(81%), abdominal lavage was performed. In the third year less cases were accompanied by peritonitis - 16(52%). In 29(94%), abdominal lavages were performed. A similar number of stomas were created in the first two years. In the first year 6(23%), the second year 8(26%) cases. Stomas were more likely to be created in the third year of the study - 11(35%) cases.

Conclusions: Our study highlighted the negative impact of the pandemic on the course of AA and GI perforations. There was an increase in complicated cases of AA in the first year of the pandemic and a return to pre-pandemic scores in the second year. For the first two years of the study, the rate of peritonitis remained stable and increased in the second year of the pandemic. We observed a steady, significant increase in the performance of abdominal lavage.

Is there a sexual dimorphism in localization of the perforator of descending branch from lateral femoral circumflex artery?

Mateusz Gabryszewski

Presenting author: Mateusz Gabryszewski

Tutors: Anna Kasielska-Trojan MD, PhD, Professor Bogusław Antoszewski MD, PhD

Affiliations: Medical University of Łódź

Introduction: An anterolateral thight flap is commonly used in reconstructive surgery procedures. This flap has become a workhorse flap for reconstruction of small or large defects of head and neck and extremities.

Aim of the study: The aim of this study was to examine the differences in the anterolateral thigh flap (ALTF) perforators location between women and men in relation to anatomical points - anterior superior iliac spine (ASIS) and superior lateral border of the patella.

Materials and methods: We examinated 30 students (15 women and 15 men) from Medical University of Łódź with the use of USG-Doppler probe dedicated for skin perforators detection. Location of the perforators was determined by measurement of the distance from ASIS to the perforator within a circle of 3 cm radius located at the midpoint of a line drawn between the anterior superior iliac spine and the superior lateral border of the patella. Taking into consideration different height of the participants the results were analized as AP ratio - a distance from anterior superior iliac spine to perforator divided by a distance between ASIS and superior lateral border of the patella.

Results: On the basis of 60 extremities' examination we found that the mean values of AP ratio in men was 0,53 while in women - 0,49. This shows different localization the perforators to ALTF between sexes. In the female group perforators to ALT flap are located closer to anterior superior iliac spine in comparison to men in whom they are closer to superiolateral margin of patella. In 6 participants double perforators were detected (in 2 men and 4 women).

Conclusions: This preliminary study suggestes that there may be differences in location of the ALT flap perforators between women and men. To confirm this observation further studies on larger groups are required.

Does e-Petticoat technique guarantee favorable remodeling after acute Type B Aortic Dissection?

Maciej Molski, Marta Jankowska, Krystian Mross

Presenting author: Maciej Molski

Tutors: Arkadiusz Kazimierczak, PhD

Affiliations: Pomeranian Medical University in Szczecin

Introduction: Regardless of the current guidelines Thoracic Endovascular Aortic Repair (TEVAR) does not guarantee a favorable remodeling in every case of acute complicated type B Aortic Dissection (acTBAD). Extended Petticoat technique, which is a combination of standard TEVAR distally extended by bare metal stent and parallel iliac stent-grafts, was introduced to deal with the existing distal re-entries and showed encouraging early results.

Aim of the study: The objective of this study was to asses results and remodeling after using e-Petticoat technique in patients with acTBAD in 5 years of follow-up.

Materials and methods: A prospective study included 12 patients with acTBAD treated with e-Petticoat technique. Sizing, volumetric measurements and anatomical conditions were assessed before the surgery. Degeneration rate was predicted by the Stanford Aortic Risk Calculator. A 5-year follow up based on clinical outcome and angio-CT imaging has been made. Statistical analyses were performed using the Statistica 13.0 package with significance set at $p < 0.05$.

Results: There were 75% men (n=9) and 25% women (n=3) included in the study group. The average age of the patients was 51.67 years (SD 17.13). The most frequently noted risk factors of the degeneration were: entry >1cm (n=9, 75%) and FL size >22 mm (n=11, 92% patients). Mesenteric ischemia (n=8, 67%) and acute limb ischemia (n=11, 92%) were most common complications. The maximum aortic diameter was 35.2 mm. The volume of contrast enhanced FL volume before surgery was 163 ml and decreased after the surgery to 19.32 ml. After 5 years, it increased to 48.29 ml in patients with unfavorable remodeling. True lumen volume prior to surgery was on average 71.92 ml, increased to 192.33 mm after surgery and did not change over the years of follow-up. 5 deaths occurred in the whole study group – 3 were reported as early deaths due to complications or failure of the treatment and 2 died in long-term observation due to the aneurysmal degeneration or the aortic disease. 7 patients from the study group are currently alive. Aneurysmal degeneration was confirmed in 2 of them and was fixed by a five-branched stent-graft in both. In the remaining 5 patients, good remodeling with fully coagulated FL and stable aortic diameter is maintained. The predicted risk of aneurysmal degeneration assessed by the Stanford Aortic Risk Calculator at 5 years was 50.92% (SD 29.54), suggesting that arterial degeneration should have occurred in at least 6 patients treated conservatively. However, the risk of degeneration was reduced about 2 times due to applied treatment, but did not stop it completely. Although this number is lower than that predicted by the Stanford Aortic Dissection Risk Calculator, the difference is not statistically significant (p=0.32, Fisher exact test).

Conclusions: Extended Petticoat technique does not sufficiently improve long-term remodeling after acTBAD.

What are the factors that make some breasts more sensitive than others?

Agata Szulia

Presenting author: Agata Szulia

Tutors: Anna Kasielska-Trojan, MD, PhD, Prof. Bogusław Antoszewski, MD, PhD

Affiliations: Medical University of Łódź, Poland;

Plastic, Reconstructive and Aesthetic Surgery Clinic, Medical University of Łódź

Introduction: Preservation of the sensitivity of the nipple-areola complex (NAC) remains one of the essential goals in breast surgery. Providing standard values of NAC sensibility, vital for assessment and comparison of sensitivity level pre- and post-operatively, poses a challenge to researchers and clinicians. There can be found analyses of NAC sensation after different techniques of reduction mammaplasties, gender-affirming mastectomies and NAC-preserving mastectomies, however these studies are often based on pre- and post-procedure analyses or include small control groups and fail to involve important variables which may influence NAC sensation. Identifying these is crucial for further studies examining breast sensation after different surgical procedures involving different techniques to exclude bias related to anthropometric and clinical variables. As sensation in the nipple significantly affects quality of life in women, assessment of NAC sensitivity should become a standard part of the routine evaluation of surgical outcomes. In this study, we aimed to establish normative data for breast sensibility of the NAC using Semmes-Weinstein monofilament tests (SWMT) and two-point discrimination (TPD) in women with varying breast sizes. We also aimed to verify the most common clinical variables as factors influencing NAC sensation.

Aim of the study: To establish normative data for nipple-areola complex sensibility examined with SWMT and TPD in women with varying breast sizes, and to identify clinical variables influencing NAC sensation.

Materials and methods: A total of 270 breasts in 135 Caucasian women were examined. NAC sensation was examined using SWMT and the TPD. Results: The nipple appeared to be the most sensitive part of NAC. In normal-sized breasts, sensation thresholds (SWMT) correlated with: age, BMI, history of births, breast size and ptosis (for all locations), breastfeeding history (for nipple and upper areola) and areola diameter (for all locations apart from the nipple). Regression analysis showed that age, cup size and suprasternal notch-to-nipple distance are risk factors for diminished NAC sensation.

Results: We provided normative values of NAC sensation (tactile threshold and TPD) for different NAC areas.

Conclusions: Our investigation indicated that SWM are a useful diagnostic tool when the following factors are considered while examining NAC sensation: location (nipple vs. areola), age, breast size, suprasternal notch-to-nipple distance, history of births and breastfeeding. We found that age, cup size and SN-N distance are risk factors for diminished NAC sensation.

Radical cystectomy pentafecta: reporting outcomes following cystectomy in a Polish cohort: a multicenter retrospective analysis

Jerzy Miłow, Piotr Zapała, Aleksander Ślusarczyk, Paweł Kurzyna, Michał Niemczyk, Rafał Wolański, Bartłomiej Korczak, Kamil Pocheć, Tomasz Suchojad, Mikołaj Leki, Michał Późniak, Maciej Przudzik, Tomasz Drewa, Marek Roslan, Andrzej Wróbel

Presenting author: Jerzy Miłow

Tutors: Prof. Piotr Radziszewski, MD, PhD; Łukasz Zapała, MD, PhD; Prof. Waldemar Różański, MD, PhD; Piotr Lipiński, MD, PhD

Affiliations: Medical University of Łódź;

Medical University of Warsaw;

Department of Urology, Regional Specialist Hospital, Kielce, Poland;

Clinic of Urology, University Hospital No. 1, Bydgoszcz, Poland;

Department of Urology, Faculty of Medicine, University of Warmia and Mazury, Olsztyn, Poland;
2nd Clinic of Gynecology, Medical University of Lublin, Lublin, Poland

Introduction: The worldwide results of the treatment of muscle-invasive bladder cancer (MIBC) bring the image of suboptimal management of the disease with 50% of patients undergoing radical cystectomy (RC) not surviving 5 years. The most efficient way of treatment nowadays remains radical cystectomy (RC) with neoadjuvant or adjuvant chemotherapy. As it has been shown in the recent publications, RC efficiency may be improved by applying criteria of so called pentafecta.

Aim of the study: We aimed at characterization of the patients undergoing radical cystectomy using the prognostic model (a modified pentafecta).

Materials and methods: In the multicenter retrospective study, we enrolled 304 patients with bladder cancer (pTis-4N0-2M0) who underwent RC between 2015 and 2020 in experienced centers. The definition of the pentafecta was as follows: no Clavien–Dindo grade III–V complications at 90 days and no long-term complications related to urinary diversion <12 months, negative surgical margins, ≥10 lymph nodes (LNs) resected, and no recurrence ≤12 months.

Results: RC-pentafecta achievement rate was 22% (n = 67), varying from 47% to 88% attainment rate for different pentafecta components, and was the lowest for sufficient LN yield. Both 12-month recurrence-free survival (RFS) and cancer-specific mortality were compromised in pentafecta failers compared with achievers (57.8% vs. 100% and 33.8% vs. 1.5%, respectively). The following were identified as crucial predictors of RC pentafecta achievement: modality of the surgery, type of urinary diversion, histological type of bladder cancer, advanced staging, and elevated preoperative serum creatinine.

Conclusions: In conclusion, we found that the pentafecta achievement rate was low even in high-volume centers in patients undergoing cystectomy. The complexity of the procedure directly influenced the attainment rate, which in turn led to an increase in cancer-specific mortality rate among the pentafecta failers.

CASE STUDIES: INTERNAL MEDICINE
I SESSION

14th of May 2022

Coordinators:

Natalia Bień

Olga Kowalczyk

Aleksandra Palka

Jury:

Prof. Ewa Małecka-Wojciesko, MD, PhD

Prof. Elżbieta Skowrońska-Jóźwiak, MD, PhD

Aleksandra Opinc, MD

Micronutrient deficiency with skin and systemic symptoms. A case of acrodermatitis enteropathica.

Maria Rajczak

Presenting author: Maria Rajczak

Tutors: Prof. Aleksandra Lesiak, MD, PhD; Małgorzata Skibińska, MD, PhD

Affiliations: Medical University of Lodz

Introduction: Zinc deficiency can occur as an inherited or acquired disorder. Acrodermatitis enteropathica (AE) is a disease caused by a low amount of this micronutrient. As an inherited disorder AE usually manifest in infants. In adults, inflammatory bowel disease, reduced intake due to dietary habits or excessive zinc excretion may cause the acquired form of AE. The disease is characterized by a classical triad, which involves: periorificial and acral rash, alopecia and diarrhea. Additionally, secondary infections with Staphylococcus aureus or Candida albicans may develop in zinc deficient patients. To confirm the diagnosis, serum zinc level should be measured. Regularly monitored, enteral or parenteral supplementation of zinc is a treatment of choice. The prognosis of the condition is good if diagnosed and treated, but can be potentially fatal without zinc supplementation.

Case report: A 28-year-old male was admitted to the dermatological department due to hyperkeratotic, partly psoriasis-like lesions localized on his hands, feet and scalp, and erythematous, scaly periorificial areas on his face. Additionally, a significant hair loss was noticed. Patient had mild anemia [HGB 13,0 g/dl (13,5-18,0 g/dl)] and elevated CRP [28.15 mg/l (0,00-5,00 mg/l)]. Medical and social history of the patient (homelessness, high alcohol intake) and clinical picture led to decision to request a laboratory test for zinc level. The result was well below the normal range [33 μg/dl (66-110,0 μg/dl)]. The supplementation of zinc was immediately started. His skin condition and laboratory test results gradually improved. The patient was discharged from the hospital with recommendation to continue oral zinc supplementation. Unfortunately, lack of compliance due to patients' life circumstances led to readmission in a few months time. Clinical examination showed signs of bacterial infection on top of similar to previously seen dermatological lesions. In laboratory tests ALAT [59 U/I (0-41 U/I)], CRP [(67.81 mg/dl (0,00-5,00 mg/dl)] and WBC [(15.5 10^³ μl (4,0-10,0 10^³ μl)] were elevated. Moreover, the anemia reappeared [HGB 12,0 g/dl (13,5-18,0 g/dl)]. This time he complained of having recurrent loose stools.Treatment with systemic antibiotics was introduced and zinc supplementation was resumed. Again, gradually the skin lesions resolved, and laboratory parameters returned to normal levels. The patient was discharged from the hospital in overall good condition, with emphasis on the importance of proper zinc supplementation.

Conclusions: Acrodermatitis enteropathica is a disorder, that should be considered in the differential diagnosis in adult patients, especially when skin lesions of unknown etiology coexist with systemic symptoms.

Anti-synthetase syndrome - a challenging diagnosis in the pandemic era

Mikołaj Młyński

Presenting author: Mikołaj Młyński

Tutors: Anna Wojteczek, MD;

Affiliations: Student Scientific Circle of Rheumatology, Medical University of Gdańsk;

Department of Internal Medicine, Connective Tissue Diseases and Geriatrics, Medical University of Gdansk

Introduction: Antisynthetase syndrome (ASSD) is a disease distinguished from the group of idiopathic inflammatory myopathies, a specific form of dermatomyositis. The predominant manifestations of ASSD are interstitial lung lesions, Raynaud's sign, mechanic hand type skin lesions and arthritis.

Case report: A 47-year-old female patient with iron deficiency anemia, presented to the Emergency Department due to dry cough, exertional dyspnea, and subfebrile states present for 3 weeks. Her diagnostic work-up to date revealed lesions on chest CT scan that may be consistent with COVID-19 (CORADS 5); however, PCR testing for SARS-CoV-2 infection on several occasions was negative. On physical examination, crackles were present at the base of both lungs. Laboratory tests revealed moderately elevated inflammatory parameters (CRP 29 mg/l) and lymphopenia (0.8 G/l). Due to the ambiguous clinical picture the diagnostics was extended to bronchoscopy with sampling of bronchoalveolar lavage for microbiological testing. Finally, SARS-CoV-2 infection was excluded, but adenovirus DNA was detected in the examined material. The patient with the diagnosis of adenoviral pneumonia was transferred to the Department of Pneumonology, where after steroid and antibiotic therapy, the reported symptoms improved. Approximately 2 months after completion of treatment, the patient again presented to the Emergency Department with dyspnea, decreased exercise tolerance, and atypical chest pain. On physical examination, crackles were still audible at the base of the lungs, while new swelling of the lower extremities and fingers was noted. The pulmonary embolism was ruled out on angio-CT and the patient was transferred to the Department of Cardiology for suspected acute heart failure caused by myocarditis secondary to viral. Differential diagnosis at that moment included pulmonary hypertension. Chest CT scan was re-performed – it showed interstitial lesions and their partial regression comparing to the previous hospitalization. No significant increase of myocardial necrosis markers or contractility abnormalities were observed and pulmonary hypertension was excluded. In view of the entire disease picture, the patient was consulted in rheumatology and pneumonology. The rheumatologist diagnosed Raynaud's sign, mechanic's hands and edema of the small joints of the hands. Due to suspicion of systemic disease, additional immunological diagnostics were ordered. The antinuclear antibody test was positive for anti-Jo1 antibodies. Based on the whole clinical picture the patient was diagnosed with anti-synthetase syndrome. Steroid therapy was initiated with clinical improvement.

Conclusions: Antisynthetase syndrome should be considered in the differential diagnosis of patients with interstitial lung lesions. Viral respiratory infections may mask symptoms of systemic disease. The diagnosis of antisynthetase syndrome is difficult and may require the cooperation of physicians of multiple specialties.

From "hypocalcemia" to a parathyroid adenoma

Maja Czub

Presenting author: Maja Czub

Tutors: Łukasz Obołończyk, PhD

Affiliations: Medical University of Gdansk, Students' Scientific Circle of Endocrinology

Medical University of Gdansk, Clinic of Endocrinology and Internal Medicine

Introduction: Parathyroid adenoma is a benign tumor of usually one of the parathyroid glands. It is considered to be the most common reason for primary hyperparathyroidism. The highest morbidity can be shown among postmenopausal women. If any manifestations occur, traditionally patients present hypercalcemia symptoms such as fatigue, mental confusion or even depression, abdominal pain, kidney stones and osteoporosis. However, as a result of an adjustment to the long-term high calcium level many patients may remain asymptomatic. Diagnosis is usually set via blood tests performed as a screening or while treating the main symptom, and ultrasonography of a neck. The most effective treatment is the surgical removal of an enlarged gland. An invasive approach is recommended for patients with symptoms, patients younger than 50 years old and always when the calcium level is at least 1mg/dl above the norm.

Case report: A 38-old female with long-term kidney stones was referred to the Clinic. In the past, because of neurological symptoms such as headaches and anisocoria, a head MRI was made, but the result was unremarkable. Additionally, the patient was suffering from numbness and paraesthesia affecting her hands, feet, neck and tongue. Consequently, the patient underwent a tetany test with a positive result that has suggested hypocalcemia. But surprisingly, laboratory tests revealed marked hypercalcemia with calcium level 11,3 mg%. While admitted to the Clinic, the patient was in a good condition and reported long-lasting xerostomia, fatigue and constipation. Blood tests revealed PTH-dependent hypercalcemia. Ultrasound examination exposed a tumor of the left upper parathyroid gland. The location of the tumor was confirmed by scintigraphy and by fine needle aspiration biopsy with iPTH-washout concentration (iPTH-WC 15k pg/ml). Screening tests for multiple endocrine neoplasia did not reveal any abnormalities. Additionally, panic attacks were diagnosed and treatment (successful) with SSRI was administered.

Conclusions: The primary hyperparathyroidism being, apart from paraneoplastic syndromes, the most common cause of the elevated calcium level, remains diagnosed later than it might be expected. The reason for that is most probably its uncharacteristic symptoms. In the described case, the patient was reported to have long-lasting headaches, constipation and fatigue, but more importantly, over the last few years, she has been suffering from recurring kidney stones, which may suggest that her condition has not occurred recently. Interesting is also the fact, that although the patient had hypercalcemia, the tetany test which had been held before hospitalization had given a positive result. A detailed interview with the patient strongly suggested hyperventilation syndrome as the cause of periodically lowered ionized calcium levels and consequently tetany. Moreover, successful treatment with SSRI confirms that theory.

Enteropathy Associated T-cell Lymphoma as complication of refractory coeliac disease type II - case report

Aleksandra Fałczyńska

Presenting author: Aleksandra Fałczyńska

Tutors: Liliana Łykowska-Szuber, MD, PhD

Affiliations: Poznan University of Medical Sciences

Introduction: Refractory Coeliac Disease (RCD) is infrequent complication of coeliac disease revealing villous atrophy and impaired absorption as a consequence of lacking response to treatment of gluten-free diet in last 12 months. The condition is classified in two types: RCDI and RCDII differing morphological features of T-cells in the Intraepithelial lymphocytes. Although RCDI can be managed with pharmacological treatment, RCDII has a poor diagnosis due to possibility of progression to Enteropathy Associated T-cell Lymphoma (EATL) and its confusions with therapy possibilities.

Case report: 40-year old female presented with abdominal pain, serous diarrhea, nausea and ascites on physical examination, was admitted to the hospital. Her past medical history was only significant for coeliac disease. Results of blood test showed abnormalities regarding inflammation, calprotectin and deficiency of nutrients. Performed MRI revealed liquid in abdomen and distend bowel loops. Results of gastroscopy compared with stage IV of Marsh's scale. Conducted molecular researches demonstrated aberration representative for RCDII. These findings enabled a diagnosis and implementation of treatment with steroids and enteral feeding. The patient was discharged in good condition and drug regimen of 9 mg of budesonide. Although this therapy resulted in well clinical effect, there was no decision to reduce dosage due to recurring diarrhea and stomachache.

3 years later the patient reported periodic abdominal pain and loss of weight on admission. Performed enterography revealed solid lesion within umbilical region. Colonoscopy and biopsy confirmed neoplastic character of tumor located in small intestine. The diagnosis of plasma malignum - lymphoma was made. The patient was scheduled for surgery - segmental resection with intestinal anastomoses. After histopathological confirmation patient was treated with chemioteraphy and prepared for autologous haemopoietic stem cell transplantation. She died because of advancement of her condition.

Conclusions: Investigations of RCDII is complex and time-consuming process, affecting making proper diagnosis and instituting the treatment of this condition. What is more, patients with diagnosed disease should be under strict oncological inspection because of higher risk of neoplastic transformation and reduced chances for survival.

Hypersomnia with coexisting muscle spasms – a case report of a patient with narcolepsy and paramyotonia congenita.

Jakub Czarny

Presenting author: Jakub Czarny

Tutors: Katarzyna Wołyńska, PhD

Affiliations: Student Research Group of Medical Genetics, Chair and Department of Medical Genetics, Poznan University of Medical Sciences;

Chair and Department of Medical Genetics, Poznan University of Medical Sciences

Introduction: Narcolepsy is a rare chronic hypersomnia. It is caused by hypocretin deficiency in the lateral parts of the hypothalamus. The condition manifests itself during the day by hypersomnia, excessive sleepiness, sleep attacks and parasomnia. The symptoms usually intensify in the 2nd decade of life. Paramyotonia is a myotonic disorder induced by muscle contraction or cold, with a potential genetic background.

Case report: A female patient with negative family history, developed correctly, yet always presenting lower mobility and discrete weakness of the left leg. At the age of 35, the patient complained of sudden painful skeletal muscle stiffness intensifying e.g. after temperature variations, physical activities and emotions, as well as of hypersomnia with sleep attacks of several hours. Syncope and vertigo episodes with no cardiac background and consequent headaches also occurred. The presence of hyperinsulinism and reactive hypoglycaemia was detected, while the suspicion of insulinoma was denied. An isolated abnormality detected by imaging was pituitary incidentaloma, however, it was inactive endocrinologically. The woman suffered from Hashimoto's thyroiditis but always remained in the state of euthyrosis. The supplementation of potassium, magnesium etc. did not lead to the state improvement, so the patient was referred to a sleep disorder clinic. Performed electroencephalography presented a fluctuation of the wakefulness and slow waves levels in the left occipital region. After conducting the multiple sleep latency test, the diagnosis of narcolepsy of type 2 was given due to 15 points in Epworth scale. It has been treated efficiently with modafinil and fluoxetine. At the age of 41, after falling down, the patient experienced a flaccid hemiplegia that disappeared spontaneously after 2 days. One year later, due to sudden skeletal muscle contractions she took part in a communication accident that was followed by loss of consciousness and post-traumatic amnesia. The result of the tetany test was positive. The electromyography test showed paramyotonic excitations. After the confirmation of the lack of SCN4A gene mutation and correct number of CTG repeats in DMPK gene, the next-generation sequencing (NGS) panel was conducted and detected the heterozygous mutation in ITPR1 gene. Due to the paramyotonia, muscle exercises and mexiletine were recommended.

Conclusions: Symptoms of narcolepsy and paramyotonia intensify with time and severely worsen the quality of life. Therefore, it is necessary to proceed a fast diagnostic process in order to apply an effective treatment. Narcolepsy can be controlled well pharmacologically. Concerning neuromuscular diseases, it is worth searching for the genetic background of the disorder, especially using NGS in case of complex clinical cases.

Efficacy of treatment with pegvisomant in an acromegalic patient resistant to other treatments: a case report

Emilia Nowicka, Michał Obel, Kamila Czyżak

Presenting author: Emilia Nowicka

Tutors: Ewa Obel, MD, PhD

Affiliations: Medical University of Lublin

Introduction: Acromegaly is a rare, chronic disease characterised by excess circulating levels of growth hormone (GH), usually caused by a pituitary adenoma. Hypersecretion of GH leads to excess production of insulin-like growth factor 1 (IGF-1) from the liver and systemic tissues. As a consequence, several changes in the organism appear such as progressive deformation of the skeleton with enlargement of the skull, hands and feet, growth of soft tissues, bones and internal organs as well as many other systemic complications which are responsible for increased mortality in untreated patients. The treatment modalities currently available are surgery, radiotherapy, and drug therapy.

Case report: Here we report the case of a 33-year-old acromegalic man with a pituitary adenoma post-surgical resistant to first-generation long-acting somatostatin receptor ligands (SRLs) both alone and in adjuvant treatment with cabergoline. Initial testing revealed IGF-1 >1600.0 ng/l (normal:114,0 - 247,0), basal-GH 171.400 ng/ml (normal:0,030 - 2,470) and without inhibition in OGTT, total testosterone 90.39 ng/dl (normal: 165,0 - 753,0). The MRI performed alesion of the pituitary macroadenoma with dimensions 25x20x24mm. The patient was qualified for pegvisomant therapy, as a result of which biochemical control was achieved without adverse events and with a good compliance of treatment.

Conclusions: Therapeutic decisions should include parameters such as: age, sex, tumor volume, initial hormone levels. Effective treatment of acromegaly should consist of surgery as well as pharmacotherapy. The pegvisomant treatment represents a valid therapeutic strategy to achieve full disease control in acromegalic patients resistant or poorly responding to first-generation SRLs.

Can severe congestive heart failure be stopped? Case report

Anna Lis, Paulina Lis, Weronika Łowicka

Presenting author: Anna Lis

Tutors: Prof. Katarzyna Mizia – Stec, MD, PhD

Affiliations: Medical University of Silesia

Introduction: One of the causes of severe congestive heart failure (HF) - particularly important in young people - is myocarditis. The course can be progressive and it can be difficult to stop the processes that lead to extreme HF. We present a case of a 21-year-old patient with severe congestive HF, most likely secondary to myocarditis.

Case report: A 21-year-old female patient with a history of respiratory tract infections, previously untreated, reported her first symptoms i.e. dyspnoea at rest, dizziness in September 2021. She required hospitalisation, during which left ventricular systolic dysfunction was diagnosed (LV EF 15-20%). Laboratory results were as follows: NT-proBNP 2730.00pg/ml, normal to 150pg/ml; CRP 140mg/l, normal to 5mg/l; troponin T 17.1ng/l, normal to 14.0ng/l; procalcitonin, leukocytosis - normal. At that time, the cause of HF with reduced ejection fraction (HFrEF) was not determined, although myocarditis was the most likely. The patient required inotropic-positive drugs. After 2 months, progression of HF symptoms - additionally chills and general weakness appeared. The presence of SARS-CoV-2 was detected. Chest HRCT showed enlargement of left ventricle and left atrium, presence of fluid in right pleural cavity; the picture suggested edematous and inflammatory changes in the lungs. Laboratory tests showed elevated myocardial damage enzymes, transaminases and D-dimers. After overcoming the viral infection, the patient was discharged home. A few days later, the patient's condition deteriorated again with increasing dyspnoea, vomiting and chest pain. The diagnoses of HFrEF decompensation, NYHA IV, fluid in right pleural cavity, moderate mitral and severe tricuspid valve regurgitation were established. Pleuracentesis was performed, after which dyspnoea decreased. MRI revealed LV damage of mixed etiology with dominant full-thickness scar in the lateral wall, edema of single segments, features of chronic dilated cardiomyopathy. Due to persistent symptoms of low cardiac output, another infusion of pressor amines was started and, after their limited effect, levosimendan was added. Due to further features of active myocarditis and high D-dimers enoxaparin was given - treatment complicated by HIT. A low-molecular-weight heparin was switched to fondaparinux, which ensured normalization of the platelet count. After reaching haemodynamic stability, including improvement of LV EF to 21%, the patient was discharged home in NYHA II. Chronic treatment included: sacubitril+valsartan, metoprolol, ivabradine, spironolactone, torasemide, allopurinol, PPI, potassium.

Conclusions: To sum up, viral infections can lead to myocarditis, followed by severe HFrEF. Subsequent infections may worsen the course of the disease. Intensive pharmacological treatment can lead to an upswing in cardiac systolic function. This therapy aims to achieve a long-term improvement in the patient's condition in order to avoid the ultimate solution - heart transplantation.

Fatal endocarditis development in a patient treated with probiotics

Agata Ptaszyńska

Presenting author: Agata Ptaszyńska

Tutors: Małgorzata Brauncajs, PhD, Filip Bielec, MD

Affiliations: Medical University of Łódź

Introduction: Probiotics bacteria are well-known and commonly used in the food industry and medicine. They are often prescribed to prevent patients from having gastrointestinal disorders related to antibiotic therapy. However, despite the significant positive impact, these bacteria also show some adverse effects. Recent studies show predisposing factors for fungemia such as probiotics, central venous catheter, antibiotic therapy, immunodeficiency, and age over 60. Between 1991-2019 there has been reported 58 fungemia infections associated with probiotic therapy.

Case report: In October 2021, a 71-year-old female was admitted to the hospital because of aortic valve infective endocarditis (IE) with acute regurgitation and vegetations on an atrial electrode implanted in 2018. She was also diagnosed with an ascending aortic aneurysm, hypertension, atrial fibrillation, pulmonary fibrosis, bronchiectasis, and impaired glucose tolerance. In the past, she had undergone cholecystectomy due to adenocarcinoma. The purpose of the treatment was to remove the pacemaker and replace the aortic valve. However, the severe patient's condition limited the safety of such procedures. No clinical improvement was achieved after nine days of antibiotic therapy with gentamicin, vancomycin, and rifampicin. The patient was transferred to a reference center for further therapy. For the next first five days, the patient was conscious and oriented. She complained about chest pain and dyspnea, but saturation was within normal limits. The antibiotics therapy was continued. Nevertheless, procalcitonin (PCT) increasing was observed. Along with PCT elevation, glomerular filtration rate (GFR) gradually decreased, and hemodialysis was necessary. The operation was performed on the seventh day, then a pacemaker electrode and blood samples were sent for culture to the microbiology laboratory. Unfortunately, the next day the woman died due to cardiogenic shock. Four days after the death, blood culture revealed the presence of Saccharomyces cerevisiae. This fungus is commonly used in probiotics, which the patient had probably taken for years regarding to her medical history. This drug was also prescribed during the last 16 days of her life.

Conclusions: The most probable reason for IE was long-term concomitant therapy with probiotics containing S. cerevisiae. Probiotics are frequently used in daily clinical practice, especially by the elderly. The benefits of such treatment are very well-known and proved in large clinical trials. This case shows that despite the positive effects of probiotics, medical professionals should be aware of the potential side effects of these drugs in selected patients with immunodeficiency, acute abdomen, artificial heart valves, and pregnant women.

Development the knowledge of pathomechanism of cellular response as a perspective of life-saving treatment in patients with HAAA.

Aleksandra Czernicka, Dariusz Łaszczych, Małgorzata Juraszek

Presenting author: Aleksandra Czernicka

Tutors: Karolina Kaczorowska, MD

Affiliations: Nicolaus Copernicus University in Toruń Ludwik Rydygier Collegium Medicum in Bydgoszcz

Introduction: Hepatitis-associated aplastic anemia (HAAA) is a rare example of acquired aplastic anemia (AAA), in which bone marrow dysfunction occurs within 1 year after acute hepatitis. According to data provided by the European registry between 1990 and 2007, the prevalence of HAAA in Europe was 5% among 3916 cases of AAA. Bone marrow failure proceeds rapidly and can be mortal if left untreated, therefore it requires decisive therapy on time.

Case report: A 20-year-old man was diagnosed with hepatitis of unknown etiology 6 months before being admitted to the Liver Diseases Unit with symptoms of jaundice. The most common etiologies of acute hepatitis and hemolysis have been excluded. Aminotransferases were increased above the upper limit of the norm. The urgency of a liver biopsy was highlighted but it was postponed due to laboratory results indicating PLT<50 G/l. The patient was transferred to a Hematology Clinic. Subsequent laboratory tests showed pancytopenia: Hgb=9 g/dl, PLT=32 G/l, neutrophils=0,43 G/l. Further diagnosis excluded nocturnal paroxysmal hemoglobinuria and Fanconi anemia. The patient underwent an aspiration bone marrow biopsy, but due to ambiguous results, it was followed by trephine. Histological images indicated bone marrow aplasia. Due to the high probability of HAAA, the patient received cyclosporine treatment. During hospitalization the patient needed blood transfusions: 2 units of leukodepleted packed red blood cells (LDPRBC) and 2 units of leukodepleted platelet concentrate (LDPC). The patient was hospitalized for two weeks and released in generally good condition. Five days later the patient was admitted to the Clinic for transfusion. Results of laboratory tests revealed a deterioration of hematological parameters despite adherence to administered treatment enriched with GCSF. HLA typing was performed and it showed 100% compatibility with his relative. The patient was referred for a transplant consultation at another medical center and he underwent a successful bone marrow transplant 1 month later.

Conclusions: Temporary treatment before bone marrow transplantation consists of administration of cyclosporine and transfusions which prevents decreasing of the patient's blood parameters. Presumably the bone marrow aplasia is immunologically mediated on the ground of hepatitis. Although the inflammation was acute and self-limiting, the ongoing inflammatory process induced an autoimmune bone marrow destruction due to lymphocyte T cytotoxicity, which manifested as pancytopenia. Understanding the pathomechanism of the development of this cellular response offers the perspective of life-saving targeted treatment for patients with HAAA, who, in contrast to our patient, have less perspective to find a donor or due to frequent transfusions are immunized and unable to receive blood marrow transplant.

A case report of an impressive spontaneous cardioversion during acute kidney injury treatment

Andrada-Georgiana Nacu

Presenting author: NOT PRESENTED

Tutors: Cristina Maria Tatar, PhD

Affiliations: University of Medicine of TARGU MURES, Romania

Introduction: Atrial fibrillation is an irregular and often rapid heart rate that can increase the risk of stroke, heart failure and other heart-related complications. Atrial fibrillation symptoms often include heart palpitations, shortness of breath and weakness. Atrial fibrillation may appear due to some risk factors as diabetes, hypertension or renal injuries. The management of atrial fibrillation includes thrombo-embolic events and then symptoms control.

Case report: We report the case of a 72-year-old female from Targu Mures, known with stage 3 hypertension, atrial fibrillation and type 2 diabetes. In her medical history, multiple cardioversions was proceeded, but she did not respond to, so it was decided to live with permanent atrial fibrillation and an anticoagulant treatment was prescribed based on Rivaroxaban. She presented to Second Medical Clinic of County Emergency Hospital Mureș, where she was hospitalized with following symptoms: facial swelling, bradylalia, bradypsychia, temporo-spatial disorientation and oliguria. During clinical examination, the patient related that 2 months ago, suffered from articular pain which lasts 10 days, so she administrated herself a drug from non-steroidal anti-inflammatory drugs class (NSAIDs). After this incident, some weeks later our patient has had a suspicion of a urinary tract infection, and she also, administrated Norfloxacin.

On the first day of hospitalization, blood samples revealed the urinary tract infection and acute kidney impairment: elevated creatinine range (5.21 mg/dl/7ml/min) and uremia (153 mg/dl). She also presented high thrombotic risk, so a proper course of treatment was established. After first day of treatment, patient presented a lower INR(1.2), and renal system seemed to restart it function. During this new course of treatment, patient's condition gets better and our patient presented an alternance between sinus rhythm and atrial fibrillation, and we could observe these on the EKG that was performed. Then, surprisingly a spontaneous cardioversion from atrial fibrillation to sinus rhythm appeared.

Conclusions: The main conclusion that can be highlighted is that even if there were established more courses of treatment for atrial fibrillation, on which patient did not respond, it is impressive to see how individuals particularities explained the possibility of remission of a chronic disease, after the appearance of such severe pathologies as kidney failure and hyperkalemia. This case presentation is a mirror of interior patient's power, which appear when no one believes in their recovery.

Hemophagocytic lymphohistiocytosis in leukemia patient with exacerbation of chronic hepatitis

Marchis Hund Elisabeth Antonia

Presenting author: Marchis Hund Elisabeth Antonia

Tutors: Assistant Professor Dr. Cismaru Mihalea

Affiliations: "Iuliu Haţieganu" University of Medicine and Pharmacy,

"Iuliu Haţieganu" University of Medicine and Pharmacy, Department of Infectious Disease

Introduction: Hemophagocytic lymphohistiocytosis (HLH) is a rare and fatal complication of infections, rheumatic disorders, and hematopoietic malignancies. It is a multisystem inflammatory disorder caused by excessive activation of lymphocytes and macrophages. Hemophagocytic syndromes can be divided into primary and secondary forms. Primary is more common in the first year of life and is often triggered by infection.

Secondary forms are usually associated with conditions that cause chronic immune dysregulation, such as rheumatologic diseases, systemic lupus erythematosus, malignancies (leukemias, lymphomas), and infectious agents (frequently EBV and other herpesviruses).

Case report: 66-year-old patient, with a history of Chronic Lymphocytic Leukemia (CLL), presents to the county hospital with generalized abdominal pain, intense jaundice affecting the sclera and skin, acholic stool, and malaise. Through a rapid test HBsAg is found positive and HCV Ab negative.

Cervical, axillary, inguinal bilateral adenopathies were present and laboratory examination indicated pancytopenia with the increase of liver enzymes (GOT, GO, BILIRUBIN). The patient was referred to our department, Ag HBe=positive, IgM HBc= positive were also found, HB Virus Viremia was 441311.74 UI/ml and through ultrasound, no mechanical etiology was found for jaundice.

During the treatment with Lamivudine platelets kept decreasing, while INR values increased, Ferritin increased (1823 ng/ml), D-dimer was normal (0.44) and Triglyceride increased (308mg/dl). The diagnosis of hemophagocytic lymphohistiocytosis was established and corticotherapy with Dexamethasone (12 mg/day, iv) was administrated leading to an increase in thrombocytes and fever decreased. One month before this event the patient had his last chemotherapy session with R-CHOP. We suspected a reactivation of hepatitis B due to immunosuppression.

Conclusions: The association of reactivated hepatitis B in a chronic lymphocytic leukemia patient, which develops HLH has yet not been reported. The trigger for HLH could be the chemotherapy with rituximab or the CLL or the infection with hepatitis or all of them together, as we could not precisely describe the onset of the hemophagocytosis.

Reactive arthritis as a possible adverse effect of a COVID-19 vaccine? : case report

Weronika Przybyszewska

Presenting author: Weronika Przybyszewska

Tutors: Piotr Geisler MD

Affiliations: Students' Scientific Circle by the Department of Internal Medicine and Rheumatology at the Military Institute of Warsaw, Medical University of Warsaw,

Department of Internal Medicine and Rheumatology, Military Institute of Medicine in Warsaw

Introduction: Administration of COVID-19 vaccines has significantly contributed to the decrease in the number of cases of SARS-CoV-2 infections but as every type of medical intervention it poses a certain risk of developing adverse effects. The potential link between the vaccines and autoimmunity is still being investigated but while arthralgia is one of the most common adverse effects of COVID-19 vaccines, arthritis has been reported only in a few cases.

Case report: The 54-year-old woman was admitted to the Department of Internal Medicine and Rheumatology at the Military Institute of Medicine in Warsaw due to the 3 months history of persistent arthralgia of small joints of hand with morning stiffness for over an hour. Patient also complained of the edema of the joints and troubles with hand movements which impaired her daily life activities including dressing up and writing on the computer. Patient mentioned experiencing similar mild transient symptoms in the past but they exacerbated after the first dose of Comirnaty vaccine and resolved soon after without any treatment. However, after receiving the second dose of vaccine her symptoms aggravated and didn't resolve after NSAIDs. The lab examination revealed increased ESR and CRP, CBC was normal. The diagnostic workup was conducted to exclude rheumatoid arthritis - the RF, CCP and ANA were absent. The ultrasound revealed synovial effusion in the MCP and PIP joints of hands and increased vascularity. Patient was diagnosed with a possible reactive arthritis triggered by the vaccine and placed on prednisone which led to the resolution of her symptoms. However, tapering of the dose from 10 mg to 7,5 mg caused the relapse of her symptoms. Due to the complicated clinical presentation neoplasms were also excluded. Eventually, it was decided to place the patient on methotrexate which led to remission and allowed to withdraw from steroids. On the follow up patient still didn't meet the criteria for rheumatoid arthritis and the treatment with methotrexate was sustained.

Conclusions: Although there is still a need to further investigate a possible cause-effect relationship between COVID-19 vaccine administration and musculoskeletal symptoms, the occurence of such problems has already been reported in the literature. However, the risk of this complication is very low and largely outweighs the benefits of vaccination. It has been also suggested that it is caused by transient reactogenic reaction rather than a chronic inflammatory process.

CT-guided chemical modulation of the renal sympathetic nerve for the treatment of resistant hypertension. A case report.

Wiktoria Oczkowska

Presenting author: NOT PRESENTED

Tutors: Halina Piecewicz-Szczęsna, MD

Affiliations: Medical University of Lublin

Introduction: Hypertension is a common cardiovascular disease. Resistant hypertension (RH) is defined as failure to achieve target blood pressure (BP) when a patient adheres to the maximum tolerated doses of three antihypertensive drugs, including a diuretic. Resistant hypertension (RH) has always been a difficult problem in clinical diagnosis and treatment. Currently, there is no recognized safe and effective minimally invasive treatment.

Case report: A patient who had been suffering from RH for more than 10 years was admitted to the hospital for trigeminal neuralgia, and her blood pressure was not well controlled. Before treatment, a decision was made to perform chemical renal sympathetic denervation with ethanol. Although CT-guided percutaneous puncture was easily performed, locating the renal artery under the guidance of CT was the key to success, and then anhydrous ethanol was used to modulate the renal sympathetic nerve in the adventitia of the renal artery to achieve renal denervation. One year after surgery, the patient stopped taking antihypertensive medication, and her blood pressure was satisfactorily controlled at 4 years after surgery.

Conclusions: The purpose of this case report was to propose a novel, safe, and effective technique that represents a new minimally invasive treatment modality in the clinical management of RH. Chemical modulation of the renal sympathetic nervous system under computed tomography guidance may be an effective treatment for RH.

A 59-year-old woman with spontaneous mixed cryoglobulinemia - Case Study

Monika Błądek, Justyna Bogdan, Benedykt Baljon

Presenting author: Monika Błądek

Tutors: Małgorzata Rodzoń-Norwicz, MD; Agnieszka Gala-Błądzińska, MD, PhD

Affiliations: University of Rzeszow;

Department of Internal Diseases, Nephrology and Endocrinology with the Laboratory of Nuclear Medicine and the Dialysis Center of the Clinical Provincial Hospital of St. Królowej Jadwigi No. 2 in Rzeszów

Introduction: Spontaneous mixed cryoglobulinemia is a systemic disease in character of leukocytic vasculitis. It is characterized by presence of monoclonal or polyclonal antibodies in the serum, mainly IgM of cryoglobulin type. The etiology of spontaneous cryoglobulinemia is unknown. In the course of the disease, immunoglobulin aggregates accumulate in the blood vessels, leading to the activation of the complement system by the classical way. That disease is manifested by skin symptoms such as vascular purpura and kidney damage, most often in the form of membranous-polymyotropic glomerulonephritis.

Case report: A 59-year-old patient, chronically treated for arterial hypertension, was admitted to the Department of Internal Diseases, Nephrology and Endocrinology of the Clinical Provincial Hospital No. 2 in Rzeszow due to the decline in glomerular filtration rate with accompanying oliguria. The patient also had skin lesions that initially appeared as red spots, then merging into larger lesions ranging from bloody bruising to hemorrhagic scabs and ulcerations. Moreover, the patient reported increasing general weakness, a feeling of breakdown, migrating joint pain and periodic chills. During hospitalization, diagnostics was extended to include a histological biopsy of the left kidney which resulted in showing the structure of membranous-proliferative glomerulonephritis. A number of diagnostic imaging, laboratory and immunological tests were also performed, finally confirming the presence of cryoglobulins in the serum. Based on the medical history, the entire clinical picture, additional tests and specialist consultations, the diagnosis of mixed spontaneous cryoglobulinemia was made. Targeted treatment was implemented, thanks to which the patient in good general condition was discharged for further outpatient treatment.

Conclusions: In patients with purpura-like skin lesions, joint pain, and acute kidney damage, mixed spontaneous cryoglobulinemia should be considered in the differential diagnosis. Rapid diagnostics and the implementation of adequate immunosuppressive treatment allow for long-term cure of these patients.

ECG recording vest in diagnosis of recurrent syncope. Case study

Krzysztof Młodziński

Presenting author: Krzysztof Młodziński

Tutors: Justyna Suchecka, MD, Prof. Dariusz Kozłowski, MD, PhD, Prof. Grzegorz Raczak, MD, PhD

Affiliations: Medical University of Gdańsk

Introduction: The emergency department physician faces many diagnostic pitfalls in the course of his or her work. One of the more common ones is the diagnosis of syncope, the underlying cause of which is sometimes difficult to diagnose. According to current recommendations, physicians suggest monitoring with an ECG Holter or external loop recorder (ELR) in patients who experience presyncope or syncope ≥1 per week. One of the available ELR devices is the Comarch CardioVest ECG, which is lightweight, easy to use, and made of hypoallergenic materials. It provides continuous ECG monitoring for 30 days using two independent recorders worn interchangeably, each capable of recording ECGs for 24 hours. A pre-programmed algorithm allows the device to identify key heart rhythm abnormalities such as pauses, supraventricular and ventricular tachycardia, atrial fibrillation, and bradycardia, as well as maximum and minimum heart rate.

Case report: We present the case of a 63-year-old woman with paroxysmal atrial fibrillation who was admitted to the emergency department because of recurrent presyncope and syncope symptoms over the past 6 months. Episodes of presyncope and syncope occurred one to two times per month, mainly during physical activity. ECG performed on the day of admission showed asymptomatic sinus bradycardia with heart rate = 55 bpm. Due to the rare occurrence of symptoms, it was decided to use an external event recorder in the form of Comarch CardioVest ECG. During the patient's monitoring, sinus rhythm with an average heart rate between 60 and 70 beats/min and episodes of sinus bradycardia during the activity were observed. In addition, the device recorded 8998 pauses lasting more than 2000ms in the mechanism of sinus bradycardia and sinus arrest. During 30 days of observation, the patient noticed symptoms such as fatigue, weakness up to fainting. The ECG from that time showed sinus bradycardia with the lowest frequency of 29 beats/min and 2883 pauses that lasted from 661ms to over 3000ms. The longest pause lasted 6112ms. No atrial fibrillation episode was observed during observation. At the end of monitoring, a tilt test was performed with an external loop recorder, which allowed to diagnose the chronotropic failure of the sinus node.

Conclusions: In the case of syncope in which cardiac arrhythmias are the primary suspected cause, prolonged ECG monitoring is the most important diagnostic method. The use of an external loop recorder is easy to use and allows 24-hour monitoring and analysis of the patient's heart rhythm, which enables the exclusion or confirmation of cardiac arrhythmia as the underlying cause of syncope. We believe that external event recorders will be the primary diagnostic tool for arrhythmia-induced syncope in the future.

Relapsing Polychondritis as a reason of respiratory disfunction

Marta Lubarska, Gabriela Kędzia

Presenting author: Marta Lubarska

Tutors: Assoc. Prof. Bogna Grygier- Górniak

Affiliations: The Rheumatology Research Students' Scientific Group,

Department of Rheumatology, Rehabilitation and Internal Medicine, Poznan University of Medical Sciences

Introduction: Relapsing Polychondritis (RPC) is a rare disease that disturbs cartilaginous tissue and caused fibrosis. Symptoms vary depending on the location of the disease. When parts of connective tissue of the trachea or heart are affected, it can even lead to death, whereas a nose or ear is involved patient feel mainly discomfort.

Case report: An 18-year-old woman was admitted to the clinic due to significant thrombocytopenia and was successfully treated. In 2000, four years later, systemic lupus was diagnosed with organ involvement (class III lupus nephropathy, joint pain, presence of ANA).

In 2010 the patient complained of increasing hoarseness, dyspnea, polyarticular inflammation, and high inflammatory parameters. MRI of the neck showed narrowing of the larynx in the subglottic region, so tracheotomy was implemented. Histopathological examination showed inflammatory changes without signs of neoplastic infiltration. In September 2011, she was diagnosed with RPC. The patient was hospitalized many times and had tracheal dilatation with injections with methylprednisolone performed repeatedly. From December 2014, symptoms intensified: pain at the coastal attachments, scleritis of the left eye, recurrent swelling and pain in the left auricle, and increased hoarseness.

In 2015 the flare of the disease developed, and she was treated with methylprednisolone, immunoglobulins (IVIG), and mycophenolate mofetil (MMf). In 2016 the nasal structures collapsed, followed by elevation of The CRP (237g/l), increased arthralgia, pain in the anterior ribs' attachment to the sternum, and muscle weakness of hands and legs.

The patient recently reported worsening symptoms, mainly increased pain in the anterior chest wall. During the physical examination, dysphonia, deformation of the auricles, saddle nose, and hearing loss of the left ear were found. Laboratory tests showed leukocytosis, increased CRP, accelerated ESR. The treatment was intensified (increased dose of GCS and IVIG, the patient did not agree for CF treatment – planned conception).

Conclusions: The presented case report shows that RPC is an insidious disease with serious complications, especially if not treated correctly. Our patient's medical history indicates a high risk of another autoimmunological disease. It is essential to consider RPC as a possible reason for unidentified dyspnea.

Keep on seeking, and you will find – short story about looking for causes of reccurent multiple ischemic strokes at senior woman

Emilia Majewska

Presenting author: Emilia Majewska

Tutors: Marcin Sadowski, MD, PhD

Affiliations: Jan Kochanowski University of Kielce

Introduction: Cardiogenic brain stroke is 26-30% of all causes of ischemic stroke. The most common cause of them is atrial fibrillation. Myocardial infarction takes second place. Cardiomyopathy and heart failure with reduced left ventricular ejection fraction lead to cardiogenic stroke too. Effective treatment of these diseases is possible after proper diagnosis.

Case report: A 79 year old woman had made an appointment to see a cardiologist. She was treated hypothyroidism and hypertension. The diseases were normalized. Her mother suddenly died at the age of 45. The patient had fist brain stroke in 2016. It was treated by trombolysis. The woman had second stroke 4 years later. She had hemiparesis and motor aphasia after this cerebral vascular accident. She complained about tachycardia at the end of the 2020. She was diagnosed in emergency depertment. The ECG test was proper. The patient had TIA in Jnuary 2021. The cardiologist recommended an ECG Holter monitor. The result of this test was non – sustained ventricular tachycardia. Physical examination revealed a murmur of aortic stenosis. First-degree atrioventricular block was noticed in an ECG. An echocardiography revealed hypertrophic cardiomyopathy with left ventricular outflow tract. The doctor ordered to use an mobile arrhythmia recorder. It showed paroxysmal atrial fibrillation. The diagnosis was confirmed. The treatment was possible. The cardiologist prescribed anticoagulants and antiarrhythmic drugs. The brain strokes havn't been since then.

Conclusions: One of the causes of reccurent multiple ischemic strokes was undiagnosed paroxysmal atrial fibrillation. The diagnostic process was possible because of using of modern device such as a portable cardiac arrhythmia recorder. Beginning of anticoagulant therapy was possible after proper diagnosis. It was necessary to reduce of reccurent multiple ischemic strokes. The patient had hypertrophic cardiomyopathy, which is a risk factor for the development of atrial fibrillation and through this brain strokes.

Accumulation of autoimmunity in gastroenterology

Przemysław Hałasiński, Marta Lubarska, Natalia Sak

Presenting author: Przemysław Hałasiński

Tutors: Iwona Krela-Kaźmierczak, MD, PhD, Prof. UM

Affiliations: Student Scientific Association of Gastroenterology and Dietetics at the Department of Gastroenterology, Dietetics and Internal Diseases of Karol Marcinkowski Medical University in Poznan

Introduction: Continuous development of technology, including advances in medical science, brings a solution to previous doubts about the cause, progression and therapeutic management of many disease entities. However, a group of autoimmune diseases still causes diagnostic problems. Epidemiological studies show that about 5% of the general population has autoimmune diseases with female predominance.

Case report: In 2002, we began the diagnostic process of a 68-year-old female patient who came to the hospital with diarrhea, general weakness and weight loss. The diagnosis of celiac disease and ulcerative colitis was made on the basis of ordered examinations including endoscopy and histopathological examination. A gluten-free diet was recommended and pharmacological treatment was introduced. The patient's condition improved significantly clinically. Then in 2008, the patient was admitted to the hospital with extensive pruritus. Biochemical tests showed elevated values of GGTP, ALP, total bilirubin while ALT and AST values were within the reference range. Additionally, anti mitochondrial antibodies (AMA) test was ordered. Based on the positive AMA test result, primary cholangitis was diagnosed. In 2013, the patient underwent a liver biopsy. The result indicated chronic active hepatitis with the presence of multiple fibrous spans, without nodular remodeling. The patient was qualified for liver transplantation, but she did not agree to the procedure. Based on densitometry and bone fractures, advanced osteoporosis was diagnosed. She was treated with ibandronic acid, followed by denosumab, calcium and vitamin D supplements. Due to malnutrition and cachexia, the patient was hospitalized 3 times since 2018, during which time follow-up endoscopic and imaging examinations were performed. Parenteral treatment was implemented in the patient, which resulted in an increase in body weight by about 8 kg and improvement in general condition, nevertheless persistent pruritus of the skin remained the dominant symptom.

Conclusions: 1. The case of the presented patient shows that co-occurrence of autoimmune diseases in one patient may appear at different times.

2. Occurrence of other autoimmune diseases should be considered in case of resistance to treatment of one of the diagnosed diseases.

3. Accumulation of autoimmune diseases requires complex diagnostics and treatment.

Primary heart malignancy- myxofibrosarcoma as a cause of heart failure

Daniela Dana Bizika

Presenting author: Daniela Dana Bizika

Tutors: Artem Kalinin, Assistant Professor

Affiliations: Riga East University Hospital, Latvia;

Riga Stradins University, Latvia

Introduction: Cardiac tumours are rare, and cardiac neoplasms are commonly metastatic. The main part of primary cardiac tumours is benign – myxomas. According to autopsy and surgery data, the incidence of primary malignant cardiac tumours is less than 0.7%. In addition, primary tumours make up only 10% of all cases and are mainly angiosarcomas. The surgical and autopsy data of the Armed Forces Institute of Pathology in the period from 1975 to 1993 showed the total incidence of myxofibrosarcoma 1.6% (n=16 of total 1197) of all primary heart neoplasms. The survival rate for primary heart neoplasms without surgical treatment at 9 to 12 months is no more than 10%. We present a case report of a large left atrium's myxofibrosarcoma in a 45 years old woman, which led to the mitral valve obstruction.

Case report: A 45 years old female was hospitalised after unsuccessful conservative treatment (including antibacterial and asthma drugs) of cough and dyspnoea in outpatient pulmonary clinic. An electrocardiogram showed both atria overload. To exclude pulmonary embolism, computed tomography angiography (CTA) was performed. CTA showed no data of pulmonary embolism, but the formation of an irregular shape in the left atrium and the left chamber, and bilateral hydrothorax was found. Transthoracic echocardiogram was made and showed a pediculated structure in the left atrium. The structure was fastened to the fossa ovalis and mitral valve's anterior leaflet, and in diastole fluctuated to the left chamber, resulting in a mitral valve obstruction with the mean gradient of 15 mmHg. Severe pulmonary hypertension (left ventricle systolic pressure 105 mmHg) was also observed. A 3D reconstruction made by transoesophageal echocardiogram showed a large structure (6,5 x 5,7 x 4,3 cm) in the left atrium. Given a typical location and structure, the patient was transmitted to the Cardiac Surgery Department with the diagnosis of "myxoma". Open-heart surgery was made, but there was no possibility to perform total surgical resection. A partial tumour extirpation was made. Histology showed low-grade myxofibrosarcoma, and palliative chemotherapy was started. The patient lived a little over two years.

Conclusions: The most common place of heart malignancy's origin is the left atrium. Extremely large tumours can imitate symptoms of mitral stenosis by limiting blood flow from the left atrium to the left chamber, thus clinically looking like heart failure. Echocardiography still is the most important and irreplaceable diagnostic tool for cardiac neoplasms. Surgical treatment is often complicated and total extirpation is rarely possible, so treatment is usually combined with chemotherapy. This case actualizes the need to investigate every patient with cough and even slight dyspnoea, as these symptoms may be masked by a fatal illness. Our patient was admitted to the hospital with symptoms of heart failure, where she was diagnosed with an unexpected myxofibrosarcoma of the heart.

Occurrence of myeloproliferative neoplasm philadelphia chromosome negative and lymphoproliferative disorders

Moustafa Al Shokan, Izabela Basiora

Presenting author: NOT PRESENTED

Tutors: Marta Sobas, MD, PhD

Affiliations: Medical University of Wroclaw

Introduction: The co-existence of chromosome Philadelphia negative myeloproliferative neoplasms (MPN Ph-neg) and lymphoproliferative neoplasms (LPN) in the same individual is an uncommon condition. Some publications showed significantly increased risk of developing hematological malignancies in patients with previously established MPN or LPN compared to the general population. Furthermore the tendency is higher with the presence of JAK2 mutations. Here we report co-existence of MPN and LPN in 2 patients; both of them with JAKV617 positive mutation.

Case report: 1.A 63 year old female with no comorbidities was diagnosed of polycythemia vera (PV) JAK2V617F positive in 2011. Cytoreductive therapy with hydroxyurea (HU) and acetylsalicylic acid 75 mg per day was started. Coexisting multiple myeloma (MM) RISS grade 2, Durie-Salmon grade 2 was found 18 months later. Consequently HU was stopped and therapy with Velcade, Thalidomide and Dexamethasone (VTD) was introduced. After 3 cycles, due to intolerance, VTD was stopped, and therapy with Lenalidomide plus Dexamethasone was started. Partial response was achieved. acetylsalicylic acid was continued as antithrombotic prophylaxis during anti-myeloma therapy; there were no thrombotic complications. Both diseases are under control.The patient has no other neoplasm or known comorbidities. There is however a family history of his mother having PV.

2.A 80 year old male patient with Hodgkin Lymphoma (HL) stage IIA in 2013 and treated with ABVD plus 2 cycles of radiotherapy afterwards. A complete response to therapy was determined and so far the patient remains in complete response. Recently in 2021, 104 months after the first diagnosis he was diagnosed with PMF JAK2V617F positive DIPSS int-1 which still does not require therapy. Patient has no significant family history.

Conclusions: Some studies showed a significant increase in the risk of developing LPN in patients with preexisting MPN, others on the contrary do not support such observation. The paper of JAK2V617F mutation in development of LPN in MPN patients is still not clear. Based on epidemiological studies, the risk increases with prolonged duration of MPN. One possible explanation is that the inflammatory microenvironment of bone marrow in MPN may cause sustained immunological stimulation and lead to proliferation of lymphoid or myeloid cells and contributes to the oncogenesis. Another hypothesis suggests that these are two independent diseases occurring from different progenitors and having completely different oncopathogenic routes, a large study with absence of JAK2 mutation is needed to support this hypothesis. Interestingly, the course of both lymphoproliferative and myeloproliferative disorders is usually mild to moderate like in our patients.

CASE STUDIES: INTERNAL MEDICINE
II SESSION

14th of May 2022

Coordinators:

Karolina Grabowska

Aleksandra Palka

Dominik Balik

Jury:

Łukasz Durko, MD, PhD

Marta Jagodzińska, MD, PhD

Anna Masajtis-Zagajewska, MD, PhD

No-option? No-problem! A coronary sinus reducer as a new way to manage refractory angina – a case report.

Agata Kaptur, Leon Pawlik

Presenting author: Agata Kaptur

Tutors: Jan Peruga MD, PhD; Kamila Cygulska MD; Prof. Jarosław D. Kasprzak MD, PhD

Affiliations: Medical University of Łódź;

1st Department of Cardiology, Medical University of Lodz

Introduction: Refractory angina (RA) is defined as long-lasting myocardial ischemia symptoms despite receiving proper pharmacological and revascularization treatment or unsuitability for revascularization therapy. RA is an important clinical condition as it is estimated to affect up to 10% of patients with coronary artery disease (CAD). This number is expected to increase due to the ageing population and the higher prevalence of advanced CAD. A coronary sinus reducer (CSR) is an hourglass-shaped metal mesh device used as a novel therapeutic option for patients presenting with RA. CSR increases coronary venous pressure by narrowing the coronary sinus lumen, which leads to the redistribution of blood flow from the less ischemic epicardium towards the ischemic endocardium and alleviation of anginal symptoms.

Case report: BW, an 86-year-old man with CCS class III refractory angina was admitted to the Cardiology Department for a CSR implantation due to the chest pain that persisted despite optimal pharmacological treatment and the lack of any critical stenosis of the coronary arteries on coronarography. His previous medical history included paroxysmal atrial fibrillation, hypertension, peripheral arterial disease, hypercholesterolemia, COPD, diverticulosis, ulcerative colitis, and gastroesophageal reflux disease with hiatal hernia. He also underwent percutaneous coronary intervention (PCI) with stent implantation in the right coronary artery (RCA) and the circumflex branch (CX) in 2005 due to inferior wall myocardial infarction and CX PCI with drug-eluting stent implantation in 2011. Also, a dual-chamber pacemaker was implanted in 2012 due to sick sinus syndrome.

On the day of the admission, echocardiography showed an enlarged left atrium, a segmental wall-motion abnormality in the left ventricle, an ejection fraction= 48%, and good systolic function of the right ventricle. In a six-minute walk test, he walked 75 m (the distance was limited due to angina and intermittent claudication). The implantation of the CSR was uneventful. The follow-up echocardiography showed an improved left ventricle systolic function and EF= 50%. In the six-minute walk test, the distance walked remained at 75 m but was limited only due to an intermittent claudication.

Conclusions: CSR implantation is a safe and effective therapy for patients with refractory angina. As it is a novel procedure, its long-term benefits need to be further investigated.

What is the point of performing a screening colonoscopy in a patient with skin lesions? A case of Pyoderma gangrenosum

Paulina Wasiewicz, Paulina Ziewiec-Gronowska, Emilia Knez

Presenting author: Paulina Wasiewicz

Tutors: Aleksandra Lesiak MD, PhD; Małgorzata Skibińska MD, PhD

Affiliations: Department of Dermatology, Paediatric Dermatology and Oncology, Medical University of Lodz

Introduction: Pyoderma gangrenosum (PG) is a rare neutrophilic dermatosis. It is characterized by single or multiple ulcers with undermined borders and peripheral erythema. Skin lesions are typically located on extremities, but can occur at other sites. PG most commonly affects adults between 20-50 years with slightly higher incidence in women. Particularly important is that PG is a manifestation of various systemic diseases.

Case report: A 56-year-old man was admitted to the dermatology department with painful ulcerations on both shins which appeared a week before, after gardening. Dermatological examination showed two ulcers covered with granulated tissue on the right shin and oozing ulcers on the left shin. On admission, the patient was in good clinical condition.

Suspecting PG, further investigation to determine the presence of an underlying disease was performed. Laboratory tests showed elevated levels of faecal calprotectin 738 ug/g (<50 ug/g), CRP 46,56 mg/l (0,00-5,00 mg/l) and liver enzymes: ALT 82 U/l (0-41 U/l), AspAT 55 U/l (0-40 U/l). Imaging tests (chest x-ray, abdominal ultrasound, gastroscopy, CT, colonoscopy) were also performed. The upper digestive tract was without abnormalities, however in the large intestine, CT detected segmental wall thickening and colonoscopy revealed minor, circular and linear ulcers. Histopathological results of samples of intestinal mucosa showed an early stage of inflammatory bowel disease (IBD). Diagnosis of pyoderma gangrenosum was based on clinical manifestations. The patient was treated with systemic and topical steroids, antibiotics, and dressings with silver. After 2 weeks of hospitalization he was discharged in good condition with healing ulcers. Additionally, the patient was referred to a gastroenterology department for further evaluation.

Conclusions: Pyoderma gangrenosum is often misdiagnosed due to lack of diagnostic characteristics. This case highlights the importance of a multidisciplinary approach to the patient, because of extensive range of diseases which may be associated with pyoderma gangrenosum, e.g. inflammatory bowel disease, rheumatoid arthritis and cancer. It is also important to exclude other causes that can present with similar features such as vasculitis and infections. In patients with PG, it is essential to look for an underlying, predisposing disorder.

Unseen tumour – the history of patient with inflammatory bowel disease.

Przemysław Hałasiński, Marta Lubarska

Presenting author: Przemysław Hałasiński

Tutors: Iwona Krela-Kaźmierczak, MD, PhD, prof. UM

Affiliations: Students' Scientific Group at Department of Gastroenterology, Human Nutrition and Internal Diseases, Poznań University of Medical Sciences (PUMS);

Department of Gastroenterology, Human Nutrition and Internal Diseases, Poznań University of Medical Sciences (PUMS)

Introduction: Inflammatory bowel diseases (IBD) are one of most common bowel affictions. They could reveal as colitis ulcerosa (CU) or Crohn's disease (CD). About 33 000 people hear CD diagnosis every year in the world and about 15 000 people suffer from CD in Poland. Abdominal pain, diarrhoea or fatigue are one of the symptoms but not specific.

Case report: The 39-years old woman, in which CD was diagnosed in 2011, was treated at Gastroenterology Department for an exacerbation.

In the history, in 2015 woman was hospitalized because of stomach pain. The MRI was performed and thickening of the ileocecal wall was shown.

In June 2018 the patient returned because of emesis and diarrhoea. Obstruction due to postinflammatory stenosis was diagnosed. Patient did not agree to any invasive procedure. At that time, MRI enterography showed intensified signal of the wall along the entire length of a transverse colon, as well as a slight thickening of an ascending and a descending colon. The USG and scout film of the abdomen confirmed subileus. CRP was within normal range but stool calprotectin level was 297 μg/g, what could be indicative of colon inflammatory typical for CD. The woman was qualified for therapeutic program including biological treatment with infliximab. The first course took place in October 2018.

In January 2019 due to stationary clinical state and persisting symptoms of impaired gastrointestinal passage, the decision of surgical treatment was made. The right hemicolectomy was performed and a tissue specimen was taken. The histopathological examination revealed the neuroendocrine tumour G1.

Conclusions: Awareness of possible neoplasms associated with the course of CD is necessary, especially in the times of wide-spread of biological treatment involved in therapeutic protocols.

Atypical presentation of pulmonary embolism

Zuzanna Danielecka, Patrycja Strzyżewska,

Presenting author: Zuzanna Danielecka

Tutors: Marta Kowalczyk, MD, Piotr Abramczyk, PhD

Affiliations: Medical University of Warsaw

Introduction: Pulmonary embolism (PE) is the closure or narrowing of a pulmonary artery or its branches by embolic material. The embolic material may be a thrombus, amniotic fluid, air, fatty tissue, tumor masses or foreign bodies. Pulmonary embolism, along with deep vein thrombosis, is a venous thromboembolism.

Case report: A 61-year-old man with obesity was admitted to the hospital for deep vein thrombosis of the left lower extremity and suspected pulmonary embolism. He had been experiencing swelling, redness, and pain in his lower leg and then thigh for four weeks. An outpatient Doppler ultrasound of the affected limb showed thrombosis. He reported hemoptysis, cough with bloody and brown discharge and exertional dyspnea, episodes of fever, chills and weakness. Furthermore, he developed hypotension on several occasions. He also had a diagnosis of renal failure (stage G3b).

On examination on admission, the man was in intermediate condition with dyspnea on light exertion. He had normal blood pressure, tachycardia, saturation around 91-93% without oxygen supplementation and no fever. The left limb was swollen, red and painful with positive Homans' sign.

Laboratory tests showed elevated CRP, leukocytosis, with neutrophilia and normal troponin I series and increased NT-proBNP. The creatinine concentration was 3.36 mg/dl. Blood gas study showed metabolic acidosis. ECG and echocardiography were also performed.

Chest radiograph showed a lesion with features of an abscess in the left lung. and slight atelectasis. Because of the atypical picture, HRCT, bronchoscopy with specimen collection to exclude tuberculosis or mycobacteriosis and and the blood test to exclusion the Aspergillus antigen and antibodies presence. These infections were excluded. Renal parameters improved, and a contrast-enhanced chest CT was performed 10 days later. It showed typical features of pulmonary embolism. A repeat chest radiological evaluation was recommended. Unexpectedly, no lesion was found in the left lung.

Conclusions: The presented case shows how atypical the picture of pulmonary embolism can be on imaging. This proves that it is a disease entity that can be difficult to diagnose. Differential diagnosis with pulmonary infections was crucial in this case.

Treatment of melanoma with immune checkpoint inhibitors as a rare cause of hypophysitis, adrenal insufficiency and hypothyroidism – a case report

Paulina Filipowicz

Presenting author: Paulina Filipowicz

Tutors: Agnieszka Żyłka MD, PhD

Affiliations: Medical University of Warsaw, Department of Oncological Endocrinology and Nuclear Medicine, Maria Sklodowska-Curie National Research Institute of Oncology;

Department of Oncological Endocrinology and Nuclear Medicine, Maria Sklodowska-Curie National Research Institute of Oncology

Introduction: The development of immune checkpoint inhibitors, including pembrolizumab – a humanized, anti-programmed death receptor 1 (anti-PD-1) monoclonal antibody - was a breakthrough in melanoma treatment. Despite the high efficacy, associated adverse events may cause therapy discontinuation.

Case report: A 47-year-old man presented to the Department of Soft Tissue/Bone Sarcoma and Melanoma with evolving and bleeding pigmentary lesion on the left arm. Histopathological examination revealed nodular melanoma of size 35x30 mm with Breslow infiltration thickness of 5.5 mm and ulceration (pT4b). The patient underwent subsequent therapeutic and diagnostic procedures – wide radical excision of the scar, sentinel node biopsy and a CT scan. Owing to the final diagnosis of high-risk, stage IIC disease, the patient was enrolled in the randomized clinical trial with pembrolizumab and received seven courses administered every three weeks. The therapy was discontinued due to adverse events. After the last course, the patient was admitted to the hospital with nonspecific symptoms – nausea and vertigo, vomiting after meals, jaundice, nystagmus, deterioration of visual acuity, brachybasic gait and tremor. Imaging studies ruled out the presence of metastases to the central nervous system, although showed an unspecified focal lesion located in the hypophysis without organ enlargement. In addition, hyponatremia, low cortisol, and ACTH levels led to the diagnosis of hypophysitis and, consequently, secondary adrenal insufficiency. Moreover, the asymptomatic hyperthyroidism was detected after the first course. However, the consecutive laboratory tests demonstrated the development of hypothyroidism. The persisting endocrinopathies require hydrocortisone and levothyroxine substitution with personalized doses. In January 2022, the patient was hospitalized due to impaired consciousness during COVID-19. Concomitant infection and diarrhea led to hyponatremia (123 mmol/L) – a premise of adrenal crisis.

Conclusions: Despite the development of drugs with a better safety profile, treatment with immune checkpoint inhibitors constitutes a rare cause of endocrinopathies. The presented case demonstrates the diagnostic and therapeutic challenges in immune-related adverse events (irAEs). There is a necessity for the cooperation of the interdisciplinary team to prevent the disease progression and potentially life-threatening complications of therapy. However, the presence of endocrine irAEs may be associated with better outcomes in patients with melanoma.

The curious case of anabolic steroid-induced heart failure in a bodybuilder

Katarzyna Skorupska

Presenting author: Katarzyna Skorupska

Tutors: Marta Kałużna-Oleksy, PhD

Affiliations: Poznan University of Medical Sciences;

Poznan University of Medical Sciences, I Department of Cardiology

Introduction: The use of anabolic–androgenic steroids (AAS) by professional athletes is a recurring problem in the media. But that might just be the tip of the iceberg: most of the users are recreational athletes. In addition to the desired effects on skeletal muscle, these substances can also exert adverse effects on various organs and systems. We present a rare case of 32-year-old bodybuilder with AAS induced severe heart failure (HF) and toxic hepatitis.

Case report: A previously healthy 32-year-old bodybuilder referred to cardiology clinic with symptoms of acute HF. The patient has been intensively training weightlifting 4-5 times a week for over five years. He had a history of AAS (nandrolone decanoate, testosterone enanthate) abuse over the last 4 years. He had no family history of cardiovascular or liver diseases and no history of alcohol or acetaminophen abuse. The first symptoms appeared a year earlier, and ambulatory echocardiography (ECHO) showed left ventricle end diastolic diameter (LVEDD) of 63mm and ejection fraction (EF) of 49%. Despite the symptoms and cardiological consultation, the patient did not stop intensive weightlifting training and taking AAS.

At admission to hospital ECHO showed EF of 25% and LVEDD of 78mm. Laboratory tests revealed significantly elevated troponin levels (42,2pg/ml), NT-proBNP (2288pg/ml) creatine kinase levels (583,8 U/l) and serum transaminases Aspat (45,80U/l), Alat (106,90U/l).

Sex hormones analysis showed elevated levels of testosterone >15ng/ml, prolactin 29,73ng/ml and estradiol 522pg/ml. After pharmacological therapy, clinical improvement was achieved and he was discharged home at his own request. Six months later, the patient was admitted to the surgical ward with jaundice, liver enlargement and heart failure deterioration. Laboratory tests revealed significantly elevated Alat 211U/l, Aspat 77U/l and bilirubin 12,36umol/l. Toxic hepatitis induced by AAS was diagnosed. After clinical improvement he was transferred to cardiology clinic. ECHO showed LVEDD enlargement of 83 mm and EF of 15% with global hypokinesis. Coronary angio-CT was normal. Cardiac magnetic resonance confirmed diagnosis of dilated cardiomyopathy, presented LVEDD of 90mm, EF of 10% with signs of myocardial fibrosis. Successful ICD implantation was performed. The patient was discharged in stable clinical condition. At 3 months of follow-up ECHO showed LVEDD of 87mm and EF of 15%. The patient was qualified for the Poltransplant list. After 7 months, a significant reduction in HF symptoms, as well as an increase in the left ventricular EF (up to 30%) and a decrease in the LVEDD to 63 mm, were observed.

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

Adie's pupil: a case report

Austėja Judickaitė, Arminas Zizas, Aistė Varoniukaitė, Lukas Šemeklis

Presenting author: Austėja Judickaitė

Tutors: Brigita Glebauskienė, MD, PhD

Affiliations: Lithuanian University of Health Sciences, Academy of Medicine, Faculty of Medicine, Kaunas, Lithuania

Department of Ophthalmology, Lithuanian University of Health Sciences, Kaunas, Lithuania

Introduction: Adie's pupil is a rare neurological disorder, which is caused by lesions in ciliary ganglion or postganglionic short ciliary nerves, followed by aberrant regeneration. This process causes unilateral or bilateral mydriasis, unresponsiveness to bright or dim light, slow constriction on accommodation. Most cases are idiopathic, affecting 25-45-year-old adults, more frequently women.

Case report: 33-year-old female was admitted to the emergency department complaining of a dilated pupil of the right eye. The patient noted that the day before her colleagues noticed that her right pupil was wider than the left pupil. There were no other vision-related symptoms. The patient has been having headaches for a couple of years, which started after pregnancy, sometimes with hyperhidrosis. On ophthalmologic examination, the pupil of the right eye was 2-3 mm wider than the pupil of the left eye with a poor reaction to light. Ductions were full, palpebral fissures were symmetric. There was no nystagmus. The anterior segments were normal. Visual acuity was normal (20/20). Intraocular pressures were 17,3 mmHg OU. Fundoscopy showed normal optic discs. Cerebral and orbital computed tomography (CT) had shown no significant acute changes so the patient was redirected to an outpatient clinic for further ophthalmic examination. Based on the pictures of the patient anisocoria was first noticed a couple months ago. Optical coherence tomography showed no loss of the nerve fiber layer. Orbital ultrasonography of the right eye showed a 2 mm optic nerve drusen. Pharmacological testing with dilute pilocarpine 0.1 % resulted in constriction of the right pupil but there was no change in the left pupil, Adie's pupil diagnosis was confirmed. Further examination for other causes of Adie's syndrome included blood tests (CRP, ESR, ANA, ANCA for autoimmune cause), consultation with a neurologist, and examination of cervical blood vessels. Magnetic resonance imaging (MRI) of the brain showed no pathological changes.

Conclusions: Adie's pupil is a relatively rare disorder, diagnosed by clinical manifestations. A positive diluted pilocarpine test (0.06/ 0.1 /0.2 %) may be useful to demonstrate the cholinergic denervation supersensitivity in the tonic pupil. However, the condition frequently remains undiagnosed. CT or MRI tomography may help to rule out other conditions that can cause anisocoria.

Heart failure of unusual aetiology

Anna Rapiejko

Presenting author: Anna Rapiejko

Tutors: Prof. Piotr Lipiec, MD, PhD

Affiliations: Students' Scientific Circle at the 1st Department of Cardiology, Medical University of Lodz,

1st Department of Cardiology, Medical University of Lodz

Introduction: With the widespread use of highly effective antiretroviral therapy, the prognosis of HIV-infected patients has improved dramatically. However, it has been observed that these patients are at risk of a variety of complications, including cardiovascular pathologies.

Case report: A 31-year-old man with alcohol dependence and psychoactive substance abuse, including intravenous drug use, with no history of chronic treatment, was hospitalized in a district hospital where he was diagnosed with HIV infection, liver cirrhosis, heart failure and bacterial infection. He was transferred to the department of infectious diseases, where physical examination revealed massive oedema of the lower limbs, ascites and pleural effusion, as well as tachycardia and decreased blood pressure. Laboratory tests were notable for significantly elevated markers of liver damage, but also for increased NT-pro BNP levels. Echocardiography revealed dilated cardiac chambers, severely impaired left ventricular systolic function (ejection fraction 14%), right ventricular systolic dysfunction with features of pulmonary hypertension and severe tricuspid regurgitation. Multiple thrombi were visualized in the left ventricle. The diagnosis of heart failure with reduced ejection fraction was established and standard treatment was initiated. A follow-up examination after 3 weeks revealed an improvement in the clinical status, laboratory test, left and right ventricular function and severity of tricuspid regurgitation.

Conclusions: HIV infection is associated with an increased risk of cardiovascular disease. Data from the literature indicate that this is primarily true for heart failure. The patient presented here illustrates such a clinical scenario, in which heart failure developed on the basis of HIV infection. The treatment of heart failure in this group of patients should follow the recommendations for the general population.

Orbitopathy- considerations to make before the final diagnosis

Agata Kaczmarek

Presenting author: Agata Kaczmarek

Tutors: Anna Gotz-Więckowska, MD, PhD, Anna Chmielarz-Czarnocińska, MD

Affiliations: Department of Ophthalmology, Poznan University of Medical Sciences

Introduction: A patient with orbitopathy is most often diagnosed with thyroid disease. However, it is not the only disease that can cause such a symptom. Lymphomas occurring within the organ of vision most often belong to the group of non-Hodgkin's lymphomas. They make up less than 1% of lymphomas. The most common type is Marginal zone lymphoma (MZL), a tumor of the B lymphocytes of the marginal zone surrounding the centers of lymphatic proliferation. We can divide MZL into extranodal marginal zone B-cell lymphoma (EMZL), splenic marginal zone B-cell lymphoma, and marginal nodal zone B-cell lymphoma. EMZL is found in the stomach, intestine, lungs, and eye adnexal.

Case report: The 58 year old female patient observed swelling of the right orbital cavity in 2016. Due to an elevated level of anti-TPO, thyroid orbitopathy was suspected. The woman underwent six months i.v. and i.m. steroid therapy which brought short-term results. In 2018, a biopsy was performed, but it did not indicate a neoplastic process.The orbitopathy was so great at the critical moment that the eye touched the glasses. In 2020 the patient had orbital decompression surgery. Histopathological examination showed marginal zone lymphoma, CD3 (+), CD20 (+), bcl-2 (+), Ki67 10%, CD23 (+) and CD5 (+). The woman had impaired mobility of the right eyeball, and she was unable to lift it. After the obtained result, the patient was transferred to our clinic to start radiotherapy. Six months after radiation therapy, MR showed disappearance of infiltration and no restriction of diffusion within the orbit. The right upper eye muscle was asymmetrically thickened (5mm vs. 2mm). The patient constantly reported a vertical doubling that prevented her from functioning normally and causes her to fall. She was qualified for the surgical correction of strabismus.

Conclusions: MZL in the eye can be confused with other diseases. As a result, treatment may not be effective. In such a case, a biopsy is required. Pressure on the optic nerve by the increased pressure in the orbital cavity may result in neuropathy of this nerve and irreversible reduction in visual acuity. According to the literature, Ocular adnexal lymphomas has a high response rate to various treatment modalities, such as radiation therapy, chemotherapy, and immunotherapy. As EMZL is an indolent form of lymphoma, radiotherapy is the treatment of choice for localized disease.

Multi-pathogenic infections in a kidney transplant recipient

Wiktoria Pysiewicz

Presenting author: Wiktoria Pysiewicz

Tutors: Prof. Ilona Kurnatowska, MD, PhD, Maja Nowicka, MD

Affiliations: Medical University of Łódź

Introduction: Immunosuppressive therapy in patients after kidney transplantation (KTx) is the most significant risk factor of the infections development and severe course. Infections may have different etiologies and the presence of one pathogen promotes other infections.

Case report: 45-year old KTx recipient (2010) with suboptimal graft function (serum creatinine level chronically 2.5 – 3.5 mg/dL; eGFR 20 – 30 ml/min/1.73 m2), with artificial mitral valve (2004) and hypertension, treated with maintenance immunosuppression: tacrolimus (TAC), mycophenolate mofetil (MMF) and prednisone; triple vaccinated against SARS - CoV2 (mRNA vaccine doses on April, May, and August 2021) developed in November a serious SARS-CoV-2 infection treated in the intensive care unit (ICU) with respiratory therapy and continuous hemodialysis for two weeks. He required dexamethasone and wide-spectrum antibiotic therapy; TAC and MMF were temporarily suspended and reintroduced after graft function improvement. The ICU hospitalization was complicated by C. difficile infection. After stabilization, the patient was moved to the nephrology ward, where he tested positive for both bacterial (E. faecium, K. pneumoniae) and fungal (Candida glarbata) urine and blood (S. epidermitis) infections. Moreover, CMV-DNA was detected. Targeted antibiotics with antifungal treatment and valganciclovir together with nutritional therapy were used. The patient was discharged with no signs of infection, with serum creatinine of 3.26 mg/dL (eGFR 22 ml/min/1.73 m2) and with immunosuppressive treatment. A week later he was readmitted with urosepsis symptoms. Blood and urine cultures were positive for K. pneumoniae; furthermore, a new SARS-CoV2 infection was diagnosed (positive RT-PCR with 2019-nCoV IgM > 30.0 AU/mL). Taking into account the overall clinical picture of recurrent severe multi-pathogenic infections in a patient treated with immunosuppressive therapy with significantly impaired graft function and with an implanted artificial heart valve, it was decided to discontinue the immunosuppressive treatment and reintroduce the hemodialysis (HD) therapy. The applied treatment improved the patient's general condition; after several months of HD, no signs of infection were observed.

Conclusions: Infections remain the main cause of morbidity and mortality in KTx recipients. Multipathogenic infection was a consequence of immunosuppression treatment with prolonged high steroid use, COVID-19 infection, and impaired graft function. Withdrawal of immunosuppressive treatment was crucial to prevent recurrent live threatening infections.

Syndrome of Inappropriate Antidiuretic Hormone Hypersecretion in the course of Covid-19

Joanna Rapiejko

Presenting author: Joanna Rapiejko

Tutors: Prof. Andrzej Chciałowski, MD, PhD

Affiliations: Students' Scientific Group at the Department of Infectious Diseases and Allergology at the Military Institute of Medicine in Warsaw, Medical University of Warsaw;

Department of Infectious Diseases and Allergology at the Military Institute of Medicine in Warsaw

Introduction: Inappropriate Antidiuretic Hormone Hypersecretion Syndrome (SIADH) is caused by excessive secretion of vasopressin, a hormone responsible for thickening the urine by stimulating water resorption in the renal tubules so that some water is reabsorbed into the blood. Excess body water and hyponatremia result in a complex of symptoms including muscle pain and weakness, cramps, apathy, fatigue, and irritability.

Case report: Sixty-eight-year-old male, without chronic diseases, was admitted to the hospital with suspected COVID-19 pneumonia. He presented weakness and dry cough, in fairly good general condition, without respiratory and cardiovascular failure. Auscultation revealed crackles at the base of both lungs. Laboratory tests: CRP - 2.1 mg/dl, LDH - 310 U/l, AST - 57 U/l, PLT - 97x10^9/l, hyponatremia - 127 mmol/l. HRCT revealed areas of interstitial thickening of ""dull glass"" type with thickening of interlobular septa in both lungs, in 12 mm of diameter emphysematous cyst in the 9th segment of the left lung. Initially increasing resting dyspnea SpO2 84% was observed as well as increasing D-dimers 5.46 µg/ml. Pulmonary embolism was ruled out. An elevated IL-6 level of 38.2 pg/ml was found. The instituted treatment (Remdesivir, enoxaparin, ceftazidime, dexamethasone, tocilizumab, water-electrolyte supplementation) resulted in improvement of D-dimers and K+ concentration, mild hyponatremia (Na+ - 134 mmol/l), renal function parameters maintained within normal limits, and increased diuresis to about 3000 ml/day. The patient reported increased thirst and polydipsia. After negative results for SARS-CoV-2, he was transferred into another Department for continued rehabilitation. He was observed to have worsening symptoms of hyponatremia with isovolemia: Na+ 124.3 mmol/l and polyuria (diuresis more than 10 l/day) as well as weakness, deterioration of exercise tolerance, and 10% weight loss over the past month. There was a decreased urine specific gravity of 1.002 g/cm3, decreased serum osmolality of 261 mOsm/kg, lower urine osmolality of 295 mOsm/kg, elevated urine Na+ concentrations of more than 30 mmol/l. No pituitary or hypothalamic abnormalities were found on MRI. Diurnal cortisol, ACTH, LH, FSH values were normal. CT revealed interstitial lesions consolidation, honeycombs, and small areas of dull glass-like thickening; in total, the lesions occupied about 50% of the lung volume. Due to the changes in the lungs and features of simple renal uremia, the suspicion of SIADH syndrome was raised. The treatment decreased diuresis below 4000 ml/day, compensated natremia, normal values of urine specific gravity, serum, and urine osmolality.

Conclusions: SARS-CoV-2 infection can cause many symptoms with pulmonary involvement (interstitial pneumonia). Rarer clinical cases may involve the kidneys and SIADH syndrome.

Difficulties in diagnosing a case of persistent cervical lymphadenopathy

Jessica Sandoval, Olivia Biernat

Presenting author: Jessica Sandoval

Tutors: Małgorzata Leszczyńska, MD, PhD

Affiliations: Otolaryngology (ENT) Research Group, Poznan University of Medical Sciences, Poland

Department of Otolaryngology and Laryngological Surgery, Poznan University of Medical Sciences, Poland

Introduction: Cervical lymphadenopathy is an abnormal enlargement of lymph nodes in the head and neck region. Localized lymphadenopathy is commonly a benign condition with diagnosis and causation determined by patient history and physical examination. However, there are unexplained cases that prompt broad differential diagnoses ranging from inflammation by tuberculosis to malignancy. This condition requires further investigation and testing. In rare situations, Kikuchi-Fujimoto Disease (KFD) may cause benign, necrotizing cervical lymphadenitis primarily in young Asian women.

Case report: A 26-year-old woman of Indonesian descent presented with painful cervical lymphadenopathy in February 2021. Laboratory results showed evidence of past infection with CMV and EBV but were ruled out as causation due to the lack of associated symptoms. The lung ultrasound was negative for tuberculosis during initial testing. However, in August, she received a positive IGRA test and was started on the typical, four-drug anti-tuberculosis treatment. This treatment did not fully resolve the condition leading to considerations of other diagnoses. The patient was admitted to our department a year after symptomatic onset. Due to the atypical length and progression of her symptoms along with her ethnic background, there was a suspicion of KFD, but histopathological re-analysis confirmed tuberculosis lymphadenitis.

Conclusions: This case presents challenges in diagnosing localized cervical lymphadenopathy and exploring various causes. Re-evaluation of histopathological samples and further investigation were conducted to rule out co-infection, malignancy, and other hematological changes. The delay in diagnosis was mainly due to negative imaging results and resistance to tuberculosis treatment. Between two departments, continuous testing, and treatment complications, the patient was diagnosed a year after the onset of her symptoms.

The role of MRCP in the diagnosis of choledocholithiasis - a case report.

Agata Zarajczyk, Maria Materek

Presenting author: Agata Zarajczyk

Tutors: Izabela Dąbrowska, MD, Prof. Anna Drelich – Zbroja, MD, PhD

Affiliations: Student' Scientific Society at the Department of Interventional Radiology and Neuroradiology, Medical University of Lublin,

Department of Interventional Radiology and Neuroradiology, Medical University of Lublin

Introduction: Abnormalities in bile composition result in the deposition of insoluble substances and the formation of deposits. The accumulation of gallstones may manifest as biliary colic, which is sudden, paroxysmal and severe pain located in the epigastrium. It is estimated that 5-20% of patients may develop choledocholithiasis after cholecystectomy.

Case report: A 70-year-old patient after cholecystectomy referred for ultrasound examination because of pain complaints localized in the epigastrium and mediastinum. US examination showed dilated intrahepatic bile ducts with deposits up to 9 mm in size, common bile duct was seen only in the initial part, without deposits. The patient was then referred for magnetic resonance cholangiopancreatography, which revealed segmental dilatation of the peripheral bile ducts of the left and right lobe of the liver. Numerous signal defects consistent with deposits were revealed, the largest conglomerates in the ducts of segment VI and at the border of VIII/V. No deposits were found in the common hepatic duct. A single deposit of 6 mm was seen at the common bile duct outlet.

Conclusions: Patients after cholecystectomy may develop choledocholithiasis. Deposits located in the distal part of the common bile duct may be difficult to detect in the immediate post-cholecystectomy revision, ERCP and US examination. MRCP allows for visualization of the entire course of the bile ducts and exclusion/confirmation of deposits in the distal part of the common bile duct.

Hemolytic-Uremic Syndrome (HUS) in patient with acute pancreatitis

Dariusz Popiela

Presenting author: Dariusz Popiela

Tutors: Prof. Ilona Kurnatowska, MD, PhD, Maja Nowicka, MD

Affiliations: Medical University of Łódź

Introduction: Hemolytic-Uremic Syndrome (HUS) is a group of thrombotic microangiopathies (TMA) characterized by severe hemolytic anemia, thrombocytopenia, and acute kidney injury (AKI). HUS most often occurs as a complication of E. Coli or Shigella infection, or less often other infections, certain medications, pregnancy, cancer, or autoimmune disease. Atypical HUS is associated with genetic mutations causing uncontrolled activation of the complement system.

Case report: 41-year-old woman was admitted to the surgery department due to acute pancreatitis (AP) symptoms, the standard treatment was implemented (hydration, parenteral nutrition, analgesic treatment). After 3 days the patient's general condition deteriorated with oliguria and increased peripheral edema with dyspnea; the symptoms were preceded by diarrhea (5 loose stools/day). Major changes appeared in the laboratory tests compared with results at admission: hemoglobin level 7.5 vs 15.7 g/dL; PLT; 30 vs 295 G/L; serum bilirubin 7.79 vs 4.43 mg/dL; and creatinine 3.07 vs 0.79 mg/dL. Acute bleeding and hepatorenal syndrome as a cause of AKI were excluded. The peripheral blood smear ordered after nephrological consultation revealed the presence of schistocytes, with the hemolysis markers: serum bilirubin 16x above normal, LDH > 2000 U/L, haptoglobin < 0.01 g/L. Shiga toxin was negative, ADAMTS13 metalloproteinase and metalloproteinase inhibitor activities were 72% (norm 40-130%) and 7 U/ml (norm <12 U/ml), respectively. Due to suspicion of HUS, the patient was transferred to the nephrology ward; treatment included plasmapheresis (5 procedures), methylprednisolone pulses (doses 250 mg/day - total 1250 mg), and blood transfusions as needed was started; 5 HD sessions were performed. The treatment achieved a return of diuresis, recovery of kidney function with eGFR 30ml/(min×1,72 m²), and stabilization of blood parameters: Hb 9.9 g/dL; PLT 110 G/L with the disappearance of hemolysis features.

Conclusions: Acute pancreatitis complicated by HUS developing is a very rare phenomenon. The pathomechanism of HUS development in AP remains unclear. Clinical examination and proper differential diagnosis allowed to make the correct diagnosis and start the appropriate treatment.

How early diagnosis of genetic disease may affect a child's development? A case report of a 10-year-old boy with intellectual disability caused by a deletion in the 7q21.2 and 16p11.2 region.

Patrycja Niewinna, Marcin Witek

Presenting author: Patrycja Niewinna

Tutors: Antoni Pyrkosz, MD, PhD

Affiliations: Studencie Koło Naukowe Genetyki Klinicznej, Kolegium Nauk Medycznych, Uniwersytet Rzeszowski

Introduction: Submicroscopic chromosomal rearrangements are one of common intellectual disability, psychomotor retardation, behavioral disorders, and malformations.

Case report: A case report of a 10-year-old boy who is treated in a genetic clinic, with microcephaly, delayed speech development, haemophilia A and B, bicuspid aortic valve, hyperopia, with low intellectual level. In the analyzed genetic material, an interstitial deletion in the chromosome 7 of the pair (region 7q21.2; size 503kb; genomic position according to HG19: 91921600_92424482) and an interstitial deletion in the chromosome 16 of the pair (region 16p11.2; size 517kb; genomic position according to HG19: 29673954_30190568) were found. The cases with submicroscopic deletions are rare but present some correlation of genotype with phenotype which will help in genetic counseling the families with prenatally or neonatally detected deletion at this locus.

Conclusions: Due to early diagnosis, it is possible to provide the child with appropriate specialist care - cardiological (preventing complications of heart defects), pedagogical (supporting education at school), speech therapy (working on speech development), psychological (proper mental development, creating relationships with peers, finding themselves in school environment).

The Battle Against Systemic Sclerosis - A Case Study of A Patient with Scleroderma Renal Crisis

Noor Elkurwi, Zeineb Garmeh, Qabas Elkurwi, Zahra Abu Jawhar, Layal Salame

Presenting author: Noor Elkurwi

Tutors: Małgorzata Wajdlich, MD; Prof. Michał Nowicki MD, PhD

Affiliations: Medical University of Lodz

Introduction: Systemic scleroderma (SSc) is an uncommon autoimmune disorder that causes excessive fibrosis in the skin and internal organs, especially lungs, kidneys and heart. Scleroderma renal crisis (SRC) is a rare and potentially fatal complication of SSc. In recent years, there has been an increasing interest in SSc treatment, as there is still no proven specific management approach.

Case report: We report a 44-year-old male patient with SRC, who underwent treatment with TPE and required hemodialysis, angiotensin-converting-enzyme inhibitors, glucocorticosteroids and cyclophosphamide. The patient has prominent cutaneous scleroderma with sclerodactyly and Raynaud's phenomenon. Additionally, we review the pathogenesis, accompanying symptoms and complications, management, and prognosis of SSc.

Conclusions: The management of systemic scleroderma has been shown to be challenging, and this was also observed in our case report. Applying therapeutic plasma exchange during the early course of the disease may be effective in alleviating further complications. However, our patient did not benefit from therapeutic plasmaphresis since he had advanced stage of scleroderma with irreversible organ damage.

COVID-19 vaccine-induced acute myocarditis: case report

Gabriele Kybartaite, Gabriele Rudokaite

Presenting author: Gabriele Kybartaite

Tutors: Jolanta Laukaitiene

Affiliations: Faculty of Medicine, Academy of Medicine, Lithuanian University of Health Sciences;

Department of Cardiology, Hospital of Lithuanian University of Health Sciences Kaunas Clinics

Introduction: Myocarditis is the progressive inflammation of the middle layer of the heart followed by a myocardium injury without ischemic events. Causes of myocarditis can either be infectious or non-infectious. One of the causes of non-infectious myocarditis is myocarditis as an adverse reaction to the vaccine. In late December 2020 COVID-19 vaccination began in Lithuania with mRNA vaccines by Pfizer-BioNTech and Moderna, Janssen vaccine was brought more recently in April 2021. Immunization against COVID-19 and other viral pathogens using mRNA-based vaccines is a new and promising technology. In the clinical trials, systemic adverse reactions after the second dose were reported mainly in the younger male population with a median onset time of one to two days.

Case report: A 19-year-old previously healthy male arrived at the emergency department presented with a chief complaint of non-radiating chest pain of 3 days duration. He reported pressure-like, dull pain, 8-9/10 intensity, not relieved by non-steroidal anti-inflammatory drugs or paracetamol. He reported receiving the second dose of the COVID-19 Janssen vaccine 4 days before the symptoms. Soon after the vaccination, he had a fever up to 39°C that lasted for three days; the day after chest pain occurred. He had no previous history of viral illnesses and no known COVID-19 exposure. ECG demonstrated SR, HR 80 bpm, ST elevation in the precordial leads without reciprocal changes. CRP was 43,78 mg/l (normal 0-5 mg/l), troponin T 535,6 ng/l (normal 0-14 ng/l), and BNP 74,2 ng/l (normal 0-26,5 ng/l) thus he was transferred to University hospital for a cardiologist evaluation. The laboratory testing showed high troponin I levels, which was 9,12 g/l (normal 0-0,04 g/l); bedside echocardiography revealed hypokinetic posterior and inferior walls of the left ventricle. Coronary angiography showed no signs of stenosis. The myocarditis was suspected and the patient was admitted to the Department of Cardiology. The cardiac MRI areas with elevated signal intensity in T2 sequence indicating oedema, late gadolinium accumulation and signs of acute myocardial injury subepicardial. No signs of significant arrhythmias or conduction disturbances were registered. An echocardiogram, which had been done on day 3 after admission, demonstrated dilated left ventricle (LV), poor contraction of inferior, posterior, lateral walls. The patient received intravenous ketorolac 30 mg p.r.n for pain. Troponin level decreased 50% over the first two 48 hours and almost reached a normal level (0,06 g/l) on the day of discharge. He was discharged on hospital day 6 based on improved symptoms, declined troponin level. The patient had not yet returned for a follow-up visit at the time of this submission.

Conclusions: Although rare, clinicians should be aware of the possibility of myocarditis, which should be taken into account in patients who report chest pain within a week of vaccination, particularly in the younger population.

Nephrotic syndrome with acute kidney injury in pregnant women.

Michał Olkowski

Presenting author: Michał Olkowski

Tutors: Prof. Ilona Kurnatowska, MD, PhD, Maja Nowicka, MD

Affiliations: SKN Transplant Nephrology of Medical University of Łódź,

Department of Internal Medicine and Transplant Nephrology of Medical University of Łódź

Introduction: Kidney disease in pregnancy, especially glomerulonephritis, is a major diagnostic and therapeutic problem. Nephrotic syndrome (NS), especially when accompanied by severe hypoalbuminemia and hypoproteinemia, is a risk factor for fetal hypotrophy, may cause miscarriage/premature labor and may also be life-threatening for the pregnant woman due to coagulation complications and the risk of eclampsia.

Case report: A 22 years old patient at 14 weeks gestation (C1,P1) treated with hemodialysis (HD) since 11 week of pregnancy was transferred from the pregnancy pathology clinic for diagnosis of acute kidney injury and NS. Due to preserved diuresis, 24h proteinuria of 40 g, a renal biopsy was performed. Histopathological examination showed presence of cellular crescents in all glomeruli with active interstitial lesions - with presence of immune complexes. No serum ANA, ANCA antibodies were found. Pulses of methylprednisolone were started and HD was continued. Due to NS with deep hypoalbuminemia (serum albumin concentration 14.4 g/l), life-threatening in pregnant patient, poor prognosis for the survival of the fetus and the impossibility of adequate immunosuppressive treatment, it was decided to terminate the pregnancy after the patient's consent was obtained. After pregnancy termination, five plasmaphereses was performed, immunosuppressive therapy with cyclophosphamide was started with a plan of two infusions followed by rituximab, steroid therapy was continued. The recovery of kidney function was observed and the HD was stopped. The patient was transferred to a residential center for further care.

Conclusions: Renal biopsy in pregnancy, although not contraindicated, is performed very rarely. In most cases the histopathological result does not affect the treatment, which is limited by the teratogenicity of many drugs and the need to use those safe for pregnant individuals. In this patient, the histopathological results facilitated making a decision regarding the fate of the pregnancy, the patient's survival and effective treatment initiation. In this case, cooperation between gynecologists and nephrologists played a crucial role.

Neurosyphilis - a historical disease that still brings diagnostical challenges in modern times.

Marta Jankowska, Marcin Pałczyński, Krystian Mross

Presenting author: Marta Jankowska

Tutors: Karolina Machowska-Sempruch, MD

Affiliations: Pomeranian Medical University in Szczecin

Introduction: Syphilis is a bacterial, systemic infectious disease caused by Treponema pallidum spirochetes, which spread rapidly through the body affecting various organs. The term neurosyphilis (NS) refers to a CNS infection that can occur at any stage of the disease. The lack of a gold standard for the diagnosis of NS greatly hinders diagnosis, which must be based mainly on clinical assessment.

Case report: A 58-year-old man, reporting dizziness and headache for a week and right-sided hearing impairment, was brought to the ER on 28.09.2019 with suspected transient cerebral ischemic attack. A CT scan of the brain performed on admission showed no pathological changes apart from cortical-subcortical atrophy. Follow-up MRI of the brain with contrast enhancement showed diffuse foci suggestive of fresh micro-infarcts and degenerative changes due to small vessel disease. After a 6-day hospitalisation, the patient was discharged with a diagnosis of vertebrobasilar artery syndrome. On 23.10.2019, the man reported again to the ER with headaches. Due to the absence of features of intracranial haemorrhage and new CT lesions, hospitalisation was not necessary at that time. Other headache syndrome was diagnosed. On 29.10.2019, the patient was readmitted to the Department of Neurology with speech disorders, right hemiparesis and suspected cerebral ischemic stroke. A subsequent CT scan of the brain showed no changes compared to previous examinations, while MRI of the brain showed a focus of fresh ischaemia with a diameter of 10 mm in the deep brain structures on the left side and foci of subacute ischaemia also in the deep structures and in the brain stem. Cerebrospinal fluid examination showed positive Pandy's reaction, doubtful Noone-Apelt's reaction, increased protein level, decreased glucose level. The reactive result of the USR test performed (VDRL) finally allowed the diagnosis of symptomatic CNS syphilis. The patient was transferred to the department of infectious diseases for further treatment.

Conclusions: Symptoms of NS are non-specific, hence diagnostic process is not straightforward. Despite the availability of modern diagnostic techniques, establishing a final diagnosis was challenging, but the patient ultimately received appropriate treatment. It is important to remember that syphilis is not only a disease known from history lessons, but still present in modern times and its incidence is increasing.

Acute glaucoma episode as a complication Sars-CoV-19

Sofija Korņilova

Presenting author: Sofija Korņilova

Tutors: Irina Korņilova, MD, PhD

Affiliations: Rīgas Stradiņa universitāte

Introduction: SARS-CoV-19 has shown to manifest as polyorganic disorder. While viral conjunctivitis and post-SARS-CoV-19 central retinal vein thrombosis and retinal haemorrhages are most common ophthalmological complications, acute glaucoma attack as the result of SARS-CoV-19 infection is often overlooked.

Case report: Female, 56 years old, had been infected with SARS-CoV-19 since 16 Oct 2021 with moderately severe course of illness. As the acute phase of infection had finalized, on November 4 the patient experienced acute worsening of vision acuity, pain in the right eye, as well as headache and general nausea.

As the patient had complete ophthalmological examination in September 2021 with no pathological findings, the symptoms were evaluated as neurological in emergency department. After neurological investigations and CT, no signs of stroke or hypertensive crisis were found, and the patient was discharged. On 20 Nov 2021 the patient visited ophthalmologist in an out-patient clinic.

Objective findings: vision OD 0,004, exc., OS 1,0, IOP OD 45 mmHg, OS 16 mmHg. While IOP had been lowered therapeutically with medication to 29 mmHg, no further positive dynamics was observed. Laser iridectomy was performed within 1 week.

On December 12 the symptoms of acute uveitis were noticed, appropriate examinations and therapy were prescribed. Patient had undergone systemic and local therapy until her state was stabilized on 31 Jan 2022.

Other systemic and infectious diseases were ruled out. Definitive diagnosis was established to be Non-typical aggressive glaucoma with neovascularization of anterior angle.

The unusual course of disease, with unilateral manifestation and aggressive neovascularization is thought to be a complication of SARS-CoV-19.

Conclusions: Aggressive glaucoma is one of less described complications of SARS-CoV-19. However, the new strain of Omicron has shown to be more contagious, and respectively more patients will have similar starting course of glaucoma. As a result, both ophthalmologists and neurologists have to take this into account to not misdiagnose glaucoma.

Pulmonary alveolar proteinosis (PAP) misdiagnosed as COVID-19 pneumonia: a case report

Martyna Martka

Presenting author: Martyna Martka

Tutors: Sebastian Majewski, MD, PhD, prof. UM;

Affiliations: Medical University of Łódź

Introduction: PAP is a disease characterized by an excessive surfactant accumulation in the alveolar space composed of proteins and lipids due to defective surfactant clearance by alveolar macrophages. The condition has a variable clinical course from spontaneous resolution to respiratory failure and death. The most common is autoimmune type (90%) which is caused by autoantibodies to granulocyte-macrophage colony-stimulating factor. PAP is an ultra-rare disease with non-specific symptoms. The diagnosis is initiated upon imaging by high-resolution computed tomography (HRCT) which reveals diffuse ground-glass opacifications superimposed on septal thickening. PAP is confirmed by staining of bronchoalveolar lavage fluid (BALF) for periodic acid-Schiff (PAS)-positive material.

Case report: At the beginning of 2021, a 43-year-old man presented to the cardiology outpatient clinic with complaints of increasing exertional dyspnea and progressive deterioration in exercise tolerance. He had a dry cough, fatigue and chest tightness. They have been presented for 3 years, but in the last couple of weeks, they have intensified. Physical examination revealed finger clubbing, central cyanosis, and crackles at the peak of inspiration on chest auscultation. Chest radiograph showed bilateral diffuse parenchymal infiltrations. Suspicion of COVID-19 pneumonia has been put forward. The patient has been referred to the infectious diseases unit. Laboratory examination revealed type I respiratory failure with pO2 of 49 mmHg; SaO2 of 86,2% and polycythemia with a hemoglobin level of 20,3 g/dL. Three different, RT-PCR tests were negative for SARS-CoV-2 infection. The patient has been transferred to the pulmonology department. The patient's chest HRCT identified bilateral extensive areas of so-called "crazy-paving pattern". The suspicion of PAP has been made. The BALF was milky and opaque. Cytological examination identified large, foamy macrophages strongly stimulated with altered kernels and cytoplasm structure, with extracellular hyaline material found homogenously positive on PAS staining. The final diagnosis of PAP was established. At an interval of 3 weeks, the patient underwent a therapeutic procedure of whole-lung lavage of both lungs. As a result, the patient's general condition and physical capacity improved. All previous chronic symptoms disappeared. The patient achieved cardiorespiratory fitness and maintained that after 7 months of follow-up.

Conclusions: The patient with PAP initially misdiagnosed as COVID-19 pneumonia has been saved from respiratory disability and cured of chronic respiratory failure. Since the COVID-19 pandemic outbreak, all activities and resources of worldwide healthcare have been focusing on virus eradication. Unfortunately, combating the COVID-19 pandemic results in other medical conditions' negligence. This case report illustrates how important is to diagnose and treat every illness carefully.

Case report: difficult treatment choice for a patient with profound mental retardation, spasmodic hemiplegic cerebral palsy, focal partial symptomatic epilepsy and restless behavior

Austė Janušauskaitė

Presenting author: Austė Janušauskaitė

Tutors: Edgaras Diržius, MD

Affiliations: Lithuanian University of Health Sciences

Hospital of Lithuanian University of Health Sciences Kaunas Clinics, Department of Psychiatry.

Introduction: There is a lack evidence-based literature on how to treat aggressive, self-injuring patients with mental retardation. Also it is agreed, that among patients with intellectual dissabilities, it is impossible to avoid polypharmacy and it is difficult drug selection to manage treatment. With such a complex choice of drugs, the need for responsible monitoring of drug side effects increases, as dose reduction and discontinuation affect the patient's quality of life.

Case report: I present a case report of a 27-year old female patient with a history of previously diagnozed profound mental retardation, spasmodic hemiplegic cerebral palsy, focal partial symptomatic epilepsy who presended with self-injury, anger towards herself and her family members, irritation, restlessness, anxiety and seizures in the past. The patient experienced first seizures when she was newborn, by 3 years of age, there were 2 cases of febrile seizures. In 2003 at night, generalized tonic-clonic seizures occurred and valproic acid was indicated. In 2007 tiapride was assigned due to paroxysms. In 2009 risperidone was attempted to be replaced by melperone hydrochloride but it was discontinued due to weight gain and the patient was adjusted to a bigger dose of chlorprothixene. In 2012 divergent strabismus was observed in the left eye and was treated as short epileptic seizure, it was decided to introduce lamotrigine for additional treatment. In 2013 Doses of valproic acid up to 750 mg and 500 mg, clonazepam 0,25 and 0,5 tab. added. Sleep improved, nocturnal seizures disappeared, but daytime seizures remained the same. In 2018 zuclopenthixol was administered. The patient became more anxious, a slight dental phenomenon, tongue tremor was observed. In 2018 She behaved aggressively towards herself and her family members. In the absence of effect, for later treatment was prescribed clozapine. There was salivation, drowsiness. Clozapine discontinued. In 2019 lorazepam, olanzapine, melperone were assigned but this treatment did not suit the patient. Olanzapine and melperone were discontinued due to intolerance (weight gain, salivation, anxiety). Carbamazepine was also prescribed but when dose increased the patient experienced tremor and the drug was discontinued. In 2020 better impulse control was observed, condition improved. Episodes of aggression and agitation weakened and became rarer. But Increased dose of lamotrigine and baclofen caused daytime somnolence, sometimes confusion.

Conclusions: The general trend in this clinical case was intolerance to even small doses of typical neuroleptics and excellent tolerance to atypical, even high doses. And it was only that combination helped control self-harm. If the use of potentially interacting medicinal products cannot be avoided, adverse clinical effects may be reduced by individual dose adjustment, close monitoring and evaluation of the clinical response, and measurement of serum concentrations.

Isolated corticotropin deficiency associated to chronic alcohol abuse — report of two cases

Agata Strykowska, Szymon Orzechowski

Presenting author: Agata Strykowska

Tutors: Prof. Elżbieta Skowrońska-Jóźwiak, MD, PhD

Affiliations: Medical University of Łódź

Introduction: Isolated ACTH deficiency (IAD) is a rare pituitary disorder, characterized by decreased secretion of ACTH, leading to cortisol deficiency, with normal function of remaining pituitary hormones and normal pituitary morphology. Autoimmunity is the most frequent etiology of IAD in adults. Diagnostics is challenging due to non-characteristic symptoms - weakness, anorexia and low blood pressure. Low morning cortisol with low/normal ACTH concentration and flat response in dynamic tests (with Synacthen/insulin/glucagon/CRH) are the basis of establishing diagnosis. Replacement therapy with hydrocortisone is effective if it has been applied early enough.

Case report: Patient 1: A 65-year-old male was admitted to the clinic for diagnostics of the severe, chronic hyponatremia. He complained about general weakness and chronic nausea. His medical past included alcohol abuse, cachexia, Barret's esophagus. During past 2 years, the patient was hospitalized eight times due to recurrent hyponatremia. Renal, liver, cardiac diseases and hypothyroidism were excluded. Imaging investigations excluded presence of neoplasm, potentially causing SIADH. Finally, due to suspicion of the endocrine origin of the patient`s problems, he was referred to our clinic. On admission he presented BMI 19,6 kg/m2, BP 100/70 mmHg, and pale skin. Laboratory tests confirmed hyponatremia with normokalemia and normocytic anemia.

Patient 2: A 68-year-old male noticed weakness, weight loss (about 10 kg) and low BP for about 1.5 years. Earlier he felt completely healthy, with the history of smoking and alcohol drinking. On admission the patient was pale and weak, with BP 90/60 mmHg. In laboratory tests normocytic anemia, hypoglycemia and hyponatremia with normokalemia were found. He was hospitalized several times, due to the suspicion of neoplasm. Mallory-Weiss syndrome and duodenal ulcers were found in gastroscopy. Abdominal CT revealed an incidentaloma of the left adrenal gland.

In both patients diagnosis of IAD was established based on low cortisol and ACTH concentrations at 8.00, not increasing after 250 mg CRH injection. Other pituitary hormones were normal. Pituitary MRIs were performed, excluding the presence of any abnormalities. Autoimmune causes were excluded. Based on the literature research we hypothesize that the cause of IAD in our patients was related to the long-term alcohol abuse.

Both patients received the replacement therapy with oral hydrocortisone with a spectacular clinical improvement.

Conclusions: The diagnosis of IAD is challenging due to insidious clinical presentation and the rarity of the disease. In the presented cases it was additionally impeded due to stigmatized history of alcoholism.

CASE STUDIES: ONCOLOGY

14th of May 2022

Coordinators:

Anna Gehramnn

Marta Węgierska

Marlena Gajczak

Jury:

Prof. Magdalena Zakrzewska, MD, PhD

Konrad Stawiski, MD, PhD

Anna Szmigielska-Kapłon, MD, PhD

Late metastases of renal cell carcinoma to the lung and to the pancreas

Anna Kochanowska

Presenting author: Anna Kochanowska

Tutors: Jolanta Gozdowska, MD, PhD

Affiliations: Medical University of Warsaw

Introduction: Renal cell carcinoma (RCC), accounting for approximately 80% of all kidney malignancies, is the most common tumour of this organ. It is characterized by its late recurrence, even 10 years after nephrectomy. Besides spreading to the lung through the inferior vena cava, it can disseminate through minor veins, lymphatic vessels and the ureter.

Case report: We report a case of a 62-year-old female who at the age of 40 underwent surgical resection of the right kidney due to a lesion detected in ultrasonography (USG). Based on the nephrectomy specimen, a clear cell RCC (ccRCC) in the T1NxM0 stage and G2 grade was histopathologically diagnosed. The patient was undergoing oncological follow-up for 5 years. 17 years after the nephrectomy a computed tomography (CT) performed due to other indications, showed a lesion in the right lung. It was surgically removed and histopathologically confirmed as a ccRCC metastasis. 3 years later (20 years after nephrectomy) in a follow-up CT another lesion in the pancreas was revealed. After surgical resection it was pathologically examined and described as a ccRCC recurrence. Sectioned lymph nodes showed no sign of neoplasia and imaging tests after the surgery did not detect any further metastases.

Conclusions: Due to unpredictable metastatic pathways and the occurrence of late relapses, RCC is not only a diagnostic or a surgical challenge. It is also long-term follow-up that plays a vital role in taking care of patients with kidney tumours. Despite many disease-free years, maintaining oncological alertness in patients after radical surgical treatment seems to be essential. It is associated with regular follow-up appointments and lifelong imaging tests.

Is this a metastasis or is it just a pseudocyst? A case of rare presentation of leiomyosarcoma's metastasis in the liver.

Adrian Bednarek, Konrad Szymczyk

Presenting author: Adrian Bednarek

Tutors: Dorota Jesionek-Kupnicka, MD, PhD, Julia Sołek, MD

Affiliations: Medical University of Warsaw

Department of Pathology, Medical University of Łódź

Department of Radiology, Barlicki University Hospital, Medical University of Lodz

Introduction: Leiomyosarcoma (LMS) of the rectum is a rare entity that comprises less than 0.1 % of all rectal malignancies. The prognosis of anorectal LMSs reaches 75% of 5- year overall survival and 46% of disease-free survival rates. Treatment is based on surgical resection with optional adjuvant chemotherapy. The optimal treatment modality is largely dependent on radiographic studies i.e. CT (computed tomography) and PET (position emission tomography) imaging. High efficiency in diagnosing is ensured by these methods but in cases of rare tumors, many factors lowering the precision of the diagnosis can appear. Presented here the case of LMS is reported to present a highly distinctive form of metastasis in the liver unrecognized by PET and CT examination.

Case report: A 44-year-old patient was admitted to the Department of Surgery for complaints of bloody stool and difficult defecation. The abdominal contrast-enhanced CT revealed a nodular lesion 44x41x35mm in size approximately 80 mm from the sphincters. The histopathological examination of the colon's mass revealed a non-epithelial malignant neoplasm. Based on histopathological and immunohistochemical study leiomyosarcoma G3 was diagnosed. Moreover, abdominal CT revealed a well-delimited lesion 5mm in diameter in the anterior subcapsular area of the right lobe of the liver. However, PET imaging showed no increased glucose metabolism in this area, so this lesion was not recognized as metastasis and adjuvant therapy was not applied. During 3 years of follow-up, 5 CT and 6 PET scans were performed and none of them showed any features of malignancy in the previously observed cystic lesion in the liver. However, due to progressive deterioration following laparotomy and biopsy of the lesion were performed. Histopathological examination showed extensive areas of necrosis and fibrosis in the center of the lesion with atypical cells on the periphery. Immunohistochemistry corresponded with the image from the colorectal tumor and led to the diagnosis of its metastasis. Shortly after diagnosis CT scan of the abdomen revealed multiple solid lesions from 10 to 36mm in diameter in the liver. Fibrous changes in the lungs and irregular solid changes 25x16 mm have also appeared. After three months CT scan revealed three new hypodense lesions in the liver and the patient was qualified for the Trabectedin therapy. Unfortunately, after 2 months the patient died due to acute renal failure, which was probably caused by rhabdomyolysis, a side effect of Trabectedin.

Conclusions: Our case constitutes a very rare presentation of LMS's metastasis, which presented as a very infrequent form - pseudocyst and led to misdiagnosis and mistreatment. Besides the high efficiency of PET/CT it should be remembered that it does not amount to 100% and factors lowering its precision can occur. In the case of rare neoplasm, any radiographic lesion should be handled with the highest vigilance, even if is defined as benign.

Metastasis of Melanoma to Urinary Bladder – case report

Aleksandra Białczyk, Jakub Nierebiński, Marcel Makal

Presenting author: Aleksandra Białczyk

Tutors: Filip Kowalski, MD, PhD; Janusz Tyloch, MD, PhD, prof. UMK

Affiliations: Collegium Medicum in Bydgoszcz, Nicolaus Copernicus University in Toruń

Introduction: Melanoma is a malignant tumor of melanocytes responsible for most skin cancer deaths, despite accounting for less than 5% of all skin malignancies. The most common sites for melanoma metastasis are the subcutaneous tissue, lungs, liver, and brain. Neoplastic metastases to the bladder are infrequent, especially melanoma metastases, which are a rare clinical entity.

Case report: An 85-year-old man was admitted to the Department of Urology to remove a bladder tumor previously detected on ultrasound. He completed palliative chemotherapy for melanoma in the neck area six months earlier. Disseminated metastases to the brain and lymph nodes were also present. The patient reported haematuria and urinate urgency. On physical examination, tenderness in the lower abdomen. The patient underwent transurethral electroresection of the tumor in the bladder wall (TURBT). Infiltration of the right lobe of the prostate gland was also detected. The tumor mass was resected, and fundus coagulation was performed. Samples were submitted for histopathological examination. The hematuria subsided. The patient returned to the hospital three days after the surgery due to pain in the lower abdomen with the suspicion of retroperitoneal urine leakage after TURBT. Abdominal tomography was performed with accompanying cystography, where the diagnosis was confirmed. The catheter in the urinary bladder was replaced, and empirical antibiotic therapy was started. The patient was discharged home. After two weeks, a histopathological result was obtained, indicating that the tumor was a metastasis of melanoma to the bladder. Due to the disseminated neoplastic process, the patient died 14 months after surgery.

Conclusions: Diagnostics of lower urinary tract neoplasms is based on endoscopic procedures. The basis for the diagnosis of bladder tumors is the TURBT procedure. It is essential to confirm the diagnosis with histopathological and immunohistochemical tests. Despite the improvement of new therapeutic options, the prognosis of metastatic melanoma still remains poor.

Multimodal treatment of a melanoma patient with extensive metastatic disease

Anna Ziobro

Presenting author: Anna Ziobro

Tutors: Paweł Teterycz, MD, PhD,

Affiliations: SKN Onkologii Multidyscyplinarnej "Onkosfera";

Narodowy Instytut Onkologii im. M. Skłodowskiej – Curie w Warszawie

Introduction: Melanoma is a highly malignant melanocytic tumor. Patients diagnosed with metastatic melanoma historically had a poor prognosis with the median survival of six months. The introduction of immune checkpoint inhibitors in the treatment of advanced melanoma revolutionized the therapy in this group of patients. Additionally, combining immunotherapy with other treatment modalities such as radiotherapy can further improve prognosis of patients with advanced metastatic or unresectable melanoma and their clinical condition.

Case report: We herein report a case of 71-year-old man, who was referred to our hospital in March 2017 after resection of a pT3a scalp melanoma. Computed tomography (CT) revealed lesions in the mediastinal lymph nodes and in the lungs. Lung lesions were verified in videothoracoscopy as melanoma metastases. Patient was qualified to receive immunotherapy with nivolumab. The CT before the start of nivolumab showed additional, multiple metastatic lesions in the liver, spleen, adrenal glands and one 9mm lesion in the left temporal lobe, highlighting the dynamic nature of the disease. Patient started systemic treatment on May 24th, 2017. The brain metastasis was additionally treated with radiosurgery. The first CT scan on treatment showed partial response according to Response Evaluation Criteria In Solid Tumors (RECIST) 1.1 which continued in consecutive scans. Nevertheless, the patient developed 4 episodes of oligoprogression - twice in the central nervous system and twice in the right adrenal gland. Brain metastases were treated with GammaKnife radiosurgery, while adrenal metastases were treated with radiotherapy and surgery. Until today, the patient is treated with Nivolumab immunotherapy with no major side effects of the treatment.

Conclusions: This case highlights great impact of immunotherapy on the field of melanoma therapy. In the last decade, the median overall survival of patients with metastatic melanoma was extended to more than 6 years in the recent clinical trials. Combining immunotherapy with radiotherapy and surgery can have positive impact on patients' outcomes in selected cases. Further clinical trials are underway on manipulating and stimulating the immune system for anti-cancer therapy, which is extremely important to continue to develop this effective treatment.

The utility of magnetic resonance and Pi-RADS v. 2.1 in the assessment of anterior fibromuscular stroma malignancy – case presentation.

Olga Pustelniak, Maryla Kuczyńska

Presenting author: Olga Pustelniak

Tutors: Anna Drelich-Zbroja, MD, PhD

Affiliations: Student's Scientific Society at the Department of Interventional Radiology and Neuroradiology, Medical University in Lublin,

Department of Interventional Radiology and Neuroradiology, Medical University in Lublin,

Department of Interventional Radiology and Neuroradiology, Medical University in Lublin

Introduction: Prostate cancer (PCa) is the most common malignancy in male population. After lung cancer it is always the second cause of deaths in men due to malignancies. PCa's are most frequently located within the peripheral zone. Other locations, including the transistion and central zones, as well as anterior fibromuscular stroma (AFS) are relatively rare. There are several diagnostic tools applied in the assessment of the extent of prostate tumors. These include - prostatic antigen (PSA) concentration in blood serum, digital rectal examination of the prostate (DRE), biopsy and transrectal ultrasound (TRUS). Multiparametric magnetic resonance imaging (mpMRI) is recommended for the early detection of clinically relevant prostate cancer. A 5-point Prostate Imaging and Reporting and Data System (Pi-RADS) is used to indicate the probability that lesions detected in mpMRI correlate with the presence of clinically significant cancer.

Case report: We present a 67-year-old man with elevated levels of PSA = 4.27ng/ml and no apparent abnormalities in the DRE. MRI was performed to screen for possible lesions of the prostate. T2-weighted images revealed a well-defined, strongly hypointense area (16mm in the biggest dimension), showing diffusion restriction and pathologic contrast enhancement – graded as Pi-RADS 5 lesion – localized in the AFS at the midportion of the gland. The MR examination additionally showed signs of benign prostate hyperplasia and irrelevant mildly hypointense areas within the peripheral zone – assessed as post-inflammatory or fibrotic changes (Pi-RADS 2).

Conclusions: Prostate cancer can be often asymptomatic. But when symptoms become present the disease is more difficult to treat. That's why screening is crucial - it gives possibility to early identify PCa at a treatable stage. MRI is leading imaging examination to visualize the prostate. mpMRI include both the anatomical (T1 and T2-weighted) and functional sequences (DWI and dynamic contrast enhanced images). Such constellation enables a detailed characterization of the prostate zones and focal lesions, providing excellent contrast between various tissues. This is of particular importance especially in case of strong clinical suspicion of a malignancy localized in a rare location, possibly out of range for digital rectal examination or biopsy.

A diagnostic dilemma of splenic angiosarcoma – a rare case of bone marrow metastases

Mateusz Matczak, Jakub Misiak, Norbert Skrobisz, Bernard Sokołowski

Presenting author: Mateusz Matczak

Tutors: Marcin Braun, MD, PhD, Dorota Jesionek-Kupnicka, MD, PhD, Hanna Romańska-Knight, MD, PhD, prof. UM, Anna Puła, MD, Prof. Joanna Góra-Tybor, MD, PhD

Affiliations: Department of Pathology, Chair of Oncology, Medical University of Lodz, Lodz, Poland;

Department of Hematology, Medical University of Lodz and Copernicus Memorial Hospital, Lodz Poland

Introduction: Angiosarcoma is a malignant neoplasm with morphological or immunophenotypic features of endothelial differentiation. These aggressive tumors are generally found in adults, mainly in the skin, breast, liver or soft tissues and, infrequently, in other organs such as spleen. To date, there are less than 300 reports of spleen angiosarcomas available in the literature. Angiosarcoma typically metastasizes to the liver, lungs, lymph nodes or gastrointestinal tract. Here we report a case of bone marrow angiosarcoma metastases of splenic origin with very unusual clinical symptoms mimicking hematological malignancy.

Case report: The 45-year-old male patient was admitted to the Hematology Department with suspicion of myelodysplastic syndrome (MDS). The patient presented with petechiae and blood tests showed decreased hemoglobin level and thrombocytopenia (9,5 g/dL and 2,4·104 μL, respectively). Due to the suspicion of MDS, examination of FLT3 and NMP1 mutations was performed but no abnormalities were detected. The presence of schistocytes in the peripheral blood smear, increasing liver enzymes and the deteriorating patient condition were suggestive of acquired thrombotic thrombocytopenic purpura (aTTP), but no ADAMTS13 antibodies in the plasma could be detected. The patient underwent three cycles of plasmapheresis, however no improvement was observed. The poor clinical status prompted the decision of trephine biopsy. Histopathology examination revealed diffuse infiltration of bone marrow by neoplastic cells, which were elongated, and of blastic morphology, arranging in numerous small vascular spaces. Reticular fibrosis (MF-3) was found. Immunohistochemical profiling of the neoplastic cells revealed positivity for vascular markers (CD34, CD31, CD117, SMA), and negativity for cytokeratins, mastocytic, myeloid and lymphoid markers (AE1/AE3, MPO, CD15, CD61, CD71, CD123, CD138, CD20, CD3, TdT, CD25, MCT). The whole-body contrast Computed Tomography (CT) was conducted and showed numerous hypodensive foci, exclusively in the spleen. Imaging by Magnetic Resonance Imaging (MRI) also revealed the lesions, the largest of which measuring 36x21mm and 32x30mm contained hemorrhagic deposits. Together with clinical and imaging data, the histopathological image allowed to establish the final diagnosis of metastatic intermediate-differentiated angiosarcoma of splenic origin. The patient was qualified for paclitaxel treatment with the prophylaxis of febrile neutropenia. The patient is currently undergoing the treatment.

Conclusions: The described patient presented with bone marrow metastatic angiosarcoma, unusually originated from the spleen, and developed symptoms mimicking myelodysplastic syndrome. The presented case exemplifies angiosarcomas' biological complexity, as well as variety of clinical presentation with such unique symptoms as pancytopenia caused by bone marrow metastases.

Limitations and complications of current desmoid tumor treatment - case study.

Dariusz Łaszczych, Aleksandra Czernicka, Małgorzata Juraszek

Presenting author: Dariusz Łaszczych

Tutors: Jakub Husejko, MD

Affiliations: Nicolaus Copernicus University in Toruń Ludwik Rydygier Collegium Medicum in Bydgoszcz

Introduction: Desmoid tumor (DT) is a locally invasive neoplasm of mesenchymal origin. The incidence is 2-4/106 people with a predominance of women. Its etiology is not fully understood. Desmoid tumors are mostly sporadic; however, 10-15% of cases can be associated with familial adenomatous polyposis. Desmoid tumors associated with FAP develop in the mesentery, grow faster and are more aggressive - therefore require early diagnosis and therapy. The treatment of choice is still a radical resection which is insufficient for neoplastic dissemination with a deep infiltration. Surgery contributes to many complications like short bowel syndrome (SBS) that may require total parenteral nutrition (TPN) through a Broviac catheter, which increases the risk of sepsis. On the other hand, systemic therapy is highly toxic. The subject of our work is to point out novel methods of treatment, especially targeted agents, which could improve the patients quality of life and reduce the number of hospitalizations due to postoperative complications.

Case report: A 34-year-old woman reported to the hospital due to fever, weakness and malnutrition (BMI = 16,41). She was admitted to the Geriatric Clinic with suspicion of catheter-related sepsis. Inflammatory parameters at admission: CRP = 69,74 mg/l, PCT = 40,74 ng/ml. The blood culture was negative but the patient's condition was worsening. Empiric antibacterial therapy was administered, which improved her general condition. The patient suffered from FAP and had numerous hospitalizations in the past. In 2015 the woman was diagnosed with stage I adenocarcinoma of the colon and for that reason, had total proctocolectomy (TP) in the same year. In 2018 she underwent elective surgery to remove DT located in the mesentery of the small intestine. It was diagnosed intraoperatively 2 years earlier during exploratory laparotomy due to intestinal obstruction. During the surgery, almost all of the small intestine was removed, which contributed to the formation of iatrogenic SBS. Because of malabsorption, a central venous catheter for parenteral nutrition was inserted. Therefore the patient was exposed to catheter-related infections, which resulted in numerous hospitalizations because of severe infections.

Conclusions: Our patient experienced many complications related to desmoid tumor treatment. Bacteraemia is a common finding in patients with ongoing nutritional treatment. The woman is likely to face many hospitalizations that will reduce the quality of her life. The patient's serious condition prompts us to consider the application of new methods of treating desmoid tumor, which will not be limited by its location or depth of infiltration. These new ways of treatment should be directed at blocking signaling pathways at the molecular level in order to replace the need for radical surgery and highly toxic systemic therapy.

Acute kidney injury as a complication of Burkitt lymphoma chemotherapy in a patient after left-sided nephrectomy

Joanna Strzemecka, Jeremiasz Kożuch, Piotr Krawiec, Oliwia Piotrowska

Presenting author: NOT PRESENTED

Tutors: Tomasz Ociepa, MD, PhD, Aleksandra Królak, MD

Affiliations: Pomorski Uniwersytet Medyczny

Introduction: Multi-drug cytostatic therapy leads to a long-lasting remission in Burkitt lymphoma cases in children. However, it can result in serious complications. Patient's baseline nephrological stage can increase the risk of acute kidney injury.

Case report: A 9-year-old patient had been under supervision of Urological Clinic since 2016 because of nephrectomy due to congenital anomaly. On 14th of April, he was transferred to our department with a suspicion of an abdominal cavity tumor. Prior to arrival, he had reported severe abdomen pain, rectal tenesmus, diarrhoea, vomiting and abdominal distension. CT revealed two masses expanding from minor pelvic to mid-abdomen, closing the lumen of caecum and sigmoid colon, infiltrating the urinary bladder. One of them constricted renal vessels, right ureter and dilated pelvicalyceal system. Due to the size, localization and quick progression within 2 weeks Burkitt lymphoma was presumed. Cytoreductive therapy was induced immediately with a rapid outcome. Histopathological examination confirmed the diagnosis and chemotherapy was continued. During hospitalization due to suspicion of a systemic infection and mucositis after first chemotherapy cycle, the blood was sampled for culture. Antiviral and antifungal drugs with broad-spectrum antibiotics were induced. The laboratory analysis demonstrated neutropenia and high inflammatory parameters. Despite taken actions, patient's condition deteriorated with hypertension, abdominal pain, vomiting and gross hematuria. Urinalysis results shown massive erythrocyturia, proteinuria, increasing level of creatinine and phosphate. Firstly, a Foley catheter was implanted, hyperhydratation with diuretics were started and nephrotoxic medications were discontinued. Due to oliguria, then anuria, an abdomen USG was proceeded which visualized blood clots in bladder and extended calyx and ureter. The post-renal acute kidney injury secondary to hematuria caused by possibly glomerulonephritis was diagnosed. There was an urgent need to perform uretherocystoscopy while inserting Double J catheter. Patient's general condition improved and the function of kidneys quickly returned, so next cycles of chemotherapy were tolerated well. Follow-up examination showed complete remission.

Conclusions: A patient with just one kidney has a great risk of chemotherapy complications. Rapid diagnosis, modified pharmacotherapy and medical procedures enable us to reverse deterioration effects and continue the process of treatment, which leads to remission of a disease.

Unusual old enemy - recurrence of atypical carcinoid tumor of the lung

Anna Rekowska, Piotr Rola

Presenting author: Anna Rekowska

Tutors: Tomasz Jankowski, MD, PhD

Affiliations: Students' Scientific Association in Department of Pneumology, Oncology and Allergology, Medical University of Lublin

Chair and Department of Pneumology, Oncology and Allergology, Medical University of Lublin

Introduction: Lung carcinoids (LC) account for 25% of all neuroendocrine tumors (NET) as well as 2,2% of all lung cancer cases. Its prevalence is estimated at 0,2-2/100 000 cases per year. LC is a group of well-differentiated tumors, divided into 4 subtypes - small cell lung cancer, large cell neuroendocrine carcinoma, typical carcinoid and atypical carcinoid (AC). AC is responsible for only 0,2% of LC cases. Due to the LC's heterogeneity on many levels, rarity, and the possibility of recurrence, the treatment remains challenging and requires complex monitoring for patients' follow-up.

Case report: A 37-year-old woman was admitted to the hospital due to the recurrence of atypical carcinoid of the right lung. 8 years prior the woman had a right lower bilobectomy. Conducted diagnostics, including scintigraphy, revealed areas of elevated expression of somatostatin receptors located near the thoracic inlet on the right side and right main bronchus, subpleural nodules in the right lung, and focus located below inferior pole of left thyroid lobe. Computed tomography (CT) showed neither enlarged mediastinal lymph nodes nor pleural effusions. The woman was qualified for first-line treatment and received chemotherapy consisting of carboplatin and etoposide. Additionally, the patient was administered somatostatin analog - somatuline. The treatment resulted in the occurrence of multiple side effects including severe morphological changes, such as anemia, leukopenia, and granulocytopenia, that caused the withdrawal of the chemotherapy until the results were acceptable. Additionally, the patient reported diarrhea, rash located on the face and chest, and also blood pressure spikes. However, overall the patient benefited from treatment, and the therapeutic process was continued.

Conclusions: Rare neoplasms, such as lung carcinoids require special attention and an individual approach to the treatment. Often potential solutions are discussed in a multidisciplinary team. Other significant aspects of the cancer treatment are side effects that should be taken into consideration when planning further procedures and therapy, so the patient's overall status will not deteriorate due to the treatment itself.

Odontoma of the left maxillary sinus: A rare incidental case

Ali Hok; Shania Kafi Keramati, BSc, MSc

Presenting author: Ali Hok

Tutors: Aleksander Nowak MD, Łukasz Słowik DDS

Affiliations: ESRA Maxillofacial Surgery Research Group, Poznań University of Medical Sciences, Poland

Clinical Department of Maxillofacial Surgery, Poznań University of Medical Sciences, Poland.

Introduction: Odontomas are the most common type of benign odontogenic neoplasms of the jaw. They are mixed lesions consisting of both epithelial and mesenchymal cells, displaying dental tissue differentiation as cement, enamel, and dentin. Odontomas mainly occur in the anterior maxilla or in the posterior mandible. They are classified as either complex or compound variants and are reported mainly as incidental findings on radiographs taken due to other indications. Although the etiologic factors are unclear, these lesions are thought to be related to infection, trauma, and genetic mutation.

Case report: We report a 41-year-old male who was admitted to the maxillofacial surgery department due to a rare odontoma in his left maxillary sinus. It was detected incidentally 6 months earlier during a preparation for an implant placement. The lesion was revealed during a routine OPG, and diagnosis was extended to CBCT, which showed a polyp-like lesion in his left maxillary sinus. The patient reported no symptoms or discomfort regarding this situation. The operation was conducted by making an incision in the left part of the maxilla using Caldwell-Luc method. The full excision of the tumor was performed successfully, and no further complications were reported. Histopathological examinations confirmed the diagnosis of an odontoma in the left maxillary sinus. Minor swelling was reported post-surgery and the patient was discharged home shortly after. No complaints were reported during the follow up appointment.

Conclusions: Generally, odontomas are asymptomatic unless they become a large mass which might lead to the eruption or displacement of teeth. If left untreated, odontomas involving the maxillary sinus can lead to complications such as orbital cellulitis, subdural emphysema, meningitis, cavernous sinus thrombosis, and brain abscess resulting in death. The occurrence of odontomas in the maxillary sinus is considered rare. Moreover, for a successful atraumatic removal of a maxillary lesion, careful procedures and principles must be followed. In conclusion, the procedure was successful using the Caldwell Luc method to open an incision in the maxilla, however, some precautions have been taken after the surgery to avoid any post-surgical complications.

Acral lentiginous melanoma – The need of an increased focus – a case report

Gabriela Oancea

Presenting author: Gabriela Oancea

Tutors: Assistant Professor Iuliu Gabriel Cocuz, MD, Ph Candidate; Professor Ovidiu Simion Cotoi MD PhD

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

Introduction: Acral lentiginous melanoma (ALM) is a relatively rare subtype of melanoma, occurring predictively on the palms, soles and subungual sites. Due to the increased thickness at the time of a delayed diagnosis, it is associated with a poorer prognosis. Through this case report, we would like to point out the importance of an early clinical diagnosis, proper surgical excision and a thorough histopathological and immunohistochemistry (IHC) examination, in order to achieve the most favorable evolution possible.

Case report: We present the case of an 80-year-old male with a yellow-gray ulcerated lesion on the sole of his foot, clinically suggestive for a squamous cell carcinoma. Following the JAAD and EJC guidelines regarding the histopathological examination, a Breslow thickness of 16mm, ulceration and a mitotic rate of 12/10 HPF of the tumoral cells were revealed. Additionally, the deep and laterally margins of excision were positive and also infiltration of the hypodermis by the tumor cells (Clark level V) were revealed. In the immunohistochemistry (IHC) assessments, the tumor cells were positive for S100 and Melanosomes, certifying the final diagnosis of ALM, stage pT4b (tumor thickness>4 mm and ulceration). The diagnosis of carcinoma was excluded by IHC with the negativity of the tumor cells for p63 and CTK AE1/AE3. Two years later, the patient returned with multiple tumoral mases on his inferior limb and surgical removal was performed for two of them, under a suspicion of melanoma metastasis. The morphological features of the tumoral cells were found in the form of ulceration, infiltration of the reticular dermis, increased mitotic activity. In addition, the tumor cells were positive for SOX10, Melanosome, Melan A, S100 markers and the Ki 67 marker of cell proliferation 55-60% on immunohistochemistry (IHC) assessments. Corroborating all the histopathological and IHC findings, the diagnosis of local-regional metastasis of melanoma was confirmed. Unlike the primary lesion, the secondary one presented microsatellitosis, which has been associated with regional lymph node metastases and diminished survival. The particularity of this case consists in the rare incidence of AML, which is estimated at 1 to 5% in non-hispanic white population. The literature establishes a poorer prognosis in male patients that increases with age, Breslow thickness and mitotic activity of the melanocytes.

Conclusions: ALMs require increased medical attention during the clinical, histopathological and IHC examination and treatment phase, due to their high metastatic potential and low survival rate. Moreover, the management of such lesions demands a solid collaboration between the dermatologist, the surgeon and the pathologist for an early diagnosis and treatment for increasing the patient's quality of life.

A case of leukemic mantle cell lymphoma with diverse clinical presentation and unusually long follow-up

Anna Zakrzewska, Aleksandra Zielińska

Presenting author: Anna Zakrzewska

Tutors: Marcin Braun, MD, PhD, Prof. Hanna Romańska-Knight, MD, PhD, Prof. UM

Affiliations: Medical University of Lodz

Introduction: Mantle cell lymphoma (MCL) is a rare form of B-cell non-Hodgkin's lymphoma (NHL), accounting for 2.5-10% of all NHL cases. Classical MCL is usually characterized as an aggressive lymphoma, however its subtype - leukemic non-nodal MCL (L-NN-MCL) is usually indolent (median overall survival of 6.5 years compared to 4.0 years in classical MCL). L-NN-MCL typically involves the bone marrow, peripheral blood and the spleen, without notable adenopathy. We describe here a case of leukemic non-nodal MCL with unexpected clinical presentation and unusually indolent clinical course.

Case report: In 2018, a 42-years old Caucasian female with a suspicion of pulmonary embolism was admitted to the Haematology Department for extended diagnostics and treatment. The patient had been receiving low-molecular-weight heparin (LMWH) for five months. A physical examination revealed splenomegaly without lymphadenopathy, which was confirmed by the CT (spleen size: 14x7x19 cm). The laboratory blood tests showed leukocytosis with lymphocytosis and thrombocytopenia. A suspicion of lymphoma was made and flow cytometric immunophenotyping (FC) of blood revealed a population of CD5-, CD23+ lymphocytes. In trephine examination, bone marrow was infiltrated by nodular and interstitial groups of small and medium lymphoid cells with atypical, hyperchromatic nuclei. As assessed by immunohistochemistry (IHC), the infiltrate was positive for CD20 and cyclin D1 and negative for CD23 and BCL6; CD5 was equivocal. Based on clinical presentation, FC and IHC results, a diagnosis of non-nodal mantle cell lymphoma was proposed. Four cycles of immunochemotherapy according to the R-CMC protocol (rituximab, cyclophosphamide, mitoxantrone, cladribine) were administered, which resulted in a complete pathological and clinical response. The autologous stem-cell transplantation with granulocyte colony-stimulating factor was performed as a consolidation of treatment. After 5 years, the patient suffered a relapse of lymphoma. Ultrasonography revealed splenomegaly (6,3x13,6 cm). Histology of bone marrow again showed infiltration of lymphoma cells of phenotype identical to that of the primary disease, however FDG PET-CT examination did not show any signs of active malignancy. Treatment with methylpredniosne and metothrexate was effective, and the patient has remained without signs of recurrence since 2015.

Conclusions: The presented case emphasizes the importance of proper differentiation between the subtypes of mantle cell lymphoma. Leukemic MCL can have an indolent course or be aggressive and symptomatic, as described in this case report. Our case highlights that accurate and watchful clinical management is the key for successful treatment.

Secondary refractory lymphoblastic leukemia in the patient with Li-Fraumeni syndrome

Julia Białowąs

Presenting author: Julia Białowąs

Tutors: Katarzyna Smalisz, MD, PhD

Affiliations: Medical Univeristy of Warsaw

Introduction: Li-Fraumeni syndrome is an autosomal dominant genetical disorder. The germline alterations in the TP53 gene are associated with the occurrence of neoplasms. The risk of developing cancer by the age of 20 is 30-40%.

Case report: 5-year-old boy, was admitted to the hospital due to fever, lymphadenopathy, and pancytopenia. Past medical history: The patient was diagnosed with the Choroid plexus carcinoma at the age of 4 months. The boy underwent chemotherapy and surgery. Because of the diagnosis he was referred for genetic testing. The result of NGS described a heterozygous c.469G>A mutation in the TP53 gene. He was found to have a genetically determined cancer predisposition syndrome (Li-Fraumeni syndrome). The patient's father was then diagnosed with Li-Fraumeni syndrome. After a year he developed prostate cancer and then WHO GIV brain glioblastoma multiforme. He died as a result of chemotherapy toxicities. On admission, the child was in general good condition. Physical examination showed: pale skin, small petechiae, enlarged lymph nodes supraclavicularly, hepatosplenomegaly. In laboratory tests: anaemia (HGB 10 g/dl), thrombocytopaenia (PLT 28000/mm3), neutropenia (NEUT 530/mm3), negative ATLS markers. The child's condition deteriorated quickly, with saturation falls, difficult swallowing. Under local anaesthesia, an urgent biopsy of the nodal mass and bone marrow was performed and T-cell lymphoblastic infiltration were detected. He presented features of superior vena cava syndrome: eye exophthalmos, significant swelling of the face and neck. Life-saving steroid therapy was recommended. CT of the head showed no CNS infiltration. Chemotherapy with AIEOP BFM 2017 was started. Because of the bad response, the patient was classified in the High risk group. Before the second block MRD (min. residual disease) showed features of molecular relapse, baseline myelogram normal. It was decided to modify the chemotherapy to 2nd and 3rd line. Venetoclax - a selective inhibitor of anti-apoptotic protein Bcl-2 - was included because of highly positive Bcl-2. The boy was qualified for hematopoietic stem cells transplantation.

Conclusions: Secondary malignancies are often resistant to treatment. This was also the case in the described patient. Trials of new drugs with low toxicity (kinase inhibitors, monoclonal antibodies) may increase patient survival. The bone marrow transplant offers hope for a cure of acute leukaemia. The patient cannot undergo radiotherapy due to his diagnosed Li-Fraumeni syndrome. It could significantly increase the chance developing another cancer. The boy will require three-stage very strict oncological monitoring.

A case study of primary hyperaldosteronism caused by adrenal adenoma - from diagnosis to treatment

Paweł Szajewski

Presenting author: Paweł Szajewski

Tutors: Agnieszka Żyłka MD, PhD

Affiliations: Student's Scientific Society "ThyroIdea" of Department of Oncological Endocrinology and Nuclear Medicine, Maria Sklodowska-Curie National Research Institute of Oncology

Department of Oncological Endocrinology and Nuclear Medicine, Maria Sklodowska-Curie National Research Institute of Oncology

Introduction: Primary hyperaldosteronism (PA) may cause high blood pressure in up to one in ten patients. This disease requires diagnostic and therapeutic measures other than essential hypertension. Most patients do not have any characteristic symptoms, hypokalaemia occurs in up to 1/3 of patients with this condition. One of the causes of PA may be an aldosterone-producing adrenal cortex adenoma.

Case report: The case of a 47-year-old patient with a history of pain in the lumbar spine area on the left side. For this reason, an ultrasound examination of the abdominal cavity was carried out in February 2021, during which a focal change in the lower pole area of the left kidney was observed and further diagnosis was indicated. In contrast computed tomography, a focal change of the left adrenal gland with a diameter of 9 mm with a density of 28 Hounsfield unit (HU) was observed, delayed in the arterial phase up to 140HU, portal vein 94HU, with a relative leaching rate of 52%, absolute – 74% – with radiological indication of the change over the Morphology of the pheochromocytoma. The patient has a history of regularly administered elevated blood pressure levels up to 180/100mmHg over a period of two years without seizures, excessive sweating predominantly at night, chronic pain and dizziness. He neglected fainting, visual field disorders, and problems with bowel movements. He reported weight loss of about 10kg in a year without elimination diets. Patient also suffers from hypertension, type 2 diabetes, dyslipidaemia, obesity, iliosacral and lumbar spine osteoarthritis, prostatic hyperplasia. The results of the hormone studies showed a normal circadian rate of cortisol release at 1mg dexamethasone with a cortisol level of 1. 18ug/dL. The results of plasma concentrations of the methoxycatecholamines in the normal range (normetanephrine 38. 69pg/ml, methanephrine 12. 92pg/ml, methoxytyramine undetectable). Laboratory results showed aldosterone 227pg/ml, renin 7. 1pg/ml, aldosterone/renin ratio 31. 97 and 2 hours after verticalization: aldosterone 643pg/ml and renin 18. 5pg/ml, aldosterone/renin value 34. 76. A saline infusion test was performed. Before salt infusion results were obtained: aldosterone level 255pg/ml, renin level 1. 2pg/ml, aldosterone/renin ratio 212. 5 and after infusion: aldosterone level 149pg/ml, renin level 1. 0pg/ml, aldosterone/renin value 149. Norcholesterol scintigraphy was planned to confirm the lateralization of tracer uptake in the adrenal lesion, which showed that the lesion in the left adrenal gland is consistent with a mineralocorticoid secreting adenoma. In 2021 a left-sided adrenalectomy was performed with retroperitoneal video access.

Conclusions: At first glance, we suspected that high blood pressure was due to obesity and the patient's unhealthy lifestyle. However, this case shows us that in patients with many non-specific symptoms, a multidirectional diagnosis can lead to a correct diagnosis.

A case study of 78-year old patient with lung adenocarcinoma metastasizing to thyroid gland

Paulina Kalman

Presenting author: Paulina Kalman

Tutors: Agnieszka Żyłka MD, PhD

Affiliations: Student's Scientific Society "ThyroIdea" of Department of Oncological Endocrinology and Nuclear Medicine, Maria Sklodowska-Curie National Research Institute of Oncology, Warsaw, Poland

Department of Oncological Endocrinology and Nuclear Medicine, Maria Sklodowska-Curie National Research Institute of Oncology

Introduction: Thyroid cancer is not a common disease, it occurs in about 4% of malignancies in women and 0. 5% in men. Primary tumours are the most common. Metastasis to the thyroid gland are unusual with a reported frequency of up to 2.1% among all thyroid malignancies.

Case report: The case of a 78-year-old patient who had a nodular lesion in her right lung, revealed in a control radiography study in 2010. The computed tomography (CT) study showed a mass in the 1⁄2 upper segment of the right lung without enlarged regional lymph nodes and two nodules in the left adrenal gland, confirmed in dynamic CT test as metastases. On the basis of a histopathological examination an adenocarcinoma of the lung was diagnosed. The patient received three cycles of chemotherapy with Cisplatin 110 mg + Vepesid 500 mg which was discontinued due to pancytopenia and lack of regression. An upper right-sided bilobectomy was conducted and three months later left-sided adrenalectomy with splenectomy, removal of the tail of the pancreas. The primary diagnosis of lung adenocarcinoma ypT2aN1M1L1V1R0 was confirmed. In 2013, a focal change in the head of the pancreas was detected during follow-up. Positron emission tomography (PET-CT) showed increased fluorodeoxyglucose metabolism (FDG) in the area of the pancreas head. The patient was approved for Whipple surgery. Examination of the postoperative material revealed the lesion to be a metastasis of lung adenocarcinoma. During a follow-up examination in September 2021 the patient reported a change in the anterior neck area. An ultrasound was performed which showed an enlargement of both thyroid lobes and hypoechogenic solid lesions with the largest diameter of 22x25x31mm in the left lobe and 26x18x32mm in the right lobe. A fine-needle aspiration biopsy (FNAB) showed metastasis of lung cancer in the left thyroid lobe. The patient was classified for left-sided thyroidectomy. Histopathological examination of the postoperative material confirmed the metastases of lung adenocarcinoma Napsin A[+], TTF-1[+], CK19[+], Thyroid globulin (TGB) [+]. The resection margin showed the tumor tissue and the patient was qualified for further diagnosis and a total thyroidectomy.

Conclusions: This case reminds us that metastatic changes in the thyroid gland may occur several years after the initial diagnosis. In a patient with a known history of malignancies, the finding of a new thyroid mass should be promptly evaluated with a thyroid FNAB to search for metastatic disease.

Differential diagnosis of Myeloid Leukemia Cutis and Blastic Plasmacytoid Dendritic Cell Neoplasm using flow cytometry immunophenotyping.

Jadwiga Filipek-Gorzała

Presenting author: Jadwiga Filipek-Gorzała

Tutors: Karolina Bukowska-Strakova, PhD

Affiliations: Department of Clinical Immunology, Jagiellonian University Medical College, Cracow,

Introduction: Leukemia Cutis (LC) and Blastic Plasmacytoid Dendritic Cell Neoplasm (BPDCN) are distinct entities requiring different therapies, but might have indistinguishable cutaneous manifestations. Here, we report 2 cases of pediatric patients with LC, showing peculiarities of flow cytometry (FC) immunphenotypic diagnostics.

Case report: FC immunophenotyping of bone marrow (BM) cells of 2-year-old boy with skin lesions revealed the presence of 13% pathological monocytic cells (SSC medium, CD45bright, CD11cbright, CD64hyperexpr, CD14p.pos1 and CD4bright, CD56bright, CD123med), with bright expression of some myeloid markers (CD13, CD33, CD15), but negative for myeloperoxidase (MPO). Positive NG2 expression indicated possibility of KMT2A rearrangement and necessity of its confirmation by molecular methods. Simultaneously skin biopsy specimens were also analyzed using FC and it revealed that pathological cells consisted 50,8% of skin samples. As in peripheral blood pathological cells comprised only 0,053%, the hemodilution of skin sample was excluded and diagnosis of LC was suggested. Finally, histopathological analysis and confirmation of KMT2A rearrangement in the skin sample confirmed LC diagnosis. In the another patient with skin manifestation BM analysis revealed the presence of 60% pathological cells of monocytic lineage (SSC medium, CD45med, CD11cheterogenous, CD64bright, CD14neg and CD4med, CD56bright, CD123med), with strong expression of some myeloid markers (CD13, CD33, CD15), but negative for myeloperoxidase (MPO) and NG2. FC analysis of skin samples revealed 90% of pathological monocytoid cells. Although CD4, CD56 and CD123 expression is characteristic for BDPCN, it still does not exclude LC. It is said that BPDCN can be considered if there is no expression of myeloid or monocytic markers. Especially CD11c expression is said to rule out BDPCN. In the other hand, many cases of myeloid LC that manifest in the skin do not express MPO, which is also frequent feature of acute monoblastic and monocytic leukemia.

Conclusions: Although differential diagnosis of MPO-negative LC and BPDCN can be particularly challenging, FC with broad range of antibodies can be very helpful and work as quick and specific test, directing the correct diagnosis.

CASE STUDIES: PEDIATRICS

14th of May 2022

Coordinators:

Aleksandra Siedlecka

Agnieszka Murgrabia

Julia Barczuk

Jury:

Justyna Roszkiewicz, MD, PhD

Can scalp pediculosis have severe complications?

Zofia Jakubczak, Joanna Wojtania

Presenting author: Zofia Jakubczak

Tutors: Prof. Aleksandra Lesiak, MD, PhD, Małgorzata Skibińsk,a MD, PhD

Affiliations: Medical University of Łódź

Introduction: Pediculosis is a condition caused by lice infestation transmitted by direct contact with an infested person, especially among schoolchildren. It is mostly asymptomatic, but it can also lead to secondary bacterial infection and contact dermatitis which is caused by louse saliva, itching and scratching. Moreover substances used in medications can cause allergic reactions around bites and on the other part of the body, which worsen a patient's condition. They manifest by erythematous - exudative lesions, erosions, crusts and itch.

Case report: A ten years old female was admitted to the hospital because of scalp pediculosis and erythematous papules on an upper trunk and face and erythematous papules with erosions on the rest of the body.The onset of symptoms was observed 2 weeks earlier. The patient received treatment at home and used tincture containing Delphinium consolida. After seven days, she developed allergic lesions on her face and upper trunk. On the physical examination, she was in a good general condition. The scalp was covered in erythematous - exfoliating lesions and erythematous - exudative lesions with erosions and crusts. The patient’s hair was covered by discharge with a lot of nymphs and some adult lice. Because of severe lesions and a large number of lice, the treatment with oral corticosteroids, antihistamines and topical medications was started. Due to the concern of her mental condition in regard to haircutting and social isolation, the patient required a psychological consultation. After treatment the patient’s clinical condition improved and she was discharged from the hospital. She was recommended to get psychological treatment.

Conclusions: Pediculosis is an infestation which can have a mild and short course. However, when it is not thoroughly treated, it can lead to serious complications, such as dermatitis, allergies and unfortunately psychological problems. Doctors should be aware of the need to provide special care to the children infested with head lice. Such severe and longstanding pediculosis may suggest child’s neglect. That is why medical personnel should conduct the interview thoroughly with a patient, their family and check if the child gets proper care at home.

Treatment strategy of neonatal extralobar bronchopulmonary sequestration. A case report

Sofija Jackevičiūtė

Presenting author: Sofija Jackevičiūtė

Tutors: Jelena Volochovič, MD, PhD

Affiliations: Vilniaus Universitetas, medicinos fakultetas;

Vilniaus Universiteto ligoninė Santaros Klinikos, Akušerijos ir Ginekologijos centras

Introduction: Extralobar pulmonary sequestration is an uncommon congenital lung lesion, very rarely causing severe symptoms prenatally or requiring prompt surgical actions taken. The purpose of this report is to present a unique symptomatic case of extralobar lung sequestration which led to an Ex Utero Intrapartum treatment procedure being performed for the first time in Lithuania and followed with successful further treatment of pulmonary pathology.

Case report: A 22-year-old caucasian nullipara at 29+4 weeks of gestation was presented to our clinic with results of an abnormal fetal ultrasound showing left fetal hydrothorax and left side supradiaphragmatic derivative which was suspected to be sequestration of the lung. The diagnosis was confirmed with MRI. During week 31+5 of gestation, an ultrasound exam showed the worsening condition of fetal bilateral hydrothorax and polyhydramnios. Following this alarming change, the lung maturation process was started and the pregnancy was no longer continued. Ex Utero Intrapartum treatment strategy was chosen. While the umbilical cord was still attached, the newborn, recently removed from the womb alarmingly did not exhibit any activity and was seen to be hypotonic and without elicited reflexes. Therefore, immediately the intubation, resuscitation of the newborn, and the drainage of the left pleural cavity took place at the same time. Then the umbilical cord was clamped. After successful resusitation and pleural cavity drainage the newborn was taken to the neonatal intensive care unit, where he was closely monitored onwards. After almost two weeks, our patient was stable enough to be transferred to a neonate unit for further care and further lung lesion treatment strategy planning. When our pediatric patient was almost 6 months old, lung sequestration was resected surgically, as of now, the patient is healthy and is discharged from the hospital.

Conclusions: The more severe case of pulmonary sequestration the more life-threatening the symptoms become, requiring increasingly more complicated clinical tactics of choice. Very rarely this uncommon pathology calls for prenatal or perinatal treatment as a substantial part of fetal lung sequestrations are asymptomatic or are seen to resolve. Nonetheless, when presented with a case of fetal lung sequestration that must be treated there still is a variety of treatment options to choose from.

When the vaccine is not enough - occurrence of the multisystem inflammatory syndrome after full COVID-19 vaccination

Anna Rekowska, Katarzyna Urbańska, Agnieszka Kwiatkowska

Presenting author: Anna Rekowska

Tutors: Agnieszka Korobowicz-Markiewicz, MD, PhD

Affiliations: Pediatric Pneumonology and Rheumatology Students' Scientific Society, Medical University of Lublin;

Department of Pediatric Pneumonology and Rheumatology Medical University of Lublin

Introduction: In response to the Coronavirus Disease 2019 (COVID - 19) pandemic, great hopes were placed on the development of a successful vaccine. Unfortunately, the initial beliefs of discovering a perfect weapon against the infection failed, and COVID-19 is still a challenging enemy with the potential of causing complications, such as multi inflammatory syndrome in children (MIS-C) - a new phenomenon associated with COVID-19. MIS-C is a post-infectious disease with an onset between 2–4 weeks after the infection occurred in children aged between 6 months and 17 years. It is estimated that the incidence of PIMS is 1/3000 of children infected with the coronavirus. At the origin of MIS-C is immune dysregulation, leading to increased inflammation affecting multiple systems, such as respiratory, cardiovascular, and gastrointestinal systems. MIS-C is also usually manifested by common pediatric symptoms, such as fever, rash, or headache.

Case report: A 16-year old boy, who was reporting fever, headache, back pain, abdominal pain, nausea, and vomiting, was administered to the hospital due to suspicion of appendicitis. In the following days, additional maculopapular rash, strawberry tongue, ecchymosis, and increasing inflammation parameters were observed. Extended diagnostic process, including diagnostic imaging, revealed abdominal fluid, pleural effusion, areas of atelectasis, consolidations, and enlarged periaortic lymph nodes The patient was tested negative for COVID-19, and 2 months before administration received the second COVID-19 vaccination. 4 weeks prior he had contact with an infected person. The comprehensive clinical picture, dynamics, and severity of manifestations verified initial diagnosis, fulfilled the criteria, and confirmed the occurrence of MIS-C. Therefore the boy started treatment with IVIG, and the clinical status and laboratory parameters gradually improved.

Conclusions: A 16-year old boy, who was reporting fever, headache, back pain, abdominal pain, nausea, and vomiting, was administered to the hospital due to suspicion of appendicitis. In the following days, additional maculopapular rash, strawberry tongue, ecchymosis, and increasing inflammation parameters were observed. Extended diagnostic process, including diagnostic imaging, revealed abdominal fluid, pleural effusion, areas of atelectasis, consolidations, and enlarged periaortic lymph nodes The patient was tested negative for COVID-19, and 2 months before administration received the second COVID-19 vaccination. 4 weeks prior he had contact with an infected person. The comprehensive clinical picture, dynamics, and severity of manifestations verified initial diagnosis, fulfilled the criteria, and confirmed the occurrence of MIS-C. Therefore the boy started treatment with IVIG, and the clinical status and laboratory parameters gradually improved.

Haemorrhagic fever with renal syndrome in a 15-year-old girl - a case report.

Benedykt Baljon, Justyna Bogdan

Presenting author: Benedykt Baljon

Tutors: Katarzyna Wiącek

Affiliations: University of Rzeszów

Introduction: Haemorrhagic fever with renal syndrome (HFRS) is a rare zoonotic disease caused by hantavirus infection and is clinically characterized by fever, coagulation abnormalities and renal dysfunction. In Poland hantavirus infections are mainly caused by the Puumala and Dobrava serotypes. Most cases are reported in adult population, and the disease has been thought to be rare in children. We report a case of HFRS in a 15-year-old girl.

Case report: A 15-year-old girl was transferred from a local hospital to our department with a history of fever, diarrhea, vomiting, visual disturbances, severe abdominal and back pain, with clinical and laboratory signs of acute kidney injury. Blood analysis revealed also high inflammatory markers, thrombocytopenia, elevated transaminases and ferritin, and decreased level of serum complement C3. Urine tests showed microscopic hematuria and proteinuria. Because of the exposure to rodents HFRS was taken into consideration in the differential diagnosis. The diagnosis of hantavirus infection was confirmed by serological tests. Supportive treatment was implemented and the patient made full recovery.

Conclusions: Hantavirus infections should be considered as one of possible causes of acute kidney injury in children, especially in the setting of fever and thrombocytopenia.

Pediatric inflammatory multisystem syndrome (PIMS) with severe myocardial dysfunction – case report

Julita Tokarek, Emilian Budny

Presenting author: Julita Tokarek

Tutors: Renata Szmigielska MD PhD

Affiliations: Medical University of Łódź

Introduction: Pediatric inflammatory multisystem syndrome (PIMS) associated with severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) is a relatively new disease that develops in a small percentage of children after COVID-19. Main symptoms of PIMS include high fever, gastrointestinal upset, neurological disturbances, myocarditis and it might even lead to a multiorgan dysfunction.

Case report: A 12-year-old boy was admitted to the hospital with fever, sore throat, dizziness accompanied by headache and vomiting for 3 days. 5 days prior to admission he ended quarantine because of a contact with a patient with COVID-19. Laboratory tests revealed highly increased inflammatory markers, significantly elevated levels of anti-SARS-Cov-2 antibodies, increased NT-proBNP and creatinine. The diagnosis of pediatric inflammatory multisystem syndrome (PIMS) was stated. Due to the exaggeration of respiratory and circulatory failure, the patient was admitted to the Intensive Care Unit (ICU). The high flow AirVO2 oxygen therapy was introduced, however on the next day, he presented increasing respiratory effort and dyspnea with symptoms of pulmonary edema and was intubated. The circulatory failure was treated with the infusion of norepinephrine. The echocardiography on the day of admission presented normal anatomy and function of myocardium, but 2 days later the hypokinesis was present and the left ventricle ejection fraction (LVEF) lowered to 35%. Due to this deterioration, this case was consulted with the Cardiosurgery Department for the potential use of ECMO. The infusion of dobutamine, levosimendan and immunoglobulins was introduced among other treatment. The boy's condition improved gradually (LVEF reached 57%) and he was extubated after 9 days. However, on the 13th day of hospitalization, the symptoms of circulatory failure occurred again (tachycardia, abnormalities in ECG, hypokinesis and LVEF of 44%). The cardiologists suspected the diagnosis of takotsubo cardiomyopathy. Due to the severe condition of the patient and aggravation of symptoms, levosimendan and immunoglobulins were introduced again and the patient received the immunosuppressive biological therapy (anakinra). During next days, a gradual improvement in patient’s condition was noticed (better contractility of the myocardium, increase of LVEF up to 68%). After 33 days of hospitalization, the patient was discharged from ICU, presenting full cardiovascular and respiratory efficiency and was referred for further treatment and rehabilitation to the Cardiology Department.

Conclusions: Pediatric inflammatory multisystem syndrome might cause a multiorgan failure with severe myocardial dysfunction. Despite advanced myocardial hypokinesis and significant reduction of LVEF, proper treatment with the use of pressors, steroids, immunoglobulins and in some cases, immunosuppressive biological therapy might result in a satisfactory regression of changes and generally favorable outcome of the treatment.

PRIMARY METOPIC SYNOSTOSIS (TRIGONOCEPHALY) - MANAGEMENT AND SURGICAL TREATEMENT: A CASE REPORT

Kelija Leimane

Presenting author: Kelija Leimane

Tutors: Gunta Ticmane, MD

Affiliations: Rīga Stradiņš University, Faculty of Residency, Latvia; Gunta Tīcmane general practitioner practice, Ogre reg., Latvia;

Rīga Stradiņš University, Department of Family Medicine, Latvia; Gunta Tīcmane general practitioner practice, Ogre reg., Latvia

Introduction: Primary metopic craniosynostosis (trigonocephaly) is a rare (ORPHA:3366; 1:15 000) non-syndromic congenital disorder caused by premature fusion and ossification of the metopic suture. Trigonocephaly should be suspected when a patient presents with deformation of the anterior portion of the calvarium and a triangular-shaped forehead and is diagnosed using ultrasound examination and 3D CT scans or MRI of the skull. The underlying cause of primary (isolated) craniosynostosis remains unknown although recent advances have shown genetic background. Untreated can lead to decreased intracranial volume and neurodevelopmental delay. A surgical treatment is indicated to restore the volume of the skull. The aim was to present the case of a patient with trigonocephaly – path to diagnose and disease management.

Case report: A boy was born on November 9, 2020 from 1st pregnancy, 1st labour at 39 weeks of gestation with caesarean section due to breech position. His birth weight was 4.180 kg (90th percentile; +1,26 SD), height – 57 cm (>99th percentile; +2,61 SD), head size – 34 cm (20th percentile; -0,83 SD), chest size – 36 cm. Apgar score 8/9. During pregnancy mother had gestational diabetes. In the first patronage the boy presented with triangular forehead, hypotelorism, short nose, wide nasal root, both hand 5th finger clinodactyly. The patient was consulted by neurologist, neurosurgeon, geneticist, ophthalmologist. 3D CT scan was obtained, demonstrating metopic suture synostosis, hypotelorism. Chromosomal microarray analysis did not reveal any pathogenic deletions or duplications in a male profile. Sequence and Del/Dup (CNV) analysis using the Blueprint Genetics (BpG) Craniosynostosis Panel did not detect any known disease-causing or rare variants that could explain the patient's phenotype. At 6 months of age, the Occipital Frontal Circumference (OFC) was 43 cm (50th percentile). The patient underwent surgery at the age of 11 months – bifrontal craniotomy, resection of the metopic suture and frontal bone reconstruction. The surgery was successful and the patient was discharged from the hospital on the 5th postoperative day. Boy is now 1 year 4 months old and up until now no psychomotor delay have been detected.

Conclusions: Whenever synostosis is suspected, an in-depth multidisciplinary investigation is crucial to rule out syndromic disorder and identify the cause – the management requires a coordinated effort led by general practitioner/paediatrician. This patient serves as evidence that this rare disease requires further research to determine its possible causes and best treatment options.

When common infection becomes a life-threatening condition - A Case Study representing spectrum of possible RSV infection sequelae in an infant.

Paula Grzelak

Presenting author: Paula Grzelak

Tutors: Renata Szmigielska, MD, PhD

Affiliations: Medical University of Łódź

Introduction: Respiratory syncytial virus is the most common etiological factor of respiratory tract infections in infancy and vast majority of children is affected by the age of 2 years. Most often, symptoms of the disease are mild and its course is self-limited. Nevertheless, some patients, especially when certain risk factors are present, develop complications that require hospitalisation and intensive treatment.

Case report: A 3-month-old baby boy, born prematurely at 30 weeks gestation was transferred from a district hospital to the ICU of M. Konopnicka Pediatric Center on account of respiratory distress in the course of RSV infection, confirmed earlier the same day. According to parents, symptoms of the disease in the form of dyspnea, caugh and fever (≤38.5°C) started few hours before. They checked into hospital, where cyanosis, tachypnoe and hypotonia were observed. In the chest x-ray many inflammatory realated changes in both of the lungs were described. On admission, patient's general condition was severe. Multiple bilateral auscultatory changes were present. The noninvasive ventilation via RAM cannula was continued. The ABG revealed CO2 accumulation. Wide spectrum antibiotic and antifungal therapy was administered. During six weeks treatment at the ICU, patient required mechanical ventilation with high regulatable parameters and FiO2 up to 1,0; the use of muscle relaxants; sedation; infusions of inotropes and vasopressors. He experienced cardiac arrest; pneumothorax of the right lung, which demanded application of pleural drainage and atelectasis of the left lung. Eventually, patient in a stable condition was transferred to pediatric department in order to receive further treatment.

Conclusions: The case emphasizes how an infectious factor which is very widespread in pediatric population can become a cause of multiple severe sequelae when affected patient presents risk factors predisposing him to serious course of the disease.

Congenital Capillary Proliferation of the Kidney: a case report of rear vascular pathology

Michał Golberg

Presenting author: Michał Golberg

Tutors: Izabela Neska-Długosz, MD, Ewa Demidowicz, MD, PhD, Przemysław Gałązka, MD, PhD, Prof. Mariusz Wysocki, MD, PhD, Prof, Józef Kobos, MD, PhD

Affiliations: Department of Pathology, Medical University of Lodz, Poland;

Department of Clinical Pathomorphology, Collegium Medicum in Bydgoszcz, Nicolaus Copernicus University in Torun, Poland;

Department of Paediatric Haematology and Oncology, Faculty of Medicine, Collegium Medicum in Bydgoszcz, Nicolaus Copernicus University in Torun, Poland.

Introduction: Congenital Capillary Proliferation of the Kidney is rear, benign, vascular lesion described previously in 5 other case reports. We are presenting 6th case of this developmental age pathology.

Case report: Male infant, at 7th week of life was admitted to the hospital with a suspicion of food allergy. Medical history of the infant revealed that 3 weeks old boy presented anxiety, crying, bloated abdomen predominantly during evenings and at night. No frequent regurgitations or vomiting. Bowel movement within normal limits. Initial treatment provided clinical improvement until 2-3 week, when benefits were not anymore observed. Clinical urine tests without abnormalities but on microbiological urine examination, bacteriuria with a characteristic of Escherichia coli in number of 10^5 CFU/ml was revealed. Because of urinary tract infection (UTI) imaging was done. During ultrasound of abdominal cavity solid lesion of the right kidney was described. On magnetic resonance imaging (MRI) features indicating congenital mesoblastic nephroma accompanied by pyelonephritis were reported. Based on the patients age and typical radiological image, boy underwent right-side nephrectomy. Histologically, lesion was described as vascular anomaly, structured from small, proliferating capillaries. Lesion was infiltrating health kidney's tissue. Lymphocyte infiltration and signs of extramodular hematopoiesis were present. Numerous tortuous vessels, annotated as possible draining and feed vessels were present. Immunohistochemical examination showed positive stains for CD31, CD34, SMA and negative stains for Glut-1, WT-1 and D2-40. Morphological picture and immunohistochemical profile met diagnostic criteria of rear kidney vascular anomaly called Congenital Capillary Proliferation of the Kidney (CCPK). Infant remained under the observation without oncological treatment. After 5 months MRI showed right-side post-nephrectomy status without pathologies or relapse.

Conclusions: All lesions described in the literature, including this case, presented series of mutual epidemiological, radiological, pathological criteria. Histological features and immunophenotype of this lesion brought us step closer to recognition its biology. CCPK possible shares common pathobiology to solitary congenital hepatic hemangioma (SCHH), which is indicated by common features like: capillary vascular structures infiltrating native parenchyma; extramedullary hematopoiesis; presence of feeding and draining vessels; lack of Glut-1 expression. Other CCPK's entity which is lacking of WT-1 expression tested in 2 cases, suggesters malformation characteristic of this lesion. Overall, for relevant classification of CCPK, furthers studies on larger number of cases need to be performed. In summary, we have presented rear vascular anomaly of the kidney, with unknown origin but benign clinical

behavior. We found it important to report this case for better understanding pathology of CCPK and possible adjustment in treatment of future cases.

Severe course of acne conglobata in a 15-year-old patient

Iryna Predko, Emilia Knez

Presenting author: Iryna Predko

Tutors: Prof. Aleksandra Lesiak, MD, PhD, Małgorzata Skibińska, MD, PhD

Affiliations: Departament of Dermatology, Paediatric Dermatology and Oncology, Medical University of Łódź

Introduction: Acne conglobata (AC) is a severe form of acne vulgaris, more common in young men. This disorder is characterized by deep burrowing abscesses that interconnect with each other and contain purulent, foul-smelling material. Skin disfigurement is common with this type of acne. The lesions are usually located on the face, chest, shoulders and back. Treatment options include oral isotretinoin in monotherapy or in combination with topical treatment.

Case report: A 15-year old male was admitted to the dermatology department due to the presence of extensive purulent skin lesions. The patient has been diagnosed with acne conglobata about 3-4 years prior to hospitalization. In the past, he had used topical medications and systemic antibiotics without improvement. On dermatological examination numerous hypertrophic acne scars, pustules, draining cysts and abscesses on face, shoulders and upper part of back were present. Laboratory tests showed increased inflammatory parameters (CRP 7,5 mg/l). Based on the clinical picture and the patient's history, it was decided to start treatment with isotretinoin (20 mg/d), prednisone (due to severe inflammatory lesions) initially with a dose of 30 mg, gradually descending to 10 mg per day and topical erythromycin for one month. During the stay psychological consultation was performed and he was given specialist support regarding his mental condition. The patient showed good tolerance of isotretinoin and was discharged from hospital with relevant recommendations. After a month the patient was re-hospitalized for follow-up examinations and improvement and reduction of skin lesions have been noticed. From that point the only treatment was isotretinoin 20 mg/d.

Conclusions: Extensive skin lesions may have a negative impact on the quality of life and mental condition in patients and therefore quick initiation of treatment is essential. This case shows the importance of correct medications selection in severe forms of acne and isotretinoin gives good clinical results. During therapy, it’s necessary to monitor laboratory parameters (e.g. lipids, full blood count) and intensely moisturize the skin due to side effects of the medication. Patients also must be educated about using photoprotection during treatment.

Netherton syndrome, severe atopic dermatitis or ichthyosis? - a unique case of a 5-years-old girl

Karolina Tracz, Kinga Szopińska

Presenting author: Karolina Tracz

Tutors: Małgorzata Rusek, MD, PhD

Affiliations: Department of Pediatrics, Faculty of Medical Sciences in Zabrze, Medical University of Silesia in Katowice

Introduction: Netherton syndrome (NS) is a rare but severe autosomal recessive form of ichthyosis, characterized by a triad consisting of ichthyosis linearis circumflexa, trichorrhexis invaginata and atopic diathesis. To confirm the diagnosis, it is necessary to identify the pathogenic variant in the SPINK5 gene through genetic tests.

Case report: We describe a 5-year-old girl born at 36 weeks of pregnancy with massive exfoliating bullous eruptions and oedema of the subcutaneous tissue, with a bodyweight of 3130g, Apgar score: 10. She spent 2 weeks in hospital due to biochemical features of infection and neonatal jaundice. On the day of discharge, the girl weighed 2800g. After merely two weeks she was hospitalised due to sepsis caused by Staphylococcus aureus and meningitis caused by Staphylococcus heamolitycus. During this hospitalization erythrodermia ichthyosiformis congenita sicca was suspected. Her skin was colonised with many bacteria such as Klebsiella pneumoniae or Enterococcus faecalis. Moreover, she did not gain weight, so malabsorption syndrome was also examined. During the first year, she was treated several times due to chronic diarrhoea. In the meantime, a severe food allergy to cow's milk protein, potatoes and egg white was discovered. Aged less than one year, she was diagnosed with non-compaction cardiomyopathy. It is said to be irrelevant to the diagnosis of ichthyosis. The girl has chronic thrombocythemia and anaemia, probably due to chronic skin inflammation. She was consulted by a haematologist, but no serious disorders were found. At age of four, she had a tooth extraction. A few days later, her health state exacerbated, she was dehydrated and she had lack of appetite. She was admitted to the hospital, where hematosepsis caused by Staphyloccocus heamolitycus was identified. In addition, she had massive erythema of the skin and pruritus. For years, she has been under the control of the allergology clinic and she has had regular check-ups. Furthermore, delayed psychomotor development is observed, currently her intellectual growth is at the level of a 3-year-old child. Now she is waiting for a consultation with a cardiologist to treat her heart defect surgically. Her clinical features fit Netherton syndrome, but there is no clear evidence in genetic tests to confirm the diagnosis. It might suggest that our patient has an exceptional disease, typical only of her.

Conclusions: This case shows us how complex way to diagnose a patient can be and that sometimes there is no evidence in laboratory tests, while a clinical picture of the patient fits all the symptoms of the disease. The case of this patient calls attention to cooperation with different specialists when searching for a diagnosis. We need to remember that such a patient requires an individualised and holistic approach to improve his living conditions and prevent him from opportunistic infections.

”Deja vu” - how awareness of Lyell syndrome improved its management. Cases comparison.

Maciej Kucharski, Laura Stachura

Presenting author: Maciej Kucharski

Tutors: Renata Szmigielska, MD, PhD

Affiliations: Medical University of Łódź

Introduction: Toxic epidermal necrolysis (TEN), also called Lyell syndrome is a severe adverse reaction to certain drugs or infection causing a life-threatening eruption of skin and mucosal blisters and epithelial sloughing, covering >30% of Body Surface Area. Due to its rare occurrence, there is little data determining the optimal way of managing Lyell’s disease. Management of the disease may require analgosedation due to its painful course. Because of complications of mechanical breathing and analgosedation, in both the pediatric and adult population, it should be applied as shortly as possible.

Case report: Case 1:

6 y.o. female in severe condition presenting painful, red skin lesions evolving into exfoliating blisters on 95% of BSA, was diagnosed with Lyell syndrome and admitted to pediatric ICU. Patient had been taking Lamotrigine for seven days prior to onset. SCORTEN = 1. Patient was secured with CVSPC, PVC and dressing was changed on the surgical ward under general anesthesia with intubation. Analgosedation and intubation time was extended after the procedure. SIMV was applied. Patient has been treated according to UK guidelines for the management of TEN. Early 3-day therapy of IVIG 1g/kg was administered, repeated on the 9th day for 18 days. Patient received an ophthalmology consult due to corneal involvement. Patient was stable and treatment was maintained till the wounds were healed. Patient was extubated after 31 days. Total time spent in the ICU was 31 days.

Case 2:

12 y.o. female in severe condition presenting fever 38,8*C, painful, red skin lesions evolving into exfoliating blisters on 95% of BSA for 6 days, low BP on admission, was diagnosed with Lyell syndrome and admitted to pediatric ICU. Patient had been taking Lamotrigine for 3 weeks prior to onset. SCORTEN = 1. Patient was secured with CVSPC, PVC and dressing was changed on the surgical ward under general anesthesia with intubation. Analgosedation and intubation time was extended after the procedure. SIMV was applied. Patient has been treated according to UK guidelines for the management of TEN. Early 3-day therapy of IVIG 1g/kg was administered. Patient was stable and treatment was maintained till the wounds were healed. Patient was extubated after 13 days. Total time spent in the ICU was 15 days.

Conclusions: Prior experience with Lyell syndrome led clinicians to earlier diagnosis, earlier intubation and treatment. Rapid diagnosis and treatment may have been the cause of shorter time of intubation (31 vs. 13 days) and shorter stay in the ICU (31 vs. 15 days). Other significant differences between patients were; age (6 vs. 12), underlying conditions, in the former patient sodium valproate administration, corneal involvement & immunodeficiency. It is difficult to estimate which features had an impact on the length of intubation and ICU stay, therefore establishing which parameters would help estimate that time should be investigated.

The riddle of Hemihyperplasia- a case report

Benedykt Baljon, Justyna Bogdan

Presenting author: Benedykt Baljon

Tutors: Antoni Pyrkosz MD, PhD

Affiliations: University of Rzeszów

Introduction: Hemihyperplasia is a rare heterogeneous genetic disorder which manifests itself by the asymmetry of the body. This disorder is often associated with syndromes such as Beckwith-Wiedemann, Silver-Russell, Proteus, Klippel-Trenauny and type 1 neurofibromatosis. Isolated hemihyperplasia is rare.

Case report: The case report focuses on the medical history of a 5-year-old female patient with an hemihypertrophy of the right half of the body which was found from birth. The patient also had an enlarged tongue, a sloping left corner of the mouth, reduced muscle tone as well as less developed muscle parts in the left limbs, she was hospitalized several times. During the first hospitalization, electrolyte disturbances, decreased cortisol level with an increased value of 17-hydroxyprogesterone were found, which indicated congenital adrenal hyperplasia. The most prominent parameter is the girl's body size with a weight, length and BMI above the 97th percentile in the early stages of life. Over time, the values returned to normal: 67 percentile for height and 61 percentile for body weight at 5 years and 4 months of age. Cytogenetic analysis was performed, confirming the correct female karyotype. Suspecting the presence of the Beckwith-Wiedemann syndrome, a screening of the critical region 11p15 was performed and the result was a correct structure of this part of the chromosome. In order to base the diagnosis, the molecular karyotype was also assessed using the genomic matrix hybridization technique with a resolution of more than 28-100 kb, showing no unbalanced chromosomal micro-rearrangements.

Conclusions: Visible changes in the form of hemihypertrophy are characteristic in the course of several disease syndromes. The obstacle in establishing a clear diagnosis is the possibility of incomplete expression of the characteristics of a given syndrome, as well as the isolated occurrence of hemihyperplasia. In order to confirm the diagnosis, a structural assessment of the genes of the critical region is recommended, or an assessment using the WES/WES TRIO test. The examination of the entire exogenous sequencing the WES TRIO test will also allow the assessment of the genetic burden of the future offspring of this pair.

Life-threatening complications of a central venous catheter in a haemophilic patient with inhibitor

Joanna Strzemecka, Natalia Tomaszewska

Presenting author: Joanna Strzemecka

Tutors: Tomasz Ociepa, MD, PhD, Aleksandra Królak, MD

Affiliations: Pomorski Uniwersytet Medyczny

Introduction: Haemophilia A is a genetic disorder caused by factor VIII deficiency, leading to an increased risk of bleeding. The prophylaxis is a compensatory supply of FVIII. In order to provide a systematic and exact amount of coagulation concentrate in pediatric patients, it may be necessary to implant a central venous catheter (port-a-cath). Complications associated with catheter implantation include: venous thrombosis, infections and bleeding after surgical intervention.

Case report: A 9-month-old child was diagnosed with severe factor VIII deficiency and has been under prophylactic FVIII replacement therapy subsequently. After 3 months of regular administration of the clotting factor, he developed inhibitory antibodies, resulting in inefficient treatment. In order to eradicate the inhibitor, immune tolerance induction (ITI) therapy was implemented. ITI involved the repeated administration of FVIII. Given the amount of injections required for an effective eradication of inhibitor, a port-a-cath was implanted. Severe bleeding occurred following the procedure. It led to 3 weeks of hospitalization. Within 6 months he developed S. aureus MSSA catheter-related infection. The catheter was removed and a new one was implanted. Approximately 10 months later the inhibitor was successfully eradicated.

At 3 years of age he presented to the Clinic with fever, weight loss, abdominal pain, cough and fatigue. On physical examination the patient was febrile, cachectic, with tachycardia, loud heart tones, systolic murmur and hepatosplenomegaly. There were bruising and skin tear at the site of the port. Laboratory findings showed anemia, thrombocytopenia and hyperleukocytosis in addition to elevated inflammatory parameters. To eliminate the possibility of acute leukemia, bone marrow aspiration was performed and showed the absence of blast cells, but was suggestive of a generalized infection. Blood cultures grew S. aureus MSSA. Despite antibiotic therapy and removal of the infected catheter, the patient's condition was still deteriorating. Echocardiography revealed hyperechoic mass on the tricuspid valve, which indicated endocarditis. The right ventricle failure accompanied by a catheter-related sepsis resulted in cardiogenic shock. The patient was transferred to the Clinic in Warsaw, where the vegetation from the tricuspid valve was surgically removed. After two months of hospitalization on Intensive therapy unit, he had a biological valve Epic 25 inserted. The patient's general condition improved.

Currently, he receives intravenous injections of FVIII and is waiting for the decision regarding emicizumab therapy which can be injected subcutaneously.

Conclusions: Nowadays, there are various strategies to manage haemophilia. In some cases, it is necessary to implant a port-a-cath. Interdisciplinary approach is the key to successful treatment of the disorder and complications that may arise.

Ectopia cordis with fetal echocardiographic monitoring and postnatal /infant's follow-up , case report

Kinga Racisz

Presenting author: Kinga Racisz

Tutors: Prof. Maria Respondek-Liberska, MD, PhD

Affiliations: Student's Scientific Association Prenatal Cardiology, Medical University of Lodz, Poland,

Department of Diagnosis and Prevention Fetal Malformations, Medical University of Lodz, Department of Prenatal Cardiology, Polish Mother's Memorial Hospital, 93-338 Łódź, Poland

Introduction: Ectopia cordis (EC) is a rare congenital heart disease, which could be described as a complete or partial displacement of the heart outside the thoracic cavity. The prevalence is predicted to be 5.5 to 7.9 per 1 million live births, which is 0.1% of congenital heart diseases. The incidence among fetuses is much more frequent, and the lower incidence in live born neonates is due to spontaneous abortions and intrauterine deaths According to data from ORPKP, 28 fetuses with this defect were registered in Poland between 2004 and 2017. Many cases of EC are described as a complex of anomalies called pentalogy of Cantrell.

Case report: A healthy 22-year-old woman (G1) without a history of congenital anomalies was referred to our center due to detection of heart abnormality in the fetus. Combined US+ECHO examinations were performed every few weeks. Besides thoracic ectopia cordis, the following were present: symmetrical atria and ventricles, initially symmetrical large vessels properly crossed. In 16 hbd of pregnancy the fetal heart was completely outside of the fetal chest. In 24 hbd atria were well seen within the fetal chest. At the end of pregnancy only the apex of the heart and partially ventricles were outside. After 30 hbd a ventricular septal defect in the membranous part, overriding aorta and a small stenosis of the pulmonary trunk were visible. Fallot's Tetralogy was diagnosed at this stage, which is a non-urgent heart defect. The fetus was circulatory efficient during the whole pregnancy. Additionally, in the 1st half of pregnancy nuchal cysts were observed, which regressed in the 2nd half of pregnancy. After 34 hbd a small umbilical hernia appeared. The newborn was delivered in 38.6 weeks by elective cesarean section. A boy weighted 3200 g and received 9 at Apgar score. Obstetricians, neonatologists, a cardiac surgeon and a pediatric surgeon were present at the birth. Immediately after, the heart was covered with moistened gauze and the newborn was transported in an incubator to the Intensive Care Unit. On the 1st day of his postnatal life the exposed heart was covered by skin flap and the pericardial sac was made. The newborn underwent the 2nd operation on the 44th day of life. The pulmonary trunk was extended and the prosthesis was sewn between the rib arches. After 71 days, the baby was discharged from the hospital in stable and general good condition. Currently the boy is 3 months old. The patient has a cardiac echocardiography's check-up once every few weeks and is under supervision by a pediatric cardiologist as an outpatient.

Conclusions: Prenatal US and ECHO were the best tools to provide us with information about the well-being of the fetus, its physiology and changes in his anatomy. Ectopia cordis detected prenatally has nowadays much better prognosis, compared with publications from the XXth century, so even with the heart defect, ectopia cordis should be no longer considered as a lethal anomaly.

The width of the spectrum of autism - when it is no longer only Asperger's: case report

Gintė Gaižauskaitė

Presenting author: Gintė Gaižauskaitė

Tutors: Evelina Petrauskaitė, MD

Affiliations: Faculty of Medicine, Vilnius University

Introduction: Autism spectrum disorders and schizophrenia share common genetic risk factors, similar cognitive dysfunctions and disturbances in brain regions. High co-occurrence of these disorders is reported. The task to differentiate between autism and schizophrenia is challenging but extremely important in order to provide accurate treatment. In some cases the distinction requires time and continuous observation of the course of the individual case in order to confidently state a diagnosis.

Case report: 12-year-old girl was referred to Republic Vilnius Psychiatric hospital due to aggressive behaviour, she threatened her relatives with a knife. Other symptoms were anxiety, episodes of anger and shouting, obsessive impulses (for example clicking light switches repeatedly), stereotypic behaviour, delusion of pregnancy, psychosomatic symptoms (frequent urination >20 times per day), insomnia, suicidal thoughts, patient described that she feels that there is chaos in her head and she is constantly confused, afraid of her own thoughts. She was diagnosed with Asperger's syndrome at a young age. It is reported that in her childhood there were episodes of seeing "ghosts", she would freeze of fear and point to an empty space saying that there were little children there. Her Wechsler's Intelligence Scale for Children results were atypical to autism (verbal IQ 121, non-verbal IQ 68). In our hospital episodes of psychomotor excitement, self-harm, suicidal actions (self-strangulation) were observed. During conversations patient expressed referential and persecutory delusional ideas, also ideas of significant importance. Delusional ideas were not reduced by explaining the situations, using psychotherapeutic techniques. Patient was examined and diagnosed with formal thought disorder which presented as poverty of content of speech, tangentiality and loose associations. Treatment with haloperidol and olanzapine helped partially reduce the delusion of pregnancy and referential, persecutory delusional ideas.

Conclusions: Besides symptoms that are common in autism spectrum such as psychomotor excitement, anxiety, psychosomatic symptoms, difficulties in socialising patient also presented with various delusional ideas, formal thought disorder and active suicidal actions. She couldn't explain her suicidal thoughts and actions, she stereotypically repeated that she is unwell and confused. Psychotherapeutic techniques had no effect on the delusional ideas that persisted for more than 3 months, only treatment with neuroleptics had partial effect and those were prescribed for continuous treatment. In this case patient's symptoms were excessive and not explainable only by the diagnosis of Asperger's syndrome. We determined that our patient experienced psychosis and should be observed for the possibility of co-occurring schizophrenia.

Non-specific symptoms in a child with T-cell acute lymphoblastic leukemia

Kamila Czyżak, Emilia Nowicka

Presenting author: Kamila Czyżak

Tutors: Joanna Zawitkowska- MD, PhD; Monika Lejman- MD, PhD

Affiliations: Medical University of Lublin

Introduction: T-cell acute lymphoblastic leukemia (T-ALL) is aggressive lymphoid neoplasms derived from T-lymphoid progenitors. T-ALL is represented by 10% to 15% newly diagnosed pediatric cases of acute lymphoblastic leukemia. Most of them are male sex and the average age is 9 years, and is characterized by hyperleukocytosis and rapid infiltration.

Case report: In November 2021, a 14-year old female patient was admitted to University Children's Hospital in Lublin due to massive mediastinal tumor. Medical history was as following: girl was chronically fatigue, had low-grade fever, extremities pain as well as dyspnoea and muscle pain from mid-October 2021. Before admission to the hospital she had two primary doctor's appointments: during the first one, the doctor suspected inflammation and ordered blood test, which was normal. Next two weeks, blood test was repeated and hyperleukocytosis was presented. Then, GP recommended an x-ray of chest, which shown a massive tumor in the mediastinum. On 24th of November 2021, she was admitted to Department of Pediatric and Lung Disease in Lublin, where computer topography was performed. The examination showed a massive mediastinal tumor as well as occurrence of left pleural effusions and lesion in left kidney. Complete blood count presented 31% of atypical cells. After consultation with hematologist, she was transferred to Department of Pediatric Hematology, Oncology and Transplantology. On admission, physical examination showed a reduced vesicular murmur in the right breast. The echocardiography was performed and shown 20mm of fluid in pericardium. Due to the imminent cardiac tamponade, a cardiac surgeon was consulted. However, the puncture of patient's pericardiac sac was not necessary. On 26th of November 2021 bone marrow aspiration was performed and immediately, cytoreduction therapy was used. T-ALL was diagnosed based on results of bone marrow. Therapy was complicated with tumor lysis syndrome and as a consequence renal failure. The girl required dialysis for 12 days. Currently, the patient is undergoing chemotherapy.

Conclusions: The early signs and symptoms of acute lymphoblastic leukemia can be misinterpreted and underestimated because of this very nonspecific onset. That's why diagnostic vigilance as well as appropriate respond and highly-advanced examinations are so important.

Interdisciplinary management of giant omphalocele - a rare case report

Joanna Forycka, Zuzanna Stróżyk

Presenting author: Joanna Forycka

Tutors: Laura Almendro García, MD

Affiliations: Universidad de Málaga

Introduction: Omphalocele is a congenital defect of the abdominal wall with multiple etiologies and occurs in 1 in 4000 births. It is characterized by a large opening with herniated abdominal organs and loss of abdominal cavity volume. Its severity and prognosis vary depending on the size of the defect and associated anomalies. Omphalocele is considered giant when the defect's diameter is more than 5 cm and/or contains more than 50% liver herniation within the sac. More than a half of patients present coexisting anomalies, such as cardiac defects, neural tube defects or respiratory distress syndrome. This rare anomaly has a mortality rate of more than 25%. Given the lack of standardized treatment protocol, it still presents a challenge for both neonatologists and pediatric surgeons.

Case report: The female patient was the first born child of a woman with a history of two previous spontaneous abortions. At the 12 week of gestation an ultrasound examination gave rise to a suspicion of a giant omphalocele. The diagnosis was confirmed at the 20-week screening scan. The sac contained the liver and intestines. The pregnancy was therefore terminated at 38 weeks of gestation by cesarean section. The APGAR scores were 6/8/9. The newborn was intubated in the delivery room, the defect was covered in a sterile, transparent dressing and the patient was transferred to the Neonatal Intensive Care Unit. On the next day the silo with an adhesive hydrocolloid dressing was collocated by the pediatric surgeons. Subsequently, the patient was managed under muscle relaxation, ventilatory support, intra-abdominal pressure monitoring and received antibiotic prophylaxis. During the following days the wooden tongue depressors at the free edge of the silo were used to gently reduce the contents under the intra-abdominal pressure monitoring. The lowering of the depressors by 1.5-2 cm was performed every day with the objective of complete return of the herniated organs to the abdominal cavity followed by definite surgical closure.

Conclusions: Despite the recent advances, the management of giant omphalocele remains an interdisciplinary challenge. Emphasys should be given to the early prenatal diagnosis that allows the establishment of a prognosis and delivery plan in a tertiary referral hospital. The decision about the treatment choice should be individual. Earlier, the giant omphalocele was treated either surgically with primary, staged or delayed closure or conservatively by the use of dressing with povidone iodine and aqueous eosin. However, the recently described staged silo management of giant omphalocele presented in this case report is considered to be an effective, simple and low cost solution. It has been proven that compared with traditional surgical and medical treatment, the silo technique shortens the time to closure and reduces potential morbidity and mortality.

A case report of a 15-year-old patient with Mazzanti syndrome and juvenile idiopathic arthritis

Karolina Grikšaitė, Ugnė Masilionytė

Presenting author: Karolina Grikšaitė

Tutors: Aušra Šnipaitienė

Affiliations: Academy of Medicine, Lithuanian University of Health Sciences, Kaunas, Lithuania,

Pediatric department, Hospital of Lithuanian University of Health Sciences Kauno Klinikos

Introduction: Noonan-like syndrome with loose anagen hair (ORPHA:2701) also known as Mazzanti syndrome is an extremely rare disease with a prevalence of less than 1 in 1 000 000. This pathology often has different comorbidities and has a bigger risk for autoimmune diseases. We present a clinical case of associated juvenile idiopathic arthritis, that has not been published previously.

Case report: A 15-year-old female patient was consulted by a pediatric rheumatologist due to the ankle pain and swelling, difficulty in walking, morning stiffness that lasted 3 hours, and intermittent limping lasting for a few weeks. The nonsteroidal anti-inflammatory drugs (NSAIDs) did not show any positive effect and the condition was deteriorating. The patient‘s medical history revealed that she was diagnosed with Mazzanti syndrome as the pathogenic mutation in the SHOC2 gene was found. She was receiving growth hormone treatment for 3 years. However, the effect was minimal, symptoms of joint inflammation appeared. Physical examination showed multiple swollen and deformed joints in the both hands and ankles. Further examinations detected increased inflammatory markers: leucocytes 12.5 x 10^9/L, erythrocyte sedimentation rate 33mm/h, C–reactive protein 28.0 mg/L. An antinuclear antibody (ANA) test was positive for nuclear dense fine speckled pattern in titter 1:640 (negative titter below or equal 1:40). An extractable nuclear antigen (ENA) test was positive for Anti-Mi-2 alpha (titter 1:320), Anti-CENP B (titter 1:640), Anti-SS-B (titter 1:640), anti-Ro-52 (1:320). Rheumatoid factor (RF) and human leukocyte antigen B27 (HLA-B27) were negative. In the hand, ankle ultrasound and MRI there were signs of chronic inflammation in the joints. The patient was diagnosed with polyarticular RF negative JIA. Treatment with methotrexate 10 mg/m2/week subcutaneously (sq), prednisolone 0.5 mg/kg/day orally was started, continued NSAIDs and antacids. Also, the patient received an intra-articular triamcinolone acetonide injection into the right ankle joint and left II DIP joint. After 3 months of treatment, active inflammation signs persisted and tumor necrosis factor inhibitor (TNFi) adalimumab 0.8 mg/kg every other week sq was added. A positive effect was observed after the first two doses of TNFi. Clinical remission was achieved in 8 weeks and no exacerbations were observed in the last year.

Conclusions: Mazzanti syndrome is a rare disease that can be associated with other autoimmune diseases. Close monitoring and examination of the patient are mandatory. One of the comorbidities can also be JIA. In our clinical case, only after prescribing TNFi for JIA treatment, did we observe a positive effect.

DIFFERENTIAL DIAGNOSIS OF AN ADOLESCENT BETWEEN DEPRESSION, SUBSTANCE RELATED DISORDERS AND SCHIZOPHRENIA: CASE REPORT

Gintė Gaižauskaitė

Presenting author: Gintė Gaižauskaitė

Tutors: Evelina Petrauskaitė, MD

Affiliations: Faculty of Medicine, Vilnius University

Introduction: Differentiating psychiatric conditions is complicated in children and adolescents because symptoms often are not stable and personalities of such patients haven't finished to form yet. Schizophrenia in adolescents might just be starting to present and its symptoms in prodrome stage can be similar to symptoms of depression, bipolar disorder, substance–related disorders, some personality disorders and et cetera. We analyse a case of an adolescent whose condition worsened for 2 years despite treatment.

Case report: 15 year old boy was hospitalized to the Republic Vilnius Psychiatric Hospital due to self-harm and high risk of suicide. 2 years ago patient started to drink large amounts of alcohol (2 litres of wine per day) and to harm himself by cutting. 1 year ago patient began to take street drugs (mostly synthetic marihuana). 7 months ago the patient was treated in another psychiatric hospital and was diagnosed with depression. For two years he was treated with antidepressants with no effect. On physical examination patient had deep wounds on left forearm which required suturing. He said he had a fight with his parents about going out with friends so he cut himself. Parents were hesitant to let him out since they knew he was going to get drugs. Patient's drug test showed THC (tetrahydrocannabinol) and opioids. Patient explained that drugs and alcohol helped him "delete bad thoughts", which were frequent and abundant. He couldn't describe those thoughts, only that they were "bad". On thorough questioning patient revealed he had persecutory ideas that he was being followed and watched. He had disturbed thinking: resonant, partly incoherent, inert. Patient had other symptoms such as constricted affect, odd beliefs, lack of impulse control, avolition. Patient's grandmother has schizophrenia. After the time of possible effects of substance abuse passed, patient's symptoms (formal thought disorder, persecutory ideas, avolition and others) remained the same. Patient was then treated with haloperidol and risperidone. Early positive impact was noted: he experienced less "bad" thoughts, had more motivation to participate in daily activities.

Conclusions: On arrival patient's disturbed thinking was noted. Because all of his symptoms remained despite seizing drug abuse, substance related disorders were excluded. Patient had no history of traumatic events, he couldn't relate his mood with relationships, a loss or anything other than "bad" thoughts. Due to constricted affect, odd behaviour, persecutory ideas, disturbed thinking patient was diagnosed with schizotypal personality disorder with much emphasis on the probability of developing schizophrenia in the future. We emphasize the importance of continuous and thorough observation of adolescent psychiatric patients in order to accurately differentiate their disorders and provide appropriate treatment.

A 2- month- old girl with semilobar holoprosencephaly and central diabetes insipidus

Katarzyna Banasiak, Anita Janus

Presenting author: Katarzyna Banasiak

Tutors: Ewa Malinowska, MD, Aleksandra Wojtasik-Bulanda, MD

Affiliations: Medical University od Łódź

Introduction: Holoprosencephaly (HPE) is a rare brain malformation resulting from incomplete separation of the two hemispheres. Semilobar holoprosencephaly is characterized by incomplete forebrain division. Altogether holoprosencephaly occurs in about 1/16.000 live births. HPE is often associated with developmental delay and feeding difficulties, epilepsy and endocrine disorders like diabetes insipidus, the severity of which correlates with the degree of non-separation of the pituitary gland. Central diabetes insipidus is a condition in which polyuria appears due to lack of vasopressin secretion. It may cause dehydration and electrolyte disturbances like hypernatremia. Whereas, developing hypernatremia may manifest in loss of appetite, vomiting and increased muscle tone. In chronic hypernatremia there can be no clinical signs visible.

Case report: We present a case of a 2- month- old girl who was admitted to the hospital because of increasing reluctance to eat. The child had already had a diagnosis of semilobar holoprosencephaly and complete agenesis of the corpus callosum. Problems with feeding started right after the patient was discharged from the hospital after birth. The girl had difficulty latching effectively. On admission there were no signs of circulatory and respiratory failure. The physical examination revealed microcephaly and facial abnormalities. Eye movements were chaotic and muscle tone increased. Blood tests showed negative inflammatory factors, hypernatremia 166mmol/l, increased serum osmolarity and decreased urine osmolarity. Level of glucose was not increased. After appropriate hydratation the subject presented with polyuria. Due to the overall clinical picture, central diabetes insipidus was diagnosed. The patient was treated effectively by desmopressin, which is a synthetic analog of vasopressin. In the following days, stabilization of ion concentrations was achieved. The success in treatment confirmed the diagnosis. After stabilization of general condition and restoration of sodium concentration, patient was discharged with recommendation of continuation of desmopressin treatment.

Conclusions: HPE, although rare, is the most common structural anomaly of the brain with a complex and multifactorial background. Our patient had chronic hypernatremia. The coexistence of HPE with central diabetes insipidus should be considered in all cases of HPE with chronic hypernatremia, as it is the most common cause.

AN UNUSUAL CASE OF CHRONIC ABDOMINAL PAIN- PERIRECTAL ABSCESS

Dominika Kapała

Presenting author: Dominika Kapała

Tutors: Michał Puliński MD, PhD

Affiliations: The University of Warmia and Mazury in Olsztyn, Students' Paediatric Surgery Science Club

Introduction: An anorectal abscess, specifically a perirectal abscess, is a relatively uncommon infection in children. Anorectal abscesses occur from blockage or infection of anal crypts and glands due to chronic constipation, inflammatory bowel diseases (IBD; Crohn disease or ulcerative colitis), malignancy, foreign bodies, and sexually transmitted diseases. The most common complication of a perirectal abscess is its recurrence and the formation of a fistula. These complications occur in 37-50% of cases in all anorectal abscesses. We report a unique case of a 15-year-old girl with a perirectal abscess of unknown cause.

Case report: A fifteen-year-old girl was admitted because of pain in the anal area for 2 days. She presented with a two-year history of chronic constipation and abdominal pain. The digital rectal examination revealed a soft, fluctuant, very painful lesion (3-4 cm in diameter). Physical examination was normal. The anus area was unchanged. Laboratory findings consisted of elevated C-reactive protein (1,06 mg/dl) and decreased hemoglobin (11,9 g/dl). Ultrasound revealed a hypoechogenic mass at the right wall of the rectum, measuring 24x13x17 mm, and a perirectal abscess was suspected. Magnetic resonance imaging (MRI) was performed and showed an abscess on the right side of the rectum about 3 cm above the sphincter. In the lower part of the abscess, there was a visible fistula channel tapering downwards (about 27 mm long). The patient was qualified for surgery. The abscess was drained under general anesthesia. The postoperative course was uneventful. Antibiotic therapy was administered. On the following day, the patient was discharged home in good condition.

Conclusions: Perirectal abscesses can cause significant anorectal pain, urinary retention, and fecal incontinence. In addition, the quality of life in patients with recurrence is poor. In older children and teens, these may be the first recognized manifestation of Crohn's disease. Imaging is necessary to characterize the extent and help determine the etiology. Treatment depends on the etiology, particularly if inflammatory bowel disease is suspected. IBD is diagnosed using a combination of endoscopy (for Crohn's disease) or colonoscopy (for ulcerative colitis) and imaging studies, such as contrast radiography, magnetic resonance imaging (MRI), or computed tomography (CT). Our case is a reminder to keep the differential diagnosis broad, as perirectal abscesses—particularly in children—can masquerade as other pathologies.

Mysterious origin of multiple infections in children - case report of a patient with severe congenital neutropenia

Oliwia Makowska

Presenting author: Oliwia Makowska

Tutors: Monika Richert - Przygońska, MD, PhD; Associate Professor Krzysztof Czyżewski, MD, PhD

Affiliations: SRG Paediatrics and Paediatric Haematooncology, Ludwik Rydygier Collegium Medicum in Bydgoszcz, Nicolaus Copernicus University Torun, Poland.

Department of Pediatric Hematology and Oncology, Jurasz University Hospital, Collegium Medicum in Bydgoszcz, Nicolaus Copernicus University in Torun, Bydgoszcz, Poland

Introduction: Severe congenital neutropenia (SCN) is a rare genetic condition characterized by decreased number of neutrophils and bone marrow maturation suppression at the promyelocyte stage. SCN proceeds with immunodeficiency disorders manifesting early in life with frequent bacterial infections in the mouth, throat, sinuses, skin and lungs, possibly with a severe, life-threatening course.

Case report: 7-month-old girl was admitted to the hospital due to the fever which lasted for about eleven days, rhinitis and diarrhoeal symptoms. Five days before admission antibiotic was implemented due to the persistent neutropenia that has been enduring for several months. Previously the patient was hospitalized after birth due to the local skin infection of staphylococcal etiology and twice due to the upper respiratory tract infections. Moreover, the girl repeatedly developed thrush, hence was treated with nystatin or fluconazole. The patient's condition improved after antibiotic treatment with cefuroxime. Due to the persistent neutropenia, the diagnostic process was extended. The results showed agranulocytosis, normocytic anaemia, elevated reticulocytes and platelet count and no anti-granulocyte antibodies presence. Stool digestion and faecal elastase level were within the norm. All of the mentioned results led to performing a bone marrow puncture. Furthermore, genetic testing by NGS was commissioned. An abdominal ultrasound showed no abnormalities. The myelogram revealed a neutrophilic granulocytic hypoplasia with a very low percentage of mature granulocytes. Therefore, the G-CSF treatment was provided. Regardless of the subsequent dose escalation and increase in white blood cells count, no increase in neutrophil count was observed, thereupon the therapy was discontinued. In the period of next month, the patient was admitted to the hospital several times. First due to the bilateral infection of the distal phalange of the third finger of the hand, in the area of previous punctures made to draw blood which was successfully treated with empirical antibiotic therapy and topical mupirocin ointment. Then again due to infection of the small and large intestines caused by Clostridium difficile with clinical improvement after vancomycin use. Once more due to the fever, nasopharyngitis and a small abscess on the left buttock, with a recovery after empirical antibiotic therapy and local treatment of the abscess. A diagnosis of SCN was established based on NGS results that showed the ELANE mutation. Therefore the patient started antibiotic prophylaxis and G-CSF therapy was re-implemented. The patient remains under care of the Immunology Clinic.

Conclusions: The presented case demonstrates the need of taking SCN under consideration in infants with recurrent bacterial infections in order to decrease the frequency of infections along with hospitalizations and to avoid severe course of the disease as well as fatal complications.

JURASZ PROCEDURE IN 16-YEARS OLD PATIENT WITH POSTINFLAMMATORY PANCREATIC PSEUDOCYSTS

Marta Jutrzenka

Presenting author: Marta Jutrzenka

Tutors: Michał Puliński MD, PhD

Affiliations: The University of Warmia and Mazury in Olsztyn, Students' Pediatric Surgery Science Club

Introduction: Pancreatic pseudocyst is a localized fluid collection, rich in pancreatic enzymes, blood, and non-necrotic tissue, and it accounts for approximately 75% of all pancreatic masses. It is usually a complication of pancreatitis or abdominal trauma. The conservative management is a successful method of treatment in children with acute, small-sized, and post-traumatic cysts with low incidence of occurrence of complication, surgical treatment is a valid, safe, effective, and satisfactory treatment in complicated cases. One of the surgical methods is Jurasz procedure. Jurasz operation, also known as transgastric pseudocystogastrostomy is a method for internally draining a pancreatic pseudocyst through the gastric wall. It can be performed, when the lesion contacts the stomach. The postoperative course is usually uncomplicated. We report a unique case of a 16-years old boy with pancreatic pseudocysts treated with the Jurasz procedure.

Case report: On the 9th of August 2021, the 16-years old patient presented to ER with severe abdominal pain and vomiting. The diagnosis of acute pancreatitis was made based on an abdominal ultrasound and elevated serum digestive enzymes. Ongoing symptoms led to his transfer to the pediatric ward for further management. During hospitalization, pancreatitis has developed complications, including: abnormal glycemia, acute renal failure, secondary anemia, recurrent bowel obstruction, intrahepatic and extrahepatic cholestasis. MRI showed an encapsulated peripancreatic polycyclic fluid collection measuring 16x10x17 cm, which compresses common bile duct, duodenum, stomach, and jejunum and enlarged heterogeneous pancreas with necrotic lesions. On the 9th of September, the patient was discharged in good overall condition. In October a follow-up MRI showed reduced peripancreatic lesion and new retroperitoneal fluid collection measuring 8,1x1,6x13 cm behind the left kidney. In November, the patient was admitted to the hospital with right upper abdomen pain. MRI and MRCP showed increasing peripancreatic lesion. The patient was qualified for surgery. On the 8th of December, after the evacuation of brown fluid from cysts, Jurasz procedure and cystojejunostomy was performed. There was no complication around surgery. 9 days after the patient was discharged in good overall condition.

Conclusions: Pancreatic pseudocysts are uncommon in a pediatric population. The treatment is dependent on etiology, the size of the lesion, and the patient's symptoms. Jurasz procedure is a surgical method, which should be considered as an effective and safe treatment of pancreatic postinflammatory pseudocysts.

CASE STUDIES: SURGERY

14th of May 2022

Coordinators:

Magdalena Heleska

Piotr Dreja

Urszula Kierepka

Jury:

Piotr Koza, MD, PhD

Marta Fijałkowska, MD, PhD

Konrad Kosztowny, MD

Fecaluria as the first symptom of a huge vesicointestinal fistula caused by muscle invasive squamous cell carcinoma of the urinary bladder

Oliwia Czyżniewska

Presenting author: Oliwia Czyżniewska

Tutors: Maciej Przudzik, MD, PhD

Affiliations: Collegium Medicum, University of Warmia and Mazury, Olsztyn, Poland

Introduction: Vesicointestinal fistula is an abnormal communication between the bladder and the intestine. Fistula between the gastrointestinal tract and the lower urinary tract most frequently occurs as a consequence of inflammatory or malignant bowel disease. Most characteristic signs of such a condition include pneumaturia, fecaluria and recurrent urinary tract infections (UTI), which may significantly affect patients' quality of life. Since a great majority of fistulae originate from the bowel, fistula secondary to squamous cell carcinoma (SCC) of the bladder, which accounts for less than 5% of bladder cancers, is an extremely rare etiology. To the best of our knowledge, only two cases of such origin have been reported previously.

Case report: A 76-year-old female patient, a non-smoker was admitted to Urology Clinic with fecaluria. Her medical history included hypothyroidism and recurrent urinary tract infections. The last urine culture resulted positive for Escherichia coli with a bacterial count of 107CFU/mL. In 2020 she underwent cystoscopy due to the episode of hematuria, but no significant changes were found. The fecaluria started 2 weeks earlier. The patient hasn't passed normal stool since then. The urine, however, wasn't contaminated with typical fecal material. It contained undigested food pieces, which is characteristic of the ileal origin. Computer tomography (CT) was carried out. It showed a nonspecific 70x55 mm mass arising from the bladder and a fistula between the bladder and small intestine. Afterward, the patient underwent cystoscopy which confirmed the presence of a huge vesicointestinal fistula opening at the dome of the bladder. Biopsy of the material from the margin of the lesion was performed. The histopathological report revealed papillary urothelial neoplasm of low malignant potential (PUNLMP). The patient was qualified for the laparotomy. During the operation, extensive infiltration, involving vagina and uterus, and reaching rectus abdominis muscle, was disclosed. Resection of the involved fragment of the ileum was performed. Advancement of the process led to the decision about performing radical cystectomy and subsequently bilateral ureterocutaneostomy. Histopathological examination revealed squamous cell carcinoma (SCC) pT4a pN0 emerging from the bladder, infiltrating small intestine and 2/3 of the body of the uterus. As of today, the patient is about to start adjuvant chemoradiotherapy.

Conclusions: Fistula between the gastrointestinal tract and the lower urinary tract, in general, is not an uncommon condition. Nonetheless, since it is most often secondary to gastrointestinal tract diseases, this particular case of the vesicointestinal fistula was especially rare considering its squamous cell carcinoma origin. According to the literature, it might be the third case of such etiology ever reported, and the first one in Europe. Unfortunately, due to its locally advanced stage, the prognosis remains poor.

“Tumor or aneurysm? - that is the question” - a case report of distal Posterior Inferior Cerebellar Artery aneurysm mimicking posterior fossa tumor

Weronika Lusa, Natalia Siwecka

Presenting author: Weronika Lusa

Tutors: Professor Maciej Radek, MD, PhD; Maciej Wojdyn, MD

Affiliations: Department of Neurosurgery, Spine and Peripheral Nerves Surgery, Medical University of Lodz

Introduction: Posterior Inferior Cerebellar Artery (PICA) aneurysms, especially in the distal part of the artery, account for a small percentage of all diagnosed intracranial aneurysms. It has been shown that distal PICA aneurysms can induce a significant mass effect and clinically manifest like posterior fossa tumors. Moreover, partially thrombosed PICA aneurysms can share common radiological characteristics with neoplasms at this location. In some cases, only intraoperative verification allows for a final diagnosis.

Case report: A 75-year-old female was admitted to the Department of Neurosurgery, Spine and Peripheral Nerves Surgery to continue the diagnostics of dizziness occurring for about a year. In the neurological examination, nystagmus and adiadochokinesis have been revealed. The two-phase computed tomography (CT) of the head revealed an adherent nonhomogeneous tumor (15x17x17 mm) with heterogenous contrast enhancement between the cerebellum and medulla oblongata. Furthermore, in the two-phase magnetic resonance imaging (MRI), a well-defined pathological mass with only partial enhancement has been found. Radiological diagnosis suggested a tumor (subependymoma) due to mass effect and compression of cerebellum and medulla oblongata. The patient was referred for surgery. The suboccipital craniectomy and C1 laminectomy was performed. After the dura opening, a tumor, macroscopically resembling a distended artery profusely filled with clots, was visualized. The next steps of the procedure were typical for aneurysm surgery with temporal clipping, aneurysm sack excision and finally with clipping of the distal PICA. In the post-operative course, no complications were noted. The patient was discharged from hospital in good general and neurological condition.

Conclusions: Distal PICA aneurysms constitute uncommon pathology of the posterior part of the arterial circle of Willis. Due to rich anastomotic supply of inferior cerebellum, PICA aneurysms rarely rupture but their clinical and radiological presentation is similar to the posterior fossa tumors. Although endovascular coil embolization is currently the first therapeutic option for posterior circulation aneurysms in cases of mass effect causing lesions, open surgical procedures are necessary.

Gaining access to the pterygopalatine fossa; challenges of choosing between surgical techniques

Yu Fung Nigel Tan, Jessica Sandoval

Presenting author: Yu Fung Nigel Tan

Tutors: Aleksandar Nowak MD, Łukasz Słowik DDS

Affiliations: ESRA Maxillofacial Surgery Research Group, Poznan University of Medical Sciences, Poland

Clinical Department of Maxillofacial Surgery, Poznan University of Medical Sciences, Poland

Introduction: The pterygopalatine fossa is a cone-shaped connection from the infratemporal fossa to the nasal cavity, located posteriorly to the maxillary sinus, containing the maxillary nerve. Due to the complex anatomy, surgical access and removal of foreign bodies are difficult. Access to the pterygopalatine fossa can be achieved by multiple methods; an open approach, through the orbit, endoscopic endonasal approach, and the Caldwell-Luc method. The Caldwell-Luc method involves entry to the maxillary sinus through the frontal wall. This method can be followed by removal of the posterior wall of the maxillary sinus to gain access to the pterygopalatine fossa.

Case report: A man presented with a fragmented right eyeball and metallic foreign body in the pterygopalatine fossa from a recreational explosion. The resulting injury left the patient with no vision and abnormal sensation in the maxillary nerve innervated region. The foreign body measured RL12mm, AP4mm, CC17mm on CT imaging. Entry to the fossa was accomplished using the Caldwell-Luc method followed by removal the posterior wall of the maxillary sinus. The first retrieval surgery was unsuccessful, leading to the surgeons placing a titanium screw as a visual marker for further imaging. The next day, during a second retrieval surgery, the foreign body was located based on the level of the screw and subsequently removed.

Conclusions: There were many considerations to determine the appropriate surgical approach and access point for removal. An objective was to minimize damage to branches of the facial nerve as seen with open access surgeries. Removal of the injured eye would have allowed for an orbital approach. The removal was not preformed despite the eye injury being an indication for enucleation to avoid sympathetic ophthalmia of the healthy eye. Finally, the surgeons decided on the Caldwell-Luc method for entry to the fossa based on their experience, equipment, and risks of alternative surgical access methods.

A rare case of asymptomatic fibroepithelial polyp

Michał Konieczny

Presenting author: Michał Konieczny

Tutors: Maciej Przudzik, MD, PhD

Affiliations: Collegium Medicum, University of Warmia and Mazury in Olsztyn;

Introduction: The fibroepithelial polyp is a rare benign lesion that can occur in the ureter. Histologically, it consists of a vascular fibrous stroma covered with a transitional epithelium of the urinary tract. Moreover, it is often initially confused with other tumors of the urinary system, which can lead to incorrect diagnosis and treatment. About 200 such cases have been described in the literature so far, mostly in Asian children.

Case report: The described case is a 50-year-old woman, smoker, without chronic diseases, referred to a urologist because of suspected bladder tumor on transabdominal ultrasound. The patient did not report hematuria or LUTS (lower urinary tract symptoms). Transabdominal ultrasonography describes a mobile mass coming from the left ureteral orifice without dilatation the left kidney's pelvicalyceal system. For further diagnosis, a cystoscopy was performed, which showed a polypoid lesion emerging from the left ureteric orifice, with a variable length depending on the peristaltic wave of the ureter, approx. 2-3.5 cm long. The patient was qualified for ureterorenoscopy with en bloc holmium laser excision of the lesion. The duration of the procedure was approximately 13 minutes. The polyp was completely removed, its length was finally 8.5 centimeters. Patient was discharged after six hours and 4,8Ch JJ catheter was left for 10 days. Histopathological examination confirmed the diagnosis of the fibroepithelial polyp.

Conclusions: Fibroepithelial polyps are rare benign neoplasms that occur mainly in adults, with a slight predominance of males. The exact etiology is unknown, although genetic predisposition and chronic inflammation are suspected. The most common symptoms are hematuria and non-specific pain in the lumbar region, but also can be asymptomatic. Histologically, they are of mesodermal origin, consist of a fibrous-vascular stroma covered with a transitional epithelium. The diagnosis of fibroepithelial polyps can be difficult. The presence of a moving mass protruding from the ureteric orifice in imaging studies suggests the presence of a benign polypoid lesion of the ureter. The treatment of choice for a fibroepithelial polyp is its complete endoscopic resection, which is why a thorough preoperative diagnosis of this disease entity is so important in order to avoid more radical forms of treatment, such as nephroureterectomy.

Special approach to the aortic valve replacement, with usage all three ordinary used methods due to patient's condition

Miriam Kilarska

Presenting author: Miriam Kilarska

Tutors: Dr László Daróczi

Affiliations: Medical University of Łódź,

Semmelweis University Budapest, Hungary

Introduction: There are several alternatives to the aortic valve (AV) replacement. Choice of a valve type used in a particular case is different for every patient. There are many criteria to help a cardiac surgeon choose the one suitable for the patient due to his or her condition, patient's activity or predicting life expectancy.

Case report: This case study presents a patient with aortic stenosis (AS), a history of schizophrenia and intestinal bleeding. The patient's heart condition was treated with biological valve replacement according to guidelines. In six years the prosthetic valve degenerated and the patient overdone a transcatheter aortic valve implantation (TAVI). In 2021 symptoms of failed heart valve replacements due to structural aortic valve deterioration (SVD) occurred again. As a result of ineffective treatment, a mechanical valve was used. Which was a non-obvious choice taking into account the patient's condition. Patient underwent the procedure without any complications. In a six months follow-up he presented good mental and physical condition with no signs of valve deterioration and accurate clotting time in Prothrombin Time Test maintained by International Normalized Ratio (INR).

Conclusions: This case demonstrates that there are times that accepted schemes do not work and for satisfactory results a different approach is necessary. Fortunately alternative treatment can also bring positive results. Therefore there is well-founded hope that with medical science progress patients will receive more adequate treatment in their first procedure.

Popliteal artery injury following traumatic knee endoprosthesis dislocation

Kristupas Suslavičius

Presenting author: Kristupas Suslavičius

Tutors: Karolina Daunoraitė, Valentinas Uvarovas

Affiliations: Lithuanian University of Health Sciences, Faculty of Medicine, Kaunas, Lithuania.

Clinic of Rheumatology, Orthopaedics Traumatology and Reconstructive Surgery, Institute of Clinical Medicine, Vilnius University.

Department of Orthopaedics and Traumatology, Republic Vilnius University Hospital, Vilnius, Lithuania

Introduction: Vascular injury is a devastating complication of acute knee dislocation. The extensive soft tissue damage and the frequent neurological and vascular complications associated with this event may compromise the viability of the limb. The prognosis is notably worse for popliteal artery injury, as delayed diagnosis and treatment can lead to up to 80% of limb amputations. Vascular complications after knee arthroplasty dislocation are exceptionally uncommon, and there are no reports on this topic in the world literature.

Case report: First hospitalization

A 67-year-old female patient complained of right knee pain, deformity and sensory disturbances in her foot after an outdoor injury caused by a slip on the pavement. The patient suffered from leg artery embolism and thrombosis. The right knee endoprosthesis (EP) was performed 5 years ago. Physical examination revealed a shortened, deformed right leg at the knee joint. The right foot was colder than the left, pulse in the dorsalis pedis artery was not palpable. The sensation and movement of the foot were not affected. X-rays showed an anterior dislocation of the right knee, EP of the knee joint and the angiography showed a lesion. Final diagnosis: anterior dislocation of the right knee with injury to the popliteal artery. The patient had an urgent tibial repositioning and immobilization with an external AO fixation, and the popliteal artery was sutured end to end.

Second hospitalization

After three months the patient presented for revision surgery, during which it was noticed that her right leg was limping when walking with crutches. It was decided to do a revision surgery to implant a hinge EP. During the operation, fluid was found in the knee joint, which was examined and revealed the presence of Methicillin-Resistant Staphylococcus epidermidis sensitive to Vancomycin. Therefore, implantation of a revision EP was not possible. The EP was removed. Temporary cement inserts were implanted and the patient was initially treated with antibiotics.

Third hospitalization

Three months later, total right knee arthroplasty was performed. Postoperative X-rays showed that the leg axis was restored. After five months the patient was able to walk without pain or discomfort.

Conclusions: Although vascular injury after knee arthroplasty dislocation is very rare, it should be recognised as one of the possible surgical complications. The detection of this pathology should be

aided by essential symptoms such as pain, dislocation, intermittent claudication, cold extremities and paraesthesia. Early surgical treatment and the right drugs are needed to save the patient's limb and life.

Right ureter obstruction as a cause of a rare ovarian vein syndrome.

Adrian Borkowski

Presenting author: Adrian Borkowski

Tutors: Maciej Przudzik, MD, PhD

Affiliations: Collegium Medicum, University of Warmia and Mazury, Olsztyn, Poland

Introduction: Ovarian vein syndrome is an uncommonly found condition caused by hampered blood flow in the ovarian vein. Increased blood pressure inside the vein leads to its dilatation. This condition affects relatively young, multiparous female patients. However, the pressure inside the vein must be elevated to the level unseen even during the pregnancy. Expanding vein interferes with the ureter, causing its compression (usually on the level of 3rd or 4th lumbar intervertebral space) and, subsequently, impairment of renal urine outflow. As clinical manifestation, we can observe e.g.: colick pain localized in the lower back, abdomen or pelvic area, dysuria, hematuria. The longer-lasting disease manifests itself by urinary calculi, recurrent pyelonephritis, or uronephrosis. The diagnosis is mainly based on clinical symptoms along with diagnostic imaging.

Case report: A 47-year-old female patient was admitted to the Department of Urology with a history of periodic colick pain. During the diagnostic process computed tomography was performed showing dilatation of the right renal collecting system along with the dilatation of the right ureter above the level compressed by dilated right ovarian vein. To evaluate renal parenchyma function patient underwent a renoscintygraphy, which showed right renal impairment with a 34% function level. However, blood and urine examination did not indicate renal insufficiency with creatinine level 0,7 mg/dl and GFR value >90 ml/min/1,73m2. To secure ureter before the surgery, the double-J stent was placed into the dilated ureter. Afterward, to remove the ureteral obstruction, the patient has undergone laparoscopic ureterolysis. Pending this procedure, a 7cm right ovarian vein fragment which crossed the ureter was removed. During the postoperative period, the patient has reported pain relief. Postoperative ultrasonography has shown a reduction of pelvicalyceal system dilatation. The patient was discharged from the hospital the next day after the operation. After a non-eventful 7-day postoperative period, the double-J stent was removed.

Conclusions: Ovarian vein syndrome is a rare condition. During the diagnostic process, the presence of non-specific symptoms imposes to consider many disorders. diagnostic imaging is invaluable in discovering such condition. Due to its rarity, there are no strict guidelines for surgical treatment. The aim of the procedure is to restore ureteral patency, using surgical technique the most suitable for the particular case. Laparoscopy is a preferable method to achieve better postoperative outcomes and make full recovery quicker.

Buschke-Lowenstein tumour - case report

Grzegorz Stępień

Presenting author: Grzegorz Stępień

Tutors: Marcin Włodarczyk, MD, PhD, Jakub Włodarczyk, MD

Affiliations: Medical University of Łódź

Introduction: The Buschke-Löwenstein tumour, also called Giant Condyloma Acuminatum (GCA), is a condition associated with HPV (mostly type 6 and 11) infection. The virus resides in squamous epithelium. The infection manifests with an exophytic tumour localised in the perineal area. Ulcerative, large growth with local extension and destruction is distinctive for GCA. Tumour has a tendency to recur. The patients may complain of discomfort and bleeding from rectum and vulva. The recent studies report its potential to the neoplastic transformation.

Case report: In February 2022 the 53-year-old female was moved from a psychiatric hospital, where the patient was treated due to depression and marasmus, to an emergency department of gastroenterology ward because of anaemia and lower gastrointestinal bleeding. The patient complained of progressive weakness and diarrhoea - yellowish, loose stools, periodically with blood. The physical exam revealed dehydration, tachycardia, hypotension and asymmetrical oedema of lower extremities. The laboratory testing showed anaemia, elevated C-reactive protein level (111,1 mg/l) and neutrophils count. Intravenous fluids, noradrenalin, antibiotics and blood transfusion were administered. The perineal area examination revealed a massive necrotic cauliflower-like growth that was bleeding by touch. There was a tumour of labium. The Buschke-Löwenstein tumour was diagnosed. After a surgical consultation, the patient was admitted to the general surgery department. The MRI scan was ordered. It revealed an extensive, inhomogeneous mass that was invading the perineum, vagina and rectum. The image also showed a rectovaginal fistula. The patient underwent a laparoscopic operation to form a loop colostomy. During the procedure the tumour biopsy was performed. The post-operative histopathological diagnosis was Carcinoma planoepitheliale partim keratodes G2. The attending physician planned a medical appointment in the radiotherapy clinic.

Conclusions: The Buschke-Löwenstein tumour can be a life-threatening condition, hence it requires appropriate diagnostics involving physical examination and deep tissue biopsy. The second one is crucial for further proceedings. Treatment of patients necessitates a multidisciplinary approach. Small changes can be simply excised. In advanced cases management consists of the loop colostomy formation with consecutive radiotherapy. Adjuvant radiation therapy is considered to significantly reduce recurrences of tumour. The success rate of this treatment is about 60%. The case also emphasises a need for medical practitioners to keep the oncological alertness and spread HPV prophylactic vaccines.

Iatrogenic tracheal rupture in patient with lung cancer

Bartosz Stangiewicz

Presenting author: Bartosz Stangiewicz

Tutors: Rafał Kowalczyk, PhD

Affiliations: Medical University of Warsaw: Ankona Student Research Group

Medical University of Warsaw: 1st Department of Anaesthesiology and Intensive Therapy

Introduction: Iatrogenic tracheal rupture is a rare complication of endotracheal intubation, bronchoscopy or thoracic surgery. Its incidence varies from 0.05 to 0.37%. Among factors that increase the risk of tracheal damage are:

- Incorrect use of the tracheal tube stylet
- Excessive inflation of the sealing cuff
- Reposition of the tracheal tube without deflating the sealing cuff
- Little experience of the personnel performing intubation
- Use of a dual lumen tracheal tube
- Use of an oversized tracheal tube

The occurrence of symptoms such as increased air leakage, increasing emphysema, subcutaneous emphysema, blood in the endotracheal tube, decreased arterial blood saturation or cyanosis may indicate injury of the trachea. In the postoperative period, the characteristic manifestations are decreased respiratory sound, pneumothorax, mediastinal pneumothorax, subcutaneous emphysema and tracheal shift. In the diagnostic process bronchoscopy is the gold standard, however computed tomography can also be a helpful tool. The treatment protocol of iatrogenic tracheal injury is not clearly defined. The choice between conservative and surgical treatment depends on the size of the lesion and patient's general condition.

Case report: A 70-year-old patient was posted for upper right lobectomy due to lung cancer. Patient had no history of chronic diseases. Bronchoscopy revealed a tumor in the right upper lobe bronchus. Apart from that, the image of the bronchial tree and trachea was normal. Intubation and lobe removal proceeded without any complications. During the check of the bronchial stump, a massive air leak was observed. After dissection of the pleura, a tear of trachea was revealed. It was 10 cm-long, and ranged from the thoracic inlet to the bifurcation. The rupture was filled with the endotracheal tube sealing cuff. After deflating the cuff the rupture was sutured with single stitches. At the end of the surgery the patient was woken up and extubated. No complications were observed in the postoperative period. A follow-up bronchoscopy was performed seven days after the surgery. The tracheal wall was tight, stenosis was not observed. On the ninth day, the patient was discharged from the hospital in overall good condition. After 3 months another follow-up bronchoscopy was performed and revealed a healed scar and no constriction of the trachea.

Conclusions: This case report demonstrates that surgical treatment of a large tracheal rupture is an effective method and if properly implemented, may lead to good results. Allowing the patient to breathe on their own enhances the healing of the damaged tissue.

Posttraumatic destabilization of a congenital cranio-cervical junction abnormality in a patient with cerebral palsy – a case report

Joanna Forycka, Tomasz Karwacki

Presenting author: Joanna Forycka

Tutors: Prof. Maciej Radek, MD, PhD

Affiliations: Medical University of Lodz

Introduction: Cranio-cervical junction is the most complex dynamic area of the spine. This area is also susceptible for congenital abnormalities, which can be asymptomatic for many years until the patient is exposed to injury. We present a case of a patient with congenital cranio-cervical junction abnormality and its posttraumatic destabilization causing very severe neurological condition.

Case report: A 28-year-old male presented with a history of cerebral palsy and rapidly progressing spastic tetraparesis and was admitted to the Department of Neurosurgery. Patient suffered from a head and spine injury after a fall from his own height two weeks before. From that moment his neurological state was gradually decreasing. Before the accident the patient was independent, able to walk and working as an IT professional. On admission the patient was cot case, referring dysesthesia from the navel down, muscle strength was assessed to be 3/5 in both lower extremities and 4/5 in left upper extremity. The paresis was spastic with positive Babinski sign bilaterally. Computed Tomography revealed significant atlanto-axial deformity, C0-C1/C2 instability and critical spinal canal stenosis on C1/C2 level. The patient was referred for surgery. The C1 laminectomy with partial suboccipital craniectomy and cranio-cervical stabilization O-C2-C4-C5 was performed. After the procedure the patient reported improvement; the paresis was gradually regressing towards the condition from before the injury. The patient was transferred to the rehabilitation department for further treatment.

Conclusions: The congenital abnormalities of cranio-cervical junction can be asymptomatic for many years. Sometimes, even a minor trauma can reveal the pathology causing destabilization of the spine and neurological deterioration due to compression of the spinal cord and medulla. Early surgical intervention fulfilling the gold standard of decompression of the neural structures and stabilization of the spine is crucial to prevent further deterioration of the neurological state and give a chance of improvement.

Effective endoscopic treatment of eosinophilic cystitis in patient with previous history of intravesical chemo- and immunotherapy due to bladder cancer

Małgorzata Karasek, Anita Bitowt, Łukasz Paszylk

Presenting author: Małgorzata Karasek

Tutors: Błażej Kuffel MD; prof. Tomasz Drewa, MD, PhD

Affiliations: Student Research Group in Urology, Nicolaus Copernicus University in Toruń, Ludwik Rydygier Collegium Medicum in Bydgoszcz.

Department of General and Oncological Urology, Nicolaus Copernicus University in Toruń, Ludwik Rydygier Collegium Medicum in Bydgoszcz

Introduction: Eosinophilic cystitis (EC) is a rare, inflammatory disease of the bladder, which may occur in every stage of life. Its' etiology is unclear nevertheless some risk factors may be involved, e.g. allergies, parasitic infections, drugs (especially administered intravesically) or previous bladder cancer. No standard therapy was established due to the limited number of cases. The use of steroids, antihistamines and monoclonal bodies is reported as a possible treatment, together with surgical resection as a definitive treatment.

Case report: We present a case of a 54-year-old female patient with a 2-year history of treatment of bladder cancer. She underwent four transurethral resections of bladder tumor (TUR-BT) with concurrent intravesical chemo- and immunotherapy. During her post-treatment follow-up, she has presented with severe lower urinary tract symptoms (LUTS). Abdominal CT suggested extensive recurrence of bladder cancer on the right bladder wall. Endoscopic examination revealed a non-specific 5 cm lesion on the right bladder wall that was completely removed with TUR-BT. A total resolution of symptoms was achieved. Pathologic examination of the resected lesion turned out to be an EC.

Conclusions: In patients with a previous history of bladder cancer presenting with LUTS a recurrence should always be taken into consideration. Since symptoms can be unspecific and imaging results inconclusive, the endoscopic resection of any visible vesical lesion seems to be the best option. In presented case a TUR-BT was an effective technique in terms of both diagnosis and treatment. It is also relevant to take into consideration not only mostly found diseases but also those rarely appearing. As in this case, a final diagnosis was clearly defined by histopathological examination.

JUVENES PRO MEDICINA

Could the next horse kick to the face cause the same trauma?

Anastasiya Hajduk, Olena Senyk, Nicholas Alejski

Presenting author: Anastasiya Hajduk

Tutors: Aleksandar Nowak, MD; Lukasz Slowik, DDS

Affiliations: ESRA Maxillofacial Surgery Research Group, Poznan University of Medical Sciences, Poland;

Clinical Department of Maxillofacial Surgery, Poznan University of Medical Sciences, Poland

Introduction: Mandibular fractures account for a large portion of maxillofacial injuries and the forms of treatment are still a subject of discussion among physicians. The objective of this clinical case report is to highlight the unique case of repeated fractures of the mandibular body and the condyles sustained under comparable circumstances.

Case report: An 18 year old female was admitted with facial asymmetry, edema and pain upon palpation of the condylar processes and the mandibular corpus. Her injuries were a result of a kick to the face by a horse. A craniofacial CT showed a fracture of the right and left condylar processes with displacement, a fracture of the anterior wall of the external acoustic canal, and a midline fracture of the mandibular corpus. Osteosynthesis of the mandibular corpus and the repositioning and osteosynthesis of the right and left condylar processes were performed. Mandibular plates were removed six months post surgery against medical advice, but the condylar plates remained in place. 14 months after the first admission, the patient suffered another kick to the face by the horse. She was readmitted with a fractured mandibular corpus and the left condylar process. Osteosynthesis of the mandibular corpus and right condylar process was performed. Upon the first follow up, there was no damage to the facial nerve function and the patient had normal occlusion. Additionally, feeling sensation to the V3 nerve was normal.

Conclusions: This case was particularly distinct because the mechanism of injury was identical in both instances. As a result, the types of fractures and surgical intervention were also comparable. Analysis of this case provides valuable information for future treatment and management of similar injuries.

Multiple symmetrical lipomatosis - patient with the Madelung's disease: a case report

Weronika Frąk, Oliwia Gocel

Presenting author: Weronika Frąk

Tutors: Joanna Sieniawska, MD, Karol Sieniawski, MD, PhD

Affiliations: Department of General and Oncological Surgery, Medical University of Lodz, Poland

Department of Dermatology, Pediatric Dermatology and Oncology Clinic, Medical University of Lodz, Poland

Introduction: Madelung's Disease (MD) is a rare lipid metabolic disorder (1:25,000), characterized by diffuse, unencapsulated lipomas, localized in the neck, shoulder, upper arms and trunk. The pathophysiology is unclear but may involve association between MD and diabetes mellitus, hyperuricemia, hypothyroidism, liver disease, peripheral neuropathy, and alcohol use disorder. Patients affected by MD are between 30 and 60 years old, with a high prevalence among white males, chronically abusing alcohol. The mainstay of management is lipectomy and liposuction. Here, we report a case of MD male patient with progressive fat deposition in his neck and upper trunk, treated by surgical intervention.

Case report: We present a 42-year-old male patient who reported to the Department of General and Oncological Surgery, with a progressive fat deposition over his neck of the 3 years duration. He denied any other health problems, allergies and alcohol use. On examination huge, bilateral, non-tender, soft, globular masses around the neck. His laboratory evaluation revealed elevated liver values. The patient was referred for computer tomography (CT) scan of the neck and the chest. A CT showed symmetrical fat accumulation in the subcutaneous superficial fascia space of the neck and upper trunk, without internal lesion. Furthermore, a biopsy of the subcutaneous tissue of the neck was performed, and the material was subjected to histopathological examination, which revealed non-encapsulated lipoma. The patient was diagnosed with MD. A two-stage surgical treatment was considered. The first stage of operation, under general anesthesia, included the lipectomy of the anterior neck's area (along infra- and suprahyoid muscles, the sternocleidomastoid muscles from the sternum and collarbones to the mandible) was performed. The patient was reoperated due to evacuation of the postoperative hematoma. He was discharged on the third day after the second surgery. The second stage of the lipectomy (posterior neck's area) was established.

Conclusions: This case discusses the diagnosis and treatment of MD. Surgical treatment remains the only therapy for MD. Although there are no definitive guidelines on approach and management of this condition, lipectomy is considered the treatment of choice, particularly if the fatty masses reach very large sizes and lead to obstruction of the trachea or pharynx, dyspnea, dysphagia, reduced neck movement ability or psychological stress. In the case of extensive lesions, multi-stage surgical treatment is more beneficial due to shorter and better rehabilitation and a lower risk of postoperative complications. Nevertheless, recurrence may occur for all treatment modalities. Choice of surgery should be based on comprehensive consideration of the disorder.

The longest hemodialyzed patient in the world via bioengineered human acellular arteriovenous graft with maintained primary patency.

Joanna Kobak

Presenting author: Joanna Kobak

Tutors: Stanisław Przywara, MD, PhD

Affiliations: Department of Vascular Surgery and Angiology, Medical University of Lublin

Introduction: Currently, the preferred approach for long-term vascular access to hemodialysis is autologous arteriovenous fistula (AVF); however, while patients do not qualify for AVF or whose AVF has failed, an available option remains arteriovenous graft (AVG). AVGs (particularly widely used synthetic polytetrafluoroethylene (PTFE) grafts) are prone to infection, thrombosis or intimal hyperplasia resulting in loss of patency. As novel alternative appear bio-engineered AVGs, like bovine carotid artery or bovine mesenteric vein grafts, and particularly human acellular vessels (HAVs) that in a recent clinical trial have been the most versatile assessed of any biological prostheses, providing first robust clinical data about efficacy and safety of these grafts.

Case report: Our case report presents a 51-year-old chronically hemodialyzed female patient with end-stage renal disease and abundant comorbidities, inter alia, atrioventricular nodal reentrant tachycardia (AVNRT), dilated cardiomyopathy and heart failure. In 2010, implantation of the PTFE graft on the right arm had been performed that in 2013 lost of the primary patency because of thrombosis and subsequent thrombectomy was unsuccessful. Afterwards, she was included into the clinical trial and in 2013 a novel HAV was implanted into her left arm. HAV was working properly, but sometimes left arm swelling was observed without any evidence of infection or loosing of the HAV's patency. In 2017, massive left upper extremity edema and HAV insufficiency had appeared. Angiography depicted short-segmented critical stenosis of the left axillary and subclavian veins and the presence of collateral veins. Urgent percutaneous angioplasty and stenting were performed what restored the patency of the axillary and subclavian veins and ameliorated HAV function. In 2021, as a result of the functioning hyper-flow HAV, right ventricular heart failure was found to worsen. Furthermore, poorly tolerated AVNRT required performance of the ablation. Due to cardiological indications, a decision was made to close the HAV. Heart failure precluded the general anesthesia and surgical ligation of the graft, hence endovascular HAV closure with the use of an occluder under local anesthesia was performed and the central venous catheter was placed to ensure the access to hemodialysis. The patient was hemodialyzed via HAV for 96 months and so far she has been the longest hemodialyzed person in the world via biological decellularised human graft with maintained primary patency. Until it was closed, the HAV was functioning properly with preserved flow.

Conclusions: HAV provides long-term, safe and functional hemodialylis access for patients with end stage renal disease. HAV, like other AVGs or AVF, might associate with predisposition for development or worsening of heart failure. Maintaining proper function of the long-term vascular access to hemodialysis requires steady monitoring and multidisciplinary approach.

A parosteal osteosarcoma mimicking a benign peripheral nerve tumour

Aleksandra Masłowska, Aleksandra Zielińska

Presenting author: Aleksandra Masłowska

Tutors: Julia Sołek, MD; Hanna Romańska-Knight, MD, PhD, Prof. UM; Marcin Braun, MD, PhD

Affiliations: Medical University of Łódź

Introduction: Peripheral nerve tumors are a heterogeneous group of mostly benign tumors. They manifest as tumoral masses that usually cause neuralgia or other types of non-specific neurological problems. The diagnosis of peripheral nerve tumors is primarily based on radiological imaging techniques, with magnetic resonance imaging (MRI) considered the most accurate of currently available. However, as presented here, in rare cases MRI results may provide unsatisfactory grounds for a definite diagnosis.

Case report: A 66-year-old female was admitted to the hospital with a tumour in the area of the right fibula. An axial and sagittal T1, T2 -weighted MRI imaging without contrast enhancement consisting of PD TSE sequence of the right lower limb performed on August 2021 showed a well-defined, irregular, hyperintense lesion measured 18x8x13 mm, with homogenous signal, infiltrating the neighboring bone. Based on these findings the diagnosis of a neuroma of the right tibial nerve was put forward and the patient was referred to the surgical excision of the tumour. During the operation it was found that the tumor originated from the bone below the head of the right fibula, and not, as expected, from the nerve. The lesion was completely removed and sent for histopathological examination. Histological analysis revealed a malignant tumor producing osteoid foci, composed of small, fusiform cells without atypia. The cells were negative for classical neuronal markers including S100, and the proliferation index determined by Ki67 was very low. In conjunction with the MRI description, the final diagnosis of a low-grade parosteal osteosarcoma was made. At the last check-up on 22nd of March, 2022, the patient was in good condition and is currently awaiting the adjuvant treatment.

Conclusions: Despite being commonly considered the method choice for assessment of peripheral nerve tumors, in some cases, results provided by MRI may turn out insufficient for the definitive diagnosis. As demonstrated here, expanding initial examination by histopathological phenotyping was indispensable for recognition of true aggressiveness of the tumour. The presented case provides a warning that, in addition to MRI imaging, other diagnostic tools may be required to enable the accurate diagnosis and hence, appropriate therapeutic management of the patient.

A blessing in disguise: an unusual case of uncomplicated penetrating head injury

Natalia Siwecka, Weronika Lusa

Presenting author: Natalia Siwecka

Tutors: Professor Maciej Radek, MD, PhD; Maciej Błaszczyk, MD

Affiliations: Department of Neurosurgery, Spine and Peripheral Nerves Surgery, Medical University of Lodz, Poland

Introduction: Penetrating brain injury (pBI) is defined as a craniocerebral trauma caused by an object that breaches the skull and the underlying dura. Temporal region and the orbit are common places for pBI; they are also vulnerable to fracture and thus can be easily crossed by low-velocity projectiles. In many cases, pBI is a result of an assault or self-inflicted injury and it may be accompanied with trauma to the other parts of the body. The exact incidence of transcranial stabbing is unknown, but it occurs relatively rarely, and the associated morbidity and mortality rates remain high. We present a case of transcranial stab wound accompanied by abdominal injury penetrating the peritoneal cavity.

Case report: A 65-year-old male was admitted to the Emergency Department from the psychiatric hospital in Lodz, where he had been hospitalized due to paranoid schizophrenia. The patient had stabbed himself with a knife in the abdomen and head a few hours prior to admission. Upon arrival, the patient was already sedated and intubated for airway protection. As the patient was haemodynamically unstable, he was urgently admitted to the operating room and qualified for laparotomy in the first place. There were no signs of active bleeding or perforation of the gastrointestinal tract, except for a small amount of fluid in the peritoneal cavity. Then, a right temporal craniectomy was performed around the knife, which was safely removed. There was no injury to the brain, which was luckily only compressed by the tip of the blade. The dura has been sutured and bone flap restored. After the procedure, the patient's neurological status was stable (GCS=15) and no severe deficits were found. A postoperative head CT scan revealed no signs of oedema, haemorrhage or focal lesions. No infection occurred either. The patient was discharged to the psychiatric ward for continued treatment 7 days postinjury. The knife was secured for further evidence proceedings.

Conclusions: Craniocerebral stab wounds are usually associated with poor prognosis as they may lead to serious complications, like direct damage to the brain, vascular damage, haematoma or ischemia, increased intracranial pressure or infection. This report describes a rare case of a good functional outcome after combined penetrating trauma to the head and abdomen. According to Yarandi et al. (2018), the gold standard treatment protocol for pBI is surgery accompanied by antibiotic therapy. Importantly, as removal of the sharp-edged foreign body may cause a secondary brain damage, minimal movements and precautions are essential to prevent massive haemorrhage. Also, the cooperation of interprofessional team is crucial for an optimal management of patients with such complex conditions.

Anterolateral thigh free flap reconstruction of esophageal defect after radiotherapy for laryngeal cancer

Michał Kmiecik

Presenting author: Michał Kmiecik

Tutors: Joanna Jackowska MD, PhD; Piotr Nogal MD

Affiliations: Poznań University of Medical Sciences

Introduction: Anterolateral thigh (ALT) free flap is commonly used to reconstruct hypopharynx or cervical esophagus, usually after surgical excision due to advanced neoplasm. The aim of this report is to present an atypical application of the ALT flap for reconstruction of a large esophageal defect caused by radiotherapy.

Case report: A 50-year-old male patient presented with hoarseness and dysphagia. He was treated for squamous cell carcinoma of the larynx with primary radiotherapy six months earlier. Direct microlaryngoscopy with biopsy confirmed laryngeal cancer recurrence. CT scan showed a lesion involving right vocal fold and anterior commissure, extending to the subglottis. No metastatic lymph nodes were detected. The patient was admitted for salvage total laryngectomy. During the procedure a 3 cm defect of the anterior esophageal wall was identified, most likely caused by previous radiotherapy. There was no evidence of esophageal infiltration in either intraoperative samples or final pathology. Esophagus was reconstructed with an ALT free flap. Postoperative period was complicated by venous congestion, which required revision of the flap. The patient was discharged in good condition.

Conclusions: Esophageal wall defect after radiotherapy in a patient with laryngeal cancer and no esophageal infiltration is a rare phenomenon. Free tissue transfer is currently the method of choice for reconstruction of pharyngoesophageal defects after surgical resection. Donor sites include radial forearm, anterolateral thigh and jejunum. This report shows that ALT flap can also be used to successfully close an esophageal defect that was not caused by surgery, but radiotherapy.

JUVENES PRO MEDICINA

Development Of Giant Liposarcoma In Context With COVID-19 Pandemic

Lucy Zimmermann

Presenting author: Lucy Zimmermann

Tutors: Dr. Rares Georgescu

Affiliations: University of Medicine, Pharmacy, Sciences and Technology of Targu Mures,

General Surgery Department, Spitalul Clinic Judetean Mures

Introduction: Liposarcomas are malignant tumors of the adipose tissue. These tumors commonly arise from deep soft tissues of the retroperitoneum and proximal extremities of people in their sixth and seventh decades of life. The three different subtypes which are well-differentiated, pleomorphic and myxoid have diverse behaviors and genetic modifications. Well-differentiated liposarcomas are usually less aggressive than pleomorphic ones. That's why the histological and genetic identification of the specific subtype is essential for a proper treatment. The aim of this case presentation is to emphasize the impacts of COVID-19 pandemic on the delayed diagnosis of giant retroperitoneal tumors.

Case report: A 67-years old female patient presented to the clinic and complaint about a growing abdominal mass and constipation. The patient reported about an onset four months ago. Due to increased COVID-19 incidences, the patient didn't show up to the clinic. During clinical examination the patient appeared in an asthenic constitution. At inspection the abdomen participated in respiration and a bulging tumoral mass could be observed at umbilical level. The mass was elastic, painless and immobile on palpation. During percussion a dullness of the right flank was noticed. The auscultation of abdomen revealed normal bowel sounds. An ultrasound was performed which showed an hyperechoic mass which compressed the small intestine towards the left side. Therefore a malignant tumor could be excluded and a suspicion of a lipoma was made. Furthermore the CT demonstrated a well delimited retroperitoneal tumor. The patient underwent laparotomy and a tumor with close contact with the vena cava inferior, gallbladder and aorta was oberserved. The tumor with a size of 213/164 mm was removed as well as the Gerotas fascia and the right ovary. Afterwards drainage tubes were placed in the Douglas and right laterocolic space. The histology and immunohistochemistry revealed a well-differentiated liposarcoma with a modification of p53 inhibitor MDM 2. There was no indication for an oncological treatment due to the low grade of the tumor. The patient was discharged with a favorable evolution after five days. Close observation of the patient is required in order to prevent recurrences.

Conclusions: This case demonstrates the problems of delayed treatment of tumerous lesion in context with the COVID-19 pandemic. Summarizing, guidelines, concerning these problems, could be helpful in preventing such delay of diagnosing and treatment during future pandemics.

When 'art' goes awry - a study of a severe tattoo complication requiring surgical treatment

Agata Szulia

Presenting author: Agata Szulia

Tutors: Anna Kasielska-Trojan, MD, PhD; Prof. Bogusław Antoszewski, MD, PhD

Affiliations: Medical University of Łódź, Poland,

Plastic, Reconstructive and Aesthetic Surgery Clinic, Medical University of Łódź

Introduction: Tattooing has become an increasingly popular body modification practice. Despite its growing prevalence and accessibility, complications are rarely talked about yet not-so-rarely observed by physicians. In particular, red ink tattoos are a frequent cause of adverse tattoo reactions. The allergic potential of the red ink might be explained by the origin of the pigment - red colour in tattoos is usually obtained from mercury and cadmium derivatives, carmine or cochineal, considered hazardous and allergenic chemicals, or primarily organic compounds such as azo dyes and quinacridone, considered safer for the skin, but which still carry a risk of adverse reactions. Although allergic reactions to red ink tattoo are well described in the literature, reports usually give account of itchy flare-ups of the tattooed area which resolve in the course of conservative or laser treatment. Here, we reported a case of a patient with systemic reaction to red pigment used in a tattoo, which required multiple staged surgical interventions and different reconstructive techniques.

Case report: We report a case of a 36-year-old Caucasian male referred to the Plastic Surgery Clinic by an allergist. The patient presented with systemic erythroderma and granulomas on red parts of tattoos on his right forearm as well as psioratic changes on his head, hands and feet. Immunosuppressive treatment lasting over one year did not relieve his symptoms. Elective lymphadenopathy and biopsy of the changed skin were conducted, and histologic examination demonstrated granulomas, eosinophile infiltration and extracellular red tattoo pigment deposits. Selective excision of the affected tattooed skin yielded relief of the symptoms, however this required multiple staged procedures and different reconstructive techniques (local flap plasty and skin grafts).

Conclusions: Albeit tattooing has become a widely popular and acknowledged as safe way of body modification, little is commonly known about potential complications it might entail, and thus it is essential to spread the awareness of possible drawbacks of tattoo art. Aside from mild adverse reactions which, although discomforting, respond well to conservative treatment or laser removal procedures, tattoos might also bring about serious health and life risks, and might require prolonged, potentially laden with side effects invasive treatment. Thus, taking into account the possibility of systemic reactions to tattoos, which might potentially cause disability and long term exclusion from social and professional life, as the one reported here, this should be taken into consideration when deciding on performing a tattoo. Moreover, there should be more effort put into raising public awareness concerning potential tattoo complications.

Unusual case study of short saphenous varicose vein mimicking neuroma

Mikołaj Malicki

Presenting author: Mikołaj Malicki

Tutors: Prof. Maciej Radek, MD, PhD; Jakub Jankowski, MD; Grzegorz Wysiadecki, PhD; Bartosz Szmyd, MD

Affiliations: Medical University of Łódź, Department of Neurosurgery, Spine and Peripheral Nerve Surgery

Introduction: Symptoms of peripheral nerve tumors may be unspecific and depend on the involved neural structures and lesion size. Patients usually present with palpable soft tissue mass accompanied by pain or other neurological symptoms. The diagnosis is based on radiologic techniques. However, there are situations when these tumors are difficult to distinguish from other pathologies located close to the nerve, even for experienced radiologists or surgeons. The presented case is a good illustration of the mentioned diagnostic problem. The patient developed a varicose vein mimicking tibial nerve neuroma in imaging pictures. Such a case has not been reported in the literature previously.

Case report: A 25-year-old Caucasian female presented to the Department of Neurosurgery with a lump in the left popliteal fossa accompanied by excruciating pain in the lower leg with additional paresthesia on the posterolateral side of the left ankle. Other systemic diseases or taking any medications were excluded. Magnetic Resonance Imaging revealed a heterogeneous focal lesion located peripherally in the left popliteal fossa, in the subcutaneous tissue between the medial and lateral head of the gastrocnemius muscle. The lesion sack was filled with blood in the methemoglobin phase. This image was assessed as indicative of the tibial nerve neuroma complicated by bleeding. To confirm the initial diagnosis, a biopsy under ultrasound guidance was performed, but the material obtained during this procedure was non-diagnostic. In this situation, the patient was qualified to surgery. During the surgery, the short saphenous vein varicose was visualized. Finally, the vein's abnormal segment was ligated. Following the surgery, all previously reported symptoms resolved.

Conclusions: The presented case shows, that sometimes, proper diagnosis of nerve or nerve compressing lesions may be challenging even for experienced radiologists. Thus, the final diagnosis is established intraoperatively and after histopathological examination.

Pneumomediastinum Resultant of Isolated Oral-Maxillofacial Trauma- Case Report

Olesya Marushko HBSc, Olesya Marushko RDH, Sylvia Wyzga BSc

Presenting author: Olesya Marushko

Tutors: Aleksy Nowak MD, Łukasz Słowik DDS, Chairman dr hab. Krzysztof Osmola, DDS, MD, PhD

Affiliations: Chair and Department of Maxillofacial Surgery Poznan University of Medical Sciences
Doctoral School of Poznan University of Medical Sceinces

Introduction: The clinical manifestation of visceral injury pneumomediastinum is rarely attributed secondary to facial trauma. Limited data has documented the correlation of post-oral maxillofacial fracture mediastinal and cervical emphysema manifestation. Herein, we present an atypical case of pneumomediastinum consequent to isolated oral-maxillofacial trauma.

Case report: The presented case study documents a 23-year-old male admitted to the emergency department of Szpital Kliniczny im. Heliodora Święcickiego in Poznan, due to a beating. Two deviations were documented during the physical examination, trismus and subcutaneous emphysema in the left cheek to the thyroid cartilage. The panoramic radiograph determined that the patient had a fracture of the ramus of the mandible from the angle to the coronoid process without displacement. In addition, neck and craniofacial CT showed a fracture of the posterior wall of the left maxillary sinus with small invagination to the lumen of the sinus and confirmed large emphysema of soft tissue of left mesenteric space, left infratemporal fossa and both parapharyngeal spaces to the mediastinum. The chest CT scans demonstrated the presence of a small pneumomediastinum in the upper and lower mediastinum to the level of trachea furcation. Pneumomediastinum was treated with the administration of amoxicillin with clavulanic acid as prophylaxis. Two days after the initial visit, a chest X-ray was performed, which revealed no sign of pneumomediastinum, and intermaxillary fixation was placed. A follow-up appointment showed no deviations.

Conclusions: This patient's identifying findings and scans alluded to post maxillofacial trauma air spread, causing subcutaneous emphysema and pneumomediastinum. The entrance route can be hypothesized as through the fracture of the posterior wall of the left maxillary sinus. Forced air through isolated facial injury can enter the parapharyngeal and retropharyngeal space. The air can disseminate further into the prevertebral potential space and fascial planes, causing emphysema in the face and mediastinum. A complete diagnostic examination, including neck, craniofacial and chest CT scans of a patient, is required to detect pneumomediastinum. Common symptoms upon physical examination may appear inconclusive; for instance, frequent pneumomediastinum indication, Hamman's sign, was not reported in this patient. Despite the atypicality of pneumomediastinum manifestations in oral maxillofacial isolated traumas, they are present and require vigilant diagnosis and proper treatment modalities as presented in this case.