14th Bialystok International Medical Congress for Young Scientists

Book of Abstracts

Białystok 2019
Redaktor: Małgorzata Kowalska, Monika Oleksiuk, Bogumiła Szewczak, Sylwia Bajko
Korekta: Anna Krętowska, Aleksandra Basaj

Grafika: Marta Śleszyńska

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Dear Colleagues,

It is a great pleasure for me to welcome the participants of the 14th Bialystok International Medical Congress (BIMC) from Poland, Lithuania, Belarus, Ukraine and Latvia who came to Bialystok in order to exchange scientific experience and have a good time for a few days in one of the most enjoyable cities of Poland.

We are truly happy and privileged to welcome you at Medical University of Bialystok. This is thank to your continuous interest and kindness that BIMC has become one of the most vibrant congresses gathering hundreds of young scientists from different European countries. I wish to thank warmly the Organizing Committee of the 14th BIMC for their enormous dedication, contagious energy and numberless efforts they put into making this event so unique. Let me extend special thanks to all members of faculty of the Medical University of Bialystok who agreed to sacrifice their time in order to share their experience and scientific advice during numerous scientific sessions.

We are currently living in times of continuous change and unprecedented access to limitless information. It all frequently leads to some kind of disorientation and only superficial gain of knowledge. As we all know this is not the way we can make progress in life sciences and this is not the way we can really solve problems of diagnosis, prognosis and treatment of numerous diseases we have to fight with on daily basis. It all takes passion, patience and perseverance. These three should go together which is not that frequent nowadays. Therefore I would like to extend special thanks to all of you for engaging in research activities. Your dedication should be highly appreciated and I wish your work will be a source of personal and professional satisfaction. And last but not least, let’s hope you’ll all discover that doing a good science is just a lot of fun.

We are very fortunate to live in a beautiful city of Bialystok and I hope you will manage to find time to enjoy the unique spirit of this place.
Let me close this address by wishing you a delightful and stimulating stay in Bialystok.

With best regards,

Prof. Marcin Moniuszko, MD, PhD
Vice-Rector for Scientific Affairs
Medical University of Bialystok
Supervisors:

Prof. Adrian Chabowski - MUB Vice-Rector for Student Affairs
Prof. Marcin Moniuszko - MUB Vice-Rector for Scientific Affairs, Supervisor of MUB Students’ Scientific Society

The board of Students' Scientific Society of Medical University of Białystok:

Anna Krętowska - President of the Congress
Małgorzata Kowalska - Vice-President of the Congress
Monika Oleksiuk - Secretary of the Congress

Aleksandra Basaj, Andrzej Chomentowski, Bogumiła Szewczak, Kinga Danowska, Sylwia Bajko, Ewa Tałałaj, Nikoletta Iłowska, Bartłomiej Marcinkiewicz, Marcin Bany, Agata Niechoda, Cezary Pawłukianiec, Aleksandra Kwika, Piotr Kurzyka, Marta Paślawska, Dagmara Jabłońska, Ewelina Detka

Honorary members of Students’ Scientific Society of Medical University of Białystok:

Paulina Woźniewska, MD, Monika Król, MD
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Cardiology
Title: Nutritional status and its impact on clinical condition and biochemical parameters in patients hospitalized due to heart failure.

Authors: Krysztofiak H.¹

Tutor/Tutors: Marta Kalużna-Oleksy, PhD

University: ¹ Poznan University of Medical Science, Poland

INTRODUCTION: It is reported that heart failure (HF) is still increasing in prevalence. Affecting on both heart and other organs makes HF a very complicated and difficult to treat disease. It is observed that lots of patients with chronic diseases have problem with nutrition – loss of appetite, digestive problems, malabsorption. These examples contribute to developing malnutrition and cardiac cachexia, which is related with worse prognosis. That’s why it is crucial to find biomarker which can be helpful in assessment and management of malnutrition in HF patients.

AIM OF THE STUDY: To evaluate and compare nutritional status and clinical and biochemical parameters in patients with HF.

MATERIALS AND METHODS: We enrolled 100 consecutive patients hospitalised due to HF in Clinic of Cardiology I at Poznan University of Medical Science. We used polish version of MNA form (Mini Nutritional Assessment) consisting of 2 parts: Screening and Assessment. To assess clinical state we considered chosen echocardiographic parameters, NYHA class and exacerbation of HF. We also studied results of blood tests, especially: blood cells morphology, natriuretic peptides and lipid panel.

RESULTS: The mean age of the patients was 55±11 years. In the study cohort 40% patients had a normal nutritional status (group 1), 52% were at risk of malnutrition (group 2) and 8% were malnourished (group 3). 34% were obese (BMI>30kg/m²). Patients in group 3 had higher NYHA class and were hospitalized due to decompensation of HF more often in comparison with other groups (p=0,0016). We observed significant lower Total Cholesterol and LDL-C levels in group 3 (CHOL-T p=0,037, LDL-C p=0,039), as well as lower fasting glucose levels (group 1 – 6,09±1,02mmol/l, group 3 – 5,56±2,02mmol/l, p=0,039) and higher bilirubin levels (p=0,028). There weren’t any association between echocardiographic parameters and nutritional status.

CONCLUSIONS: Most patients in the analyzing group had inappropriate nutritional status. Higher risk of exacerbation of HF and more severe disease outcome are associated with malnutrition. However there are some biochemical parameters as e.g. total cholesterol or fasting glucose level which correlate with nutrition status but more research are needed to find biomarker of malnutrition in heart failure patients.
INTRODUCTION: Brain natriuretic peptide is scientifically proven and clinically used blood marker for chronic heart failure. However, newest researches show that Brain natriuretic peptide is a good marker for different cardiovascular diseases and a good cardiovascular mortality predictor for patients with and without chronic heart failure.

AIM OF THE STUDY: The objective of this study was to analyze Brain natriuretic peptide as a cardiovascular diseases marker and predictor of cardiovascular mortality.

MATERIALS AND METHODS: In a retrospective analysis, clinical data from Riga East University Hospital patients who were tested on Brain natriuretic peptide in 2017 was used. From 584 patients, 82 were randomly selected to analyze their medical records. Patients NT-Pro BMP levels were analyzed as well as NYHA stage, other cardiovascular diseases, comorbidities, diabetes mellitus, and hospital mortality. Statistical analysis was performed by using SPSS software.

RESULTS: 82 patients’ medical records were analyzed. 54.9% were male, 45.1% were female. The median age was 70 years. Patients were divided into 3 groups based on NT-Pro BMP levels: Normal (≤125), Middle high (125 - 900), Very high (>900). By comparing groups statistically, significant was connection with NYHA stages (p<0.001), but other correlations with other cardiovascular diseases, diabetes mellitus, comorbidities, and hospital mortality were statistically insignificant. But NT-pro BMP levels, without group division, had statistically significant correlation with NYHA stage (p<0.000), other cardiovascular diseases (p<0.004) and hospital mortality (p<0.014). NT-pro BMP levels were not statistically significantly associated with comorbidities and Diabetes mellitus.

CONCLUSIONS: Data analysis demonstrates that Brain natriuretic peptide level is statistically significantly connected with heart failure and NYHA stages, other cardiovascular diseases, and hospital mortality. Brain natriuretic peptide can be used as a marker for patients’ cardiovascular health for patients with and without Heart failure. Division by groups wasn’t successful may be due to small groups or inappropriate levels of NT-Pro BMP in each group, NT-Pro BMP levels higher than normal is hard to interpret further, because of lack of precise guidelines.
**Title:** Evaluation of the reference values of aortic pulse wave velocity in healthy subjects using doppler echocardiography.

**Authors:** Ludwiczak M.¹, Cienszkowska K.¹

**Tutor/Tutors:** dr hab. n. med. Grzegorz Styczyński, dr hab. n. med. Cezary Szmigielski

**University:** ¹ Department of Internal Medicine, Hypertension and Vascular Diseases, Medical University of Warsaw, Poland

**INTRODUCTION:** Aortic pulse wave velocity (aPWV) is a measure of aortic stiffness, which is an indicator of cardiovascular risk factor and vascular aging. aPWV can be measured with various methods. The Doppler echocardiography is potentially widely accessible and recently had been shown to have high correlation with invasive reference method of aPWV based on intraarterial pressure evaluation.

**AIM OF THE STUDY:** The aim of the study was to establish reference values of aortic pulse wave velocity, measured by Doppler echocardiography in healthy subjects.

**MATERIALS AND METHODS:** 94 healthy adults (well-functioning, normotensive, non-smoking, free of chronic diseases and medications) were included. All the patients were divided into 5 groups due to age criterion (21-30 yrs., n=22; 31-40 yrs., n= 18; 41-50 yrs., n=23; 51-60 yrs., n=16; and 61-70 yrs., n=15). During the echocardiographic examination with a standard cardiac probe ten Doppler waveforms were recorded in the distal aortic arch and in the left external iliac artery. The transit time was calculated as a difference between time delay of the two points of the Doppler recordings relative to ECG signal. The distance between proximal and distal points was measured over the body surface using a flexible measuring tape. aPWV values were calculated according to the formula PWV = distance/transit time.

**RESULTS:** The mean age of the studied group was 43±13 yrs., BMI 24.5±3.4, SBP 123±10.44 mmHg and HR 64±10 bpm. There was significant positive correlation of aPWV with age (Pearson correlation coefficient 0.68, p<0.0001) and SBP (Pearson correlation coefficient 0.42, p<0.0001). aPWV did not differ according to sex. Mean aPWV values with 95% confidence interval (95%CI) for each decade of life were as follows: age 21-30, aPWV 4.59 m/s (95%CI 4.38 to 4.80); age 31-40, aPWV 4.73m/s (95%CI 4.37 to 5.08); age 41-50, aPWV 5.26 m/s (95%CI 4.95 to 5.57); age 51-60, a PWV 5.85 m/s (95%CI 5.32 to 6.39); age 61-70, a PWV 6.99 m/s (95%CI 6.50 to 7.47).

**CONCLUSIONS:** We report age-related values of aPWV in a healthy population measured by Doppler echocardiography. This may be helpful in future research exploring the associations between aortic stiffness, cardiac function and cardiovascular morbidity and mortality.
Title: Extracellular vesicles as a source of new biomarkers in acute myocardial infarction

Authors: Gajewska M. 1, Siwik D. 1, Karoń K. 1

Tutor/Tutors: Aleksandra Gąsecka

University: 1 1st Department of Cardiology, Medical University of Warsaw, Poland

INTRODUCTION: Extracellular vesicles (EV) are membranous structures released into the bloodstream from various types of cells are used in intercellular communication. The concentrations of EVs have recently been found to change in various physiological and pathophysiological states, including acute myocardial infarction (AMI). Therefore, EVs could possibly be new biomarkers of AMI.

AIM OF THE STUDY: We aimed to assess the usefulness of 4 subtypes of EVs, released from various cells as potential biomarkers to differentiate between AMI and healthy controls.

MATERIALS AND METHODS: 30 patients (mean age 64±9 years, 28% females) with the first AMI, treated with percutaneous coronary intervention (PCI) and double antiplatelet therapy with ticagrelor and aspirin, were enrolled in the study. 30 age- and gender-matched healthy volunteers were enrolled in the study as a control group. Venous blood was collected three times from patients: 24h, 72h and 60 days after AMI, and once from healthy volunteers. Flow cytometry (Apogee A60 Micro) was used to measure the plasma concentrations of EVs from activated platelets (CD61+/P-selectin+ or CD61+/fibrinogen+), endothelial cells (EEVs; CD146+) and leukocytes (LEVs; CD45+).

RESULTS: Concentrations of PEVs (CD61+/P-selectin+ or CD61+/fibrinogen+) were higher in patients 72h after AMI (p=0.07) and 6 months after AMI (p=0.02) than in healthy volunteers. Concentration of EEVs was lower in patients 24h after AMI compared to volunteers, and shown an upward tendency72h after AMI(p<0.01), which continued 6 months after AMI (p<0.001) up to the level comparable to healthy volunteers. Concentration of LEVs remained comparable in patients and healthy volunteers at each time point (p>0.05).

CONCLUSIONS: Patients with AMI have increased concentrations of PEVs and decreased concentrations of EEVs compared to healthy volunteers, implying a potential applicability of these EVs as AMI biomarkers. Elevated concentration of PEVs up to 6 months after AMI can potentially indicate both present and past AMI. Application of PEVs as AMI biomarkers requires further studies.
Title: Relation of right ventricular function to health-related quality of life and outcomes after cardiac resynchronization therapy

Authors: Saniukaitė A.1, Rugieniūtė J.1

Tutor/Tutors: Doc. Vytautas Zabiela, Doc. dr. Diana Žaliaduonytė-Pekšienė

University: 1 Department of Cardiology, Lithuanian University of Health Sciences, Lithuania

INTRODUCTION: Right ventricular (RV) dysfunction has been associated with adverse clinical outcomes in patients with heart failure (HF). Studies have shown that cardiac resynchronization therapy (CRT) significantly improves RV size and function in patients with HF.

AIM OF THE STUDY: To evaluate the interplay between RV function and health-related quality of life and outcomes of CRT.

MATERIALS AND METHODS: This retrospective study included 155 patients with CRT device implanted at a tertiary care centre between 2013 and 2017. Data were collected from case histories. The following data were analyzed: type of CRT device, major disease, heart rhythm, NYHA (New York Heart Association) functional class after CRT, transthoracic RV echocardiographic parameters at baseline and follow-up (tricuspid annular plane systolic excursion (TAPSE)), basal RV diameter, tricuspid annular systolic velocity (TASV), RV systolic pressure (RVSP). Patients were contacted and interviewed using Minnesota Living with Heart failure Questionnaire (MLHFQ) after CRT. Data were analyzed using Mann Whitney’s U, Kruskal-Wallis tests and descriptive statistics. Differences were considered statistically significant when p<0.05.

RESULTS: 114 (73.5%) males, 41 (26.5%) females were enrolled in the study, the mean age was 67.1 years (standard deviation (SD) 10.02). From 2013 to 2017, 29 (18.8%) patients died. There was statistically significant coherence between atrial fibrillation after CRT and increased baseline basal RV diameter (p=0.018), higher RVSP (p=0.032) and lower TAPSE values at follow-up (p=0.044). Arrhythmogenic cardiomyopathy was significantly associated with increased baseline basal RV diameter (p=0.023) and decreased TASV (p=0.042). However, there was no statistically significant difference between RV echocardiographic parameters and mortality, health-related quality of life, NYHA functional class and type of CRT device.

CONCLUSIONS: Baseline RV function may not be completely helpful in selecting patients for CRT. Our study shows that RV function does not correlate with health-related quality of life and outcomes of CRT, but it is related to heart rhythm.
**Title:** Percutaneous treatment of left main coronary artery: evaluation of in-hospital outcomes in patients disqualified from bypass surgery

**Authors:** Skorupski W.1

**Tutor/Tutors:** Marta Kałužna-Oleksy, Marek Grygier

**University:** 1 I Department of Cardiology, Poznan University of Medical Sciences, Poland

**INTRODUCTION:** Left main coronary artery (LM) disease is a life-threatening condition, so the invasive treatment is crucial for the survival of the patients. In the past, LM stenosis was reserved only for cardiac surgery. Current ESC guidelines still favors coronary artery bypass graft (CABG) as the only one method for LM disease with diffuse coronary artery disease (CAD). However, in less advanced CAD percutaneous coronary intervention (PCI) of LM disease is a method of choice. Moreover in some patients disqualified from the CABG, LM PCI should be considered.

**AIM OF THE STUDY:** Evaluation of in-hospital safety and efficacy of LM PCI in patients disqualified from CABG surgery.

**MATERIALS AND METHODS:** Consecutive 346 patients (mean age: 68.8±9.8) in whom PCI of LM was performed (between January 2015 and September 2017) were included in the study. The study group consisted of 296 patients in whom PCI was offered as an alternative to CABG (Group 1) and 50 patients who were disqualified from CABG by heart team (Group 2). The clinical and angiographic data of these patients including in-hospital outcomes has been analyzed.

**RESULTS:** The whole LM PCI group consisted of 73.9% men and 26.1% women. There were no differences in sex and age between both study groups. Comorbidities did not differ significantly between two study groups. Angiographically calculated SYNTAX Score (28.7±9.8 vs 23.1±10.3; p<0.01) and Euroscore II (2.64 vs 2.21; p=0.038) were significantly higher and ejection fraction was lower (45% vs 51%; p<0.01) in Group 2. That group of patients more often required complex stenting techniques (34.9% vs 19.12%; p=0.019). Procedure success rate was very high (99%) and did not differ between two study groups. All periprocedural complications (10% vs 7.12%; p=0.67) and the frequency of myocardial infarction (8% vs 4.07%; p=0.39) did not differ among the groups. No strokes and deaths occurred in Group 2, however two deaths were reported in Group 1.

**CONCLUSIONS:** LM PCI in patients disqualified from bypass surgery is effective procedure with low in-hospital complication rate. This life saving treatment, remains the only option for such patients. Further studies with long-term follow-up are necessary to confirm benefits of this treatment strategy.
Title: Eccentric left ventricular hypertrophy risk factors in patients with stable coronary artery disease

Authors: Krawiel M., Muszyński P., Pawlukianiec C., Niechoda A., Kuryłonek S.

Tutor/Tutors: Ass. prof Marcin Kożuch, MD, PhD

University: Department of Invasive Cardiology, Medical University of Bialystok, Poland

INTRODUCTION: Structural remodeling of the left ventricle (LV) occurs secondary to many diseases or as an adaptation to chronic haemodynamic overload. The eccentric LV hypertrophy is diagnosed using echocardiography and specific criteria composed of increased LV mass index (LVMI) and low relative wall thickness (RWT). In many studies eccentric hypertrophy was connected with higher mortality. Therefore, there is a need of better understanding of its risk factors in order to create effective prophylactic tools. The prevention is especially important in patients with coronary artery disease, already in higher risk of major adverse cardiovascular and cerebrovascular events.

AIM OF THE STUDY: Aim of our study was to evaluate risk factors of eccentric hypertrophy.

MATERIALS AND METHODS: The study population consisted of 1031 patients with stable coronary artery disease admitted into Invasive Cardiology Department. Average age was equal 66.71±10.06 y (Men: 68.57%). Patients were categorized into four groups using criteria from Recommendations for Cardiac Chamber Quantification by Echocardiography in Adults (2015). In our study we compared normal geometry (23.18%) vs. eccentric hypertrophy (24.83%). Analysis was performed retrospectively. Statistical test U Mann-Whitney, t-test, odds ratio (OR) were used. P value ≤ 0.05 was considered as significant.

RESULTS: Our study shows that age, diabetes mellitus, dyslipidemia, hyperthyroidism, hyperuricemia, aortic stenosis, aortic regurgitation, mitral regurgitation, higher heart rate, multivessel coronary artery disease may be considered as risk factors of eccentric hypertrophy. We noticed that eccentric hypertrophy has an impact on both systolic and diastolic LV function and is connected with increased left atrium, RV, systolic pulmonary artery pressure and lower acceleration time. Eccentric hypertrophy was more often complicated by heart failure, atrial fibrillation, interventricular blocks, need of stimulating device and longer length of stay in hospital.

CONCLUSIONS: The eccentric hypertrophy may affect both function of LV and RV. Therefore, in clinical practice we should focus on treatment, prevention of coronary artery disease, hyperuricemia and valve dysfunction. Such approach may prevent the eccentric hypertrophy.
Title: Alterations in the cardiovascular system in patients with cirrhosis - assessment of a haemodynamic profile.

Authors: Kusztal M.\(^1\), Bodys A.\(^1\), Babiarz A.\(^1\)

Tutor/Tutors: Główczyńska Renata, MD, PhD; Raszeja-Wyszomirska Joanna, MD, PhD

University: \(^1\) 1st Chair and Department of Cardiology, Medical University of Warsaw, Medical University of Warsaw, Poland

INTRODUCTION: Cirrhotic cardiomyopathy (CCM) is a condition concerning heart muscle dysfunction, occurring among patients with cirrhosis. Cirrhosis leads to the development of a hyperdynamic syndrome, which is manifested by high cardiac output, increased heart rate and effective arterial blood volume, accompanied by reduced total systemic vascular resistance. Continuous Noninvasive Arterial Pressure (CNAP) device allows to assess patient’s haemodynamic profile in a completely non-invasive way. The results acquired from CNAP are highly accurate and precise compared to the invasive methods such as thermodilution and pulse contour cardiac output.

AIM OF THE STUDY: The aim of the study is to screen patients with cirrhosis, which may lead to earlier diagnosing CCM and hyperdynamic syndrome with its consequences among them.

MATERIALS AND METHODS: The study included 70 patients over 18 years old, with cirrhosis, caused by alcohol ([ALD], 22), autoimmune (26), viral (9) other reasons (13), qualified for liver transplantation. 39 of them were male. Median age was 47. We disqualified patients with a history of cardiovascular diseases. Each patient had a 6-minute walking test (6MWT) done and a hemodynamic monitoring using CNAP device was also performed.

RESULTS: There were no statistical difference in distance median value between aetiological groups (407m in ALD patients group, 412,5m in autoimmune patients group, 384m in viral patients group and 400m for other aetiology patients group; p=NS). The distance was not related to severity of the liver disease based on Child-Pugh score, but was correlated to MELD score (r=0,26 ; p=0,038). Preliminary results show statistically significant correlations between distance in 6MWT and eGFR (r=0,78; p=0,0082), Systemic Vascular Resistance(SVR) at the end of 6MWT (r=0,197 ;p=0,0011), Diastolic Blood Pressure (DBP) at the end of 6MWT (r=0,45;p=0,014) and NT-proBNP (r=0,28 ;p=0,0008) level, patient’s weight (r=0,286; p=0,044) and height (r=0,37; p=0,008).

CONCLUSIONS: Preliminary results show that we can detect alterations in patients’ haemodynamic parameters, that may be important in predicting the subclinical cirrhotic cardiomyopathy, expected heart failure and patients’ survival.
Title: Influence of regional features of fatty tissue distribution on structural and functional state of cardiovascular system

Authors: Podgolina E.¹

Tutor/Tutors: Irina V. Pateyuk

University: ¹ Belarusian State Medical University, Belarus

INTRODUCTION: Today, obesity is renowned as a non-infectious epidemic of nowadays due to it’s spread among the population. According to the recent research the volume of pericardial fat has a connection with the risk of coronary artery disease, early calcification of the coronary arteries, metabolic syndrome (MS), diabetes mellitus, etc.

AIM OF THE STUDY: To study the impact of the regional distribution of adipose tissue features on some indicators of the structural and functional state of the cardiovascular system.

MATERIALS AND METHODS: Patients with ischemic changes according to daily ECG monitoring and CT-angiography were included in our research.

RESULTS: 1. According to our research, abdominal obesity doesn’t affect the level of the calcium index (CI). This fact confirms the "paradox of obesity" phenomenon. 2. Reliable differences in CI were revealed among the patients of observation subgroups, depending on the presence of epicardial obesity (an increase in the values of the CI is observed among the patients without abdominal obesity and with excessive accumulation of epicardial adipose tissue, which clearly indicates the presence of an atherosclerotic process and atherosclerotic plaques. 3. Myocardial ischemia with the presence of abdominal obesity is expressed with a large indicator of the ischemia total duration per day. 4. Myocardial ischemia is more pronounced among the patients with epicardial fat (according to daily ECG monitoring, the total duration of ischemia per day is significantly higher) and is accompanied by significant arrhythmias (paroxysms of atrial fibrillation and 30.7% of supraventricular tachycardia episodes were detected among 23.8%). 5. The degree of coronary artery stenosis among the patients with the excessive accumulation of epicardial adipose tissue corresponded to CAD-RADS 2, that confirms the presence of non-obstructive stenosis among the patients.

CONCLUSIONS: Calcification of the coronary arteries among the individuals with epicardial obesity is more pronounced than among patients without epicardial obesity. It’s associated with the high risk of IBs complications. In accordance with the results of our research, epicardial obesity can be considered as possible criterion of high cardiovascular risk.
Title: Lipid peroxidation and antioxidant defense activity in patients with mild to moderate hypertension and metabolic syndrome

Authors: Shishko V.1

Tutor/Tutors: A. Karpovich

University: 1 Cardiology, Grodno State Medical University, Belarus

INTRODUCTION: Hypertension (HT) is the most common cardiovascular diseases (%u0421VD) worldwide and has primary contribution into CV mortality because of it. Among persons with hypertension, the prevalence of MS is 74%. The set of metabolic disorders observed in MS suggests the intensification of lipid peroxidation (LPO) in this syndrome as well.

AIM OF THE STUDY: to estimate the activity of lipid peroxidation and antioxidant defense system in patients with mild to moderate hypertension and a metabolic syndrome.

MATERIALS AND METHODS: The study includes 22 people of working age with mild to moderate HT, with the signs of MS, who made up the main group. The average age of the people was 45.3 ± 9.6 years old, 14 males (63.6%), 8 females (36.4%). The comparison group consists of 18 people with mild to moderate HT without the signs of MS. MS was diagnosed using criteria JIS 2009. The intensity of (LPO) and (ADC) was assessed by the content of diene conjugates (DC) and malondialdehyde (MDA) in packed red blood cells and blood plasma, as well as the concentration of GSH (glutathione), catalase, retinol and tocopherol in blood plasma. The analysis of the data obtained was performed with the help of Statistica 10.0, using nonparametric methods of statistics.

RESULTS: When comparing the activity indicators of the LPO processes in patients of the main group, there is a higher content of primary and secondary LPO products than in patients of the comparison group: DC of packed red blood cells are 23.1 (21.9; 22.2) and 18.4 (15.0; 18.8), p = 0.001; plasma DC are 14.5 (9.9; 17.9) and 12.0 (7.2; 12.7), p = 0.007; MDA of packed red blood cells is 10.5 (9.9; 11.4) and 8.9 (8.4; 9.2), p = 0.008. The activity indicators of the antioxidant defense system in patients with MS in comparison with patients without MS, on the contrary, were significantly lower: tocopherol is 13.3 (11.6; 15.8) and 20.9 (17.5; 26.8), p = 0.037; retinol is 0.9 (0.8; 0.9) and 2.0 (1.8; 2.4), p = 0.02.

CONCLUSIONS: Patients with mild to moderate and MS have an intensification of LPO processes and a decrease in the activity of the antioxidant defense system. The imbalance between pro-oxidants and antioxidants indicates a higher level of oxidative processes in MS.
**Title:** Clinical characteristic of patients with HFmrEF - comparison to HFpEF and HFrEF.

**Authors:** Kubinowska B.¹, Bodys A.¹, Durmaj A.¹, Kawa J.¹, Pietrzak L.¹, Wysocki K.¹

**Tutor/Tutors:** Monika Budnik, MD, PhD; Agnieszka Kapłon-Cieślicka, MD, PhD

**University:** ¹ 1st Department of Cardiology, Medical University of Warsaw, Poland

**INTRODUCTION:** The prevalence of heart failure (HF) in developed countries reaches 1-2% of the adult population. Recent ESC guidelines for the diagnosis and treatment of HF identified a grey area, called mid-range ejection fraction (HFmrEF), which reflects EF ranging from 40 to 49%, along with additional criteria.

**AIM OF THE STUDY:** To determine and compare demographic and clinical characteristic, and comorbidities of patients with HFmrEF to those with reduced (HFrEF) and preserved EF (HFpEF).

**MATERIALS AND METHODS:** A study included consecutive patients admitted to the Department of Cardiology from Jan 2016 to Jan 2017. Demographic information, comorbidities, symptoms, results of biochemical blood test, echocardiographic examination and treatment schemes were collected. P-value <0.05 was considered statistically significant.

**RESULTS:** A total of 584 patients (mean age 70 years, 25% women) with diagnosed HF were included. Among participants 12% had HFpEF, 27% HFmrEF and 61% HFrEF. Patients with mrEF were younger compared to pEF, but older than those with rEF (72 vs 76 vs 68 years, in mrEF, pEF and rEF, respectively). The prevalence of female patients was 29% in mrEF, compared to 49% in pEF and 18% in rEF. Mean NTproBNP value in mrEF was 3580 pg/ml and was higher than in pEF, but lower than in rEF group. Compared to pEF, patients with mrEF more frequently had a history of malignancy (23 vs 12%), CAD (57 vs 42%), MI (58 vs 18%) and PCI (43 vs 16%), but less often diabetes (35 vs 49%), AF (43 vs 58%) and HCM (1 vs 5%). They were more likely to use statins (76 vs 64%) and antiaggregants (61 vs 33%) but used less NOAC (12 vs 24%). In turn, patients with mrEF in comparison to rEF more often had obesity (22 vs 9%) and anaemia (48 vs 28%), but less often did they smoke (32 vs 38%) and were less frequently treated with AA (32 vs 64%).

**CONCLUSIONS:** The results of the study show that over 1/4 of patients with HF are classified as mrEF. Although their basic characteristics: age, sex and NTproBNP values were in-between other groups, the prevalence of some comorbidities: malignancy, obesity, anaemia and diabetes was different. The history of CAD, MI and PCI was more common in this group, while that of AF and HCM less common. Different treatment schemes between groups were observed.
Title: The effect of ACE and HMG COA reductase inhibition on outcomes of transcathester aortic valve implantation

Authors: Leszczyński P.¹, Wiszniewski K.¹

Tutor/Tutors: Bartosz Rymuza PhD

University: ¹ 1st Chair and Department of Cardiology, Medical University of Warsaw, Poland

INTRODUCTION: Patients with severe aortic stenosis treated with transcatheter aortic valve implantation are a high risk population which is a result of several comorbidities. In most patients with severe atherosclerosis or heart failure statin and ACE inhibitors therapy are recommended. There has been some reports that these two groups of drugs may positively affect TAVI mortality.

AIM OF THE STUDY: To asses 2 year mortality in patients after TAVI in groups with high dose statin and ACE inhibitors therapy

MATERIALS AND METHODS: We analysed 239 consecutive patients treated with TAVI and devided them into high statin and high ACE inhibitor dosing groups based on the doses recommended after discharge from the procedure. We then compared mortality in both groups

RESULTS: Out of 239 patients only 20 (8,4%) were administered high dose statin and 55 (23%) took high doses of ACE inhibitors. The high statin cohort was characterised by higher risk profile (Euroscore I 26,7±10,2 vs 18,6±9,3; p=0,03) and higher rate of patients with depressed ejection fraction (20% vs 8,9%; p=0,002) when compared to ACE inhibitor group. The high ACE inhibitor group had lower 2 year mortality then general population (log rank p= 0,015) but when adjusted to ejection fraction the result where no longer significant

CONCLUSIONS: Although being at high cardiovascular risk, not all patients after TAVI are recommended high dose statin or ACE inhibitor therapy. Both groups of drugs didn’t show significant reduction in 2 year mortality in patients after TAVI.
Title: Ergospirometry as an important tool in evaluation of patients with pulmonary arterial hypertension

Authors: Michalski T., Pszczoła J.

Tutor/Tutors: Katarzyna Ptaszyńska-Kopczyńska, Bożena Sobkowicz, Karol Kamiński, Anna Lisowska

University: Department of Cardiology, Medical University of Białystok, Poland

INTRODUCTION: Pulmonary arterial hypertension (PAH) is a rare disease leading to right ventricular failure. The remodelling of the pulmonary vessels results in an increase of resistance and pressure of pulmonary arteries. The clinical evaluation is crucial in assessment of disease severity and treatment effectiveness.

AIM OF THE STUDY: The aim of the analysis is to estimate the usefulness of the ergospirometry in the valuation of the patient’s clinical status against the background of other parameters of additional tests.

MATERIALS AND METHODS: A retrospective analysis included 37 patients with PAH (17 women). The average age was 51 ± 17 years. Descriptive statistics of the results of studies relevant to the condition of patients with PAH were compiled, and the relationship between standard parameters of clinical assessment and ergospirometry was analyzed. The following were taken into account: laboratory tests, ie NT-proBNP, echocardiography, 6-minute walk test, and WHO functional class. The statistical analysis was done with the Statistica 13.

RESULTS: The data analysis revealed that peak oxygen uptake (VO2 peak) correlates positively with 6-MWT distance (R=0.59, p=0.007) and negatively with WHO class (R=-0.47, p=0.036). The minute ventilation/carbon dioxide production (VE/VCO2) slope correlates positively with tricuspid regurgitation peak gradient - TRPG (R=0.61, p=0.028), systolic pulmonary artery pressure - sPAP (R=0.63, p=0.02), mean pulmonary artery pressure - mPAP (R=0.63, p=0.02) assessed in echocardiography. Descriptive statistics of the above parameters are as follows: median for VO2 peak [ml/kg/min] is 15.35 (interquartile range: 11.90 – 17.10) and for VE/VCO2 slope is 43.75 (interquartile range: 35.45 – 48.26).

CONCLUSIONS: Ergospirometry is an important part of the clinical evaluation of patients with pulmonary arterial hypertension. The standard ergospirometry parameters such as VO2 peak and VE/VCO2 slope reflect the echocardiographic assessment of pulmonary artery pressures.
Title: Is ECG a good tool to diagnose left ventricular hypertrophy?

Authors: Pszczoła J., Zujko K.

Tutor/Tutors: DSc Anna Szpakowicz, DSc Anna Lisowska, Prof. Karol Kamiński

University: Cardiology Clinic, Medical University of Białystok, Poland

INTRODUCTION: Hypertension is a population disease and a major risk factor for cardiovascular complications, including left ventricular hypertrophy (LVH). LVH is an important parameter to monitor in the course of the disease. The simplest and the most available tool to diagnose LVH is ECG. Echocardiography provides more accurate estimation, however the access to this procedure is limited.

AIM OF THE STUDY: Assessing the prevalence of hypertension and LVH in a population study as well as evaluating usefulness of ECG in detecting LVH in comparison to echocardiography.

MATERIALS AND METHODS: The study group included 232 people, 87 men and 145 women from the group of probands of the Białystok PLUS study. The average age was 49,5 ± 15,6 years. Different criteria for hypertrophy in persons with conduction blocks were considered. Left ventricular hypertrophy in ECG was diagnosed based on the guidelines of the Polish Cardiac Society 2010. The left ventricle mass index (LVMI) was used to diagnose LVH in Echo and it was considered as a gold standard. Based on it, the sensitivity of ECG was calculated. A relationship between the diagnosis of hypertension and LVH was investigated. The results were analysed in the Statistica 13.

RESULTS: In our study 32% (N=75) of probands had history of hypertension. LVH in the echo was found in 34% (N=79) of group, however as much as 48,1% (N=38) of them had history of hypertension. On the other hand, in the patients with history of hypertension 50,7% (N=38) of them had LVH in the echo. ECG revealed LVH only in 24 persons. Only 10 patients with LVH had it confirmed in the ECG, which indicates sensitivity of ECG 12,7%. The highest sensitivity method for detecting in ECG was Cornell criteria. The specificity of ECG in diagnosis of LVH is 90,85%.

CONCLUSIONS: Hypertension is a prevalent problem in the population of Białystok PLUS study. A large proportion of patients with LVH do not have a diagnosis of hypertension, which may indicate unrecognized disease. A large proportion of patients with hypertension have LVH, which may indicate poor control of blood pressure. ECG did not perform well in diagnosing LVH. In about half of the hypertension history is accompanied by left ventricular hypertrophy.
Title: Stress echocardiography in patients with pulmonary hypertension- a pilot study.

Authors: Mickiewicz K.¹, Oleksiuk M.¹, Michalski T.¹

Tutor/Tutors: Katarzyna Ptaszyńska-Kopczyńska PhD, Prof. Bożena Sobkowicz, Prof. Karol Kamiński, Anna Lisowska DSc, Małgorzata Knapp DSc

University: ¹ Cardiology, Medical University of Białystok, Poland

INTRODUCTION: Pulmonary arterial hypertension (PAH) is a rare, progressive disease potentially leading to death. Stress echocardiography is a diagnostic method, that gives an important data on haemodynamic response to exercise, because the condition for effective therapy is to identify the diagnosis early and start proper treatment.

AIM OF STUDY: The aim of the study was to analyse relationship between the severity of the disease and the changes in the functioning of the right ventricle in the resting and stress echocardiography in patients with PAH.

MATERIALS AND METHODS: Study group consisted of 13 patients, 9 women, aged 22-73 (median- 51), diagnosed with PAH treated at Cardiology Department. The patients were subjected to stress echocardiography on cycloergometer and underwent assessment before and after exercise. Moreover the standard parameters of clinical assessment: NT-proBNP, WHO functional class, and 6-minute walk test were analyzed.

RESULTS: Eight patients were in WHO class III, 3 of them- WHO class II and 2- WHO class I. The median NT-proBNP concentration was 284,3 (140,64-1095,53) pg/ml. 6-Minute Walk Test distance was 467,5 (435-507) meters. The standard echocardiographic parameters assessed in echocardiography was taken during rest: RV diam 4CH- 2.23 cm (2.14-2.33), RV diast area- 32.35 cm² (26.95-41.78), RV sys area- 24.8 cm² (19.175-33.2), RV diast vol- 87ml (70.4-140.25), RV sys vol- 62.15ml (46.25-117.5), RA area- 20.4 cm² (16.8-27.3), RA vol- 75ml (45-107), RA vol index- 42.8ml/m² (24.85-57.05), TRPG-49mmHg (29-81.75) and post exercise: RV diam 4CH- 2.235cm (1.83-2.97), RV diast area- 34.75cm² (23.25-40.65), RV sys area- 24.7cm² (17.93-29.25), RV diast vol- 125ml (52.85-138), RV sys vol- 69ml (35.8-94), RA area- 18.8cm² (15.6-23.9), RA vol- 64ml (46.75-91.5), RA vol index- 27.2ml/m² (22.65-68.4) and TRPG- 71mmHg (53-112). There were observed statistically significant changes in four parameters- RV sys area (p=0.048), RV sys vol (p=0.009), RA area (p=0,035) and TRPG (p=0,001).

CONCLUSIONS: Stress echocardiography is an important tool in PAH patients’ assessment. During the exercise there are observed changes in the right ventricle hemodynamics, reflected in changes of right ventricular systolic volume and tricuspid regurgitation gradient.
Title: Comparison of two types of cardioplegia Del Nido vs. cold blood

Authors: Kuciński J., Górska A.

Tutor/Tutors: prof. dr hab. n. med. Deja Marek

University: Śląski Uniwersytet Medyczny, Poland

INTRODUCTION: Del Nido (DN) cardioplegia provides a heart in diastole lasting up to over 60 minutes. Single-dose DN cardioplegia may be a better solution for myocardial protection strategy than multi-dose cold blood Buckberg 4:1 cardioplegia (CB).

AIM OF THE STUDY: Compare myocardial protection using DN cardioplegia as alternative for classic CB cardioplegia in adults’ cardiac surgery.

MATERIALS AND METHODS: The study comprised 2108 patients, who underwent coronary artery bypass grafting (CABG=1331) or operation of heart valves (OHV=777) between 1 January’16 and 30 September’17. Patients from both groups were divided into two sections based on the type of cardioplegia administered during surgery. We compared postsurgery troponin levels, aortic cross clamp (AXC), cardiopulmonary bypass times (CPB) and mortality. For calculation we used Mann-Whitney test.

RESULTS: In CABG presurgery troponin level and EuroSCORE were higher in CB solution. Median age was equal in both groups. AXC and CPB times were significantly longer in DN section: 31(24-39) vs 27(21-36) min. for AXC, 56(44-68) vs 49(38-66) min. for CPB; p<0.001. Postsurgery troponin level was higher in DN section: 0.28(0.19-0.46) vs 0.26(0.18-0.40). In OHV between DN and CB group were no significant differences in presurgery troponin level and median age. EuroSCORE was higher for DN section. AXC and CPB times were significantly longer in DN: 62(50-77) vs 51(40-69) min. for AXC, 85(65-107) vs 70(55-92) min. for CPB; p<0.001. Postsurgery troponin level was comparable in both section: DN: 0.4(0.27-0.7) vs CB: 0.4(0.23-0.77).

CONCLUSIONS: Despite longer AXC and CPB times and higher EuroSCORE DN cardioplegia ensures similar myocardial protection to CB during OHV, for CABG using Buckberg’s solution can give a better results based on postsurgery troponin levels.
**Title:** Prevalence of polypharmacy with use of cardiological medication evincing anticholinergic effect among elders.

**Authors:** Pasławska M.¹, Muszyński P.¹, Oleksiuk M.¹, Chomentowski A.¹, Mickiewicz K.¹

**Tutor/Tutors:** Assoc. Prof. Marcin Kożuch, MD, PhD

**University:** ¹ Department of Invasive Cardiology, Medical University of Bialystok, Poland

**INTRODUCTION:** Cardiovascular diseases require complex treatment using β-blockers, Ca-blockers, ACEI, diuretics. These medications have positive impact on survival of the patients but may also evince adverse effects such as increased anticholinergic effect after being combined together. Polypharmacy is common among elderly people, who’s drug elimination capabilities are decreased. Drug-associated symptomatic anticholinergic effect in seniors may cause impairment of cognitive function or higher risk of falling down.

**AIM OF THE STUDY:** Assessment of the frequency of cardiovascular medications connected with anticholinergic effect among elderly patients. Secondary goal was to investigate risk factor of using more than 3 agents with anticholinergic effect.

**MATERIALS AND METHODS:** Study population consisted of 277 patients (age>80 y, male 55.96%) admitted into Department of Invasive Cardiology, University Hospital. Occurrence of acute myocardial infarction or unstable angina constituted exclusion criteria. Study consisted of analysis of patients’ medical history and treatment methods. Number of cardiovascular agents connected with anticholinergic effect was analysed. Study group was divided, 2 subgroups were compared: less than 3 vs. 3 or more drugs taken. The Chi-square test was used for statistical comparison of results. P<0.05 was considered as significant.

**RESULTS:** Cardiovascular agents with anticholinergic effect intake was high (98.56%). Almost 40% of patients used 3 or more drugs mentioned above. From most often to least used were: β-blockers, diuretics, Ca-blockers, isosorbide, α1-agonists. We were not able to found statistically significant risk factor of using 3 or more drugs evincing anticholinergic effect. However we noticed trends towards higher prevalence of this condition in female (p=0.069), patients with hypertension (p=0.062) and overweight ones (p=0.088).

**CONCLUSIONS:** Combining multiple cardiological medications with anticholinergic effect among elderly patients is high. Medical practitioners should be aware of administered drugs’ side effects and react when they appear by modification of the treatment method. Risk factors of taking cardiological drugs evincing anticholinergic effect should be further investigated.
Public Health I
INTRODUCTION: The American Institute for Cancer Research in 2018 has done research on cancer prevention and survival. Data on the risk of colorectum cancer have been reported to be increased by eating red meat, drinking alcohol, overweight, and the risk is decreasing of using dairy products and being physically active.

AIM OF THE STUDY: To evaluate the diet and lifestyle of patients with colorectum cancer.

MATERIALS AND METHODS: Based on a research on cancer prevention and survival study, I conducted a questionnaire and interviewed 50 patients with colorectum cancer, and a control group of 50 non-cancer patients. Patients were asked about diet and lifestyle habits before the disease.

RESULTS: The age of the first group of patients with colorectum cancer was 44-80 years, the average - 67.4 ± 12 years. The age of the second group was 25-79 years, the average of 46.7 ± 17.6 years. The constant weight average of the first group before the colorectum cancer was 76.4 ± 9.7 kg, the second group - 80.9 ± 14.4 kg. The average of BMI of the first group was 26.24 ± 2.1, the second - 26 ± 4.8. Red meat was eaten three times a week and more in the first group 26 (52%), in the second group - 21 (42%), p = 0.32. Seven (14%) were consuming three alcoholic drinks a week and more in the cancer group and 17 (34%) in the healthy group, p = 0.02. Non-starchy vegetables were eaten three times a week and more in the first group by 19 (38%), in the second group by 35 (70%), p = 0.001. There were 23 (46%) physically inactive in the first group, 7 (14%) in the second group, p = 0.001. In the first group exercised one or two times a week 3 (6%) research participants, in the second group - 20 (40%), p <0.05. In the first group, 14 (28%) of respondents did not use dairy products, in the second group - 5 (10%), p = 0.02. Dairy products were used three and more times a week in the first group by 7 (14%) respondents, in the second group by 38 (76%) respondents, p <0.05.

CONCLUSIONS: The group with colorectum cancer had a significantly lower alcohol consumption than the second group. Non-starchy vegetables were statistically significantly more commonly consumed by the second group. The respondents who do not have colorectum cancer were physically more active.
Title: Retrospective analysis of measles outbreak in Białystok county in 2016 among emigrant community.

Authors: Żywno H.¹, Betlejewska J.¹

Tutor/Tutors: Professor Joanna Zajkowska

University: ¹ Department of Infectious Diseases and Neuroinfections, Medical University of Białystok, Poland

INTRODUCTION: Measles is a highly contagious viral disease. The infection is characterized by fever, malaise, cough, coryza, and conjunctivitis, followed by exanthem. Following exposure, approximately 90 percent of susceptible individuals will develop measles. It remains an important cause of death among young children globally especially in developing countries, despite the availability of a safe and effective vaccine. Due to avoiding of vaccination we observe increasing measles appearance around the world and in Poland. In 2016, a total number of reported and suspected cases of measles in Poland were 133 with incidence 0.35 per 100,000.

AIM OF THE STUDY: The aims of the study were retrospective analysis of measles outbreak in Białystok County in 2016 among emigrant community and provide likely solutions of the problem.

MATERIALS AND METHODS: We described an outbreak of measles virus that took place in Białystok County among emigrant community between July and September 2016. We based on epidemiological and clinical information, which we received from PSSE in Białystok and Department of Infectious Diseases and Neuroinfections.

RESULTS: We identified total 22 cases from 1 month to 42 years old. 13 males (59%) and 9 females (41%) including 20 children (91%) and 2 adults (9%). All cases weren’t vaccinated. 11 cases were hospitalized (50%). There weren’t any complications and death cases. Serologic testing identified the virus (specific for measles IgM antibodies in serum were detected) in all cases. In 5 cases the isolation of the virus was performed (23%). No measles transmission beyond the outbreak place has been found.

CONCLUSIONS: According to our research, the main cause of occurrence of the measles outbreak was lack of the vaccination in emigrant community, whose probably transmitted measles virus from the east of Europe. It is important to enhance access to MMR vaccination to emigrants also a verification of immunological status should be performed if we want to prevent from appearing another measles outbreaks among emigrant communities in future.
INTRODUCTION: Routine assessment of patients with headache includes history, physical and neurologic examination which are sufficient to make a diagnosis. If neurological examination is normal, there is low probability for significant intracranial finding in chronic headache. In a case of red flag signs such as focal neurologic signs, neck stiffness, “thunderclap” onset and headache after trauma the physician should refer patient for detailed investigation. Family physicians often have to strike a balance between missing serious disease and over-investigating, which can be wasteful.

AIM OF THE STUDY: To investigate diagnostics of primary headaches in Lithuania.

MATERIALS AND METHODS: An anonymous original online survey was conducted from September 2018 to November 2018. The respondents were asked about their headache characteristics, visits to specialists and performed diagnostic tests. Statistical analysis was made using SPSS (22.0) software and p < 0.05 was considered statistically significant. Frequencies were used to determine percentage. Chi-Square Test was used to discover if there is a relationship between two categorical variables.

RESULTS: 282 individuals participated in study - 81.2 % women and 18.8 % men. Respondents were divided into age groups, with the majority of respondents aged 18-30 (59.9%). Most of the respondents experienced moderate (Visual analog scale (VAS) 4-5) and severe (VAS 6-8) pain (24.5 % and 51.8 % respectively). Half of all respondents visited their family physician due to headache (50 %). And almost a half of all respondents were consulted by the neurologist (42.9 %), an ophthalmologist (19.1 %). Neurovisual imaging such as computed tomography (CT) and/or magnetic resonance imaging (MRI) were performed in 88 cases (24.5% and 23% respectively). Both CT and MRI were more often performed in patients experiencing severe to unbearable pain (p<0.01). 31.6 % of participants claimed that their headache type was diagnosed by specialist, 4.3 % by family physician. Large number of participants still do not have an accurate headache diagnosis (50 %).

CONCLUSIONS: Our study may suggest that there is hyper-diagnostics while evaluating primary headaches. Sufficient diagnosis should be based on clinical findings.
Title: Microbial flora of the medical students’ stethoscopes

Authors: Kaczmarscyk M.¹, Kasperczak M.¹, Kończyk B.¹

Tutor/Tutors: prof. dr n. med. Tomasz Urbanek

University: ¹ Medicine, Medical University of Silesia, Poland

INTRODUCTION: Hospital-acquired infections are a great concern for healthcare professionals, patients, and their families. Taking into account morbidity, mortality and costs, precautions should be taken to prevent the spread of pathogens.

AIM OF THE STUDY: We conducted this study to determine the bacterial flora of the stethoscopes of medical students and raise awareness of the importance of disinfecting stethoscope diaphragms.

MATERIALS AND METHODS: Swab samples were collected from 20 stethoscope diaphragms for microbiological testing including bacterial identification, resistance mechanisms, and drug resistance. Then, we compared microbiological results. We also handed out questionnaires to identify their basic hospital hygiene behaviors.

RESULTS: Bacterial culturing revealed various bacteria inhabiting stethoscope membranes. The identification of antibiotic resistance indicates that some of the bacteria could be potentially risky in case of the contact with the patients at risk of bacterial infection including post-surgical patients and patients with immunodeficiency diseases.

CONCLUSIONS: This study shows that students should be reminded to disinfect stethoscopes more often as they might become a source of infection transmission which could be easily prevented.
Title: Are your hands clean? The evaluation of practices and knowledge on surgical hand preparation among medical students of Medical University of Silesia

Authors: Kaczmarczyk M.¹, Kończyk B.¹, Kasperczak M.¹

Tutor/Tutors: prof. dr n. med. Tomasz Urbanek

University: ¹ Medicine, Medical University of Silesia, Poland

INTRODUCTION: Surgical site infections adversely influence patients’ recovery. Adhering to surgical hand preparation guidelines is a cost-effective way to prevent transmission of microorganisms.

AIM OF THE STUDY: We conducted a study to assess the knowledge and compliance to surgical hand preparation procedure among medical students in their fourth, fifth and sixth year of medical school.

MATERIALS AND METHODS: 40 students from the fourth, fifth and sixth year were randomly chosen to participate in the study. Their adherence to WHO surgical hand preparation guidelines was observed and recorded. We assessed the time of scrubbing, number of steps executed correctly and technique. Then, a questionnaire was given to test their theoretical knowledge and experience.

RESULTS: We found that most students do not know how to scrub for surgery. Their technique is poor and time taken to execute all the steps is not long enough. Many students would like to learn more about surgical hand preparation during their surgery rotation.

CONCLUSIONS: Students knowledge on surgical hand preparation is inadequate and unsatisfactory. Steps should be taken to successfully teach students surgical hand preparation.
Title: Atopic dermatitis: quality of the life

Authors: Zibudaite A.¹

Tutor/Tutors: Inga Kisieliene

University: ¹ Medicine, Dermatology, Lithuania

INTRODUCTION: Atopic dermatitis (AD) is a chronic inflammatory of the skin disease that affects a large percentage of the world’s population. Interest in this disease has been sparked by reports of its increasing prevalence and the significant adverse effects it can have on quality of life. The education of parents of children with chronic diseases is important in their long-term management, particularly AD. We describe in detail the goals, structure, and content of the Eczema education program (EEP) for parents of children with AD.

AIM OF THE STUDY: The program aims to contribute towards a comprehensive, family-oriented management of childhood AD.

MATERIALS AND METHODS: One hundred-ninety-two patients were enrolled in this study: 95 in the EEP group and 97 in the control group. All patients were asked to fill three questionnaires:

POEM
The Infant’s Dermatitis Quality of Life Index (IDQOL)
The Questionnaire about treatment, allergies, families history and etc.

RESULTS: Participants in the EEP group had a significantly lower POEM score than those in the control group:
EEP group 7,68 ±5,68, control group 9,97 ±6,89, (p=0,013). It means that severity of AD are worse in control group.

Participants in the EEP group has a better quality of life than control group:
- The skin dryness symptom score (p=0,036), skin flaking off rarely (p=0,019), itching symptom score (p=0,043), the hapiness score (p=0,020) in the EEP group were significantly better than in the control group. Child’s skin been itchy because of the eczema every day in EEP group 32,26 proc. (n=30) and control group 47,42 proc. (n=46) (p=0,033) also in the days, when skin been weeping or oozing clear fluid because of the eczema: EEP – 3,16 proc. (n=3) and control group - 10,31 proc. (n=10) (p=0,049). Less problems with child at mealtimes because of the eczema 1,06 proc. (n=1) ir 7,29 proc. (n=7) (p=0,033) and less problems with the treatment 44,68 proc. (n=42) ir 27,84 proc. (n=27) (p=0,016).

CONCLUSIONS: In summary, data show that the program has a desirable effect on aspects of quality of life and coping. Also this study showed that a 1-day educational program resulted in a decrease in AD severity.
Title: Age-dependent changes in proteomic profile of skin fibroblasts exposed to UV radiation

Authors: Niemiro A.\textsuperscript{1}, Zeliaś W.\textsuperscript{2}, Atalay S.\textsuperscript{2}

Tutor/Tutors: Dr Agnieszka Gęgotek

University: \textsuperscript{1} Department of Inorganic and Analytical Chemistry, Medical University of Bialystok, Poland\textsuperscript{2} Department of Inorganic and Analytical Chemistry, Medical University of Bialystok, Poland

INTRODUCTION: The stability of the proteomic profile of the cells is a guarantee of the metabolic homeostasis, including redox balance of these cells. However it is known that the redox balance of skin cells depends on age and external physicochemical factors, including contained in the sunlight UV radiation that permanently penetrates skin.

AIM OF THE STUDY: The aim of the study was to determine and compare the UVA-induced changes taking place in proteome along with the aging of human skin fibroblasts.

MATERIALS AND METHODS: The proteomic profile of human skin fibroblasts cultured in vitro to 7\textsuperscript{th} or 17\textsuperscript{th} passage and then exposed to UVA radiation 20 J/cm\textsuperscript{2} was determined using SDS-Page/nanoHPLC/OrbiTrap mass spectrometer.

RESULTS: The obtained results indicate that the proteomic profile of fibroblasts does not significantly change between 7\textsuperscript{th} and 17\textsuperscript{th} passage cells, but the age of the cells differentiates the response of the cell’s proteome to UVA irradiation. It was found that UVA radiation reduces the expression of antioxidant proteins, simultaneously increasing the level of pro-apoptotic proteins in fibroblasts in the 17\textsuperscript{th}, compared to the 7\textsuperscript{th} passage. In addition, the effectiveness of repair systems in the earlier passage causes that the level of proteins oxidative modifications is slightly lower in 7\textsuperscript{th} passage fibroblasts. On the other hand UVA radiation stronger enhances the level of non-crosslinking advanced glycation end-products (AGEs) resulted from cysteine and lysine carboxymethylation and carboxyethylation in fibroblasts in 7\textsuperscript{th} passage comparing to fibroblasts in 17\textsuperscript{th} passage. At the same time the levels of crosslinking AGEs (including pentosidine), as well as lipid peroxidation products–protein adducts are higher in UVA-irradiated fibroblasts in 17\textsuperscript{th} passage than in 7\textsuperscript{th} passage.

CONCLUSIONS: Analysis of changes induced by UV radiation in the proteomic profile of skin fibroblasts shows differences in the metabolic pathways of fibroblasts modified under the influence of UVA radiation depending on the cells passage. These data may contribute to effective differentiation of medical/cosmetic preparations that could protect the human skin against sunlight depending on human age.
INTRODUCTION: Human auditory system is formed around 4-5 months of fetal life. Sounds in the environment of a pregnant woman penetrate the tissues and fluids surrounding the fetal head and stimulate the inner ear.

AIM OF THE STUDY: The aim of the study is to examine women’s opinions on fetal stimulation with sounds and to check women’s awareness about the positive benefits of appropriate sounds’ stimulation for the future development of baby’s auditory system.

MATERIALS AND METHODS: A proprietary questionnaire was directed to 300 women divided into 3 groups – before pregnancy (Group 1), during pregnancy (Group 2) and after pregnancy (Group 3). The analysis of the questionnaires was made in Microsoft Excel.

RESULTS: Almost 50% of all women think that the fetus starts to hear before the 5th month of fetal life. More than 60% of women heard of prenatal music therapy, and 53.51% of them referenced the Internet as their source of the knowledge on this subject. It was noted that 61% of women state that this method stimulates the fetus with sounds. According to 77% of respondents, one should listen to music during pregnancy, yet only 19% of them state that it has a positive influence on the child’s hearing. More than 70% of women note that one should listen to classical music, but only 16.26% think that putting the headphones on pregnant belly is an appropriate way of stimulating fetal hearing system. In the opinion of almost 93% of respondents, parents should talk to unborn infants during pregnancy. 67.34% of all women think that the voice type causes the fetal reaction, and almost half of them indicates intense fetal movements.

CONCLUSIONS: The women’s education of prenatal music therapy is not sufficient because the Internet remains the main source of their knowledge. Women are aware of the beneficial effects of making verbal contact with an unborn child.
Title: Are students of the Medical University of Bialystok better informed about sexually transmitted infections than non-medical students from Bialystok? – a questionnaire study

Authors: Dłużniewska P.¹, Lewoc M.¹, Jakubowicz O.¹, Mierzejewska P.¹

Tutor/Tutors: Associate Prof. Anna Baran, MD, PhD, Prof. Iwona Flisiak, MD, PhD

University: ¹ Department of Dermatology and Venereology, Medical University of Bialystok, Students’ Scientific Association at the Department of Dermatology and Venereology, Medical University of Bialystok, Poland

INTRODUCTION: Sexually-transmitted infections (STIs) are serious public health problem, being acquired by more than 1 million people every day worldwide.

AIM OF THE STUDY: Asses the knowledge, attitudes, risky behaviors and preventive practices related to STIs among medical and non-medical faculties students from Bialystok.

MATERIALS AND METHODS: In 2018 an original anonymous survey was carried among 168 subjects from medical and 142 from non-medical universities. They filled 37 questions: general and specific regarding STI. Statistical analysis was performed using Chi-Square test, statistically significant difference was at p<0.05.

RESULTS: In the group 80,6% were females and 19,4% males, with a mean age of 26,5 years. Over 73% were sexually active and almost half of them admitted risky sexual behavior in the past. Almost 16% have ever done an examination for STIs. HIV remains the best known STIs, while hepatitis B was known mainly among medical students. Three fourth students knew that STIs could be asymptomatic. Over half of the students knew that vaccinations against STIs were available and 88,6% of them heard about the HPV vaccine. There was statistical significance between the groups regarding the knowledge of diseases transferred sexually, causative agents, history of STI examination, vaccines against STIs.

CONCLUSIONS: Nearly all participants from both groups identified HIV as STIs but there are more infections of this kind that should also be recognized. Both groups have indicated the Internet as a source of knowledge about STIs and the need to acquire additional education about these diseases. To conclude, non-medical students have less awareness about STIs.
**Title:** Hesitancy to vaccinate: a threat to global health

**Authors:** Gedminaite A.¹, Paliulyte V.¹

**Tutor/Tutors:** MD PhD Virginija Paliulyte

**University:** ¹ Faculty of medicine, Vilnius University, Lithuania

**INTRODUCTION:** World Health Organization indicates hesitancy to vaccinate as one of the ten threats to global health in 2019. This is especially relevant in Lithuania, as according to the data from OECD, the rate of vaccination in Lithuania was 94 percent, which was one of the lowest rates in EU countries.

**AIM OF THE STUDY:** To investigate reasons that may affect parents’ opinions about refusing children vaccination.

**MATERIALS AND METHODS:** A questionnaire survey about mothers’ decision to vaccinate and opinions on common myths on vaccination was conducted in a maternity ward in a large university hospital.

**RESULTS:** A total of 53 postpartum mothers’ responses were collected. The mean age of the participants was 31.06 ±3.71 years, ranging from 23 to 41 years old. Nearly all the patients reported living in a city area (96.2%, n=51), 83.0% (n=44) of the women stated that they had a university degree, 9.4% (n=5) – a college degree, and 7.6% (n=4) – a high school diploma. For 32.1% (n=17) of women this was not their first child, 12.5% (n=2) of whom have previously delayed vaccination because of allergy or infection. In total, 94.3% of the patients claimed that they would vaccinate their children according to the national vaccination calendar. Of the 53 mothers who participated in the study, 15.1% (n=8) thought children receive more vaccines than necessary, 54.7% (n=29) believed that a child receives too many vaccines at once, 45.3% (n=24) were concerned that at least one vaccine is unsafe, 58.5% (n=31) were concerned that their children will have a serious adverse reaction, 39.6% (n=21) were concerned that a vaccine will be ineffective. All mothers refusing to vaccinate, reported a fear for adverse reactions as a main factor for their decision.

**CONCLUSIONS:** Hesitancy to vaccinate appears to still be a relevant issue in Lithuania. Although, the majority of mothers decided to vaccinate their infants, they also express concerns about the safety of vaccination.
Title: Maternal knowledge of pediatric vaccination

Authors: Gedminaite A., Paliulyte V.

Tutor/Tutors: MD PhD Virginija Paliulyte

University: Faculty of medicine, Vilnius University, Lithuania

INTRODUCTION: Many parents are significantly concerned with regards to children vaccination. One of the reasons may be a vast amount of information on mass media and the internet, resulting in false beliefs about vaccination.

AIM OF THE STUDY: To investigate parental knowledge of pediatric vaccines and vaccination in Lithuania.

MATERIALS AND METHODS: A questionnaire survey about mothers’ knowledge about vaccines on Lithuanian National vaccination calendar was conducted in a maternity ward of a large university hospital.

RESULTS: A total of 48 postpartum mothers’ responses were collected. The mean age of the participants was 31.19 ±3.8 years, in the range from 23 to 41 years old. 66.7% (n=32) of the participants were first time mothers. Of the 48 mothers who participated in the study, 22.9% (n=11) expressed uncertainty or distrust regarding the information on vaccination received from doctors. 72.9% (n=35) stated that they obtain information about vaccines from their GP, 56.3% (n=27) from internet and television, 35.4% (n=17) from child rearing literature, 31.3% (n=15) from family and friends. Most commonly, as an adverse vaccine reaction, mothers identify fever (83.3%, n=40), rash (58.3%, n=28) and diarrhea (47.9%, n=23). Few mothers also suggest epilepsy (n=3), autism (n=2) and diabetes (n=1). Of all the participants, 66.7% (n=32) failed to link meningitis prophylaxis to H. influenza vaccine, 68.8% (n=33) whooping cough avoidance to DTaP vaccine, 22.9% (n=11) fever as an MMR vaccine adverse reaction, 27.1% (n=13) HepB vaccine to liver damage and cancer prevention, 60.4% (n=29) polio vaccine and paralysis prevention. Only 43.8% (n=21) of the mothers could identify the vaccines a newborn receives during the first 3 days. There was no significant difference between the first-time mothers’ and experienced mothers (p>0.05).

CONCLUSIONS: The majority of mothers’ trust and use their doctors as the source of information on children vaccination, however, the postpartum mothers’ knowledge about vaccination was poor, both first time and experienced mothers equally.
**Title:** Diagnosing depression during pregnancy - what are the risk factors of prenatal depression?

**Authors:** Płaza O.¹, Feduniw S.¹, Paździor D.¹, Kosińska-Kaczyńska K.²

**Tutor/Tutors:** dr hab. n. med. Katarzyna Kosińska-Kaczyńska

**University:** ¹ Students' Research Group at 1st Department of Obstetrics and Gynecology, Medical University of Warsaw, Poland² 1st Department of Obstetrics and Gynecology, Medical University of Warsaw, Poland

**INTRODUCTION:** The main causes of depression among pregnant women remain unclear, however, it is clear that the pregnancy carries a higher risk of depression occurrence. Left untreated, prenatal depression can be a cause of serious both maternal and neonatal complications.

**AIM OF THE STUDY:** The aim of the study was to define potential risk factors of prenatal depression and to assess the frequency of its occurrence among pregnant women.

**MATERIALS AND METHODS:** A prospective cross-sectional study was performed among 346 women. The self-composed questionnaire consisting of 46 questions, was distributed via internet between November 2017 and March 2018. The questionnaire contained Edinburgh Postnatal Depression Scale (EPDS), in which the results of 13 and more points (out of 30) suggested possible prenatal depression. Statistical analysis was performed with Chi² Pearson. P value <0.05 was considered significant.

**RESULTS:** 35.57% (n=130) of women had a score of 13 or more points. Women with depressive symptoms (DS) reported lack of support from the partner (46.9% vs. 16.2%; p<0.001) as well as other family members (40.8% vs. 14.4%; p<0.001), current pregnancy being unplanned (21.5% vs. 12.5%; p=0.014) and low socio-economic status (10% vs. 0.9%; p<0.001). Both early and advanced maternal age seemed to play a role in occurrence of DS: in women aged 17-24 40.8% declared symptoms (vs 28.7%; p<0.01), in mothers aged ≥37 6.2% did (vs 0.5%; p<0.001). Smoking during pregnancy was also more frequent among patients with DS (31.5% vs. 18.1%; p=0.004). Previous diagnosis of depression or other mood disorders significantly increased a chance of DS occurrence (respectively - 17.7% vs. 4.6%; p<0.001 and 49.2% vs. 25%; p<0.001). Parental diagnosis of mood disorders and other mental disorders was also more frequent in this group of patients (respectively - 24.6% vs. 15.7%; p= 0.026 and 26.4% vs. 9.7%; p<0.001). Only 23.8% of women with DS sought help from healthcare professionals, with 21.5% receiving pharmacological treatment.

**CONCLUSIONS:** Pregnant women often report having DS. Evaluation of risk factors of DS and possible prenatal depression is essential in proper screening for depression among pregnant women.
Title: The characteristics of social media use among residents and their mentors

Authors: Ceidaite R.  

Tutor/Tutors: Dr. Lina Jankauskaite

University: Lithuanian University of Health Sciences, Lithuania

INTRODUCTION: Social media (SM) became part of physicians' life. They use it for professional purposes, research collaboration, academic discussion or education.

AIM OF THE STUDY: To identify most widely used SM, purpose of use and differences of virtual social communication qualities between residents and their mentors.

MATERIALS AND METHODS: Electronicsurvey was created using “Google Forms” with 48 questions: 7 open answer, 2 multiple and 39 single choice. Survey was e-mailed among residents (R) and mentors (M) of Pediatrics, Neurosurgery and Emergency medicine of Lithuanian University of Health Sciences. Statistical analysis was performed with Microsoft Excel and IBM SPSS Statistics software. P value of 0.05 was considered significant.

RESULTS: 23 residents and 18 mentors responded to survey. Mean age of Rand M was 27.91±3.03 and 33.33±8.19 years respectively (p=0.017). 61% of respondents were females. “Facebook” was most popular (R-87%, M-94.4%), less popular- “Twitter” (R-17.4%, M-33.3%). For communication, “Google” was most widely used (R-56.5%, M-55.6%), following “WhatsApp” (R-43.5%, M-44.4%) and “Viber” (R-39.1%, M-50%). 8.7% of residents did not use any SM. There was no difference between R and M and number of used SM (p=0.957) or time spent there (p=0.767). Majority of residents (34.8%) spent 2-3h, 33.3% of mentors 1-2h. 82.6% of R and 83.3% of M used SM for professional needs. Only 5.3% (R) and 6.7% (M) had a separate SM account for professional purposes. 100% of R (93.3% of M) uses SM professionally outside working hours. Most common activity was visits specialty pages or groups (R-66.7%, M-60%). Mentors were more active in sharing conferences (46.7%) and educational material (40%). Residents were more active in communicating with other doctors: 63.2% vs 40%. There was no difference between age and informal communication: addressing informally, use of slang, emoji, gifs and making jokes (p>0.05). Most common conversation topics between Rand M was clinical work (62.3%), studies (56.3%). Personal topics were least popular (6%). 43.8% of residents disagreed that their mentor is active SM user. 81.3% were satisfied with mentor’s speed of replying.

CONCLUSIONS: “Facebook” was most popular SM technology among R and M. Characteristics of social SM use between residents and mentors did not differ significantly.
Title: Differences in quality of life between Lithuanian glaucoma patients and control group.

Authors: Mazelyte R.¹

Tutor/Tutors: dr.Saulius Galgauskas

University: ¹ Faculty of medicine, Vilnius University, Lithuania

INTRODUCTION: Glaucoma is a chronic disease requiring lifelong follow-up and frequent ocular medication or surgical treatment, which has serious impact on patient’s well-being.

AIM OF THE STUDY: To determine and compare the quality of life in middle-aged patients with and without glaucoma using the Lithuanian-version of Glaucoma Quality of Life-15 Questionnaire.

MATERIALS AND METHODS: Altogether 155 patients (89 female, 66 male) aged 50 to 80 (mean age, 68.86 years) were separated in two groups – glaucoma patients (N=109) and control group (N=46); and enrolled to the cross-sectional study. Glaucoma type, stage and intraocular pressure (IOS) were assessed through clinical examinations by professionals. All subjects were given a Lithuanian-version of the 15-item Glaucoma Quality of Life-15 (GQL-15) questionnaire comprising 4 main factors of visual disability: central and near vision; peripheral vision; dark adaptation and glare; outdoor mobility. Responses for each factor were coded on a scale from 0 to 5, where 5 stands for severe difficulty, 1 – no difficulty; 0 indicating abstinence from activity.

RESULTS: Patients with glaucoma had significantly poorer glaucoma-related quality of life than controls. The mean value of GQL-15 scores in glaucoma group was 44.39±25.5 and 24.31±16.5 in control group. In both glaucoma and control groups, the average quality of life score was similar among males and females (42.48 and 45.69 respectively in glaucoma group; 25.18 and 23.71 in control). Activities involving glare and dark adaptation were most problematic for all but patients with glaucoma experienced more serious difficulties with it. Glaucoma related quality of life scores were significantly lower among early stage glaucoma group (mean QoL score=29.1), but differed slightly between moderate and severe stages (mean QoL scores 45.71 and 48.24 respectively). The analysis of the QoL score between age, glaucoma type and IOP showed no significant correlation.

CONCLUSIONS: Significant deterioration in vision-related quality of life was observed between patients with glaucoma compared with control group. In addition, the 4 main factors of visual disability triggered much more unfavorable impact on the life quality of glaucoma patients than in general population.
**Title:** Is glaucoma related to common mental disorders? Cross-sectional study in Lithuania

**Authors:** Maželytė R.¹

**Tutor/Tutors:** Dr. Saulius Galgauskas

**University:** ¹Faculty of medicine, Vilnius University, Lithuania

**INTRODUCTION:** Two most common mental disorders are considered to be depression and generalized anxiety disorders. Even though previous similar studies revealed a higher prevalence of these psychological problems among glaucoma patients, these conditions have not received much attention.

**AIM OF THE STUDY:** To evaluate the prevalence of most common mental disorders such as depression and anxiety among glaucoma patients in Lithuania.

**MATERIALS AND METHODS:** A cross-sectional study was performed involving 111 patients (58 male and 53 female) aged 60 to 86 years (mean age, 72,14) in Lithuania. Depression was assessed with the Lithuanian-version of Patient Health Questionnaire (PHQ-9), and generalized anxiety with the short form of Generalized Anxiety Disorder-7 Scale (GAD-7). PHQ-9 scores were categorized as none, minimal symptoms, mild, moderately severe and severe depression and GAD-7 categorized as mild, moderate and severe anxiety. Glaucoma type, stage and intraocular pressure (IOS) were assessed through clinical examinations by professionals.

**RESULTS:** The final study consisted of 86 primary open-angle glaucoma patients and 25 patients with pseudoexfoliative glaucoma. Prevalence of moderately severe and severe depression among all participants with glaucoma was 20,72%, and 45,05%, respectively. Only in 5 patients (4,5%) glaucoma triggered no signs of clinical depression. In the whole sample 88 patients (79,28%) reached a GAD-7 score indicating severe anxiety; 8 (7,21%), moderate anxiety and only 15 (13,51%) patients reported no signs of anxiety. More prevalent severe depression frequency was observed among people who were diagnosed with pseudoexpholiative glaucoma (88%) than those with primary open-angle glaucoma (32,56%). The majority of subjects (72,97%) who suffered from psychological consequences of glaucoma defined that it caused extremely big and big difficulties in work, household and social environment. There was no correlation between gender, age and intraocular pressure.

**CONCLUSIONS:** There is clearly high prevalence of common mental disorders among glaucoma patients in Lithuania. Vast majority of observed subjects are suffering from severe and moderately severe depression and anxiety which cause significant problems in their personal environment.
PhD Session I
INTRODUCTION: Chronic nitrite intoxication leads to endothelial dysfunction (Savitsky IV, Myastkovskaya IV, 2016). However, the possibility of the encephalopathy developing of male rats with a background of chronic administration of aqueous solution of sodium nitrite has been poorly investigated.

AIM OF STUDY: The study was designed to determine the nitrite-induced changes of the endothelium functional state and cognitive functions of the brain in adult rats.

MATERIALS AND METHODS: The experiment was performed on 24 male WAG rats aged 5-6 months weighing 180-230 g, which were divided into 4 groups (6 rats in each group). Groups 1 and 2 received 0.1% and 0.2% aqueous solution of sodium nitrite respectively instead of drinking water (in free access) for 6 weeks. Rats of group 3 were injected 50 mg / kg of body mass the aqueous solution of sodium nitrite intraperitoneally during 2 weeks. Group 4 was control. The endothelial growth factor (VEGF-A, pg / ml) was determined by the immuno-enzymatic method, the von Willebrand factor (vWF, %) was identified by photometric method, the 2, 3 diphosphoglycerate (2, 3-DFG, μmol / ml) was measured by spectrophotometric method. Cognitive functions were evaluated using passive avoidance test and extrapolational disposal test.

RESULTS: The level of VEGF-A was found increased in rats of the group 1 by 1.8 times (52.5 ± 0.5), group 2 - by 4.4 times (131.3 ± 1.8), group 3 – by 21 times (622.1 ± 6.6) compared to control group (29.7 ± 0.7). Quantitative analysis of von Willebrand factor and 2, 3 diphosphoglycerate showed the highest levels in the third group, which indicated a significant endothelial damage and led to rising of oxygen transfer to tissues. Rats of the group 3 did not pass extrapolational disposal test and the conditional reflex was not formed in passive avoidance test. It proved that the cognitive functions of brains in the group 3 were noticeably reduced. In contrast, the control group rats completed both tests successfully. There were no significant changes in rats of first and second groups.

CONCLUSIONS: The data demonstrates that the long-term administration of aqueous solution of sodium nitrite leads to development of endothelial dysfunction and cognitive impairment of the brain in rats.
Title: Cellular stiffness as an indicator of therapeutic value of anti-inflammatory drugs

Authors: Cieśluk M.¹, Gołaszewska A.¹, Piktel E.¹, Prasad S.¹, Pogoda K.², Deptuła P.¹

Tutor/Tutors: prof. dr hab. Robert Bucki

University: ¹ Department of Microbiological and Nanobiomedical Engineering, Medical University of Bialystok, Poland² Institute of Nuclear Physics, Polish Academy of Sciences, Poland

INTRODUCTION: Due to capability to bind and inactivate bacterial wall-derived molecules such as lipopolysaccharides (LPS) and lipoteichoic acid (LTA), PBP10 peptide (GSN160-196), based on PIP2-binding sequence of human plasma gelsolin, is currently proposed as a promising anti-inflammatory agent.

AIM: The aim of the study was to evaluate the ability of magnetic nanoparticles to improve the anti-inflammatory effects of PBP10 peptide after its immobilization on the surface of nanomaterials with aminosilane (MNP@NH2) or gold shell (MNP@Au).

METHODS: The cytotoxicity of tested agents and their magnetic nanosystems was determined using MTT assay. To evaluate the stiffness of LPS-stimulated cells treated with PBP10 peptide, PBP10 + MNP@NH2 or PBP10 + MNP@Au and to elucidate the possibility to prevent the cellular effects of bacterial endotoxin, atomic force microscopy (AFM) working in liquid conditions was employed. Stiffness measurements were obtained using ORC8 cantilevers with maximal used force of 2 nN and 300 nm indentation depth. More than 1100 force-distant curves were recorded for each group from at least ten different cells.

RESULTS: Our experiments justified the possible employment of AFM to define anti-LPS potential of tested compounds based of recorded changes in cells’ mechanical properties. Decrease in Young’s modulus from 5.0 ± 0.2 kPa in control to 4.3 ± 0.1 kPa in LPS stimulated cells was observed. This data indicated that lung epithelial cells became softer after LPS stimulation. At the same time, incubation of cells with LPS and PBP10 in free and immobilized form led to the partial reverse of the LPS-induced effects and increase in cellular stiffness, resulting in returning of Young’s modulus to the values recorded for unstimulated control cells.

CONCLUSION: Nanosystems based on PBP10 peptide have a potential to be used as anti-inflammatory agents. AFM can be employed as a tool to assess anti-inflammatory potential of tested drugs.

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**Title:** Investigation of changes in mechanical properties of central nervous system neoplastic tissues

**Authors:** Cieśluk M.\(^1\), Gołaszewska A.\(^1\), Pogoda K.\(^2\), Deptuła P.\(^1\)

**Tutor/Tutors:** prof. dr hab. Robert Bucki

**University:** \(^1\) Department of Microbiological and Nanobiomedical Engineering, Medical University of Białystok, Poland\(^2\) Institute of Nuclear Physics, Polish Academy of Sciences, Poland

**INTRODUCTION:** Glioblastoma multiforme (GBM) is the most lethal malignancy of the central nervous system (CNS), occurring in developed countries with frequency of 5.8 and 4.1 per 100,000 persons, for men and women, respectively. For the majority of cases, its location is the hemisphere of the brain, cerebellum and spinal cord. Gliomas from the second to fourth grade of WHO classification are highly malignant, invasive and require advanced therapies such as chemotherapy and radiotherapy after initial surgical removal. GBM is the most aggressive and invasive brain tumor classified by the WHO as a grade IV cancer due to its rapid growth characterized by infiltration to adjacent, normal brain tissue. Despite continuous progress in the methods of diagnosis and treatment of GBM, the disease prognosis is still very poor.

**AIM:** The aim of the study was to assess the mechanical properties of central nervous system gliomas, determination of diagnostic possibilities of atomic force microscopy in detecting CNS tumors and better understanding of the mechanopathology of these tumors.

**METHODS:** The assessment of mechanical properties of tissues was carried out using Kibron Microthrough X tensiometer and atomic force microscope (JPK Nanowizard 4). AFM measurements were performed using cantilever with glued polystyrene sphere (diam. 4.5µm) in Force Mapping mode with maximal force of 1nN and spring constant $k \sim 0.6N/m$. The indentation depth was set to 1 and 2µm.

**RESULTS:** The studies carried out so far have shown that GBM tissues are characterized by increased stiffness (avg. 160Pa) compared to the normal tissue of the human brain (avg. 56Pa). Meningothelial meningioma WHO G1 samples showed Young moduli similar to normal tissue (61Pa) while fibrous meningioma WHO G1 was higher (100Pa). Indentation changes presented a small increase of stiffness in meningioma and normal tissues, but for GBM samples this effect was not uniform. Microindenter data showed similar pattern with GBM being stiffer than normal tissue.

**CONCLUSION:** Differences in tissue samples mechanical properties might be used in the future for the development of novel and innovative therapeutic approaches.
Title: A hybrid pharmacophore approach in the synthesis of novel pyrazoline-thiazolidinone conjugates

Authors: Yushyn I., Fedusevych O.

Tutor/Tutors: Roman Lesyk

University: 1 Department of Pharmaceutical, Organic and Bioorganic Chemistry, Danylo Halytsky Lviv National Medical University, Ukraine

INTRODUCTION: A hybrid pharmacophore approach for obtaining of novel biologically active compounds is an effective used direction in modern drug discovery. Hybridization of two different bioactive molecules with complementary pharmacophoric functions often showed synergistic effects. Thus, the non-condensed systems containing thiazolidine and pyrazoline fragments in molecules have received considerable attention recently due to their diverse biological activity and clinical applications. The mechanisms of realization of biological activity among pyrazoline-thiazolidinone conjugates can be associated with their affinity to JNK stimulating phosphatase-1 (JSP-1), tumor necrosis factor TNFα, cyclin-dependent kinase, heat shock proteins and P-glycoprotein. In continuation of this theme, we designed and synthesized novel non-condensed heterocyclic compounds containing 4-thiazolidinone, and pharmacologically attractive pyrazole or pyrazoline moieties.


MATERIALS AND METHODS: Organic synthesis, spectral analysis, anticancer activity.

RESULTS: The efficient method for pyrazoline-thiazolidinones synthesis starting from substituted 4-phenylbut-3-en-2-ones via [2+3]-cyclocondensation with thiosemicarbazide were accomplished in 5-aryl-thiocarbamoyl-pyrazolines. The final synthesis of pyrazoline-thiazolidinone derivatives was accomplished by one-pot methodology involving reaction of 5-aryl-thiocarbamoyl-pyrazolines with chloroacetic acid and appropriate oxocompound. The structures of newly synthesized compounds were established by spectral data. Screening of anticancer activity within DTP-protocol (https://dtp.cancer.gov/, NCI, NIH, USA) led to identification active compounds with micromolar level of activity.

CONCLUSIONS: We have achieved a convenient protocol for the synthesis of novel pyrazoline-thiazolidinone conjugates via one-pot three component methodology. The biological tests revealed the necessity for in-depth study of tested compounds for the modelling of novel chemical entities with better pharmacological profiles.
Title: Influence of aescusan on the intensity of protein peroxidation in thyroid tissue under experimental hypothyroidism

Authors: Olenovych O.¹

Tutor/Tutors: Olenovych O.A.

University: ¹ Department of Clinical Immunology, Allergology and Endocrinology, Higher State Educational Establishment of Ukraine «Bukovinian State Medical University», Ukraine

INTRODUCTION: Nowadays a great attention is paid to the question concerning protein peroxidation processes in the organ, responsible for the thyroid hormones secretion, regarding the opportunities of targeted pathogenic corrective influence on them at the stage of thyroid pathology development.

AIM OF THE STUDY: It was to assess protein peroxidation processes in the thyroid tissue in experimental hypothyroidism under the influence of Aescusan.

MATERIALS AND METHODS: For the experimental modeling of hypothyroidism 28 male rats were administered 10 mg/kg of mercazolil intraperitoneally. 14 days after that 18 hypothyroid rats and 10 animals of the control group were euthanized by decapitation, the rest 10 hypothyroid rats were administered Aescusan in the dose of 100 mg of α-aescinum/kg. The object of the research was the thyroid tissue, removed and homogenized right after animals’ decapitation. The state of protein oxidative modification (POM) in thyroid tissue was assessed by quantification of neutral and basic dinitrophenylhydrazones (DPH).

RESULTS: It was shown, that intensification of protein peroxidation processes in the thyroid tissue of hypothyroid rats resulted in 2,4-fold increase of neutral DPH (p<0.001), combined with 4-fold elevation of basic DPH (p<0.001). The content of neutral and basic DPH in thyroid tissue of hypothyroid rats under the influence of natural antioxidant Aescusan – horse chestnut seed extract preparation – decreased by 2,9 (p<0.001) and 3,7 times (p<0.001) respectively, approaching both indices of POM to the control level (p<0.001).

CONCLUSIONS: The obtained findings evidence, that due to the exhaustion and failure of compensatory intrathyroid antioxidant system, the structural proteins undergo intense peroxide modification. Aescusan significantly reduces the content of neutral and basic end-products of protein peroxidation, optimizing prooxidant-antioxidant balance and limiting oxidative remodeling of the thyroid tissue.
Title: Assessment of proteinuria in the early period of alloxan-induced experimental diabetes

Authors: Olenovych O.¹

Tutor/Tutors: Olenovych O.A.

University: ¹ Department of Clinical Immunology, Allergology and Endocrinology, Higher State Educational Establishment of Ukraine «Bukovinian State Medical University», Ukraine

INTRODUCTION: Proteinuria was considered to be the evidence of a long existing kidney damage with already irreversible changes, confirming the degree of glomerular destruction in case of diabetes mellitus (DM). Recent scientific information demands reassessment of the micro/macroalbuminuria meaning in the context of the pathogenesis of diabetic kidney disease (DKD).

AIM OF THE STUDY: Aim of the study was to clarify the peculiarities of proteinuria in the early period of alloxan-induced experimental diabetes mellitus (DM).

MATERIALS AND METHODS: The experiments were carried out on 20 white non-linear mature male rats: 10 intact animals served as control group, 10 animals were administered Alloxan monohydrate intraperitoneally in the dose of 160 mg/kg. On 11th day after the induction of DM urine samples of all experimental animals were collected under 2 hours-water diuresis for further study.

RESULTS: The signs of hyperfiltration have been observed in diabetic rats – glomerular filtration rate (GFR) was found to be almost twice higher than that of the control (p<0,01). The protein content in urine of diabetic animals 1,6-folds exceeded the control values (p<0,001). The significant augmentation of protein excretion – by 77,1% (p<0,001) – was observed as well, including that standardized in 100 µL of glomerular filtrate – by 26,3% (p<0,001). Developing against the background of marked renal hyperfiltration, the total protein loss resulted mainly from an increase of GFR with raised filtration loading of the nephron. Thereby, an overloading phenomenon develops for transport reabsorption systems in proximal tubules accompanied by their intactness.

CONCLUSIONS: Thus, glomerular hyperfiltration, revealed in the early period of alloxan-induced diabetes, is not only a marker, but also a risk factor for renal dysfunctions in case of hyperglycemia. The character and dynamics of proteinuria evidences mainly the functional origin of renal disorders on the 11th day of experimental diabetes in the absence of significant structural changes in the tubular apparatus of the kidneys.
Title: The influence of the extract from Aronia melanocarpa L. berries on the total antioxidative and oxidative status of the kidney of rats moderately exposed to cadmium

Authors: Smereczński N.¹

Tutor/Tutors: Prof. Małgorzata Michalina Brzóska, PhD

University: ¹ Department of Toxicology, Medical University of Białystok, Poland

INTRODUCTION: Cadmium (Cd) is one of the most dangerous environmental pollutants in industrialized countries. Because more and more numerous epidemiological data show that even low-level lifetime exposure to this toxic element creates a risk for the health, including mainly the kidney damage being critical target organ for this xenobiotic, a special interest of researchers has been focused on effective strategies of protection against unfavourable effects of action of this heavy metal. Recent data show that especially promising in this regard seem to be the berries of Aronia melanocarpa L. (chokeberries) which are the richest plant, source of anthocyanins characterized by strong antioxidative properties. Cd is a strong pro-oxidant and its damaging action in the kidney is related to the development of oxidative stress.

AIM OF THE STUDY: The aim of the present study was to investigate whether the administration of an extract from the berries of A. melanocarpa under moderate chronic exposure to Cd may improve the antioxidative potential of the kidney and protect from pro-oxidative action of this toxic metal in this organ.

MATERIALS AND METHODS: The study was conducted in a rat model of moderate human exposure to Cd during a lifetime. The animals received Cd in the diet at the concentration of 5 mg Cd/kg and/or 0.1% aqueous extract from A. melanocarpa berries or not for 3 - 24 months. Total antioxidative status (TAS) and total oxidative status (TOS) were determined in the kidney tissue with the use of ImAnOx (TAS) ELISA kit and PerOx (TOS) ELISA kit by Immundiagnostik AG. Based on the measurements, oxidative stress index was calculated (OSI = TOS/TAS) as an indicator of oxidative stress intensity.

RESULTS: The exposure to Cd decreased the value of TAS and increased the value of TOS in the kidney resulting in a development of oxidative stress, reflected in increased value of OSI. The administration of the extract from the berries of A. melanocarpa under the exposure to Cd improved the kidney TAS and lowered TOS decreasing as a result the value of OSI.

CONCLUSIONS: The results allow for the conclusion that consumption of aronia products during moderate chronic exposure to Cd may prevent from the development of oxidative stress in the kidney.
**Title:** Evidence that BAFF-BAFF-R signaling regulates innate immune responses in IPS stimulated monocytes

**Authors:** Tynecka M.¹, Starosz A.¹, Radzikowska U.², Krętowska A.¹

**Tutor/Tutors:** Andrzej Eljaszewicz, PhD; Prof. Marcin Moniuszko, MD, PhD

**University:** ¹ Department of Regenerative Medicine and Immune Regulation, Medical University of Bialystok, Poland ² Swiss Institute of Allergy and Asthma Research, University of Zurich, Switzerland

**INTRODUCTION:** B-cell activation factor (BAFF) and a proliferation-inducing ligand (APRIL) are two members belonging to tumor necrosis factor (TNF) superfamily. Both presented proteins may be recognized by two membrane receptors, namely TACI (Transmembrane activator and CAML interactor) and BCMA (B-cell maturation antigen), whereas BAFF-R (B-cell activating receptor) represents primary receptor for BAFF only. Notably, both BAFF and APRIL are known as crucial players in normal and malignant B cell development and function. Interestingly, a recently published study of our group members showed that both BAFF and APRIL increase the viability of AML blasts. To date, however, despite the accumulating results highlighting their significant role in the hematological disorders, the effects of BAFF and APRIL on normal innate immune cell function are poorly understood.

**AIM OF THE STUDY:** Therefore, this study aimed to determine the effects of both BAFF and APRIL on the function of monocytes.

**MATERIALS AND METHODS:** We isolated peripheral blood monocytes from buffy coat obtained from healthy donors, according to the established protocol. The immunoregulatory potential of BAFF and APRIL on monocytes was assessed by using qPCR, ELISA, flow cytometry and Western Blot.

**RESULTS:** First, we confirmed the expression of BAFF and APRIL receptors, namely TACI, BCMA, and BAFF-R by using qPCR and flow cytometry. Next, monocytes were isolated by using magnetic bead separation and stimulated with LPS in the presence or absence of recombinant human BAFF or APRIL and for 6 or 12 hours. We found that BAFF but not APRIL regulate the IL-1β production and release in LPS stimulated monocytes. More importantly, BAFF signaling was associated with decreased NLRP3 inflammasome activation. More importantly, we revealed that only BAFF-R, but not TACI and BCMA signaling is involved in the regulation of inflammasome activation and associated IL-1β processing in LPS stimulated monocytes.

**CONCLUSIONS:** In conclusion, our results showed for the first time that BAFF-BAFF-R signaling plays an essential role in the regulation of innate immune responses.
**Title:** Analysis the correlation of neutrophil-to-lymphocyte ratio with macro- and microvascular complications in patients with diabetes mellitus type 2 – preliminary study

**Authors:** Szydelko J.¹, Litwińczuk M.¹, Szydelko M.², Matyjaszek-Matuszek B.¹

**Tutor/Tutors:** Assoc. Prof. Beata Matyjaszek-Matuszek, MD, PhD

**University:** ¹ Department of Endocrinology, Medical University of Lublin, Poland ² I Faculty of Medicine with Dentistry Division, Medical University of Lublin, Poland

**INTRODUCTION:** Chronic low-grade inflammation plays a pivotal role in the pathogenesis of diabetes mellitus type 2 (T2DM) and the development of its complications. The neutrophil-to-lymphocyte ratio (NLR) is suggested to be a widely available marker of subclinical inflammation as well as the important predictor of end-organ damages in T2DM patients.

**AIM OF THE STUDY:** The aim of this retrospective study was to explore the association between NLR and the level of glycemic control as well as the occurrence of micro- and macrovascular complications in T2DM patients.

**MATERIALS AND METHODS:** 110 patients with T2DM (51M and 59F), aged 31-97 years (median: 65,42±11,24) and BMI 31,95±5,99 kg/m², hospitalized in the Department of Endocrinology, Medical University of Lublin, between 01.-06.2018 were analyzed. The mean duration of T2DM in the study group was 12,10±8,58 years. The control group included 50 normoglycemic patients (24F and 26M) with median age 45,1±16,7 years. Patients with acute or chronic inflammation process were excluded from the study.

**RESULTS:** Uncontrolled T2DM was shown in 85,45% of the subjects with mean HbA1c concentration 9,2±2,16% and abnormal body weight was found in 93% (overweight-31%, obesity grade I-37%, II-15%, III-10%). Hypertension, atherosclerosis, ischemic heart disease were present with the highest frequency. Diabetic nephropathy (DN) and polyneuropathy were most frequently observed in excellent controlled T2DM (HbA1c<7%), polyneuropathies and chronic kidney disease (CKD) in poor controlled T2DM (HbA1c:7-9%), whereas CKD, DN, polyneuropathy and retinopathy in worst controlled T2DM (HbA1c>9%). The analysis revealed that NLR was statistically higher (p<0,001) in patients in the study group compared with the controls (2,31±1,48 vs 1,37±0,23). There was no statistically correlation between NLR, WBC, neutrophils, lymphocytes as well as micro- and macrovascular complications. Median HbA1c concentration was statistically positive associated with micro- (p<0,005), but not with macrovascular complications.

**CONCLUSIONS:** The results suggest that there was no statistically significant correlation between NLR and micro- or macrovascular complications of T2DM. Therefore, further follow-up and extension of the research group are necessary.
Pediatrics and Neonatology I
Title: Clinical and metabolic peculiarities of the period of manifestation and remission period in children with type 1 diabetes in Minsk

Authors: Kavaliova M.¹, Fomenkova U.¹

Tutor/Tutors: Anzelika Solntseva

University: ¹ Pediatric, Belarusian State Medical University, Belarus

INTRODUCTION: Over the past 5 years, there has been an increase in the rates of total and primary incidence of type 1 diabetes (T1D), which predominates in the children’s population of our Republic. As of the beginning of 2018, 2139 children with diabetes are registered in our Republic.

AIM OF THE STUDY: to determine the clinical and metabolic features of the course of the periods of manifestation and remission in children with diabetes, carried out by insulin therapy (IT), depending on age.

MATERIALS AND METHODS: the analysis of 68 outpatient cards of children from 0 to 18 years old with newly diagnosed of type 1 diabetes, observed in the city children's endocrinological center of Minsk in 2017.

RESULTS: depending on the age of the manifestation of the disease, 3 groups were identified: 1st group - preschool (0-6 years) - 18 people (26%); 2nd - early school (7-11 years) - 29 people (43%), 3rd - senior school (12-18 years) - 21 people (31%). In 50% of children, the manifestation of the disease was accompanied by the development of diabetic ketoacidosis (DKA): 1st group - 61%, 2nd - 45%, 3rd - 48%. In all groups there was an increased level of glycated hemoglobin: 1st - 9.8 ± 2.1%, 2nd - 11.4 ± 2.59%, 3rd - 10.89 ± 3.69%. A longer period of remission (5.36±0.85 months) was established in children of the 3rd group. In girls (G) 2nd and 3rd groups the remission period didn't exceed 4 month. The starting doses of insulin therapy (IT) for the manifestation of the disease were: 1st group G 0.78 ± 0.06 U / kg / day, boys (B) 0.65 ± 0.05 U / kg / day; 2nd G 0.83 ± 0.08 U / kg / day, B 0.56 ± 0.04 U / kg / day; 3rd G 0.89 ± 0.1 U / kg / day, B 0.57 ± 0.07 U / kg / day. In children with low levels of %u0421-peptide in the manifestation of T1D, higher starting doses of IT were detected: group 1(72%) - 0.8 ± 0.06 U / kg / day, 2(38%) - 0.73 ± 0.05 U / kg / day, compared with peers who had normal C-peptide indices.

CONCLUSIONS: 1. More often, manifestation of type 1 diabetes was detected in children of pre-pubertal age (69%). 2. In 50% of cases, the debut of type 1 diabetes was accompanied by the development of DKA and was characteristic of preschool age. 3. The dependence of the starting dose of IT on age, sex, C-peptide levels and the presence of DKA in the debut of T1D was noted.
**Title:** Community acquired pneumonia: antibiotic treatment pattern in hospitalized children

**Authors:** Tamelyte E.¹, Ceidaite R.¹

**Tutor/Tutors:** Dr. Lina Jankauskaite

**University:** ¹ Lithuanian University of Health Sciences, Lithuania

**INTRODUCTION:** CAP is leading cause of death in children worldwide. Failure to choose correct antibiotic, dose or treatment duration worsens CAP outcomes and contributes to global antibiotic (AB) resistance.

**AIM OF THE STUDY:** to analyze and compare AB treatment among children with hospitalized CAP in 2012 and 2017.

**MATERIALS AND METHODS:** retrospective analysis of previously healthy children with hospitalized CAP in 2012 (n=85) and 2017 (n=96). Cases were divided into CAP during flu and non-flu seasons; subdivided according to age (<2mo, 2-12mo, 1-5y, >5y). Statistical analysis was performed with Microsoft Excel and IBM SPSS Statistics software. P value <0.05 was considered significant.

**RESULTS:** There was no difference in children age, gender and duration of hospitalization between all groups. Most cases were hospitalized during flu season (68% (2012) vs 77% (2017) with two-fold increase in hospitalization age group 2-12mo in 2017 (n=32 vs n=17 (2012). Most frequent AB for CAP in 2012 was Penicillin(PEN) (59%), Cefuroxime(CXM) (28%) and Clarithromycin(CLR) (12%). Ampicillin-sulbactam(SAM) was started in 35% of children in 2017. Younger children were more likely to receive it (p=0.047). Initial dose of PEN was 0.117±0.026 mioU/kg in 2012 with slight increase in 2017 (0.125±0.022 mioU/kg) (p=0.07) with tendency of higher doses in flu season (p=0.0564). Elevation was observed in CLR dose (11.49±3.62mg/kg (2012), 17.47±5.24mg/kg (2017), p=0.0344). It was significantly higher between flu seasons (p=0.0128). Second-line AB was chosen in 31% in 2012 and 28% in 2017. CXM as second-line AB was mostly used in 2012, while SAM in 2017.

**CONCLUSIONS:** Significant change in first-line AB between 2012 and 2017 is observed with higher AB doses linked to flu season.
Title: Paediatrician’s perspective in primary care of children

Authors: Valciukaite R.₁, Kunigel A.₁

Tutor/Tutors: Dr. Ingrida Sapagovaite

University: ₁ Faculty of medicine, Vilnius University, Lithuania

INTRODUCTION: Children healthcare delivery system was widely discussed and was of high national concern recently in Lithuania. There are three types of children’s healthcare delivery system all over the world: paediatrician-based, general practitioner-based and combined system. It is expected to change combined primary care system to general practitioner-based system in Lithuania and it has a controversial opinion.

AIM OF THE STUDY To show that paediatricians are irreplaceable part of paediatric primary care (PPC).

MATERIALS AND METHODS: 56,405 patients data was analysed (age, sex, ICD code, arrival month, speciality of examined doctor). Participants visited Vilnius University Hospital Santaros Clinics (VUH SC) PPC in 2017. Statistical analysis was performed using MS Excel, R Commander programmes.

RESULTS: 56,077 children were admitted to VUH SC PPC, 10,375 of them (18,5%) were examined by paediatricians, 9,010 – by surgeons (16,0%), 6,722 – by orthopedic traumatologist (12,0%), 36,692 – by other consultants (53,5%). The highest numbers of patients examined by paediatricians were during January-March period (44,6%), lowest – during September-November period (15,5%). Estimating screened patients by paediatricians in PPC, the main health problems were non-specific symptoms (ICD-10 R00 – R99) such as fever, abdominal pain, nausea, vomiting (27,6%); pulmonary diseases (ICD-10 J00 - J99) (25,9%); infectious diseases (ICD-10 A00 - B99) (18,6%).

CONCLUSIONS: Paediatricians are a vital part of medical team in VUH SC PPC, who examine the greatest amount of patients every day. Considerable workload is in winter and in the beginning of spring. Paediatricians consult children for a wide variety of highly different health problems and the most frequent of them are fever, abdominal pain, nausea, vomiting, pulmonary and infectious diseases. It demands high competence, which is acquired during residency years. If pediatricians would not be present in PPC, other doctors would not only have higher workload and longer working hours but also would be in need to improve their competence in paediatrics and it would be a great expenditure for hospital.
**Title:** Main hospital admissions reasons and prevalence in childrens’ primary care during 2017 – 2018

**Authors:** Kunigel A.¹, Valciukaite R.¹

**Tutor/Tutors:** Dr. Ingrida Sapagovaite

**University:** ¹ Faculty of medicine, Vilnius University, Lithuania

**INTRODUCTION:** Hospital admissions of children are increasing in numbers all over the world. The main problem is that many admissions are inexorable and can be treated in primary care centers.

**AIM OF THE STUDY:** To analyse tendencies of hospital admissions in paediatric primary care (PPC) during 2017 – 2018.

**MATERIALS AND METHODS:** We analysed 111,128 patients data was analysed (age, sex, ICD-10 code, month of arrival, medical referral). Participants arrived at Vilnius University Hospital Santaros Clinics (VUH SC) PPC in 2017 - 2018. Statistical analysis was performed using MS Excel, Rcommander programmes.

**RESULTS:** In 2017 56,405 patients were admitted to VUH SC PPC, in 2018 – 54,723 patients. The main causes were traumas (ICD-10 S00-T19) (2017 - 31,6%; 2018 - 32,8%); non-classified symptoms (ICD-10 R00-R99) (2017 – 20%; 2018 – 21%) such as fever and abdominal pain. Third most common cause of hospital admissions are pulmonology diseases but amounts were lower by 2,6% in 2018. The proportion of upper respiratory tract infections (URTI) (ICD-10 J00-J04; J06) has decreased by 4,4% (2017 – 66%; 2018 – 61.6%). Evaluating all patients who arrived due to trauma (ICD-10 T00-S19), the number of children with difficult trauma increased in 2018 (2017 – 68%; 2018 – 81,3%). The highest morbidity rate was in May (2017 – 10,4%; 2018 – 10,2%). Supreme sickness rate evaluated in all age groups was the same in 2017 – 2018 years (0-2 y. – 34%, 12-14 y. – 10%, 15-17 y. – 9%). The number of patients admitted to hospital with medical referral has decreased by 2% (2017 – 19%; 2018 – 17%).

**CONCLUSIONS:** The number of children admitted to VUH SC PPC has decreased in 2018. Main admission causes are the same both in 2017 and 2018: traumas, fever, abdominal pain and URTI. The most remarkable result is that less patients come to PPC due to URTI and mild traumas. These analysis showed that the greatest morbidity rates remain in May and the most vulnerable group by age is infants. Unfortunately, the number of patients with medical referral has decreased.
Title: Food-induced anaphylaxis in children

Authors: Kwika A.¹

Tutor/Tutors: Assoc. Prof. Beata Cudowska, Prof. Dariusz Lebensztejn

University: ¹ Department of Pediatrics, Gastroenterology, Hepatology, Nutrition and Allergology, Medical University of Białystok, Poland

INTRODUCTION: Anaphylaxis is an unexpected and potentially life-threatening systemic allergic reaction becoming an increasingly common problem in the pediatric population. In children, anaphylactic reactions are often caused by foods, but due to the various clinical manifestations they create serious diagnostic and therapeutic difficulties.

AIM OF THE STUDY: The aim of the study was to characterize the clinical picture of food-induced anaphylaxis in children with special attention to the first-line treatment in comparison to current recommendations.

MATERIALS AND METHODS: The retrospective study was performed on the group of 21 children (13 boys, 8 girls), aged 10 months-12 years (mean 53.41±42.6 months) being under the care of outpatient clinic. The inclusion criteria to the analysis were: IgE-sensitization to food allergens evaluated using PolyCheck method and clinical history of food anaphylaxis. Subjects were reviewed for the diagnosis, clinical symptoms of food allergy, co-morbidities, results of allergic tests and family history of atopy, based on the data collected in individual’s medical documentation.

RESULTS: The most common causes of anaphylaxis were: cow’s milk proteins (48.4%), hen’s egg (16.1%) and nuts (12.9%). The main manifestation of anaphylaxis was urticaria (54.8%), angioneurotic edema in the face (41.9%) and dyspnea (32.3%). 31 episodes of anaphylaxis were registered, including 10 repeated incidents; after each of them the patients were instructed and equipped with an adrenaline auto-injector. Despite that, only in one case (3.2%) intramuscularly adrenaline was given; while in the remaining 17 cases (54.8%) no treatment was used. The other pharmacological interventions were based mainly on administration of antihistamines (25.8%), bronchodilators (19.4%) and steroids (19.4%). The main reason for not giving adrenaline was fear and uncertainty if this is the situation, when it should be used.

CONCLUSIONS: Food-induced anaphylaxis in children is characterized by the diversity of clinical manifestation what is the main cause of diagnostic difficulties. The best way to improve the patient’s compliance is to educate them and their caregivers in identifying symptoms and acute and ongoing management in the episode of anaphylaxis.
**INTRODUCTION:** Celiac disease (CD) is a chronic autoimmune disorder of a small intestine caused by abnormal immune response to gluten proteins and presents often with gastrointestinal symptoms. Food allergy (FA) is an adverse immune sensitivity to ingested food proteins leading to inflammation in various organs as well as in the gastrointestinal tract. The relationship between CD and FA is not clear and the coexistence of these two disorders is rarely reported.

**AIM OF THE STUDY:** The aim of study was to evaluate the incidence and clinical relevance of IgE-mediated food allergy in children with celiac disease.

**MATERIALS AND METHODS:** The retrospective study was performed on the group of 59 children (27 boys, 32 girls) aged 10 months-17 years (mean 8.1±4.4 years) hospitalized in our Department due to the complaints from gastrointestinal tract. The inclusion criteria to analysis was diagnosis of celiac disease based on the positive results of antitissue-transglutaminase (anty-tTGA IgA) confirmed by villous atrophy in the duodenum biopsy. Subjects were reviewed for clinical symptoms, co-morbidities, anthropometric parameters, family history and the evidence of IgE-sensitization to food and airborne allergens evaluated using PolyCheck method.

**RESULTS:** IgE-mediated allergy has been diagnosed in 20.3% of children with CD (CD/A); FA affected 11.9% of CD patients. In CD/A group, 58.3% of children were sensitized to food allergens and 66.7% to airborne allergens; mostly to cow’s milk proteins, peanuts and mites allergens. 41.7% of patients in CD/A group, reported symptoms from gastrointestinal tract (abdominal pain, chronic diarrhea, bloating) associated with the ingestion of sensitizing foods. Analysis of the clinical status revealed that the incidence of other clinical symptoms of allergy were as followed: atopic dermatitis (33.3%), bronchial asthma (25.0%), allergic rhinitis (16.7%). The percentage of eosinophils was significantly higher in the CD/A than CD group (0.33±0.25 vs 0.11±0.09; p<0.05).

**CONCLUSIONS:** The diagnosis of celiac disease does not exclude food allergy. The gastrointestinal symptoms in children with CD may be the result of both CD and food allergy, therefore children with CD should be verified for the presence of food allergy regardless to age.
**Title:** Survival rates of very rare tumours in pediatric population: a population based retrospective analysis

**Authors:** Šalaševičius L.¹

**Tutor/Tutors:** Jelena Rascon

**University:** ¹ Vilnius University, Faculty of Medicine, Lithuania

**INTRODUCTION:** Pediatric very rare tumours (VRTs) comprise 9 - 11% of all malignancies under the age of 20. VRTs pose a real diagnostic and treatment challenge due to their rarity and lack of international treatment guidelines. Pediatric VRTs have never been previously addressed in Lithuania.

**AIM OF THE STUDY:** This study aimed to evaluate the number of VRTs in children, verify their registration status and assess treatment outcomes.

**MATERIALS AND METHODS:** A population – based retrospective analysis of children diagnosed and treated for VRTs in Lithuania from 2000 to 2015 was carried out. Institutional databases of two Lithuanian Pediatric Oncology Centres were reviewed for VRT. Data were cross-checked with the Lithuanian Cancer Registry (LCR) for registration and survival status. Primary endpoints of this study were 5 and 10 year overall survival (OS<sub>5y</sub> and OS<sub>10y</sub>). Estimates of OS were calculated using Kaplan-Meier methodology.

**RESULTS:** A total of 44 children were included. The median age at the time of diagnosis was 12 years. There were slight females’ predominance (n=27; 61.4%). The most frequent tumour diagnosed was adrenocortical carcinoma (15.9%), followed by hemangioendothelioma (9.1%), renal and thyroid carcinomas, rhabdoid tumour (6.8% each). There were 2 cases (4.5%) each of pheochromocytoma, gastric adenocarcinoma, salivary gland carcinoma, hemangioblastoma, pseudotumour, ovarian cancer and 12 single cases of different types of tumours. Nine patients (20.5%) were not registered at the LCR at the time of diagnosis. The most common types underregistered were salivary gland carcinoma, pseudotumour and thyroid carcinoma, followed by singular cases of adrenocortical carcinoma, hemangioblastoma and carcinoma of the uterus. Complete remission was achieved in 40.9% patients. The OS<sub>5y</sub> and OS<sub>10y</sub> of the entire cohort were 55.8±7.6% and 44.7±8.4% respectively. OS<sub>5y</sub> in unregistered case group was significantly higher as compared to the registered case group (80±17.9 vs 45.1±8.5%, respectively p=0.016).

**CONCLUSIONS:** Survival rates of Lithuanian VRT patients are inferior compared to other malignancies. Careful registration of each VRT case is crucial to evaluate properly treatment outcome and ensure quality of data.
INTRODUCTION: EBV is associated with a variety of diseases including infectious mononucleosis. Some symptoms and clinical manifestation, including lymphadenopathy, fatigue, splenomegaly can suggest leukemia or lymphoma. Abnormalities in blood morphology, especially presence of abnormal lymphocytes in blood smear, can also concern doctor, suggesting oncological disease. These are the reasons why some patients with mononucleosis, before the proper diagnosis, are sent to the oncological department.

AIM OF THE STUDY: The purpose of the study was to evaluate the cases of infectious mononucleosis admitted to Department of Pediatric Oncology and Hematology.

MATERIALS AND METHODS: We analyzed medical documentation of 22 patients (16 boys, 1-17 years, medium age 5 years and 9 months) admitted to the Department of Pediatric Oncology and Hematology, Medical University of Bialystok with the suspicion of oncological disease, due to symptoms and/or results of blood morphology, diagnosed with infectious mononucleosis. Patients were hospitalized between 2016 and 2018. Data was obtained from electronic documentation system Clininet. The analysis included clinical symptoms, morphology parameters, blood smear, lactate dehydrogenase activity, inflammatory parameters.

RESULTS: 86% (n=19) of analyzed patients had lymphadenopathy, among them cervically lymphadenopathy was present in 17 patients. Hepatomegaly was observed in 4 patients, splenomegaly in 3 patients, hepatosplenomegaly in 3. Pharyngitis was observed in 12 cases. 41% (n=9) of patients had increased leukocytosis, 59% (n=13) of children had leukopenia (mean WBC 14.4 +/- 13.015 10^9/l). Only 19% of patients had increased activity of alanine aminotransferase (ALT). 43% patients had increased lactate dehydrogenase level. Only in 14% of cases inflammatory parameters including CRP were increased. Analysis of blood smear showed: 10 cases of lymphocytosis and 13 cases of neutrophilia according to age norms. Positive IgM antibodies against EBV were observed in 100%.

CONCLUSIONS: Infectious mononucleosis can mimic leukemia or lymphoma because of very similar symptoms and abnormal morphology parameters. The presence of IgM antibodies against EBV and microscopic evaluation of blood smear allow to distinguish mononucleosis from lymphoproliferative disease.
**Title:** Clinical features, etiology and treatment of children with sepsis and bacterial meningitis hospitalized in years 2016-2018

**Authors:** Salameh S.¹, Altin T.¹, Kowalska M.¹, Szewczak B.¹

**Tutor/Tutors:** Kacper Toczyłowski, MD, PhD - Artur Sulik, MD, PhD

**University:** ¹ Department of Paediatric Infectious Diseases, Medical University of Bialystok, Poland

**INTRODUCTION:** Sepsis is the leading cause of death in pediatric population. Despite this tremendous impact, there is limited focus on pediatric sepsis and most of the current treatment is extrapolated from adult studies.

**AIM OF THE STUDY:** To evaluate clinical features, etiology and treatment of children with sepsis and bacterial meningitis.

**MATERIALS AND METHODS:** A retrospective analysis of medical records of patients hospitalized in the Department of Pediatric Infectious Diseases at the Medical University of Bialystok, in years 2016-2018.

**RESULTS:** A total of 40 children aged 0-14 years were included: 20 children with bacterial sepsis, and 20 with bacterial sepsis and meningitis (S&M). The median duration of symptoms before hospitalisation were 24 hours (interquartile range (IQR), 12-48 hrs). The most common signs presented on admittance were fever (87.5%), vomiting/nausea (62.5%) and lethargy (62.5%). Importantly, in 12.5% of patients (5 infants under 3 months of age) fever was not reported. Lethargy was more prevalent among children with S&M. Corticosteroid treatment, intravenous immunoglobulins, and antithrombin III were commonly used (67.5%, 37.5%, and 32.5% of cases, respectively). Significantly more children with S&M received corticosteroids and intravenous immunoglobulins, as compared to children without meningitis. Altogether, the etiology of infection was established in 55% cases. Neisseria meningitidis was the most commonly detected pathogen (17.5%). Blood cultures and CSF cultures were positive in 10 and 3 children, respectively. Bacterial DNA in blood and CSF was detected in 3 and 5 children with negative cultures, respectively.

**CONCLUSIONS:** Special attention should be given to infants with lethargy, as fever might not be present. The use of adjunctive therapies is common in pediatric population. The etiology of infection remains unknown frequently. We encourage the use of both cultures and PCR, as combined detection rate was higher compared with PCR or blood culture alone.
Title: Cerebrospinal fluid pleocytosis and protein levels as a diagnostic predictor for Lyme neuroborreliosis in children

Authors: Altin T.1, Salameh S.1, Kowalska M.1, Szewczak B.1, Mincewicz J.1

Tutor/Tutors: Kacper Toczyłowski, MD, PhD - Artur Sulik, MD, PhD

University: 1 Department of Paediatric Infectious Diseases, Medical University of Bialystok, Poland

BACKGROUND: The overwhelming majority of viral meningitis cases are caused by non-polio enteroviruses. However, tick borne diseases, namely Lyme neuroborreliosis (LNB) and tick-borne encephalitis (TBE), should also be considered a possible cause of aseptic meningitis in children living in endemic areas. Diagnosing remains challenging because serology tests produce false-positive results and the two-step approach in LNB is time-consuming.

AIM OF THE STUDY: We aimed to identify early-available findings suggestive of neuroborreliosis by comparing laboratory test results in children with neuroborreliosis, TBE and enteroviral meningitis (EM).

MATERIALS AND METHODS: A retrospective analysis of medical records of patients with LNB, TBE, and EM hospitalized in University Children’s Clinical Hospital of Bialystok between 2016 and 2018.

RESULTS: A total of 141 children were included (26 TBE, 21 LNB, 94 EM). There were no significant differences in median cerebrospinal (CSF) pleocytosis. In the LNB group there was significantly higher percentage of lymphocytes in CSF (median 90; interquartile range (IQR) 82-94%), as compared to TBE (median 71; IQR 35-88%; p<0.01), and EM (median 60; IQR 31-77%; p<0.01). In LNB we observed the highest CSF protein (median 73; IQR, 48-100mg/dL), as compared to TBE (median, 49; IQR, 34-63mg/dL; p<0.01), and EM (median, 32; IQR, 25-42mg/dL; p<0.01). Low CSF protein concentration and low CSF lymphocytes had a strong negative predictive value (NPV) for LNB. The optimum cut-off values were 70mg/dL and 70%, respectively. Combination of both CSF parameters reached NPV of 100%. However, positive predictive value was 28% only.

CONCLUSIONS: General CSF analysis results does not suffice to suspect neuroborreliosis, but percentage of CSF lymphocytes under 70% and concentration of CSF protein under 70mg/dL might be helpful in distinguishing LNB from TBE and EM.
**Title:** Parent evaluation of vaccine-preventable diseases

**Authors:** Koreskova I., Kreicberga Z.

**Tutor/Tutors:** Dr. Med., Assoc. prof. Dace Zavadska, MD, PhD

**University:** 1 Faculty of Medicine, Riga Stradiņš university, Latvia

**INTRODUCTION:** Although vaccination is available for every child, there are cases of vaccine-preventable diseases in Latvia with severe complications, it begs to question, why parents still choose to not vaccinate their children.

**AIM OF THE STUDY:** The purpose of study was to determine parent assessment of vaccine-preventable disease severity and to evaluate differences of severity assessment depending on the child's vaccination status.

**MATERIALS AND METHODS:** An anonymous survey of parents whose children are younger than 7 years was conducted. Data was collected by questionnaires in 6 kindergartens during December 2018 and on the internet site www.facebook.com in January 2019. Parents were asked to evaluate severity of 11 vaccine-preventable diseases in a scale from 0 to 10 (10 being the most severe).

**RESULTS:** 1084 parents participated in survey, 93 parents in kindergartens (group-1) and 991 in Facebook (group-2). In group-1 87% of parents vaccinated their children, 10% - partially vaccinated and 3% did not vaccinate their children. In group-2 79% of parents vaccinated their children, 14% - vaccinated partially and 7% did not vaccinate their children. In both groups vaccinated kids’ parents evaluated diseases more severely than in not vaccinated, by giving diphtheria - 8.71, tetanus - 8.81, pertussis - 8.56, measles - 7.81, chickenpox -6.54, tick-borne encephalitis - 8.77, influenza - 7.29, rota virus - 6.65, virus hepatitis B - 8.54, mumps - 7.82, tuberculosis - 8.89 points. Nonvaccinating parents evaluated diseases as less dangerous, giving fewer points, to some diseases more than twice less, by giving diphtheria - 6.51, tetanus - 6.80, pertussis - 5.32, measles - 4.65, chickenpox -2.88, tick-borne encephalitis - 5.77, influenza - 3.68, rota virus - 2.98, virus hepatitis B - 5.74, mumps - 4.64, tuberculosis - 5.91 points.

**CONCLUSIONS:** Parents who do not vaccinate children assessed diseases as potentially less dangerous than those who vaccinate their children. Overall parents consider chickenpox to be the mildest disease, then rota virus and influenza, but most severe - tetanus, tuberculosis and diphtheria. Parents who do not vaccinate their children are more active on the internet and express their opinion more than parents in kindergartens.
**Title:** Physical activity during hospitalization in Department of Pediatric Oncology and Hematology.

**Authors:** Niewiński H.¹, Kiluk M.¹, Bowtruczuk A.¹

**Tutor/Tutors:** Małgorzata Sawicka-Żukowska, PhD

**University:** ¹ Department of Pediatric Oncology and Hematology, Medical University of Bialystok, Poland

**INTRODUCTION:** Oncological diseases are connected with diminished physical activity in patients. Hospitalization, immobilization and others are the reasons for low activity rate in oncological patients. Consequences are persistent and influence the life of cancer survivors.

**AIM OF THE STUDY:** The aim of the study was to evaluate physical activity of children hospitalized in Department of Pediatric Oncology and Hematology.

**MATERIALS AND METHODS:** We analyzed physical activity (PA) by 3-day observation of walked steps in 61 patients (49 boys) during treatment for leukemias and lymphomas (n=50), solid tumors (n=11). Control group was composed of 30 children (15 boys) hospitalized in the department from reasons others than oncological, which didn’t influence physical activity. We used TANITA (Monitoring Your Health) – Model AM-120E to count steps, distance and time of activity. High PA was defined as more 10000 steps a day. In every patient we analyzed body mass index (BMI, kg/m²), percent of body fat (PBF,%), fat mass (FM, kg) and skeletal muscle mass (SMM, kg).

**RESULTS:** Children treated for neoplastic diseases demonstrate lower level of PA comparing to the control group in every day of observation (p<0,05). In examined group median of number of steps was 1073 in day 1, 1160 in day 2 and 1890 in day 3. In controls – 4303, 4733, 4556 respectively. Distance in km and time of activity every day of observation was statistically higher in controls than in oncological patients (day 1: 2.29 vs 0.6 km, 31 vs 11 min; day 2: 2.88 0.65, 33 vs 15 min; day 3: 2.77 vs 0.92 km, 32 vs 13 min; p<0,01). In control group the highest PA was observed in second day, in children with neoplasm PA was similar in 3 days. We didn’t find differences in PA between groups of different diagnosis. Comparing PA in groups according to gender, we did not find differences in PA between boys and girls from examined group, but both, girls and boys during antineoplastic treatment had statistically lower level than girls and boys from control (p<0,01).

**CONCLUSIONS:** Low level of physical activity of children during antineoplastic treatment is very concerning. Many programs based on physical activity adjusted to the disease, treatment and age should be introduced to pediatric oncology as a part of the therapy.
Basic Sciences
INTRODUCTION: The alcohol consumption by the mother during pregnancy breaks the structure and functions of the offspring brain. Wherein the hypothalamus histaminergic neurons have not been studied.

AIM OF THE STUDY: The aim of the study is to evaluate the morphofunctional state of the brain histaminergic neurons of 45-day-old rats offspring consumed alcohol during pregnancy.

MATERIALS AND METHODS: The study was carried out on female outbred white rats and their offspring. During pregnancy the experimental group females consumed a 15% ethanol solution. The control group was offered water. The rats offspring decapitation was carried out on the 45th day after birth. Histological, histochemical, morphometric, cytophotometric, statistical research methods were used in the study.

RESULTS: Histaminergic neurons were analyzed with regard to the chromatophilia degree of the cytoplasm. A decrease in the number of normochromic neurons by 3.80% and an increase in the number of cell shadows by 55.01% were observed in the experimental group. In addition, a decrease in the perimeter, area and volume of the histaminergic neurons perikarya by 25.70%, 17.30% and 35.95% respectively was found. This indicates a long-term impairment of these cells structure and the growth inhibition of their bodies in rats, undergone antenatal alcoholization. In the cytoplasm of the histaminergic neurons perikarya the succinate dehydrogenase activity decreased by 27.04% and the lactate dehydrogenase activity increased that indicates a shift in the energy metabolism of the cell towards anaerobic reactions. An increase in the glucose-6-phosphate dehydrogenase activity by 12.14% was detected, which also indicates the adaptation mechanisms formation aimed at preserving the cells energy potential. An increase in the acid phosphatase activity by 75.00% reveals a sharp growth in the autophagy processes aimed at the damaged organelles removal.

CONCLUSIONS: The alcohol consumption by female rats throughout pregnancy violates the structure and energy metabolism of the brain histaminergic neurons of their offspring. These changes are long-term in nature and indicate a high sensitivity of developing brain histaminergic neurons to alcohol.
**Title:** Investigation of CTLA-4 and PD-1 application in improving anti-tumor immune response in MDA-MB-231 breast cancer model.

**Authors:** Kretowska A.¹, Grunwald C.¹, Tynecka M.¹, Starosz A.¹

**Tutor/Tutors:** dr Kamil Grubczak, prof Marcin Moniuszko

**University:** ¹ Department of Regenerative Medicine and Immune Regulation, Medical University of Bialystok

**INTRODUCTION:** Cytotoxic T lymphocyte-associated antigen 4(CTLA-4) and programmed cell death protein 1(PD-1) are both immune checkpoint receptors, which are upregulated on T lymphocytes upon their activation, down regulating immune responses, and therefore preventing hyperreactivity reactions. Inhibition of these receptors provides great perspective on novel cancer therapy approaches. With breast cancer being the most commonly diagnosed cancer among women, it is tempting to hypothesize if the blockage of these receptors on lymphocytes of breast cancer patients causes favorable effects on anticancer activity.

**AIM OF THE STUDY:** In this study we aimed to determine whether the in vitro inhibition of CTLA-4 and PD-1 receptors on lymphocytes could exert an anti-tumor immune response in terms of breast cancer cells.

**MATERIALS AND METHODS:** The study was performed on MDA-MB-231 breast cancer cell line. Cancer cells were subjected to 24-hour incubation in presence/absence of activated PBMC from healthy blood donors, with/without anti-PD-1 and anti-CTLA-4 blocking antibodies. 7-amino actinomycin D and Pierce LDH Cytotoxicity Assay Kit was used to determine viability. Proliferative responses were assessed based on CFSE fluorescence intensity. Data were acquired using FACSCalibur flow cytometer.

**RESULTS:** The analysis of our study revealed that inhibition of CTLA-4 on PBMC resulted in significant decrease(p=0.0391) of proliferating breast cancer cells. No significant changes in proliferation status of breast cancer cells were observed in reference to inhibition of PD-1 in co-culture with PBMC. Assessment of LDH activity showed significant cytotoxic activity of PBMC alone on cancer cells(p=0.0273) with even more pronounced effects observed with additional application of CTLA-4 inhibition(p= 0.0039), which translates into great decrease in cancer cell viability.

**CONCLUSIONS:** Inhibition CTLA-4 mononuclear cell receptors might have a beneficial impact on the reduction in breast cancer progression and viability. PD-1 inhibition showed no significant results. Further experiments are required to better evaluate the exact impact of CTLA-4 and PD-1 blockage on breast cancer cells and to determine their possible application as novel drugs supporting breast cancer therapy.
Title: Evaluation of vitamin D3/steroids influence on interactions between orbital fibroblast and Treg and Th17 cells from active and inactive Graves’ orbitopathy patient.

Authors: Starosz A.¹, Tynecka M.¹, Marolda V.¹, Krętowska A.¹

Tutor/Tutors: Dr Kamil Grubczak, Dr Andrzej Eljaszewicz, Prof. Marcin Moniuszko

University: ¹ Department of Regenerative Medicine and Immune Regulation, Medical University of Białystok

INTRODUCTION: Graves’ orbitopathy (GO) is the most common complication of Graves’ disease manifested by orbital inflammation, remodeling, and fibrosis. Cells involved GO onset are orbital fibroblast, regulatory (Treg) and effector T cells (Th17 predominantly). Cytokines released by Th17 cells activate migration of cells in site of inflammation. Interestingly, Th17 cells can also cause dysfunction of Tregs and their transition into Th17 phenotype. Current knowledge on Treg/Th17 role in GO is scarce, especially in the context of their mutual interactions with orbital fibroblasts at different stages of GO.

AIM OF THE STUDY: Here we investigated in vitro the influence of vitamin D3 and/or steroids on proliferation of GO orbital fibroblasts during their interaction with peripheral blood mononuclear cells (PBMC).

MATERIALS AND METHODS: Fibroblasts and PBMC were collected from each donor with GO in active or inactive stage of the disease, and co-cultured for 48 hours in presence/absence of vitamin D3 and/or steroids. Flow cytometric analysis allowed for evaluation of fibroblasts proliferation and changes in frequencies of Treg and Th17 lymphocytes.

RESULTS: Active orbitopathy fibroblasts induced increase in frequency of Treg cells within lymphocyte population. Vitamin D3 and steroids seemed to effectively reduce Tregs levels, especially in combination. Elevated frequencies of IL-17-producing cells were observed in lymphocytes of active GO patients following co-cultures. Furthermore, application of steroids and vitamin D3 decreased the proliferation of orbital fibroblast from active and inactive orbitopathy patients. Noteworthy, we observed different response of fibroblasts depending on GO stage.

CONCLUSIONS: Our study revealed that interaction of lymphocytes with orbital fibroblasts depends on disease stage and can cause crucial changes in Treg and Th17 frequencies. Moreover, application of vitamin D3 was found to significantly modulate fibroblasts activity, and even enhance steroids effects. Further research is required to comprehensively establish role of fibroblasts and reactive lymphocytes in GO and possible ways of vitamin D3 application in their modulation.
Title: Cloning of variable domains of immunoglobulin genes and assembly of linear design of scFv idiotype for idiotypic DNA vaccine.

Authors: Yasuchenya L.¹

Tutor/Tutors: Dmitriy Lutskovich, Belarusian Research Center for Pediatric Oncology, Hematology and Immunology; Belarusian State University

University: ¹ Faculty of Biology, Belarusian Research Center for Pediatric Oncology, Hematology and Immunology; Belarusian State University

INTRODUCTION: B-cell non-Hodgkin lymphoma is an aggressive disease with a slow progression and recurring relapses. Idiotypic DNA vaccination is used as a supporting method of therapy in the treatment of such lymphomas, allowing stabilization of remission.

AIM OF THE STUDY: B-Cell non-Hodgkin lymphoma

MATERIALS AND METHODS: The biopsy material of the affected lymph node was crushed in a nutrient medium, isolated RNA and synthesized cDNA with random primers and oligo-dT. After cDNA was used to amplify the immunoglobulin variable regions with a specially selected primer panel. The next step was to assembly a linear idiotype (scFV) from the heavy and light chains variable fragments by overlapping PCR amplification (SOE-PCR) with a 6-histidine linker. We spent electrophoresis to visualize the fragment and extracted it from an agarose gel. Then there was embedded scFv in the reading frame with the costimulatory gene (PVXCP) into the pING vector by recombination PCR cloning.

RESULTS: DNA vaccines were obtained and one dose contains 300 mg of plasmid DNA in 1-2 ml of sterile DPBS buffer. The vaccine was applied in complex with polyethyleneimine, and then intramuscular injection was performed into the gluteal muscle. Idiotypes were established for 15 patients with NHL. For 10 of them, the linear scFV idiotype was assembled in and cloned into an expression vector. The preparations of the vaccine plasmid DNA were prepared for 8 patients.

CONCLUSIONS: The method is adapted for the production of DNA vaccines and use in clinical trials.
Title: Discovery and Therapeutic Exploitation of Mechanisms of Resistance to MET Inhibitors in Glioblastoma

Authors: Marcinkiewicz L.¹, Guessous F.¹, Cruickshanks N.¹, Zhang Y.¹, Abounader R.¹

Tutor/Tutors: Joanna Pancewicz - Wojtkiewicz

University: ¹ School of Medicine, Medical University of Bialystok
School of Medicine, Mohammed VI University of Health Sciences, Casablanca
Department of Microbiology, Immunology and Cancer Biology, University of Virginia

INTRODUCTION: Glioblastoma (GBM) is the most common and most lethal primary malignant brain tumor. The receptor tyrosine kinase MET is frequently upregulated or overactivated in GBM. Although clinically applicable MET inhibitors have been developed, resistance to single modality anti-MET drugs frequently occurs, rendering these agents ineffective.

AIM OF THE STUDY: We aimed to determine the mechanisms of MET inhibitor resistance in glioblastoma and use the acquired information to develop novel therapeutic approaches to overcome resistance.

MATERIALS AND METHODS: Two clinically applicable MET inhibitors were investigated: crizotinib, an ATP-competitive small molecule inhibitor of MET, and onartuzumab, a monovalent monoclonal antibody that binds to the extracellular domain of the MET receptor. Further, we developed new MET inhibitor–resistant cells lines and animal models and used reverse phase protein arrays (RPPA) and functional assays to uncover the compensatory pathways in MET inhibitor–resistant GBM.

RESULTS: In the course of the study, we identified critical proteins that were altered in MET inhibitor–resistant GBM including mTOR, FGFR1, EGFR, STAT3, and COX-2. Simultaneous inhibition of MET and one of these upregulated proteins led to increased cell death and inhibition of cell proliferation in resistant cells compared with either agent alone. In addition, in vivo treatment of mice bearing MET-resistant orthotopic xenografts with COX-2 or FGFR pharmacological inhibitors in combination with MET inhibitor restored sensitivity to MET inhibition and significantly inhibited tumor growth.

CONCLUSIONS: Results and the data obtained in the study uncover the molecular basis of adaptive resistance to MET inhibitors and identify new FDA-approved multidrug therapeutic combinations that can overcome resistance.
**Title:** Comparison of chimerism in patients with aplastic anemia and primary immunodeficiencies after allogenic hemopoetic stem cell transplantation

**Authors:** Punko A., Lavrinenko V.

**Tutor/Tutors:** Lavrinenko V. A.

**University:** Department of molecular genetic, Belarusian Research Center for Pediatric Oncology, Hematology and Immunology
Department Of Genetics, Belarusian State University

**INTRODUCTION:** The primary disease have a significant effect on the engraftment of donor cells and the level of chimerism after allogenic hemopoetic stem cell transplantation (alloHSCT) in non-malignant diseases, which may be due to genetic defects of the cells, peculiarities of the hematopoietic environment of the recipient, etc.

**AIM OF THE STUDY:** To compare the dynamics of chimerism after allogeneic transplantation of hematopoietic stem cells in patients with aplastic anemia (AA) and primary immunodeficiencies (PID).

**MATERIALS AND METHODS:** Nucleated cells isolation from peripheral blood and bone marrow in patients and their donors before and after alloHSCT; DNA isolation; sorting with fluorescence activated cell sorting (FACS) and magnetic separation technology (MACS); determination of chimerism by STR-PCR and InDel-PCR.

**RESULTS:** In the study we determined the chimerism level in 18 patients with AA and in 16 with PID. Patients with AA after alloHSCT had full donor chimerism (> 98%) after 35% alloHSCT, full donor chimerism (FDC) with conversion in mixed chimerism (MC) – after 10%, persistent MC – after 10%, increased MC – after 10%, decreasing – after 25%, 0% chimerism (non-treatment) after 10%. Patients with PID had detected FDC after 68.75% alloHSCT, increased MC after 12.5%, decreasing after 18.75%. FDC was more often observed in patients with PID than in patients with AA (p<0.05). MC in patients with AA was caused by long persistence of recipient T-lymphocytes, whereas FDC was often established in other subpopulations. In patients with PID having MC T-lymphocytes were of donor origin but granulocytes were represented by recipient cells.

**CONCLUSIONS:** The level of chimerism is strongly influenced by the primary disease. FDC was more often observed in patients with PID than in patients with AA. MC in patients with AA was caused by long persistence of recipient T-lymphocytes, whereas in patients with PID having MC granulocytes were represented by recipient cells, but T-lymphocytes were of donor origin.
**Title:** Activity of ceragenins against *Escherichia coli* strains involved in the urinary tract infections

**Authors:** Gołaszewska A.¹, Prasad S.¹, Cieśluk M.²

**Tutor/Tutors:** prof. dr hab. Robert Bucki

**University:** ¹ Department of Microbiological and Nanobiomedical Engineering, Medical University of Bialystok, Mickiewicza 2C, 15-222 Bialystok, Poland, Medical University of Bialystok, Poland

**INTRODUCTION:** Urinary tract infections (UTIs) are a very common medical conditions affecting the kidneys, ureters, bladder and urethra, caused mainly by uropathogenic *Escherichia coli* (UPEC) and characterized by high ratio of recurrence and drug resistance. The sufficient therapy of UTIs is considerably hampered by intracellular pathogens, that are internalized by infected host cells and thus, are able to avoid the killing by antibiotics and natural antimicrobial compounds. Considering that a majority of currently used antimicrobial agents is ineffective against intracellular form of pathogens, the development of novel molecules with the ability to penetrate the cells and to exert bactericidal effect, is of great interest.

**AIM OF THE STUDY:** The aim of study was to evaluate the bactericidal effects of LL-37 peptide and ceragenins: CSA-13 and CSA-131 against clinical strain of *E. coli* and to investigate the efficiency of these agents in reaching internalized bacteria.

**MATERIALS AND METHODS:** Killing assay and crystal violet staining were employed to assess the bactericidal effects of tested compounds and to quantify the biofilm formation, respectively. The cytotoxicity of agents against human bladder T24 cells was evaluated using MTT assay. Intracellular activity of ceragenins was investigated by lysing of infected T24 cells followed by counting of bacterial colonies after overnight culturing on agar plates.

**RESULTS:** Tested agents, particularly ceragenins CSA-13 and CSA-131 were sufficient in decreasing of intracellular microbials survival.

**CONCLUSIONS:** Collected data suggests that ceragenins might be used as effective treatment in urinary tract infections due to eradication of both extracellular and intracellular pathogens, and thus might prevent the infections recurrence. This study was partly funded by the grant from the National Science Centre, Poland (UMO-2016/21/N/NZ6/02213 to UW)
Title: The use of an artificial intelligence based image analysis algorithm for histological renal segmentation

Authors: SILEIKYTE A.¹, JAKUBKEVICIUS V.¹

Tutor/Tutors: PhD Justinas Besusparis, Renaldas Augulis, Prof. Arvydas Laurinavicius

University: ¹ Faculty of medicine, Vilnius University, Lithuania

INTRODUCTION: Manual evaluation of renal histological samples is both subjective and has a great time and economic burden. There have been only a few efforts to automate the whole renal tissue segmentation process. Such an achievement could be beneficial for an improvement of analysis of renal histology.

AIM OF THE STUDY: To create a digital deep neural network learning based algorithm for automatic renal tissue segmentation in specimens stained with RGB2 stain. To evaluate the sensitivity and specificity of this algorithm.

MATERIALS AND METHODS: Tissue samples of 180 kidney core biopsies were stained with RGB2, digitalised and retrospectively analysed using HALO program. The deep neural network based learning algorithm was calibrated to identify 9 classes of cortical tissue, namely glomerulus (G), stroma (S), peritubular capillaries (PTC), large and small arteries (A), glass (Gl), sclerosed glomerulus (ScG), proximal and distal tubules (T). For the training of the algorithm manually annotated tissue structures were used (3049 annotations). For the analysis 50 biopsies were used. The quality of the renal tissue segmentation algorithm was quantified using multivariate confusion matrix methodology. Preliminary sensitivity and specificity of the algorithm also the number of nuclei and relative area were calculated for each class.

RESULTS: The evaluation of the confusion matrix revealed that the sensitivity each class respectively were G 91.76%; T 90.53%; A 20.02%; PTC 81.79%; Gl 66.67%; ScG 99.28% and specificity G 93.09%; T 96.15%; S 98.15%; A 92.45%; PTC 97.59%; Gl 99.92%; ScG 96.84. In the sample of our analysis relative area was T 50.09%, S 25.23%, A 9.26%, G 7.09%, PTC 7.06%, ScG 1.28%. The mean number of nuclei respectively were T 14050.18 (61.56%), S 5041.7(22.09%), G 1597.94 (7%), PTC 1139.78 (4.99%), A 921.96 (4.03%), ScG 72.63 (0.32%).

CONCLUSIONS: Specific and sensitive algorithm for renal tissue segmentation was created. Additionally tested and validated algorithm could be incorporated into daily clinical practise as a decision support system.
Title: New quality assurance methods for vitality evaluation of frozen ovarian tissue

Authors: Seniut G., Gudlevičiūtė A., Grubliauskaitė M.

Tutor/Tutors: Živilė Gudlevičienė, MD, PhD

University: 1 Faculty of medicine, Vilnius University, Lithuania 2 Life Science center, Vilnius University, Lithuania

INTRODUCTION: Over the past decades the cancer incidence rate among young people has grown. Even though new cancer treatment protocols improved the overall survival of cancer patients, childhood cancer survivors suffer from various forms of subfertility or infertility. To avoid that several options of fertility preservation methods have been identified, e.g. ovarian (or testicular) tissue cryopreservation of young girls and boys before oncologic treatment. However, for successful results the quality and suitability of thawed tissue must be evaluated before retransplantation.

AIM OF THE STUDY: The aim of this study was to evaluate the quality of thawed ovarian tissue and suitability for transplantation using different morphological and molecular methods, xenotransplantation models.

MATERIALS AND METHODS: The Study was approved by the Vilnius Regional EC of Biomedical Research. In 2015-2018 ovarian tissue samples were cryopreserved in National Cancer Institute (Lithuania) from 30 young women (< 40 years) with Informed consent. Samples were frozen using slow freezing technique and stored at -80 °C. Small pieces of tissue samples were thawed after more than 1 year of storage. RNA extraction by miRNeasy Mini Kit (Qiagen) and miRNA expression by miScript miRNA PCR array human miRNome (Qiagen) analysis were performed for quality control. Additional fragments of ovarian tissue samples were xenotransplanted into female NUDE-SCID mice (n=12) for 5 weeks. Histological H&E and immunohistochemical (ICH) Ki67 staining of ovarian tissue grafts were applied.

RESULTS: The good quality of extracted RNA has been shown – A260/A280 was 1.96–2.04, RIN 6.6–7.6. Evaluation of RNA concentration by the NanoDrop was 41–474 ng/µl and 23–343 ng/µl by the Agilent. 74 of 84 (88 %) investigated miRNAs were expressed. The highest expression for hsa-miR-1280 was detected. Xenotransplantation, histological and ICH analysis did not show any signs of cancer cells in thawed tissues.

CONCLUSIONS: Results of RNA extraction and miRNA expression from thawed ovarian tissue samples have shown that the fragments are living tissue. These molecular methods in combination with morphological analysis could be used as quick quality assurance tests avoiding standard and time consuming xenotransplantation method.
**Title:** Novel regulator of natrium-iodide symporter and its use as potential therapeutic target.

**Authors:** Broniarek K.¹, Gierlikowski W.¹, Kotlarek M.¹, Grzędzicka J.¹, Wójcicka A.¹

**Tutor/Tutors:** dr hab. Anna Wójcicka

**University:** ¹ Department of Genomic Medicine, Medical University of Warsaw, Poland

**INTRODUCTION:** Papillary thyroid carcinoma (PTC) is the most common endocrine malignancy. Its treatment consists of two stages: surgical removal of the thyroid tissue followed by radiiodine treatment. Second stage is possible due to expression of several proteins and the leading role is fulfilled by natrium-iodide symporter – NIS, product of SLC5A5 gene. Deregulation of microRNA (miRNA, miR) levels is typical for many types of cancers, including PTC.

**AIM OF THE STUDY:** The aim of this study was to examine the level of miR-X and SLC5A5 in PTC tissue and to investigate an impact of miR-X on the level of SLC5A5 expression in model cell lines capable of iodine uptake: MCF7 and HEK-293-flhNIS, in context of PTC.

**MATERIALS AND METHODS:** Tissue samples were obtained from 49 patients with PTC and expression of SLC5A5 and miR-X was measured employing SQ-PCR technique. The experiments were conducted using pcDNA3 vectors expressing miRNA (-ctrl, -X) and modified pGL3 vectors with synthetic microRNA sponge sequences. HeLa cells were co-transfected with mir- and sponge-expressing plasmids and subjected to luciferase assay to confirm binding of the miRNA to a corresponding sponge. HEK293-flhNIS, constitutively expressing NIS, and MCF7, stimulated with ATRA and hydrocortisone, were transfected with miR-ctrl vs. miR-X or sponge-ctrl vs. sponge-X. SLC5A5 expression was measured using SQ-PCR technique.

**RESULTS:** In 43/49 tissue pairs, the expression of SLC5A5 was lower in tumor than control tissue. The overall decrease was 12.27-fold. The expression of miR-X in thyroid tissue pairs was increased by 27%. Luciferase reporter assays confirmed that luciferase activity expressed from miR-X sponge was decreased in the presence of miR-X by 22%, indicating binding of the miRNA to the corresponding sponge. Transfection of HEK293-flhNIS cells with miR-X led to decreased expression of NIS by 24%, transfection of MCF7 – by 43%. After transfection with appropriate sponge NIS expression increased: for HEK293-flhNIS by 11%, for MCF7 by 45%.

**CONCLUSIONS:** Our results indicate that miR-X is overexpressed in PTC and that this mechanism is one of contributing to SLC5A5 downregulation. Its product – NIS is indispensable for effective radiiodine treatment of PTC. Level of the miRNA can be modulated within the cells, making it? an interesting potential therapeutic target.
**Title:** The neddylation inhibitor pevonedistat (mln4924) suppresses and radiosensitizes head and neck squamous carcinoma cells and tumors

**Authors:** Marcinkiewicz L.¹, Roman S.¹, Guessous F.², Abbas T.³

**Tutor/Tutors:** Joanna Pancewicz - Wojtkiewicz

**University:** ¹ School of Medicine, Medical University of Bialystok, Poland ² School of Medicine, Mohammed VI University of Health Sciences, Casablanca, Morocco ³ Department of Microbiology, Immunology and Cancer Biology, University of Virginia, United States

**INTRODUCTION:** Head and neck squamous cell carcinoma (HNSCC) refers to SCC of the upper aerodigestive tract. It is the sixth most common cancer type worldwide with approximately 600,000 new cases diagnosed annually. The overall 5-year survival rate is 60%. Many patients with advanced disease fail current treatments and those with locoregional recurrences suffer painful deaths. Treatment consists of surgery and/or radiotherapy, with the addition of chemotherapy for patients with advanced disease.

**AIM OF THE STUDY:** We aim to demonstrate that CDT2 is overexpressed in head and neck squamous cell carcinoma (HNSCC), and its depletion by siRNA inhibits the proliferation of human papilloma virus–negative (HPV-ve) HNSCC cells primarily through the induction of re-replication.

**MATERIALS AND METHODS:** Tissue culture and reagents with cell lines Cal27, FaDu, SCC25 HNSCC were maintained according to the protocols. Cell lysis, SDS-PAGE and immunoblotting were done using Millipore, Bio-Rad, and RIPA buffer protocols. siRNA-mediated gene silencing were done using lipofectamine RNAimax according to Invitrogen protocol. Flow cytometry analysis was assessed with propidium iodide staining. PI staining was done according to the manufacturer’s protocols. Subsequent analyses were done using FlowJo and ModFit software. All experiments were performed in triplicates and results with P < 0.05 were considered statistically significant. Synergy was determined using the Bliss model of independence.

**RESULTS:** Treatment of HNSCC with the NEDD8-activating enzyme inhibitor pevonedistat (MLN4924), which inhibits all cullin-based ligases, induces significant re-replication and inhibits HNSCC cell proliferation in culture and HNSCC xenografts in mice. Pevonedistat additionally sensitizes HNSCC cells to ionizing radiation (IR) and enhances IR-induced suppression of xenografts in mice. Induction of re-replication via CDT2 depletion, or via the stabilization or activation of CDT1, also radiosensitizes HNSCC cells.

**CONCLUSIONS:** Our results demonstrate that induction of re-replication represents a novel approach to treating radioresistant HNSCC tumors and suggest that pevonedistat may be considered as an adjuvant for IR-based treatments.
Title: Evaluation of the effect of cytokines: IL-12, IL-18 and their combinations on the expansion, activation and functional activity of nk-cells

Authors: Shevtsova A.  

Tutor/Tutors: Tatiana Shman, PhD

University:  Belarussian State University, Belarusian Research Center for Pediatric Oncology, Hematology and Immunology, Belarus

INTRODUCTION: Different approaches were used to obtain of NK-cells transplant for clinical use. One of them is the use of different cytokines in the cultivation of NK-cells to obtain a sufficient amount of cellular product characterized by the necessary purity and high level of cells activation.

AIM OF THE STUDY: Immunotherapy

MATHERIALS AND METHODS: In this work were used peripheral blood mononuclear cells (PBMC) of a healthy donor, human cell lines K562, K562-GFP, K562 cells with expression of membrane bound IL-21 and 4-1 BBL. To start expansion of NK cells PBMC mixed with K562-FD21 cells in a 1:2 ratio. The mixture of cells was cultured with standard medium in the presence of IL-2 at a dose of 50 IU/ml. Investigated the influence of cytokines IL-12 (10 ng/ml), IL-18 (50 ng/ml) and their combinations. Change of half of the medium, taking into account the number of cells and their viability were carried out every three days. Monoclonal antibody staining for determination of subpopulation composition, functional activity and activation of NK-cells depending on addition of IL-12, IL-18 and their combinations were realized on 0, 7, 14 and 21 days of cultivation. NK cell activity was determined by IFN-γ production, cytotoxic activity and the level of expression of CD69, NKp44 analyzed by flow cytometry.

RESULTS: Activation on day 0 without adding cytokines did not exceed 5 %, on day 21 activation of NKp44 and CD69 was more than 80%. Adding a combination of cytokines IL-12 and IL-18 significantly improves the expansion of NK-cells, as well as the production of IFN-γ, in comparison with other options.

CONCLUSIONS: Therapeutic strategies based on the adoptive transfer of activated NK cells with combination of IL-12 and IL-18 might have an important place in immunotherapy of oncological diseases.
Title: The therapeutic significance of the IL-2α receptor (CD25) at diagnosis of chronic lymphocytic leukemia B-cellular and chronic myeloid leukemia.

Authors: Mirońska A.

Tutor/Tutors: dr hab. Małgorzata Rusak, prof. dr hab. Milena Dąbrowska

University: 1 Medical University of Białystok, Department of Hematological Diagnostics

INTRODUCTION: IL-2 is involved in various immune mechanisms related to infections and cancers. Under the influence of this cytokine, activation and stimulation of T lymphocytes and NK cells (to a lesser extent also B lymphocytes, macrophages and monocytes) to the secretion of a number of cytokines such as TNFα, IFNγ, GM-CSF. This activity is studied and used in cancer therapy. The activity of IL-2 can be indirectly measured by determining the expression of its IL-2α receptor, which occur only on immunologically activated cells.

AIM OF THE STUDY: The aim of the study was to evaluate the expression of the IL-2α receptor (CD25) in case of confirmation the validity of studies on the therapeutic effect of IL-2 in the CML and the CLL-B disease combined with determination the contribution in modeling the immune response.

MATERIALS AND METHODS: The study included 80 patients divided into two groups: with confirmed CML and with confirmed CLL-B disease. The control group consisted of 50 healthy volunteers matched by age and sex. The material of the examination was venous blood. To measure the expression of CD25 antigens in case of CLL-B examination we marked expressions of CD19, CD25 on neoplastic B-cell lymphocytes and in case of CML we marked expression of CD3, CD4 and CD25 on helper lymphocyte T by direct fluorescence method, using the Canto II flow cytometer.

RESULTS: The absolute number of CD19+ CD25+ and CD3+ CD4+ CD25+ were significantly higher comparing with the control group. The highest expression of IL-2α receptor occurs in CLL-B and CML compared to the healthy subject.

CONCLUSIONS: The higher absolute number of cells with expressed CD19+ CD25+ are associated with stimulation of the IL-2α receptor. An increase of the absolute values of CD3 + CD4 + CD25+ confirm their stimulation of anticancer activity. Our studies presented that examination of treatment usefulness of IL-2 in CML and CLL-B is possible, in case of high expression of IL-2α receptor. The inclusion of IL-2 supplementation into chemotherapy may contribute to increased reduction of cancer cells and will provide the greater chance to cure these diseases.
Neurology and Neurosurgery
Title: Analysis of the effects of different provocative methods on bioelectrical brain activity in patients with epilepsy

Authors: Seniut G¹, Streckytė D¹

Tutor/Tutors: Prof. MD, PhD Rūta Mameniškienė

University: ¹ Faculty of medicine, Vilnius University

INTRODUCTION: The sensitivity of an electroencephalogram (EEG) is increased by performing standard provocative tests. The effects of additional cognitive tasks on bioelectrical brain activity aren’t widely studied.

AIM OF THE STUDY: The aim of the study is to determine the effects of standard and cognitive tasks on bioelectrical brain activity in patients with epilepsy.

MATERIALS AND METHODS: EEGs of 144 patients with epilepsy were registered (age 37.9±16.2; 52.8% - women; 66.7% had focal epilepsy) using 3 standard (hyperventilation (HV), intermittent photic stimulation (IPS), eyes closed-eyes open) and 4 additional tests (reading aloud in a native and unknown language, solving a Rubik’s cube, crossing out letters). Interictal and ictal epileptiform discharges (EDs) were evaluated, data were coded, processed and compared using statistical methods (descriptive statistics, correlation coefficient, chi-squared test).

RESULTS: Eyes closed-eyes open test provoked EDs in 9.7% of EEGs, an inhibitory effect was registered in 34.7%. HV provoked EDs in 52.1% of patients, a seizure in one patient with focal epilepsy, inhibited EDs in 5.6% of patients, most of them had generalized epilepsy (p=0.005). EDs during IPS were registered in 16.7% of EEGs, a seizure in one patient with focal epilepsy, inhibition was found in 32.6%. Reading in an unknown language provoked EDs in 9.7%, inhibited them in 41%, more so in those with generalized epilepsy (p=0.003). Reading in a native language provoked EDs in 9.7%, inhibited them in 40.3%, especially in patients with generalized epilepsy (p=0.027). Solving a Rubik’s cube and crossing out letters provoked EDs in respectively 15.3% and 11.1%, inhibited them in 29.9% and 34%, both did so more in patients with generalized epilepsy (p=0.017; p=0.014).

CONCLUSIONS: Most frequently EDs were provoked by hyperventilation, whereas cognitive tasks inhibited them, more so in patients with generalized epilepsy. Patients with generalized epilepsy were also more responsive to IPS. Reading in a native language most frequently inhibited EDs in patients with focal epilepsy and reading in an unknown language had the same effect on patients with generalized epilepsy.
**Title:** The influence of disease span, clinical advancement and other factors on sleep disorders in Parkinson's disease

**Authors:** Bień M., Adamczewska K., Grażyńska A., Urbaś W., Antoniuk S., Duda M.

**Tutor/Tutors:** dr hab. Joanna Siuda, prof. dr hab. Monika Rudzińska-Bar

**University:** Neurology, Śląski Uniwersytet Medyczny w Katowicach

**INTRODUCTION:** Apart from motor symptoms, patients suffering from Parkinson’s disease (PD) may present different sleep disorders, influencing their quality of life.

**AIM OF THE STUDY:** The study aimed to analyze the effect of the following factors: disease span, dosage of levodopa, clinical symptoms advancement and frequency of depression on sleep deprivation in patients with PD.

**MATERIALS AND METHODS:** In the years 2016-2018, 184 patients suffering from PD diagnosed at the Department of Neurology in Central University Hospital in Katowice were included in the study (65 women and 119 men, mean age of 64). Sleep disorders were assessed using patients’ medical history, and medical history taken from their caretakers. Evaluation of clinical advancement was conducted using UPDRS part III, modified Hoehn-Yahr (HY) scale, MMSE and CDT. Depression was assessed using BDI. Statistica was used for statistical analysis.

**RESULTS:** Out of 184 PD patients, 92 (50%) presented sleep disorders. Both groups (PD patients with and without sleep disorders) showed no statistically significant differences regarding age at disease onset, age during conducting of study, sex, clinical advancement according to HY scale, dosage of dopamine agonists. The most common sleep disorders were: insomnia (41, 35.0%) and REM Sleep Behavior Disorder (RBD) (30, 25.6%). Other types of sleep disturbances reported by patients included: excessive daytime sleepiness, EDS (17, 14.5%), nightmares (15, 12.8%) and RLS (14, 12.0%). The mean disease duration for PD patients with sleep disorders (PD-SD) was significantly higher than for PD patients without sleep disorders (10.4 to 8.35, p=0.005). According to UPDRS part III OFF, PD-SD patients had higher clinical advancement of the disease (35.9 pts. vs. 31.18 pts., p=0.021). PD-SD patients were more likely to present with depression (mean BDI score= 11.1 pts. vs. 9.08 pts., p=0.031). PD-SD patients were treated with higher dosage of L-dopa (av. at 857 mg, vs. 698.82 mg, p=0.037).

**CONCLUSIONS:** Sleep disorders are more frequent in PD patients with longer disease duration, more advanced motor symptoms, often accompanied by depression, and higher L-dopa dose. Specific treatment of sleep disorders may contribute to more effective therapy for PD patients.
Title: Comparative analysis of non-motor symptoms in patients with Parkinson’s disease and atypical parkinsonisms

Authors: Antoniuk S., Grażyńska A., Urbaś W., Adamczewska K., Bień M., Duda M.

Tutor/Tutors: dr hab. Joanna Siuda, prof. dr hab. Monika Rudzińska-Bar

University: Neurology, Śląski Uniwersytet Medyczny w Katowicach

INTRODUCTION: After being diagnosed with idiopathic Parkinson’s Disease (IPD) or Atypical Parkinsonism (AP) patients often tend to present non-motor symptoms (NMS) that can play a significant, negative role in their quality of life. Unfortunately, NMS are often not recognized by physicians in their everyday practice, and patients are not always aware of those symptoms’ connection with parkinsonism.

AIM OF THE STUDY: The aim of the study was to explore the differences between occurrence of non-motor symptoms presented by patients with IPD and AP, including sleep, autonomic, psychotic and affective disorders.

MATERIALS AND METHODS: The study included 219 patients (184 with IPD, and 35 with AP) hospitalized between 2016 and 2018 in the Department of Neurology of the Medical University of Silesia. Non-motor symptoms were evaluated using patients’ medical chart reviews and NMS questionnaire. The clinical advancement of the disease was assessed using UPDRS part III, and modified Hoehn-Yahr scale (HY). Statistical analysis was conducted using Statistica.

RESULTS: There were no statistically significant differences between both IPD and AP groups within the parameters of sex, age, HY and UPDRS III OFF scales. Mean age of disease onset was higher in AP than in IPD (59.3 and 54.8 respectively; p=0.013). IPD patients received substantially higher daily dosage of L-dopa than AP patients (LEDD 845.45 and 577.20 respectively; p=0.012). Non-motor symptoms were presented significantly often (p=0.003) in AP patients (n=32, 91.4%), then in patients with IPD (n=122, 66.3%). However, autonomic and psychotic disorders didn’t show statistically significant differences in both groups. Moreover, 92 patients with IPD (50.0%) and only 8 with AP (22.9%) reported sleep disorders (p=0.003).

CONCLUSIONS: Non-motor symptoms are frequent in both IPD and AP which makes them an integral part of both diseases. Patients with AP are more likely to present non-motor symptoms in general, but rarely they complain of sleep disorders.
INTRODUCTION: Self-injurious behavior (SIB) is deliberate, non-accidental infliction of self-harm without suicidal intent. According to previous studies it is also quite frequent among individuals with Gilles de la Tourette Syndrome (GTS) affecting 30-60% of patients.

AIM OF THE STUDY: To evaluate the incidence and clinical correlates of SIB in Polish patients with GTS.

MATERIALS AND METHODS: We analyzed demographic and clinical data of 114 patients with GTS, 87 males (76.3%), 60 children (52.6%). Mean age at the time of examination was 18.3+/-10.1 years, mean disease duration 10.7+/-8.7 years.

RESULTS: SIB occurred in 36% (41/114) of GTS patients. Mean age of onset, known for 32 patients, was 12.7+/-7.5 years (range: 1-38). Age of SIB onset oscillated between ages 1-9 (n=10), 10-15 (n=14), 15-20 (n=5) and over 20 (n=3). The average time between age of tic onset and age of SIB onset was 6.3+/-6.7 years. The onset of SIB occurred before worst ever tic severity time by 6.1+/-6.9 years but in half of the patients (16/32) this period was shorter than 2 years. SIB was positively correlated with Yale Global Tic Severity Scale (YGTSS): total score (r=0.50, p=0.00), motor tic severity (r=0.43, p=0.00) and impairment of daily living (r=0.45, p=0.00). Moreover the total number of complex motor (r=0.18, p=0.0499) and vocal tics (p=0.0008) as well as worst-ever peak tic severity (r=0.23, p=0.017) were also correlated with SIB. Psychiatric correlates of SIB included Attention Deficit Hyperactivity Disorder (ADHD, r=0.35, p=0.00013), compulsions (r=0.295, p=0.0014), depression (r=0.28, p=0.0023) and aggression (p=0.0008).

CONCLUSIONS: SIB represents different phenomena in GTS, may appear anytime in the course of the disease, and affects patients with more severe and complex tics, compulsions and ADHD. It may also lead to depression and greater impairment of daily living.
**Title:** Matrix metalloproteinases and tissue inhibitors of metalloproteinases as novel biomarkers in central nervous system malignancies: upregulation of MMP-9 and TIMP-1 in sera of patients with CNS tumours

**Authors:** Borawski B.¹

**Tutor/Tutors:** Professor Barbara Mroczko, Professor Zenon Mariak

**University:** ¹ Department of Neurodegeneration Diagnostics, Department of Neurosurgery with Department of Interventional Neurology, Medical University of Białystok, Poland

**INTRODUCTION:** The primary tumours of the central nervous system (CNS) form very heterogeneous group. Brain tumour is one of the leading causes of cancer related death worldwide. The most frequent types of CNS tumours are meningiomas (30% of all primary CNS tumours) and glial tumours (38%). Among them, glioblastoma multiforme is characterised with the worst prognosis and its incidence rate is estimated to be similar to its mortality rate. Matrix metalloproteinases (MMPs) play important role in the development of these tumours. MMP-9 is able to degrade the extracellular matrix and basement membrane leading to cancer cell invasion and metastasis. MMPs are specifically inhibited by a family of small extracellular proteins known as the tissue inhibitors of metalloproteinases. Therefore, it is pivotal to identify novel, easy-to-perform, cost-effective, and non-invasive biomarkers, that could be applied in the routine diagnostics of CNS.

**AIM OF THE STUDY:** The objective of study was to evaluate the concentrations of MMP-9 and its inhibitor TIMP-1 in the sera of patients with CNS tumours and to compare these levels to the control group.

**MATERIALS AND METHODS:** The study group comprised of 60 patients with CNS tumours, while control group included 47 healthy subjects. Among patients with CNS tumours, thirty four were diagnosed as neuroepithelial cells tumours and in twenty six patients there were tumours derived from meningothelial cells. The concentrations of MMP-9 and TIMP-1 were determined by ELISA.

**RESULTS:** Serum levels of MMP-9 and TIMP-1 were significantly higher in patients with CNS tumours than in healthy subjects. The concentrations of MMP-9 were characterised by higher diagnostic sensitivity in patients with neuroepithelial tumours than in meningiomas (respectively 68 and 54 percent). Serum MMP-9 level was significantly higher in patients with glioma when compared to healthy subjects.

**CONCLUSIONS:** In conclusion, our present results indicate the possible usefulness of MMP-9 in the combination with TIMP-1 in the biochemical diagnosis of patients with CNS tumours. The project was financed within the framework of the Polish Ministry of Science and Higher Education program "Strategy of Excellence - the University of Research" in the years 2018 - 2019 project no 0017/SDU/2018/18 the amount of funding PLN 690 000.
Title: Connections between vitamin D receptor mutations and Parkinson's disease course of patients treated with levodopa

Authors: Chmura O.¹

Tutor/Tutors: Barbara Zapała

University: ¹ Department of clinical Biochemistry, Jagiellonian University Medical College, Poland

INTRODUCTION: Parkinson’s disease (PD) is second most often occurring neurodegenerative disease after Alzheimer’s disease. Age is being considered the most important factor for PD risk. Vitamin D (VD) is steroid hormone crucial for calcium homeostasis and bone metabolism. Contrary to other vitamins, VD is being produced in human organism in presence of sunlight. VD metabolism is multi-factorial process which involves specific enzymes of liver and kidneys with 1,25-D3 being active product. Latest research indicated that VD modulates over 1000 genes involved in cellular growth, protein synthesis and immunological processes. Several animal studies showed potential protective attributes of VD in dopamine cells.

AIM OF THE STUDY: The aim of the study was to analyze Vitamin D receptor (VDR) gene sequence and to find connection between its mutations and prevalence of several PD side effects including levodopa-induced dyskinesia.

MATERIALS AND METHODS: Sequential analysis of VDR gene was performed on genomic DNA isolated from peripheral blood leukocytes of 100 patients with diagnosed Parkinson’s Disease treated with Levodopa. Sequencing was performed in 3130xl Genetic Analyzer(Applied Biosystems) and statistical analysis was conducted using AB DNA Sequencing Analysis Software v. 5.2.(Applied Biosystems).

RESULTS: From analyzed VDR gene fragments exon 1 turned out to be the most interesting one. Mutation of “start”(ATG) codon was detected in most cases. We have also detected several connections between detected loss-of-function mutation and clinical phenotype including age of PD occurrence, clinical advancement and levodopa side effects prevalence.

CONCLUSIONS: We conclude that due to connections between VDR Gene mutations and clinical consequences gene sequencing may in the future be a viable way to predict future Parkinson Disease course.
Title: Prenatal myelomeningocele repair- a chance to improve the quality of life.

Authors: Juras A., Łoskot M.

Tutor/Tutors: dr n. med. Agnieszka Pastuszka

University: Department of Pediatrics Surgery and Urology, Department of Pediatrics Surgery and Urology, School of Medicine in Katowice, Medical University of Silesia, Poland

INTRODUCTION: Spina bifida (myelomeningocele, MMC) is the most common congenital disorder of the central nervous system. The defect occurs during the early embryonic period and it’s associated with maternal deficiency of folic acid. Sequence of MMC include hydrocephalus, often requiring installation of ventriculoperitoneal (VP) shunt, neurological and urological disfunction. Prenatal repair of spina bifida has been performed in Poland for over 12 years. Comparative study shows decreased number of consequent complications in patients after fetal surgery that leads to better quality of life amongst children with spina bifida.

AIM OF THE STUDY: Comparison the results of two groups: Group I children after prenatal MMC repair and Group II children after postnatal MMC operation.

MATERIALS AND METHODS: We used the data of 54 patients operated prenatally and 70 operated postnatally due to MMC in years 2015-2018. The following parameters were analyzed: number of hospitalization days, weeks of gestation, requirement of VP shunt, results of voiding cystourethrogram and lower limbs mobility assessed by physiotherapists. Based on the results we compared the Group I and II.

RESULTS: After analyzing both groups we calculated that after prenatal repair hospitalization time is shorter (between 3 to 5 days) than in the postnatal group (averagely 40 days). However gestation time is statistically (p< 0,05) shorter for the prenatal group. Comparative analysis carried out to evaluate the patients operated for spina bifida pointed that those after fetal repair demand the use of ventriculoperitoneal shunt for hydrocephalus almost twice less frequently (17% in the prenatal and 31% in the postnatal group). Statistically, children after in utero surgery have better lower limbs mobility and present fewer urinary tract complications.

CONCLUSIONS: Prenatal myelomeningocele repair offers better opportunities to improve motor and urinary functions, contributing then statistically to higher quality of lives of children with spina bifida.
Title: The involvement of humanin in development of Parkinson’s disease.

Authors: Szmigiel A.  

Tutor/Tutors: Barbara Zapała

University: 1 Department of Clinical Biochemistry, Jagiellonian University Medical College, Poland

INTRODUCTION: Humanin (HN) was identified in the brain of a patient diagnosed with Alzheimer’s disease (AD). This 24-amino acids peptide was shown to suppress the neuronal cell loss caused by amyloid-β (Aß) and by amyloid precursor protein (APP) mutations associated with early onset familial Alzheimer’s disease (FAD). Recent studies revealed that HN activity is not confined only to neurons but it involves also other compartments of the brain as well as extraneural tissues. These results suggest that HNs may influence on other neurodegenerative disorders such as Parkinson’s disease (PD).

AIM OF THE STUDY: We genotyped the not-known polymorphic variants of 13Thr- and 13Ile-HN10b (with threonine or isoleucine in amino acid position 13), encoded by HN gene in PD-diagnosed patients.

MATERIALS AND METHODS: DNA was isolated from peripheral blood from 214 patients with diagnosed PD and 193 healthy adult individuals. Genotyping was performed on the 3130xl Genetic Analyzer (Applied Biosystems).

RESULTS: Genotyping results have not shown any significant association between identified 13Thr- and 13Ile-HN10b polymorphic variants (38C>T) in control as well in PD-diagnosed individuals. However we demonstrated higher frequency of C/T and C/C genotypes in comparison to T/T in patient with dementia (MMSE). Similar relation we observed in patients with severe symptoms of PD progression (basing on Hoehn and Yahr as well as UPDRS rating scale).

CONCLUSIONS: Our results suggested that 13Thr- and 13Ile-HN10b polymorphic variants (38C>T) is not associated in development of PD. However we can speculate that T/T genotype could be considered as protective factor during development of PD.
Title: Analysis of the relation of mutations in the gene encoding the vitamin D receptor with the clinical course and the occurrence of levodopa induced dyskinesias in patients with diagnosed Parkinson's disease

Authors: Kościuszko M.¹, Koper J.¹, Chmura O.¹, Kuczorra K.¹, Hadasik M.¹, Zapała B.¹

Tutor/Tutors: dr Barbara Zapała

University: ¹ Department od Biochemistry, Kopernika 15A, 31-501 Kraków, Jagiellonian University, Poland

INTRODUCTION: Idiopathic Parkinson's disease (PD) is the second most common neurodegenerative disorder after Alzheimer's disease. Currently, the largest risk factor for PD is age. Therefore, attention should be paid to any interventions aimed at reducing the incidence of the disease or its complications. Vitamin D (VD) is a steroid hormone very important for calcium homeostasis and bone metabolism. Contrary to other vitamins, VD is produced in the skin in the presence of sunlight. VD metabolism is a multistep process involving specific enzymes in the liver and then in the kidneys in which its active biological form is formed: 1,25-dihydroxyvitamin D3 (1,25 (OH) D). Recent studies have shown that VD acts as a modulator of nearly 1000 genes involved in cell development, immune functions and protein synthesis. The role of VD in Parkinson's disease is interesting, the results of animal studies show that VD may have a protective effect on dopamine cells.

AIM OF THE STUDY: The aim of the study was to analyze the sequence of the gene encoding the vitamin D (VDR) receptor in patients with PD and to find a relationship between the occurrence of mutations and the occurrence of complications, especially levodopa induced dyskinesias.

MATERIALS AND METHODS: VDR gene sequence analysis was performed on genetic material in the form of genomic DNA isolated from peripheral blood leukocytes from 100 patients diagnosed with Parkinson's disease treated with levodopa. Sequencing was performed on a 3130xl Genetic Analyzer (Applied Biosystems), and the results were analyzed using AB DNA Sequencing Analysis Software v. 5.2. (Applied Biosystems).

RESULTS: Of all the fragments encoding the VDR gene, exon 1 was found to be the most interesting, in which the majority of patients detected a mutation within the start codon (ATG) encoding the methionine amino acid. At this conference, we will present a continuation of the conducted analyzes, what effect the detected loss-of-function mutation has on the clinical phenotype: the age of PD, clinical advancement and the occurrence of symptoms in the form of levodopa induced dyskinesias.
Title: Platelet microparticles as biomarkers of ischaemic stroke

Authors: Jędrzejczyk S.¹, Pieniak K.¹, Domaszk O.¹

Tutor/Tutors: Iek. Aleksandra Gąsecka, Prof. Krzysztof J. Filipiak

University: ¹ The 1st Chair and Department of Cardiology, Medical University of Warsaw, Poland

INTRODUCTION: Stroke is a major global cause of death and disability, with 25.7 million stroke survivors from 1990 to 2013, as the Global Burden of Diseases 2013 study shows. About 71% of stroke is ischaemic stroke (IS). However, at present there is no relevant and clinically applicable biomarker to diagnose ischaemic stroke, so that the diagnosis relies only on neuroimaging. Activated platelets, leukocytes and endothelial cells release platelet microparticles (MPs). Because cardiac embolism or rupture of atherosclerotic plaque are the most common aetiology of ischaemic stroke, and because activation of platelets plays a pivotal role in embolization and thrombosis, we hypothesized that MPs could serve as the first early biomarker of IS.

AIM OF THE STUDY: We compared the concentrations of platelet microparticles (PMPs), leukocytes microparticles (LMPs) and endothelial cells microparticles (EMPs) in patients with IS and in patients with other neurological disorders.

MATERIALS AND METHODS: Venous blood samples were drawn from patients with IS at day 1 after the onset of stroke (n=19, mean age 53.8±5.4 years, 55% male) and from patients diagnosed with Parkinson or Alzheimer disease (n=9, mean age 57.1±3.2 years, 53% male). Analysis of plasma concentrations of microparticles marked with antibodies for activated platelets (CD61, CD62p; PMPs), leukocytes (CD45; LMPs) and endothelial cells (CD146; EMPs) was performed using flow cytometry.

RESULTS: Concentrations of PMPs increased in stroke patients, compared to controls (p=0.024). There were no significant differences in concentrations of LMPs between the groups. In turn, concentrations of EMPs decreased in patients, compared to controls (p=0.048).

CONCLUSIONS: Elevated concentration of PMPs and decreased concentrations of EMPs differentiate patients with IS from controls, suggesting that PMPs and EMPs could potentially be used as biomarkers in IS. Whereas increased concentrations of PMPs likely reflect increased platelet activation in IS, decreased concentrations of EMPs likely reflect endothelial dysfunction. Further studies with larger and more diverse populations are needed to confirm the clinical usefulness of PMPs and EMPs as biomarkers of IS.
Anesthesiology and Intensive Care Medicine
INTRODUCTION: In Latvia cardiovascular pathologies are the most common reason for admission to pediatric intensive care unit (PICU). In the last few decades pediatric cardiac surgery has improved due to the outcomes of technological progress, however, the long-term survival of these children in Latvia has not been studied yet.

AIM OF THE STUDY: The objective of this study was to analyze the long-term survival after pediatric cardiac intensive care in Latvia over eleven-year period.

MATERIALS AND METHODS: In a retrospective analysis, admission data from the pediatric intensive care unit of Children’s Clinical University Hospital were screened to gather patients admitted for cardiovascular pathologies. Clinical data for the period from 01/01/2008 to 31/12/2011 was collected from paper medical records and for period from 01/01/2012 to 31/12/2018 from electronic medical records. Patient survival data were obtained from the Latvian Centre for Disease Prevention and Control in February 2019. Kaplan-Meier survival analysis was performed by using SPSS Statistics software.

RESULTS: A total of 8369 PICU patients were reviewed; 7879 patients had valid personal identification number. 4372 (55.5%) were male, 3505 (44.5%) were female, 2 (0.025%) were of unknown sex. The median age was 45.2 (IQR = 11.7–142.0) months. The patients were further divided into two diagnostic groups: cardiovascular (N=1411) and other (non-cardiovascular or general population; N=6468). The PICU mortality of cardiovascular and non-cardiovascular group was 4.0% (N=56) and 2.6% (N=170), respectively (p=0.006). Over eleven years, the survival in the cardiovascular group was 90.4%, while among other diagnoses it was 91.2% (p=0.253). The survival of cardiovascular patients who had only medical treatment was 79.8% against 92.9% who had cardiac surgery (p<0.001).

CONCLUSIONS: Our analysis demonstrates that the PICU mortality of patients with cardiovascular disease is higher than of general PICU population, but the long–term survival for cardiovascular and non-cardiovascular group has no statistically significant difference. Also our data suggest that the long-term survival of those cardiovascular patients who undergo cardiac surgery is better than in those cases where patients have conservative treatment.
**Title:** Anaesthetist or surgeon – who initiates distraction in operating room

**Authors:** Borbale A.¹

**Tutor/Tutors:** Dr. Sigita Kazūne

**University:** ¹ Medical Faculty, Rīga Stradiņš university, Latvia

**INTRODUCTION:** Frequently, in operating room personnel is not able to focus attention all operation time. Anaesthetist and surgeons are trying to avoid distractors, but there are many factors that makes it difficult. These interruptions can threaten patient safety.

**AIM OF THE STUDY:** Are to describe common distractor frequency and nature in operating room, find associations with frequent initiators and compare distraction type between regional and general anesthesia.

**MATERIALS AND METHODS:** Approval for the research was acquired from the ethics committee – Riga Stradins university Research ethic commitee. Data were collected for 6 months from real time observations. A total of 11 general and 9 regional anaesthetics were observed. Each case was observed from time of patient arrival to theatres until discharge to the ward. Distractors were evaluated using Healey scale. Data were summarized by counts (percents) and compared using Fisher exact test. Recorded variables included initiator, impact of distracting events, urgency of event.

**RESULTS:** Twenty cases were observed for a total of 37 h with 352 distracting events. Median case duration was 122.6 min. Common initiator of distractions was anaesthetist - 37.8%, surgeon – 19.3% and circulating nurse – 19%. Most distractions (59%) were minor, but in 19.6% anaesthesia or surgeon were momentarily distracted from task. There were differences between regional and general anaesthesia – in regional anaesthesia anaesthetist as initiator was 38.7% and surgeon – 15.5% but in general anaesthesia anaesthetist – 37% but surgeon 22.8%.

**CONCLUSIONS:** Distractions in operating theatre are common but minor. Mostly distracting events was not urgent although they may affect operating team members. They occur more during regional anesthesia. Most often anaesthetist was the initiator.
INTRODUCTION: Sepsis is one of the most important unsolved problem of humanity. Sepsis is life-threatening organ dysfunction caused by dysregulated host response to infection. It should be noted that bacteremia is detected only in half of the cases. The mortality can reach 60-80%.

AIM OF THE STUDY: To define prognostic adverse clinical and laboratory criteria and the structure of the etiology of sepsis in surgical patients with purulent-septic complications.

MATERIALS AND METHODS: The subject of survey–30 patients with sepsis, treated in the pediatric intensive care unit of two surgery pediatric clinics of the Republic of Belarus from 2010 till 2018. Statistical data processing was performed by Statistica 10.0 using the Mann-Whitney test. The differences below were statistically significant (p<0.05). The study included 15 (50.0%) boys and 15 (50.0%) girls. Median (Me) of age=30 (1;210) days. 10 (33.3%) patients were born prematurely, the lowest weight was 780 g. Me of weight–3125 (1850;4400) g. Primary focus: abdominal–16 (53.3%), cryptogenic–10 (33.3%), surgical site infection–2 (6.7%), urinary tract–2 (6.7%).

RESULTS: In the first group (sepsis) Me of platelet – 211 (127,5;322) ×10^9/L, Me Mean Platelet Volume (MPV) – 10,5 (10,3;11,0) fl. Me of weight – 3600 (2500;11000) g. In the second group (septick shock) Me of platelet – 76,5 (68,2;121,3) ×10^9/L, Me of MPV – 11,0 (10,3;11,8) fl. Me of weight – 1850 (1320;3050) g. Both groups had the priority of gram-negative microorganisms, however fungal etiology in the first and second groups were 10,0% vs 26,3%. For survival patients: lactate – 1,6 (1,0;2,1) mmol/L, CRP – 39,9 (21,3; 58,2) mg/L, leukocyte intoxication index (LII) – 1,2 (0,8;2,2), aPTT – 36,7 (29,8;41,4) s, INR – 1,3 (1,1;1,6). For non-survival patients: lactate – 4,4 (3,7;5,6) mmol/L, CRP – 78,3 (75,6;109,4) mg/L, LII – 3,4 (2,3; 5,4), aPTT – 57,5 (41,5;93,3) s, INR – 1,7 (1,2;3,0).

CONCLUSIONS: It was found out that both groups have the priority of gram-negative microorganisms. Also the high level of CRP, LII, aPTT, INR, and lactate is associated with increased mortality. Patients with septic shock are characterized by lower platelet count, a higher MPV value and a lower patient weight at the time of admission.
Title: The efficacy of combination of procalcitonin CRP and pro-BNP as a markers of differential diagnosis of pneumonia from pulmonary edema in patients with pulmonary infiltration chest radiography.

Authors: Bielska K.¹, Pękacki M.¹, Bartoszuk J.¹, Kozłowski S.¹

Tutor/Tutors: dr hab. n. med. Marzena Wojewódzka-Żelezniakowicz

University: ¹ Wydział Nauk o Zdrowiu, Uniwersytet Medyczny w Białymstoku, Poland

INTRODUCTION: Establishing a “gold standard” for the diagnosis of pneumonia is often troublesome. The practical use of sputum and blood cultures has a significant limitation due to the delay in reporting of culture results and issues with colonization and contamination. Finding new infiltrates on chest x-ray is regarded as the diagnostic cornerstone for the diagnosis of pneumonia. The interpretation of chest radiography has wide variations even among radiologists. Therefore, for proper diagnosis clinicians should try to integrate clinical, laboratory, and radiological data. The symptoms, signs, and radiographic findings of congestive heart failure overlap substantially with those of pneumonia. In a population-based study that included 48,000 patients, lower respiratory infection had a 15.3% prevalence in patients with congestive heart failure. In recent years, procalcitonin (PCT) has emerged as a promising biomarker for the diagnosis of bacterial infections because higher levels are revealed in severe bacterial infections than in viral infections and nonspecific inflammatory diseases.

AIM OF THE STUDY: The aim of this study is to evaluate the usefulness of serum PCT and C-reactive protein (CRP) as a biomarker for distinguishing pneumonia from pulmonary edema in patients presenting with pulmonary infiltrates on chest x-rays.

MATERIALS AND METHODS: A comparative study was performed retrospectively in a Emergency Department at University Clinical Hospital in Białystok, from May, 2017 to May, 2018. Adult patients (≥18 years) who showed pulmonary infiltrates on chest radiography and had blood tests with CRP, PCT, and NT-proBNP on admission were included in the study. Clinical parameters collected on admission were compared between the case group (n=100) with pneumonia and the control group (n=80) with pulmonary edema alone.

RESULTS: Patients with pulmonary edema showed significantly lower levels of CRP and PCT compared to patients with pneumonia. Patients with pneumonia were more likely to present concentrations CRP>20 mg/dl, PCT >0.25 ng/ml and pro-BNP<400 pg/ml.

CONCLUSIONS: This study suggests that the practical use of CRP, PCT and pro-BNP in conjunction can be valuable in the differential diagnosis of pulmonary edema and pneumonia, as well as congestive heart failure overlap.
Title: Bioelectrical impedance indicators as an early fluid balance predictors

Authors: Plikaityte S.¹, Pilvelyte J.¹

Tutor/Tutors: MD, PhD Mindaugas Šerpytis

University: ¹ Intensive care unit, Vilnius University Santaros Clinics, Lithuania

INTRODUCTION: Correct assessment of fluid status in critically ill patients remains a major challenge for clinicians, and accurate tools for quantification are still not available. Early fluid expansion is a crucial issue in the resuscitation of patients and has been proven to reduce mortality in sepsis and poor fluid management after initial hemodynamic resuscitation can have detrimental consequences, and fluid overload has been also associated with increased mortality.

AIM OF THE STUDY: To find out if the fluids measured by bioelectrical impedance analysis (BIA) correlates with the liquid balance measured by injected and excreted fluid amount per day.

MATERIALS AND METHODS: The body fluids of 38 critically ill patients were measured using bioelectrical impedance analysis in intensive care unit. Only patients who had artificial lung ventilation for at least 24 hours in intensive care unit were selected for the study. Their fluid balance by BIA were measured once every day. The information about body water balance which was counted according to the amount of fluids injected and excreted per day were taken from patient’s documentations. The fluid balance measured by BIA and fluid balance measured by injected and excreted fluid amount per day were compared.

RESULTS: There was a positive significant correlation between total body water (TBW) and body liquid balance (p<0,001, r=0,774). Also there was found a positive significant correlation between extracellular water (ECW), intracellular water (ICW) and body fluid balance (p=0,001, r=0,770; p=0,001, r=0,760).

CONCLUSIONS: Bioelectrical impedance indicators as TBW, ECW and ICW can be used as predictors of body liquid balance which can be helpful to predict early fluids overload or decrease, also hemodynamics changes in patients bodies in order to prevent higher mortality in conditions that depends on body fluid balance.
Title: Analysis of frequency and types of communication injuries

Authors: Bielska K.¹

Tutor/Tutors: dr hab. n. med. Marzena Wojewódzka-Żelezniakowicz

University: ¹ Wydział Nauk o Zdrowiu, Uniwersytet Medyczny w Białymstoku, Poland

INTRODUCTION: Injuries are the third cause of death in the world. It has been proven, that communication injuries are the first reason for death among young individuals of the population. The development of modern technologies does not reduce the frequency of injuries, despite the presence of state-of-the-art safety and user protection systems in vehicles. The World Health Organisation forecasts a decrease in the number of traffic accidents in the whole world. Injured people as a result of traffic accidents most often suffer from head and chest injuries. It is also worth noting that you can often observe multiple injuries, and those isolated are relatively rare.

AIM OF THE STUDY: The main aim of this study was to determine the frequency of traffic accidents injuries and state the occurrence of different types of communication injuries to show how important problem we have in Poland according to this types of injuries.

MATERIALS AND METHODS: A study was performed retrospectively in a Emergency Department at University Clinical Hospital in Białystok, from April, 2017 to April, 2018. The medical documentation of patients, who have been admitted to the Emergency Department of University Clinical Hospital in Białystok, due to trauma injury as a result of a traffic accident, was analyzed for the type of injury and frequency of occurrence. In general, 3104 patients with traumatic injuries were admitted to the Emergency Department, of which 82 were qualified for treatment at the Trauma Center due to their injuries, which constituted 2.64% of all patients hospitalized in that period in this ward.

RESULTS: Research results differ significantly from the results obtained in world studies. The average age of patients with trauma was 55 years, while in the world the value is 30 to 45 years. From the acquired insight it is clear that the most frequently occurring injuries concerned the area of the chest and head as well as the spine, which results directly from the mechanism of a traffic accident.

CONCLUSIONS: The conducted research shows that communication injuries continue to pose a big challenge for medical staff and society, because they carry a high health risk for the patient and in most cases they are either injuries to many areas of the body at the same time or massive injuries to one area of the body.
Title: Does rocuronium affect serum tryptase concentration during general volatile anaesthesia?

Authors: Pawlukianiec C.¹, Niechoda A.¹, Panasiuk D.¹, Korolkiewicz P.¹, Tałałaj E.¹

Tutor/Tutors: dr Urszula Kościuczuk, dr hab. Andrzej Siemiątkowski

University: ¹ Department of Anaesthesiology and Intensive Care, Medical University of Bialystok, Poland

INTRODUCTION: Rocuronium is an aminosteroid-structured, non-depolarizing neuromuscular blocking agents (NMB). Epidemiological data present that the frequency of hypersensitivity reactions caused by rocuronium have been increased. Determinations of serum tryptase concentrations are interdisciplinary recommended in diagnosis of its adverse reactions. No studies have been performed to explain specific role of rocuronium doses on serum tryptase values.

AIM OF THE STUDY: The aim of this study was to investigate the potential effect of rocuronium on serum tryptase concentrations.

MATERIALS AND METHODS: The study included 126 women given a general volatile anaesthesia: group I - 66 - using the rocuronium and group II - 60 - without neuromuscular relaxants. Information about perioperative fluid therapy and doses of rocuronium were noticed. The blood samples were collected to perform tryptase concentration analysis: preoperatively – before anaesthesia and postoperatively - after recovery from anaesthesia.

RESULTS: Median preoperatively serum tryptase concentration in group I was 2.92 and 3.27 mcg/L in group II, respectively. The reduction of serum tryptase value was noticed in both groups and attained the level of 2.60 mcg/L in group I and 2.79 mcg/L in group II after anesthesia, (p<0.05). Analysis did not show a correlation between the serum tryptase levels and the values connected to the administration of rocuronium and perioperative fluid therapy. No significant differences in the tryptase concentration between the groups were identified.

CONCLUSIONS: In conclusion, the scheme of volatile anaesthesia with rocuronium did not induced any significant changes in tryptase serum levels compared with the volatile method. The study excluded the serum tryptase concentration dependence of rocuronium and crystalloid dilutional effect. The most likely explanation of our results are physiological changes and specific rhythm of fluctuations of tryptase secretion. It seems prudent to confirm the effect of rocuronium on serum tryptase on larger cohort of patients.
Title: Soluble triggering receptor expressed on myeloid cells-1 as an interesting prognostic marker in sepsis

Authors: Panasiuk D.¹, Pawlukianiec C.¹, Tałałaj E.¹, Korolkiewicz P.¹, Niechoda A.¹

Tutor/Tutors: dr Monika Jedynak, dr Urszula Kościuczuk, dr hab. Andrzej Siemiątkowski

University: ¹ Department of Anesthesiology and Intensive Care, Medical University of Białystok, Poland

INTRODUCTION: Despite of rapid improvement in treatment and supportive procedures, sepsis is one of the most important causes of hospital deaths. Many biomarkers of systemic inflammation like CRP, PCT and IL-6 can be used to predict the severity of sepsis, but the specificity and sensitivity of these parameters aren’t satisfactory.

AIM OF THE STUDY: The assessment of the prognostic value of sTREM-1 in 28-day mortality of sepsis, severe sepsis and septic shock compared with CRP, PCT and IL-6. sTREM-1 efficacy against CRP, PCT and IL-6 in predicting severe sepsis and septic shock on the 3rd day of the disease was also analyzed.

MATERIALS AND METHODS: Data of 107 patients were analyzed. Patients were assessed within 12 hours and divided into groups: 85 patients with SIRS, and 22 others with non-infective SIRS. Exclusion criteria: age < 18 years, pregnancy, AIDS/immunosuppression, lack of consent, disseminated malignant disease and life expectancy shorter than 24 h. Serum levels of sTREM-1, IL-6, CRP and PCT were measured at the day of diagnosis (day 0) and on day 1,2,3 and 5 in 85 patients with sepsis, severe sepsis and septic shock. Clinical assessment was performed with multifactorial scales like APACHE II, SAPS II and SOFA scores. ELISA tests were used for sTREM-1, PCT, and IL-6 measurements and standard latex immunoassay method for CRP. Data were analyzed using STATISTICA.

RESULTS: Significantly higher sTREM-1 level on day 0 (773 pg/ml vs 391 pg/ml) was found in non-survivors than in survivors (p<0,001). The differences were not significant for IL-6, PCT and CRP. The AUC of 0.772 (95%CI 0,672-0,871), with 86% sensitivity and 66% specificity for sTREM-1 was observed in the prediction of 28 day-mortality. ROC curves for prediction of severe sepsis or septic shock on the 3rd day of disease showed the highest AUC for PCT (0.744 for severe sepsis, 0.766 for septic shock) and lower for other mediators.

CONCLUSIONS: sTREM-1 serum level at admission may predict the 28-day mortality in sepsis. PCT has the highest prognostic value for predicting severe sepsis and septic shock on the 3rd day.
**Title:** V-POSSUM and E-PASS scores in predicting the risk of acute kidney injury in patients after elective aortic aneurysm surgery in anaesthesiological estimation.

**Authors:** Niechoda A.¹, Pawlukianiec C.¹, Panasiuk D.¹, Korolkiewicz P.¹, Tałałaj E.¹

**Tutor/Tutors:** Dr Urszula Kościuczuk, Dr hab. Andrzej Siemiątkowski, Dr Agnieszka Jabłonowska

**University:**¹ Department of Anaesthesiology and Intensive Care, Medical University of Bialystok, Poland

**INTRODUCTION:** One of the most common methods of abdominal aortic aneurysm (AAA) treatment is elective “open” surgery, however, associated with high morbidity and mortality. The occurrence of acute kidney injury (AKI) in the postoperative period significantly increased risk of death.

**AIM OF THE STUDY:** The aim of this study was to assess the validity the V-POSSUM and E-PASS scores in predicting risk of AKI development in postoperative period in patients undergoing elective open AAA repair.

**MATERIALS AND METHODS:** The study was conducted prospectively in a consecutive series of 89 patients (19 women and 70 men) with AAA and qualified for elective open infra-renal repair. Patients were carried out a thorough examination and biochemical analyses, which allow the specify of all physiological and surgical stress components of the V-POSSUM and E-PASS scores. The classification of patients in terms of postoperative AKI were performed in accordance with accepted AKIN-RIFLE criteria.

**RESULTS:** In 34 studied patients (63-86 years) after surgery was recognized AKI, including 6 women (17.6 %) and 28 men (83.4 %). We found that in patients with AKI were significantly higher physiological and surgical stress components of V-POSSUM and E-PASS scores in relation to patients without evidence of this complication. ROC analysis showed that the E-PASS score (total CRS component) with a cut-off point ≥ 0.742 and the V-POSSUM score (morbidity) with a cut-off point ≥ 85.6 % with a specificity of 85.3 %, sensitivity of 76.2 % and 61.9%, respectively, identified patients with postoperative AKI.

**CONCLUSIONS:** Both the V-POSSUM and E-PASS scores have good properties in predicting of acute kidney injury in the postoperative period in patients undergoing elective open infra-renal AAA repair.
**Title:** Are supraglottic airway devices effective in prehospital airway management?

**Authors:** Turczynowicz A.¹, Panasiuk D.¹, Luchowski K.¹

**Tutor/Tutors:** dr hab. n. med. Marzena Wojewódzka-Żelezniakowicz, prof. dr hab. n. med. Jerzy Ładny

**University:** ¹ Department of Emergency Medicine, Medical University of Białystok, Poland

**INTRODUCTION:** In recent years, different supraglottic devices became popular. They are recommended in ERC 2015 guidelines for paramedics and doctors not experienced in endotracheal intubation for prehospital airway management.

**AIM OF THE STUDY:** To compare arterial gas parameters during prehospital mechanical ventilation using supraglottic devices (LT, LMA) and intubation in patients with cardiac arrest (CA) and acute respiratory failure (ARF).

**MATERIALS AND METHODS:** Retrospective, non randomized, one-center study. Data of 549 patients, hospitalized in ED of University Hospital in Białystok between 2011-2013 were analyzed. There were 223 patients with CA (147 males, 76 females) and 326 patients with ARF (193 males, 133 females). Parameters such as age, sex, GCS score, pH, HCO3⁻, BE, SpO2, pO2, pCO2 were measured in every patient. Data were analyzed using STATISTICA U Mann Whitney test.

**RESULTS:** pH levels in patients with CA ventilated by LMA/LT were lower in comparison to intubated ones. (7.13 +/- 0.1 vs 7.21 +/- 0.04, p<0.05). Differences between pO2, pCO2, HCO3⁻, BE, SpO2 values were not statistically significant. Statistical differences (p<0.05) in pH, HCO3⁻, BE and SpO2 levels between patients ventilated by LMA/LT/OTI and passive oxygenation were observed in the study. Differences between pO2 levels in patients with ARF were statistically significant between intubated ones and those who had passive oxygenation. Differences in pCO2 levels were statistically significant between intubated and passively oxygenated patients (p<0.001), between those with LMA/LT and intubated ones (p=0.004) and between LMA/LT and PO (p=0.003).

**CONCLUSIONS:** ARF and CA were observed more often in male patients. LMA/LT were commonly used in young patients. In patients with CA ventilated with supraglottic devices we observed more severe acidosis than in intubated ones. Airway management of patients with ARF is not satisfactory, therefore their blood gas parameters implicate worse prognosis. Both LMA/LT and intubation were more effective than passive oxygenation. Usage of LMA/LT instead of intubation in prehospital airway management decreased time of arrival to ED.
Title: The influence of menstrual cycle’s phase on postoperative nausea and vomiting, pain and emotional well-being after septoplasty

Authors: Gambickas L., Gedminaitė A.

Tutor/Tutors: Agnė Jankuvienė, Assist. Prof. Eglė Kontrimavičiūtė

University: Faculty of medicine, Vilnius University, Lithuania

INTRODUCTION: It is important for the patient to minimize anaesthesia’s side effects such as postoperative nausea and vomiting (PONV), postoperative pain and improve patient’s well-being after surgery. Hormones which are responsible for women’s reproductive system interfere with the sensation of nausea and pain and make an influence on women’s emotional state. Their concentrations in blood varies depending on the phase of menstrual cycle.

AIM OF THE STUDY: Determine whether the particular phase affects women’s state after general anaesthesia.

MATERIALS AND METHODS: Prospective study was performed in VUL SK form November 2018, till February 2019. Reproductive female gender patients who undergo septoplasty (ENT) operations were involved in the questionnaire, containing information about the phase of their menstrual cycle. According the phase (follicular vs luteal) all patients were divided into 2 groups. Postoperative pain and well-being using visual analogy scale (VAS, 0-10) and incidence of PONV were evaluated for the first 24 hours. Statistical analysis was performed using SPSS v.18.0.

RESULTS: A total of 35 women were surveyed. The mean age was 27.8 ± 6.2 years. 45.7% of the participants were in the follicular phase, group I; 54.3% were in the luteal phase, group II. During the 24-hour period, I group 68.8% women reported their maximum pain as mild (2-4 VAS), 31.2% as moderate (5-7 VAS). Group II - 57.9% experienced mild pain, 42.1% moderate pain (p=0.508). Requirement for additional medicaments was - 50.0% in I group vs 47.2% in II group (p=0.877). No woman reported PONV. The lowest satisfaction during a 24-hours postoperative period, group I (93.8% patients) was classified as being “satisfied” or “ok”, though the majority of II group women (84.2%) the lowest satisfaction identified as being “dissatisfied” or “ok” (p<0.001).

CONCLUSIONS: There was no link between the phase of the menstrual cycle and the PONV or pain. Women who were in follicular phase tend to be more satisfied of the surgery compared to those who were in luteal phase. Nevertheless, more studies with more respondents should be enrolled in order to determine the difference between mentioned postoperative conditions in particular phases of menstrual cycle.
INTRODUCTION: Burns are one of the major causes of injury in children requiring immediate management of pain and tissue damage. Burns can lead to lifelong disability or psychological, functional and aesthetic difficulties.

AIM OF THE STUDY: The objective of the study was an epidemiological analysis of distribution of pediatric burn patients with various types of burn injury who required intensive care and immediate management.

MATERIALS AND METHODS: A retrospective descriptive study was made analysing burn victims during the years 2012-2018 in pediatric intensive care unit of Children’s Clinical University Hospital in Riga. It is a place where the most severe cases of various types of burn injuries are managed. All children who were admitted less than 24 hours after the event were included in this study. Clinical data were gathered from electronic medical histories (IntelliVue Clinical Information Portfolio; Phillips). Epidemiological data was collected from Central Statistical Bureau of Latvia (CSBL). Patient gender and regional analysis was done for the age group 0-14 years due to different age grouping in CSBL.

RESULTS: Altogether 218 patients were included in the study. Male patients made 138 (63.3%), but 80 (36.7%) patients were female. The median age was 1.4 (IQR=1.1-2.6) years, while a surprising number of 83.9% were patients less than 7 years old. In the age group 0-14 years proportion of male burn victims was 62.3% and it was significantly higher than the male proportion in the same age group in population - 51.4% (p=0.0014). Average incidence of severe burn injuries treated in pediatric intensive care unit was 10.16±1.37 per 100’000 children. Patients coming from Pieriga region had lower incidence - 6.08±2.47 per 100’000 children.

CONCLUSIONS: Children who were in an especially vulnerable age - less than 3 years old - comprised almost four fifths of all patients suffering from burns and requiring intensive care. Only statistically significant difference was found between the mean incidence in Latvia and the mean incidence in Pieriga region where it was found to be lower. Surprisingly, being a male even in an early age was a risk factor for burn injury.
INTRODUCTION: Measurement of optic nerve sheath diameter (ONSD) based on ultrasonography is easy, non-invasive method to estimate intracranial pressure. It is clear that ONSD is above the threshold in brain oedema, but it is still not many researches about other populations.

MATERIALS AND METHODS: The study included 31 patients aged 56±18 (15 women, 16 men) hospitalized in Intensive Care in UCK Katowice. Brain oedema population comprised 18 patients (58,0%), sepsis population comprised 10 patients (32,3%). Acute kidney injury and hepatic encephalopathy was excluded from this study, because of not enough numerous group – 3 patients. 15% mannitol and 10 % NaCl was used to treat brain oedema. Optic nerve sheath diameter in both eyes was measured for 10 days in patients without brain oedema, and 14 days in patients with brain oedema. Mean of both eyes was used as ONSD. Arterial-blood gas was noted every day.

AIM OF THE STUDY: The aim of the study was to assess mean values of ONSD in particular populations on intensive care unit: brain oedema, sepsis, acute kidney injury, hepatic encephalopathy.

RESULTS: Mean ONSD in brain oedema population was 6,38±0,42 mm and in sepsis population it was 5,86±0,38 mm (p=0,0035). In brain oedema population ONSD decreased in every subsequent day with the highest drop in 6 day. Mean drop of ONSD from 1 to 6 day was 0,22mm (p=0,09). In sepsis population there was no such drop.

CONCLUSIONS: ONSD is good parameter to quick assessment of raised intracranial pressure in brain oedema population, but also in sepsis population is above norm.
**Title:** Comparision of subtentorial and supratentorial surgeries - stability of anaesthesia during target controlled infusion

**Authors:** Gąsiorek J., Celban A., Oraczewska A.

**Tutor/Tutors:** Izabela Duda, MD, PhD

**University:** Department of Anaesthesiology and Intensive Care, Medical University of Silesia, Poland

**INTRODUCTION:** Intracranial procedures are especially demanding type of surgeries for anaesthesiologists – keeping stability of anaesthesia seems to be more difficult in special in subtentorial surgeries, because of its adjacent to brainstem, which controls cardiac and respiratory functions.

**AIM OF THE STUDY:** The aim of the study was to compare stability of anaesthesia in neurosurgery in subtentorial and supratentorial surgeries.

**MATERIALS AND METHODS:** Study group comprised 105 subjects (mean age 58±12) undergoing intracranial surgeries during target controlled infusion using propofol. Blood pressure, heart rate, capnography, oxygen saturation and bispectral index were noted every 15 minutes. Lasting of drop of bispectral index <30 was observed. Oxygen saturation was not considered, because in >90% patients was >95 % in every time point. These data were compared in allocation patients to type of surgery groups : 75 subjects in supratentorial surgery group (71,4%), 30 subjects in subtentorial surgery group (28,6%).

**RESULTS:** Median of coefficient variation (CV) of mean arterial pressure (MAP) in supratentorial group was 11,92 (IQR 7,35-13,15) and in subtentorial group it was 11,13 (IQR 9,65-15,60) (p=0,09). Median of CV of heart rate (HR) in supratentorial group was 6,83 (IQR 4,95-10,79) and in subtentorial group it was 6,58 (IQR 4,67-12,26) (p=0,9). Median of CV of bispectral index (BIS) in supratentorial group was 13,73 (IQR 10,95-21-18) and in subtentorial group it was 14,86 (IQR 11,23-19,27) (p=0,8). Drop of bispectral index <30 which lasted at least 30 minutes concerned 24 patients in supratentorial group (77,4%) and 7 patients in subtentorial group (22,6%) (p=0,39).

**CONCLUSIONS:** Stability of anaesthesia in supratentorial and subtentorial surgeries in neurosurgery is similar, what displays individual approach to anaesthesia for every patient.
Title: Procalcitonin serum level changes in intensive care unit patients with sepsis

Authors: Serova V.1

Tutor/Tutors: Assist. Prof. Oļegs Sobelņikovs

University: 1 Faculty of Medicine, Riga Strads University, Latvia

INTRODUCTION: Procalcitonin (PCT) is the prohormone which is regulated during sepsis and infection as for hormonal activities of the mature hormone calcitonin. This inflammatory marker better reflects the severity of the systemic inflammatory response to infection, and it has some potential differentiate between the infectious and sterile cause of systemic inflammation. Some trials, show a broad interindividual variations in serum levels of this marker during the first days of Intensive Care Unit (ICU) stay. The time-based repeated analysis of PCT serum levels could show a different pattern in patient with and without sepsis.

AIM OF THE STUDY: The purpose of this study is to depict PCT level dynamic changes in ICU patients with and without sepsis.

MATERIALS AND METHODS: A retrospective analysis of medical files of patients admitted in Intensive Care unit of Riga East Clinical University Hospital at 2016 - 2017. PCT levels dynamic changes were compared during the first 10 days from admission between patients with confirmed sepsis and with no sepsis. Statistical calculations were made with IBM SPSS v24 software, PCT levels are expressed as median and IQR.

RESULTS: Study included 73 patients; 37 (51%) in “septic” and 36 (49%) in “non — septic” group. Most common diagnoses included in “septic” patient group were: sepsis, septic shock, urosepsis and different origins pneumonia. On admission to ICU 29.73 % (n = 22) of all patients had PCT serum level >0.5 - <=10.0 ng/ml, and 28.38 % (n = 21) had PCT serum level <0.5 ng/ml. It was significant difference between groups in PCT levels at day 2-4 (“septic” group -6.00 ng/ml [-21.74; -2.01 ng/ml] vs “non-septic” group -0.14 ng/ml [-1.74; -0.025 ng/ml]; p < 0.001).

CONCLUSIONS: Patients admitted to ICU with confirmed sepsis have higher change amplitude of PCT serum levels at day 2 - 4 than patients without initial diagnosed sepsis.
INTRODUCTION: Endotracheal intubation is a painful stimulation creating a period of haemodynamic instability – changes of heart rate, blood pressure and arrhythmias. It was described by many authors that neuromuscular blocking agents are not a necessary element of induction of anaesthesia and intubation and using of its is increasingly limited.

AIM OF THE STUDY: The aim of study was to evaluate and compare the haemodynamic responses to laryngoscopy and endotracheal intubation during induction of general anaesthesia with and without a neuromuscular blocking agent.

MATERIALS AND METHODS: The study population consisted of 126 female patients with no significant differences in haemodynamic state qualified to general anaesthesia in the University Hospital in Bialystok. In group I (60 patients classified to thyroid surgery) induction of anaesthesia was performed by using sevoflurane and fentanyl and intubation was done without any neuromuscular blocking agent. In group II (66 patients classified to gynaecological surgery) induction of anaesthesia was performed by the same method, only intubation was performed after administrating a dose of rocuronium. Haemodynamic state parameters (HR - Heart Rate, SAP - Systolic Arterial Pressure, DAP - Diastolic Arterial Pressure, MAP - Mean Arterial Pressure) of all patients’ were recorded at the following stages: before anesthesia, before intubation and immediately after intubation. Furthermore, the information about administered doses of opioid analgesics after intubation was noted. For statistical analysis we used non-parametric tests.

RESULTS: In group I were significant differences between parameters before and after intubation regarding higher heart rate, diastolic and mean arterial blood pressure (HR 68-80 BPM, DAP 68-78 mmHg, MAP 84-94 mmHg; p<0.05). Moreover, in this group additional doses of fentanyl after intubation were administrated statistically more frequently (p<0.05). In Group II statistical changes were not observed.

CONCLUSIONS: Haemodynamic responses are more expressed after endotracheal intubation without neuromuscular blocking agents’ administration what require giving additional doses of opioids. Using of rocuronium effectively limited a haemodynamic instability.
Internal Diseases
Title: Bacterial spectrum and antimicrobial susceptibility in urinary tract infections

Authors: Kalamasnikova I., Vasiljevs A.

Tutor/Tutors: Dr. med. Ieva Ziedina

University: Faculty of Medicine, Riga Stradins University, Latvia

INTRODUCTION: Urinary tract infection (UTI) is one of the most common diseases in human societies. Patients who are hospitalized may be considered to have complicated disease. The infected microorganisms are more likely to be resistant to antimicrobial agents for this patients.

AIM OF THE STUDY: To investigate and compare the etiological spectrum and antibiotic susceptibility profile findings on urine culture between no recurrent and recurrent urinary tract infection groups

MATERIALS AND METHODS: A retrospective study at Pauls Stradins Clinical University Hospital’s archive, analysis of medical records of patients in the period from 01.01.2017 to 30.11.2017. SPSS and Exel were used for statistical analysis.

RESULTS: In total, 77 cases were studied in this research. 53(68,8%) were females, 24(31,2%) were males. No recurrent UTI group was 19(63,3%) E.Coli, 5(16,7%), Enterococcus spp., 1(3,3%) Pseudomonas spp., other species 5(16,7%), while among recurrent UTI was 3(10,0%), 14(46,7%), 4(13,3%), 9(30%). Ampicillin susceptibility profile of no recurrent and recurrent UTI was susceptible 28,9%(N=11), resistant 71,1%(N=27) and 18,5% (N=5), 81,5%(N=22)(p=0,336). Amoxicillin/Clavulanic acid was 72,4%(N=21) susceptible and 27,5%(N=8) resistant in no recurrent, while among recurrent group was 65,2%(N=15) and 34,8%(N=8) (p=0,577). Ciprofloxacin susceptibility profile of no recurrent and recurrent UTI was 48,9% (N=22) susceptible, 0% intermediate, 51,1%(N=23) resistant and 36,7%(N=11), 3,3%(N=1), 60%(N=18)(p=0,281). Nitrofurantoin was 83,8%(N=31) susceptible and 16,2%(N=6) resistant in no recurrent group, but in recurrent UTI was 75%(N=21) and 25%(N=7) (p=0,381). Sulfamethoxazole/trimethoprim susceptibility profile of no recurrent and recurrent UTI was 46,7%(N=14) susceptible, resistant 53,3%(N=16) and 45,8(N=11), 54,2%(N=13)(p=0,951).

CONCLUSIONS: Urinary tract infections were most common among women. Most common urinary tract infection causative agent was E.Coli in no recurrent group, while among recurrent UTI group it was Enterococcus spp.. Resistance to ciprofloxacin and amoxicillin/clavulanic acid was higher in recurrent group than in no recurrent UTI group. Susceptibility and resistance to sulfamethoxazole/trimethoprim were similar in both groups.
Title: Symptomatic urinary tract infections after kidney transplantation: etiology, incidence and risk factors

Authors: Kazlauskas G.¹

Tutor/Tutors: A. Zelvys

University: ¹ Faculty of medicine, Vilnius University, Lithuania

INTRODUCTION: Urinary tract infections (UTIs) are the most common infectious complication in kidney transplant recipients during the first year of post-transplant period. This remains the major cause of morbidity and mortality among transplant recipients.

AIM OF THE STUDY: Objectives of this research was to evaluate the incidence of symptomatic UTIs, to find the risk factors associated with symptomatic UTIs and to identify the most common pathogens responsible for symptomatic UTIs.

MATERIALS AND METHODS: we have analyzed the 1 year of postoperative clinical data of all patients that had undergone kidney transplantation in 2013-2016 year at Vilnius University Hospital “Santaros klinikos”. The univariate analysis was performed with chi-square test for categorical variables and independent-samples T test for continuous ones. Multivariate analysis was performed with logistic regression.

RESULTS: we studied 220 kidney transplant recipients. 127 (57,73%) of them were male and 93 (42,27%) were female. Overall age was 44 ± 14 years. The incidence of symptomatic UTIs was 41,06% (n=85). 72 (84,71%) of symptomatic UTIs were diagnosed during the first month after transplantation. In 85 patients we have identified 161 episodes of symptomatic urinary tract infections including: lower UTIs (26,71%, n=43) and upper UTIs (71,43%, n=115) from which urosepsis was counted for 24 times. The most common pathogens were: Klebsiella pneumonia (37,38%, n=80) and E.coli (23,36%, n=50). In this study factors that were independently associated with UTIs development were: age, total ischemic time, usage of tacrolimus, usage of Cyclosporin A, stent keeping duration and the necessity of hemodialysis after transplantation.

CONCLUSIONS: UTIs are a common problem among kidney transplant recipients. We have identified independent risk factors for development of symptomatic infections. Further studies regarding this important topic are recommended.
Title: Discoid Lupus Erythematosus – a retrospective analysis of 52 patients.

Authors: Kossakowska P.¹, Orloff W.¹, Stepaniuk A.¹, Nowowiejska J.¹

Tutor/Tutors: Assoc. Prof. Anna Baran MD, PhD; Prof. Iwona Flisiak, MD, PhD

University: ¹ Department of Dermatology and Venereology, Medical University of Bialystok, Poland

INTRODUCTION: Discoid lupus erythematosus (DLE) is a chronic autoimmune skin-limited disease which may lead to skin atrophy and scarring.

AIM OF THE STUDY: A four-year retrospective analysis of patients hospitalized for DLE.

MATERIALS AND METHODS: Medical records of patients hospitalized for DLE at the Department of Dermatology were analyzed. Epidemiological and clinical aspects were considered and analyzed using Chi-squared test.

RESULTS: In analyzed period 52 patients were hospitalized for DLE, 31 females (60%) and 21 males (40%), of mean age 56 (26-86) years. Almost 80% of them had systemic comorbidities, most often arterial hypertension (31%). Skin lesions were mostly located within the skin of the face, neck, cleavage, scalp and upper limbs. The most common manifestations were erythematous plaques (77%), infiltrative lesions (46%), scarring (21%). In 21% scarring alopecia was noted. 20% of the cases complained about pruritus. Statistical correlation between cigarette smoking in half of the patients and the occurrence of DLE was found. UV radiation induced the appearance of skin lesions in half of the group. Antinuclear antibodies (ANA) were positive in 33% of the patients. All subjects were biopsied with DLE confirmation in 74% of cases. Three patients were diagnosed with lupus tumidus, six with subacute form. The patients were treated with topical (50%) and oral glucocorticosteroids (10%) and antimalarials (36%).

CONCLUSIONS: DLE affects both young and old people and is more common in women. Lesions are located mainly on sun-exposed body areas, reflecting UV provoking influence. Smoking is contraindicated. Antinuclear antibodies can be positive and might indicate systemic involvement.
INTRODUCTION: HIV is a retrovirus which infects and replicates in human lymphocytes (CD4+ T-cells) and macrophages. This leads to progressive immune system dysfunction, opportunistic infection and malignancies. One of them – Non-Hodgkin’s lymphoma (diffuse large B-cell lymphoma, Burkitt’s lymphoma and CNS lymphoma).

AIM OF THE STUDY: Evaluate lymphoproliferate processes’ characteristics of HIV-positive patients and compare them to lymphoproliferate processes’ of common population.

MATERIALS AND METHODS: Retrospective study was conducted at Vilnius University Santaros Clinics. Clinical data (demographic, clinical facts and histological, immunohistochemical and molecular results of tissues) were collected from the patients’ history cards. HIV-positive and HIV-negative patients, who suffer from lymphoproliferative disorders, data was compared. All the data was arranged by SPSSv23.

RESULTS: During the years 2007 through 2018 there were diagnosed 27 patients with HIV/AIDS associated lymphoma. Of them 81% were men and 19% were women. The patients age median is 38. Only 12 patients received antiretroviral therapy before the diagnosis of lymphoma. The majority, 21 patients, were diagnosed at stage IV. Median duration from HIV to lymphoma diagnosis is 1 year. Median duration from lymphoma diagnosis todeath is 1 month. 81% of the patients had extranodal spread of the lymphoma into: digestive tract 77%, lungs 9%, CNS 2%, bone marrow 22%. 48% of the patients died from infection complications, 29% died through disease progression and 2% died through bleeding.

CONCLUSIONS: The relationship of diagnosed HIV-positive lymphoma men and women was different from the common population: 2:9 vs 7:10. More young patients had HIV-related lymphoma: age median is 42,6 vs 66. More often HIV-related lymphomas were diagnosed in advanced stages. Also patients with HIV had worse survivance than HIV negative patients. Antiretroviral therapy would improve patients state and would reduce amounts of death. HIV/AIDS patients should be more often investigated for possible oncological diseases.
Title: Depression and quality of life in hemodialysis patients

Authors: Vencevicius K., Eitaviciute I.

Tutor/Tutors: Laurynas Rimsevicius, MD PhD

University: Medicine Faculty, Vilnius University, Lithuania

INTRODUCTION: Kidney failure and dialysis exert a significant psychological impact on patients. Therefore, depression is highly prevalent and is associated with poor quality of life among adults with end-stage renal disease.

AIM OF THE STUDY: To evaluate depression symptoms of hemodialysis patients (HDP), predialysis patients (PDP), healthy controls (HC) and determine the relationship between depression and quality of life in HDP.

MATERIALS AND METHODS: A case-control study of 139 subjects (43 HDP, 46 PDP, 50 HC) was performed. Depression symptoms were evaluated by Center for Epidemiologic Studies Depression Scale (CES-D), higher scores (0-60) indicating more symptomatology (24 – cutoff for severe depression). Quality of life (QOL) of HDP was evaluated by Kidney Disease and Quality of Life instrument (KDQOL™-36), higher results indicating higher QOL. Subjects completed anonimical 12-questions questionnaire to determine demographic, epidemiological characteristics. Statistical analysis was performed by IBM SPSS 23.0.

RESULTS: The three study groups did not differ regarding sex, age and education. Mean CES-D scores were significantly higher in HDP group than in PDP and HC (17,26±6,79; 13,64±5,64; 10,36±4,48 accordingly; p=0,001). There were significantly more cases of severe depression in HDP group than in PDP and HC groups (18,6%; 4,35%; 2% accordingly; p=0,032). Mean CES-D scores of female HDP were higher than male HDP (20,36±6,45 vs. 14,22±5,92; p=0,018). Mean CES-D scores were lower in HDP former smokers than in HDP who never smoked but the difference was not statistically significant (16,03±7,23 vs. 17,56±6,36; p=0,353). A negative correlation between HDP KDQOL™-36 scores and HDP CES-D scores was determined but it was not statistically significant (r=-0,196; p=0,143). A statistically significant negative correlation between HDP KDQOL™-36 physical subscale (SF-12 measure of physical functioning) and HDP CES-D scores was determined (r=-0,421; p=0,039).

CONCLUSIONS: HDP mental state, regarding depression symptomatology and prevalence of severe depression, was more severe than PDP and HC. Depression symptoms were more severe in female HDP than male HDP. A statistically significant correlation between quality of life and mental state in HDP was not observed. Mental state of HDP with better physical functioning was better.
INTRODUCTION: Cognitive impairment is common in hemodialysis patients. It contributes to functional dependence and decreased medical care compliance. These negative consequences result in poor treatment outcomes and lower quality of life.

AIM OF THE STUDY: To evaluate cognitive functions of hemodialysis patients (HDP), predialysis patients (PDP), healthy controls (HC) and determine the relationship between cognition and quality of life in HDP.

MATERIALS AND METHODS: A case-control study of 139 subjects (43 HDP, 46 PDP, 50 HC) was performed. Cognition was evaluated with 2 tests: Montreal Cognitive Assessment (MoCA) (0-30) and Mini-Mental State Examination (MMSE) (0-30), higher results indicating better cognition. Quality of life (QOL) of HDP was evaluated by Kidney Disease and Quality of Life instrument (KDQOL™-36), higher results indicating higher QOL. Subjects completed 12-questions questionnaire to determine demographic, epidemiological characteristics. Statistical analysis was performed by IBM SPSS 23.0.

RESULTS: The three study groups did not differ regarding sex, age and education. Mean MoCA and MMSE scores were lower in HDP group than in PDP and HC: MoCA (26,53±2,88; 28,12±1,29; 28,94±1,65 accordingly; p=0,022), MMSE (27,76±1,98; 28,84±1,07; 29,52±1,18 accordingly; p=0,004). Mean MoCA scores of HDP with sleep disorders were significantly lower than HDP without any sleep disorders (24,98±3,12 vs. 28,35±1,44; p=0,018). Mean KDQOL™-36, MoCA and MMSE scores did not differ statistically significantly between HDP with arteriovenous fistula vascular access and HDP with central venous catheter vascular access. A statistically significant positive correlation between HDP KDQOL™-36 and MMSE scores was determined (r=0,533; p=0,008), but statistical significance was not observed between HDP KDQOL™-36 and MoCA scores. A statistically significant positive correlation between HDP KDQOL™-36 physical subscale (SF-12 measure of physical functioning) and MMSE scores was determined (r=0,425; p=0,038).

CONCLUSIONS: HDP cognitive performance was worse than PDP and HC. Cognitive functions were more impaired in HDP with sleep disorders than HDP without any sleep disorders. Vascular access did not have a significant impact on HDP cognition or QOL. Cognitive performance was better in HDP with higher QOL and better physical functioning.
Title: Real world experience data: efficacy of entecavir in chronic hepatitis B patients based on previous exposure to lamivudine

Authors: Jaraminas A.¹, Urbanoviciute G.¹

Tutor/Tutors: Prof. Ligita Jancoriene

University: ¹ Faculty of Medicine of Vilnius University, Undergraduate Medical Student, Lithuania

INTRODUCTION: Chronic Hepatitis B infection (CHB) is a serious health burden worldwide and is associated with complications as liver cirrhosis and HCC, hence antiviral therapy may be critical. Lamivudine (LAM) was approved as the antiviral agent of choice for CHB but recent guidelines recommended entecavir (ETV) or tenofovir (TDF) due to low risk for developing resistance.

AIM OF THE STUDY: To compare efficacy and resistance profiles of ETV between LAM-naive and LAM-exposed patients.

MATERIALS AND METHODS: A retrospective one-centre study was conducted in 2019. Medical histories of patients who had a clear status of LAM experience (naive/exposed) and received ETV therapy for 12 months and longer were selected for descriptive data analysis. A sample was divided into 2 groups: 1st- LAM-naive patients (n=21); 2nd- LAM-exposed patients (n=38).

RESULTS: 59 patients met the inclusion criteria. 64% (n=38) of them were previously exposed to LAM. 87% (n=33) of LAM-exposed patients developed LAM resistance. Seroconversion occurred in 57% (n=12) vs 55% (n=21) of the patients in group 1 and 2 respectively. HBV DNA values prior to ETV therapy in group 1 and 2 were 5% vs 5% with less than 2000 IU/ml, 10% vs 18% with 2000 to 20000 IU/ml and 86% vs 76% with above 20000 IU/ml (mean 1.63x10^8 IU/ml vs 4.68x10^7 IU/ml) respectively. During follow up HBV DNA levels among LAM-naive patients dropped down more rapidly and in general were lower >1 log10 (with the means (IU/ml) of 38693 vs 84132 after 3 months, 38668 vs 583434 after 1 year, 27520 vs 106348 after 2 years, 163 vs 5954242 after 3 years and 23 vs 1761856 after 4 years in group 1 and 2 respectively). The prevalence of ETV resistance in the 1st group was 0% vs 24% (n=9) in the 2nd group. The mean length of ETV therapy before established ETV resistance was 38.4 months. 89% (n=9) of ETV resistant patients undergo further treatment with TDF.

CONCLUSIONS: ETV is an effective antiviral agent for CHB management but its efficacy varies depending on previous exposure to LAM. ETV is more effective in non-exposed patients as they achieved better outcomes in suppressing HBV DNA levels and none of the patients developed resistance. ¼ of the LAM-exposed patients develop resistance to ETV and the treatment occurs to be ineffective.
Title: Cross-sectional one-center study on chronic hepatitis B: patients' clinical evaluation and employed antiviral treatment measures

Authors: Urbanoviciute G.¹, Jaraminas A.¹

Tutor/Tutors: Ligita Jancoriene

University: ¹ Faculty of Medicine of Vilnius University, Undergraduate Medical Student, Lithuania

INTRODUCTION: Chronic Hepatitis B infection (CHB) is a serious health concern worldwide as it induces development of liver cirrhosis and HCC. A few distinct treatment schemes exist (Pegylated interferon (PEG-IFN), Lamivudine (LAM), Entecavir (ETV) or Tenofovir (TDF)) however all of them display different efficacy and safety qualities, so the outcomes between patients vary.

AIM OF THE STUDY: To determine currently employed treatment measures and clinical characteristics of CHB patients

MATERIALS AND METHODS: 204 patients with established CHB or hepatitis B virus carrier status were regularly followed up in 2018. 122 (59,8%) of them met treatment criteria and received specific type of antiviral therapy. The research included all 122 patients on antiviral treatment. Medical records of the patients were utilised for descriptive data analysis.

RESULTS: 65% (n=79) of the patients were male. The mean sample age was 45,4±14,4 years. The average period from the first HBsAg detection was 11,5±8.7 years. 37% (n=45) of the patients had positive HbeAg prior to treatment, seroconversion occurred in 58% (n=71) of the sample. The most frequent histological liver fibrosis stage was METAVIR-II with the prevalence of 47% (n=57), liver cirrhosis (METAVIR-IV) was observed in 16% (n=19). 69% (n=84) of the patients received ETV therapy, 58% (n=71) LAM, 35% (n=43) PEG-IFN, 7% (n=9) TDF. 65% (n=46) of LAM-exposed patients have developed resistance to LAM, although 30% (n=21) of them continue treatment without evidence of resistance. 16% (n=7) of PEG-IFN patients continue further treatment with PEG-IFN with a successful suppression of HBV DNA. 12% (n=10) of ETV treated patients have developed resistance to ETV, all of them were exposed and resistant to LAM.

CONCLUSIONS: CHB infection was more common in middle-aged men. More than half of the patients received LAM or ETV and 1/3 PEG-IFN for management of CHB. Some of the patients continue antiviral therapy with LAM or PEG-IFN and also have achieved success suppressing HBV DNA levels. More than a half of LAM patients have developed resistance to LAM. Absolute majority of ETV-resistant patients were also resistant to LAM.
**Title:** The optimal method of kidney asymmetry assessment in the diagnosis of renal artery stenosis.

**Authors:** Ludwiczak M.¹, Cienszkowska K.¹, Wrzaszczyk M.¹

**Tutor/Tutors:** Bartosz Symonides MD PhD, Łukasz Artyszuk MD PhD

**University:** ¹ Department of Internal Medicine, Hypertension and Vascular Diseases, Medical University of Warsaw, Poland

**INTRODUCTION:** Renal artery stenosis (RAS) is a frequent and potentially reversible cause secondary hypertension. According to the guidelines, discrepancy in size between the kidneys of greater than 15 mm is a clinical indication for the diagnosis of RAS. Doppler ultrasonography is a non-invasive first choice examination in RAS diagnostics allowing assessment of RAR (renal aortic ratio, proportion of the peak systolic velocity in the renal artery to that of the abdominal aorta). RAR above 3.5 is commonly used marker of renal artery stenosis.

**AIM OF THE STUDY:** The aim of the study was to verify the arbitrary cut-off value of kidney size difference of 15 mm as a clinical indication for the diagnosis of RAS and to find the optimal method of kidney asymmetry assessment.

**MATERIALS AND METHODS:** The analysis included 1175 of patients (mean age: 52 years IQR (38-66), males/females: 597/578) who underwent Doppler examination of renal arteries and have measured both kidneys size and renal aortic ratio (RAR). Significant difference in renal dimension was set at more than 15 mm. Significant renal artery stenosis was defined as RAR greater than 3.5. Receiver operating characteristic (ROC) curves were created and analyzed for both absolute and relative differences in kidney size. We calculated area under the curve (AUC), optimal cut-off values and compared the both methods.

**RESULTS:** 169 patients had significant difference in renal dimension and 61 patients had significant renal artery stenosis. In 44 patients both significant size discrepancy and renal artery stenosis were observed. According to ROC curve analysis the optimal renal asymmetry index was 12 mm, not 15 mm as it is suggested in guidelines. The sensitivity and specificity for this method was 82.0% and 83.3% respectively and AUC 86.3%. The ROC curve analysis for relative difference of kidney size with cut-off vale of 1.1 revealed higher sensitivity 85.2% with specificity 82.0% and better performance with greater AUC 86.9% (p<0,01) comparing with the absolute difference.

**CONCLUSIONS:** Changing the definition of significant difference of kidney size according to our results may improve the diagnosis of RAS.
**Title:** Macular thickness evaluation in glaucoma

**Authors:** Pilvelyte J.¹, Plikaityte S.¹

**Tutor/Tutors:** MD, phD Saulius Galgauskas

**University:** ¹ Ophthalmology, Vilnius University Santaros Clinics, Lithuania

**INTRODUCTION:** Glaucoma is known as a disease which causes a progressive structural and functional damage to the optic disc complex. The disease affects midperipheral vision function in early stages and can cause an irreversible visual lost in late stages of the disease process. It has long been recognized that early glaucomatous damage can affect the macula. However, early macular damage has been ignored as a diagnostic tool.

**AIM OF THE STUDY:** To compare the average macular thickness (ATM) measured by optic coherence tomography (OCT) to visual field parameters as markers of visual function in early stage glaucoma patients and those who are followed as glaucoma suspects. In addition, we evaluated the correlation between visual field parameters and average RNFL thickness, average cup-to-disc ratio parameters.

**MATERIALS AND METHODS:** Retrospective analysis of 93 eyes (55 patients with mean age 65,2±9.4) were made. Macular and optic disc cube scans data from OCT and standart automated perimetry parameters such as MD, PSD were obtained. Eyes were devided into 3 groups by AMT thickness: 1st group included thin (<270 mm) eyes, 2nd - intermediate thick (270-300 mm) eyes, 3rd – thick (>300 mm ) eyes. Patients with retinal pathology and other conditions which can affect macular or RNFL thickne were excluded from the study. Data analysis was performed using SPSS software. Pearson correlation coefficient was calculated to evaluate relationship between AMT, average RNFL, average cup-to-disc ratio. A p-value of <0,01 was considered statistically significant.

**RESULTS:** AMT correlated significantly with all measures of visual field: MD (r = 0.445, p<0,001), PSD (r = - 0.355, p=0,001). Significant correlations were found between the cup-to-disc ratio and MD (r=-0.359, p<0,01) , PSD (r=0.363, p=0,0001), also between RNFL and MD (r=0.412, p<0,01), PSD (r=-0.370, p<0,01). Average visual field parameters in 1st (thin) eyes group: MD=-5.47, PSD=5.01; 2nd (intermediate thick) eyes group: MD=-2.71, PSD=3.12; 3rd (thick) eyes group: MD=-1.71, PSD=1.92.

**CONCLUSIONS:** The correlation between visual field defects and macular thickness, RNFL, cup-to-disc ratio can help specialist in confirming the early stages of glaucoma.
**Title:** Evaluation of the focal changes in liver in patients with alveolar echinococcosis treated with albendazole

**Authors:** Radziszewska M.¹, Paździor D.¹

**Tutor/Tutors:** Tomasz Mikuła MD, PhD

**University:** ¹ Department of Infectious and Tropical Diseases and Hepatology of Medical University of Warsaw, Students’ Scientific Society of the Department of Infectious and Tropical Diseases and Hepatology of Medical University of Warsaw, Poland

**INTRODUCTION:** Alveolar echinococcosis is a parasitic disease caused by *Echinococcus multilocularis* tapeworm larvae. After ingestion of invasive eggs by a human, the oncosphere hatches in the lumen of the small intestine and then penetrates the intestinal wall in order to enter the portal circulation. It localizes itself in the liver, usually forming a non-embossed structure.

**AIM OF THE STUDY:** The aim of the study was to evaluate the focal changes in liver in patients treated with albendazole based on the results of ultrasound examination and laboratory tests of the patients.

**MATERIALS AND METHODS:** Our study took into account 11 patients (4 men, 7 women) admitted to the Department of Infectious and Tropical Diseases and Hepatology, Department X of Warsaws’ Hospital for Infectious Disease, who were diagnosed with alveolar echinococcosis in the years 2015-2018. The results of laboratory and imaging examinations on the day of the diagnosis, the day of the first control visit (6 months later) and the second control (about 12 months later) were compared.

**RESULTS:** In 3 patients there were no hepatic symptoms at the time of the diagnosis. In the abdominal ultrasound examination, the lesions in the liver were described in 6 cases as cysts, in 3 cases – as litho-fluid focal lesions/changes, and in 2 as infiltrations. Lesions in the liver varied from 6 to 110 mm in diameter. In laboratory findings, GGTP was elevated in 10 patients, whereas in 3 patients it was the only elevated hepatic marker. In 6 people, there was a suspicion of neoplastic process before confirmation of the echinococcosis. One year after the diagnosis, 4 patients underwent resection of the liver segment, in 2 patients liver lesions decreased in size, while in the rest, despite the stabilization of laboratory markers, liver lesions were not significantly reduced.

**CONCLUSIONS:** Despite treatment with albendazole and stabilization of liver function (due to the normalization of laboratory markers), the lesions caused by *E. multilocularis* are not decreasing in size significantly. Due to that, patients require regular follow-up visits and control USG, CT or MRI scans in periods of minimum 6 months.
Title: Assessment of undernutrition in patients with inflammatory bowel disease

Authors: Juršens A., Roshofa T., Zalizko P., Meija L.

Tutor/Tutors: -

University: 1 Faculty of Medicine, Riga Stradins University, Latvia 2 Department of gastroenterology, Pauls Stradins Clinical University Hospital, Latvia

INTRODUCTION: Worldwide incidence of Inflammatory Bowel Disease keeps rising. Among these patients malnutrition is a common complication, which may cause several consequences, including more frequent and prolonged hospitalisation, impaired wound healing, also these patients are more prone to infections.

AIM OF THE STUDY: Our aim was to screen IBD patients for undernutrition and possible risk of malnutrition, by using Nutritional Risk Score (NRS2002), Malnutrition Universal Screening Tool (MUST) and bioelectrical impedance analysis, in order to evaluate correspondence between these tools and actual need for nutritional support.

MATERIALS AND METHODS: This prospective pilot study was carried out from September 2018 till February 2019. 50 patients ≥18 years with established diagnosis IBD were screened twice using NRS2002 and MUST. For 48 IBD patients and additional 48 control group participants bioelectrical impedance analysis were done. For statistical analysis IMDB SPSS22 were used.

RESULTS: From 50 patients, 42%(n=21) were female and 58%(n=29) male, 54%(n=27) ulcerative colitis (UC) and 46%(n=23) Crohn’s disease (CD) patients. Median CD activity index were 128 (IQR=151) and Mayo score 4 (IQR=6). According to NRS2002 32%(n=16) patients were nutritionally at-risk and in need of nutritional support (score≥3), additional 27%(n=12) required additional evaluation (scores≤2). By MUST score 44%(n=26) patients had a high risk of malnutrition with need for nutritional care plan (score≥2) and 12%(n=4) required observation (score≤1). 34%(n=17) patients received enteral feeding, 10%(n=5) had parenteral feeding. With low disease activity index and MUST score≥2 we screened 6 patients, higher risk in CD. BIA differences between IBD patients and control group were calculated using Kruskal-Wallis test, most significant differences were observed in reduced body mass index in CD (p= 0.041), visceral fat in CD (p=0.014), muscle mass in CD (p=0.49) and increased waist hip ratio in UC (p=0.011).

CONCLUSIONS: Screening tools appear to have similar applicability for nutritional screening. NRS2002 might be more sensitive for acute disease exacerbation, where MUST and BIA can also be useful for chronic conditions. According to BIA tendency for obesity were noticed in UC, but undernutrition in CD.
INTRODUCTION: Vitiligo is a melanocyte destructing disease of an unknown etiology characterized by acquired, progressive, and well-defined depigmentation of the skin, hair and mucosal surfaces. Morbidity is approximately 0,5-1% in the worldwide. Treatment effectiveness remains limited.

AIM OF THE STUDY: To determine areas affected by vitiligo the most, impact of vitiligo on the quality of life and assess treatment effectiveness in Lithuania.

MATERIALS AND METHODS: A research conducted in 2018 was an anonymous online questionnaire. The questionnaire consisted of 18 original questions about affected skin areas, size, symptoms, treatment options and its effectiveness. Statistical data analysis was carried out using SPSS, v 23.0. P value <0.05 was considered statistically significant.

RESULTS: 77,7% (n=80) out of 103 patients were female. Mean adult age was found to be 35,6 ± 11,5 years. 1/3 of the respondents 33%, (n=34) had a family history of vitiligo. The condition is prone to photosensitivity and tends to occur in summer for 53,4% (n=55) of the respondents. 67% (n=69) respondents mark a stressful event before the onset of the disease, mostly short-term health problems 13,6% (n=14). In 73,8% (n=76) of the cases approximately 1 to 25% of the skin surface was affected, most commonly discoloration is located on the back 37,9% (n=39), chest 37,9% (n=39) and face 34% (n=35). In 54,4% (n=56) of cases course of vitiligo was limited to one area. Often vitiligo was associated with symptoms of a mild (32%, n=33) or moderate (30,1%, n=31) anxiety. Another autoimmune disorder was observed in 19,4% (n=20) of the cases with a predominance of autoimmune thyroiditis 6,8% (n=7). 72,8%(n=75) respondents received treatment: 27,2% (n=28) were treated using phototherapy and topical medication. Repigmentation occurred in 64,4% (n=47) of the cases.

CONCLUSIONS: More than a half of the respondents experienced onset of vitiligo in summer, most of them had a stressful event prior to the disease onset. 1/5 of the patients had a history of a systemic autoimmune disorder. Back, chest and facial regions were affected the most. The treatment of choice was phototherapy and topical medication. Skin repigmentation occurred in 64,4% (n=47) of the cases.
Title: Kidney transplantation results in senior patients

Authors: Klavina L.¹, Rancans K.¹

Tutor/Tutors: Dr. med. Ieva Ziedina

University: ¹ Medicine, Riga Stradins University, Latvia

INTRODUCTION: Kidney transplantation is nowadays the treatment of choice for end stage renal disease. However, it has always been questionable how efficient this method is for senior patients who have multiple comorbidities.

AIM OF THE STUDY: To analyse kidney transplantation results in senior patients in association with pre-transplantation factors.

MATERIALS AND METHODS: The research was a retrospective study based on analysis of patient’s medical histories from 1998 till 2015 in Latvian Transplantation centre. Outcomes three years after kidney transplantation were analyzed and patients with non-functioning kidney transplant were selected to determine median graft survival time. In order to look for possible influencing factors, recipients were divided in two groups according to their graft survival time. Correlation between duration of dialysis and graft survival time was estimated. Obtained data were analyzed in IBM SPSS Statistics 24.0.

RESULTS: Data of 85 patients aged 65 to 79 were analysed. Three years after transplantation graft was still functioning in 70 recipients (82,4%), 7 patients (8,2%) had returned to dialysis, but 8 recipients (9,4%) died during this period with functioning kidney graft. Median kidney graft survival was 60 (59-82) months. Following pre-transplantation factors and comorbidities showed no statistically significant influence on kidney graft survival: age (p=0.929), gender (p=0.605), etiology of chronic kidney disease (p=0.494), coronary heart disease (p=0.605), myocardial and cerebral infarction (p=0.536 and p=0.493 accordingly), chronic heart failure (p=0.796), radically treated cancers (p=1.00), diabetes mellitus (p=0.648), benign prostatic hyperplasia (p=0.605), gout (p=0.931) and secondary hypertension (p=1.00). Duration of dialysis showed weak negative correlation with graft survival time (0.256; p=0.048).

CONCLUSIONS: Median kidney graft survival time in senior patients is five years. Comorbidities have no significant influence on graft survival time, but longer dialysis tend to worsen kidney transplantation results.
Title: Changes in glucose concentrations during oral glucose tolerance test (OGTT) after three-month exercise intervention

Authors: Taraszewska S, Sowa K, Pietnoczka M, Langi G

Tutor/Tutors: Łukasz Szczerbiński, MD, Prof. Adam Krętowski, Department of Endocrinology, Diabetology and Internal Medicine, Medical University of Białystok

University: 1 Department of Endocrinology, Diabetology and Internal Medicine, Medical University of Białystok

INTRODUCTION: Regular physical activity is one of the basic elements of a healthy lifestyle. A large body of observational data shows beneficial effects on physical activity on several health outcomes. Exercise improves glucose homeostasis- mainly by increasing insulin sensitivity, which leads to lower blood glucose concentration and better metabolic control.

AIM OF THE STUDY: Aim of the study was to evaluate changes in plasma concentration of glucose during an oral glucose tolerance test in patients who underwent three-month exercise intervention

MATERIALS AND METHODS: The study was performed on the group of 47 sedentary-lifestyle male patients (48,7 ± 6,9 years and BMI 29,95 ± 3,9 kg/m2) at different stages of glucose metabolism dysregulation, who underwent three-month mixed exercise intervention of aerobic and strength activities. All subjects underwent OGTT before and after completing the intervention. Plasma concentration of glucose and insulin was evaluated at 0, 60 and 120 minutes time-points. Glucose concentration was evaluated using the colorimetric method, and insulin with the RIA method.

RESULTS: The mean values of glucose were: 0'-110,55 mg/dl; 60'-177,5 mg/dl; 120'- 119,15mg/dl (before) and 0'-108,06 mg/dl; 60'- 157,34 mg/dl; 120'- 114,13 mg/dl (after). We observed decrease in glucose concentration at each of the timepoints, but the most significant changes were observed for glucose at 60' (p-value = 0,00341).

CONCLUSIONS: In our study, we show that exercise intervention is effective in reducing glycemia during OGTT, with the strongest effect at 60-minute timepoint of the test.
INTRODUCTION: In order to shorten the waiting time of kidney transplantations (KT), deceased donors with severe acute kidney injury (AKI), could be used as a viable source of kidneys.

AIM OF THE STUDY: Compare outcomes of KT in recipients who received grafts from donors with severe AKI versus donors without AKI.

MATERIALS AND METHODS: Retrospective study included recipients who underwent KT from deceased donors in a single centre from 2010 – 2015. Recipients were divided into two groups according to the serum creatinine levels of the donor at the time of kidney procurement: N° 1. Normal serum creatinine levels (<110 μmol/l according to the upper value of local laboratory) (n=169). N° 2. Serum creatinine levels reaching 2nd stage of AKIN (≤ 220 μmol/l) (n=25). Kidney graft function was assessed by estimated GFR (eGFR). The eGFR was calculated by CKD-EPI equation. Data was analyzed using IBM SPSS Statistics 22.0. Survival rates were calculated using Log Rank (Mantel-Cox).

RESULTS: The study included 194 patients (52% males, mean age – 46.9 years.). In both groups statistically equal number of patients who underwent repeated kidney transplantation were included: 2nd transplantation 17.8% and 8%, and 3rd transplantation: 5% and 4% (p=0.464), accordingly. Delayed graft function did not show statistically significant differences between groups: 1. 18.9%, 2. 24% (p=0.734), nor did biopsy-proved acute rejection: 1. 27.9%, 2. 20% (p=0.316). 3-year graft survival rates in both groups were: 1. 84.47%, 2. 79.16 (p=0.999). 3-year patient survival rates in both groups were: 1. 92.54%, 2. 95.83% (p=0.808). The eGFR (ml/min/1.73m2) of recipients at the time of discharge (1. 49.01 ± 1.6, 2. 45.43 ± 3.8) and after 3-years (1. 61.28 ± 7.2, 2. 48.14 ± 5.3) did not show statistically significant difference (p=0.270).

CONCLUSIONS: Recipients who received kidney transplantations from deceased donors with severe acute kidney injury (≥2 AKIN) at the time of kidney procurement did not show statistically significant differences regarding patient outcome. The eGFR in both groups did not show statistically significant differences in 3-years. Therefore, kidneys from donors with severe acute kidney injury could be a viable source of kidney transplants.
Title: Phenotypic characteristics of patients with newly diagnosed diabetes mellitus

Authors: Sokolowska G.¹, Naronowicz G.¹, Szerenos E.¹

Tutor/Tutors: Agnieszka Łebkowska MD, PhD

University: ¹ Department of Internal Medicine and Metabolic Diseases, Student, Medical University of Bialystok, Poland

INTRODUCTION: Diabetes Mellitus (DM) affects millions of people worldwide. Type 1 DM (T1DM), usually referred to as “childhood-onset diabetes”, is an autoimmune disease resulting in insulin deficiency. Latent Autoimmune Diabetes in Adults (LADA) is a form of T1DM and occurs in adulthood, often with a slower course of onset. Type 2 DM (T2DM) is a metabolic disorder, usually diagnosed later in life, characterized by obesity, insulin resistance. Over the past 30 years, DM has become a global epidemic. In Poland, 5.6% of the population is diagnosed with DM. At the increasing rate of DM being diagnosed, this number is expected to rise to 10% by 2030.

AIM OF THE STUDY: The aim of this study was to analyze the data of patients that were hospitalized and diagnosed due to symptoms, suggesting DM between February 2018 and February 2019 in the Department of Internal Medicine and Metabolic Diseases at the University Hospital of Medical University in Bialystok.

MATERIALS AND METHODS: We retrospectively analyzed a group of 20 newly diagnosed DM patients - 5 with LADA and 1 with T1DM (LADA+T1DM), and 14 with T2DM. Diagnosis was based on an OGTT in 5 patients with T2DM, as well as symptoms and glucose levels at admission in 15 patients. Subjects were reviewed for anthropometric measurements and laboratory findings such as glucose level at admission, HbA1c, C-peptide concentrations and lipid profile.

RESULTS: Mean age of LADA+T1DM was 36.5 ± 13.4 years and was lower than T2DM with a mean 54.6 ± 13.7 years (p=0.01). LADA+T1DM had a statistically lower BMI with a mean of 22.82 ± 2.81 kg/m² in comparison to T2DM with a mean BMI of 32.89 ± 5.20 kg/m² (p=0.001). Glucose levels, HbA1c on admission were comparable. C-peptide concentrations were statistically lower in LADA+T1DM than in T2DM (p=0.004). Among patients with T2DM, the mean glucose levels in 2h during OGTT were 213± 14.1mg/dl. Lipid profile was comparable between both groups.

CONCLUSIONS: Within the conducted study, there was a greater amount of newly diagnosed patients with Type 2 DM.
INTRODUCTION: Obstructive sleep apnea (OSA) is one of the most common causes of excessive day time sleepiness and a vast majority of the general population is at risk of this disorder. Commonly underdiagnosed, OSA is associated with decreased cognitive performance, impaired vigilance, depression, and impaired driving. Polysomnography (PSG) is the gold standard for diagnosis of OSA, however such procedures are high-priced and can be difficult to implement. Quick, inexpensive questionnaires such as the STOP-bang (SBQ), Lausanne NoSAS score and Epworth Sleepiness Scale (ESS) can be efficient tools to determine whether a patient is at risk of OSA. Even though moderate and severe cases of OSA are more dangerous, it is important to assess the risk for mild OSA since it is the most prevalent form found among the population.

AIM OF THE STUDY: To identify the best scale to predict OSA in bus drivers with an apnea-hypopnea index (AHI) between 5-15.

MATERIALS AND METHODS: A total of 371 bus drivers completed anonymous surveys comprised of questions from the SBQ, NoSAS and ESS scales. PSGs were later performed for all the patients to confirm the presence or absence of OSA.

RESULTS: 77 (21%) participants aged from 26-62 have mild OSA. The sensitivity of the STOP-bang, NoSAS and ESS questionnaires are 40%, 58%, and 1.3% respectively.

CONCLUSIONS: These finding suggest that the Lausanne NoSAS score is the most accurate tool for screening the risk of mild OSA in public bus drivers.
Title: Glucose tolerance disturbances in patients with obesity

Authors: Maksim C.¹, Rogowski M.¹, Lenartowicz I.¹, Adamska J.¹, Dejewska K.¹

Tutor/Tutors: Agnieszka Łebkowska MD, PhD

University: ¹ Medical University of Bialystok, Poland

INTRODUCTION: Obesity is associated with greater risk of type 2 diabetes or pre-diabetic conditions – impaired fasting glucose (IFG) and impaired glucose tolerance (IGT). The main pathogenic factor in development of prediabetes and type 2 diabetes mellitus is insulin resistance. Oral glucose tolerance test (OGTT) is recommended to set the diagnose.

AIM OF THE STUDY: To analyze the data of obese patients, hospitalized in the Department of Internal Medicine and Metabolic Diseases at Medical University of Bialystok from February 2018 to December 2018.

MATERIALS AND METHODS: We retrospectively analyzed a group of 36 obese patients with mean BMI 37.5±5.7 kg/m² and mean age 41±14 years – 16 patients were with BMI < 35 kg/m² and 20 patients with BMI ≥ 35 kg/m². Subjects were reviewed for anthropometric measurements, lipid profile and OGTT results such as glucose and insulin concentrations in serum.

RESULTS: Among all patients - 18 (50%) presented with pre-diabetic conditions - 13 with IGT and 5 with IFG/IGT. Incidence of these disorders did not differ between groups divided according to BMI. In group IFG/IGT mean fasting glucose was 99± 7mg/dl and mean 2h glucose was 161±21mg/dl. IFG/IGT had statistically lower concentration of HDL cholesterol (p=0.013) and higher 2h insulin concentration in OGTT (p=0.04) than patients without glucose disturbances.

CONCLUSIONS: The prevalence of prediabetes is very common in obesity and thus OGTT is recommended in all obese patients.
Surgery and Orthopedics
Title: A prospective comparison of frequency of postoperative neuropathies after different type of treatment methods for varicose veins - phlebectomy, endovenous laser ablation or a new venaseal closure syst

Authors: Udre A.¹


University: ¹ University of Latvia, Latvia

INTRODUCTION: The varicose vein extraction is associated with n.saphenous injury. It has been associated as a risk factor of v. saphena magna (VSM) stripping, but it may also occur during ablation. The risk of nerve injury is cited as a reason to use minimal invasive techniques, such as endovenous laser ablation (EVLA) or nonthermal vein ablation technique - VenaSeal closure system.

AIM OF THE STUDY: The aim of this study is to share our experience of frequency of postoperative neuropathies after different type of surgical treatment of varicose veins.

MATERIALS AND METHODS: A retrospective study of patients with chronic venous disease who had undergone primary VSM extirpation or ablation. Patients were divided into 4 groups depending on the treatment method – phlebectomy, EVLA with 1470nm or 1940nm wavelength laser, VenaSeal. Neurography of n.saphenous, n.suralis, n.peroneus superficialis and n.tibialis were done before and one month after surgery. Status of patients’ symptoms was surveyed according to the Aberdeen Varicose Vein Symptom Severity Score. Study was performed from November 2018 till February 2019. The data was analysed using Microsoft Excel and IBM SPSS 22.0.

RESULTS: 23 patients were included in the study. The mean age was 51.57 (SD 14.7, range 30-80). 36.4% patients underwent phlebectomy, 13.6% had EVLA1470nm or 1940nm wavelength laser, VenaSeal. Neurography of n.saphenous, n.suralis, n.peroneus superficialis and n.tibialis were done before and one month after surgery. Status of patients’ symptoms was surveyed according to the Aberdeen Varicose Vein Symptom Severity Score. Study was performed from November 2018 till February 2019. The data was analysed using Microsoft Excel and IBM SPSS 22.0.

RESULTS: 23 patients were included in the study. The mean age was 51.57 (SD 14.7, range 30-80). 36.4% patients underwent phlebectomy, 13.6% had EVLA1470nm, 31.8% EVLA1940nm, 18.2% patients had VenaSeal. In one patient nerve transmission abnormalities were detected before surgery and he was excluded from the study. In 10 (45.5%) patients a statistically significant (p<0.05) saphenous or sural nerve lesion was identified one month after surgery. Out of those who underwent phlebectomy, injury of nerve was caused in 75% of patients, 66.7% of patients who underwent EVLA1470nm and 28.6% EVLA1940nm had nerve injury, however, those patients who underwent VenaSeal procedure – none of them had neuropathy.

CONCLUSIONS: Frequency of damage does not only depend on treatment method, but also wave length of diode laser can be the determining factor. Neurography findings may suggest that treatment with VenaSeal closure system does not cause injury to nerve. The risk of nerve injury should be considered as a reason to choose if possible minimal invasive treatment for varicose veins.
Title: The role of psycho-correction in the treatment of patients with soft-tissue infections

Authors: BOZYR S.¹, MANISHKO J.¹

Tutor/Tutors: PhD ANDREI IVANAVICH ASLAUSKI

University: ¹ Department of Surgical Diseases №2, Grodno State Medical University, Belarus

INTRODUCTION: Skin and soft-tissue infections (SSTIs) are widespread among patients of hospitals. Besides they have somatic problems, patients with SSTIs are also suffering from mental disorders.

AIM OF THE STUDY: To estimate a role that psycho-correction plays in the treatment of patients with SSTIs, to estimate the role of surgical and psychotherapeutic impact on patients.

MATERIALS AND METHODS: The study included 40 people; they were interviewed on admission to the hospital and after surgical and psychotherapeutic treatment. The patients selected for research had an adjustment disorder (F43.2), which is characterized by such emotional signs as anxiety, aggressiveness, hostility, frustration, rigidity and some others. The study used: psychodiagnostic interview, Buss-Durkee Hostility Inventory (BDHI), H. Eysenck’s test “Self-assessment of Mental State”. Psychotherapeutic treatment included: group-, individual-, rational therapy, relaxation techniques. Drug treatment included tranquillizers and sedatives.

RESULTS: High scores of aggressiveness, frustration, rigidity and hostility were reached in acute phase of the disease. Anxiety exceeded the norms by 63%, frustration - by 56%, aggressiveness - by 18%, rigidity - by 63%, individual hostility - by 57%, individual aggression - by 33%. Because of the treatment, somatic symptoms disappeared or diminished. On the part of mental activity: the anxiety score decreased by 44%, frustration score - by 29%, aggression score - by 38%, rigidity score - by 22%, individual hostility score - by 36%, individual aggressiveness score - by 25%. High level of anxiety and emotional pressure decreased, the degree of intensity of aggression decreased. Situational and personal aggression decreased. Hostile feelings which the patient had to his state and to people around decreased thanks to the carried-out psycho-correction and drug treatment.

CONCLUSIONS: The psychotherapeutic effect on patients in the complex makes it possible to reduce scores of aggression, frustration, rigidity and hostility significantly.
**Title:** Effect of trauma severity and treatment method on duration of hospitalization of patients after 61B2 type pelvic ring fracture

**Authors:** Bobina R.¹

**Tutor/Tutors:** Giedrius Petryla, MD

**University:** ¹ Faculty of medicine, Vilnius University, Lithuania

**INTRODUCTION:** Pelvic fractures account for 2-8% of all fractures. For younger patients, pelvic fractures often occur as a consequence of high-energy trauma (falling from heights, road accidents) whereas in the elderly the cause usually is low-energy trauma such as falling from standing height. Pelvic fractures cause reasonable socioeconomic burden including loss of ability to work and the treatment cost. One of the factors influencing the treatment cost is the duration of hospitalization.

**AIM OF THE STUDY:** To evaluate the effect of trauma severity and treatment method (conservative or surgical) on the duration of hospitalization of patients with 61B2 pelvic fractures according to AO/OTA classification.

**MATERIALS AND METHODS:** All patients hospitalized in Republican Vilnius University Hospital with pelvic fractures between June 2013 and December 2018 were registered in a database. 210 of them suffered a 61B2 pelvic fracture and were enrolled in the study. Trauma severity was assessed using the Injury Severity Score (ISS). According to the treatment method during hospitalization, patients were divided into 4 groups: A (experienced pelvic ring fixation surgery and any other surgery(-ies)); B (experienced pelvic ring fixation surgery and no other surgery); C (did not experience pelvic ring fixation surgery, but experienced any other surgery(-ies)); D (experienced neither pelvic ring fixation surgery nor any other surgery). The data were analyzed using IBM SPSS Statistics 23.0.

**RESULTS:** 149 (71%) women and 61 (29%) men were enrolled. Mean age was 59.04±23.202 years, mean duration of hospitalization – 9.80±9.200 days, mean ISS – 13.51±5.316. 23 (11%) patients experienced treatment method A, 61 (29%) – method B, 19 (9%) – method C and 107 (51%) – method D. There is a weak positive correlation between ISS and duration of hospitalization (r=0.374, p<0.001). Duration of hospitalization was significantly longer in group A than B, A than D, B than D and C than D (p<0.001). The difference of duration of hospitalization between groups A and C (p=0.255), B and C (p=0.104) was not significant.

**CONCLUSIONS:** Larger ISS and surgical treatment predict longer hospitalization of patients with 61B2 pelvic fractures.
**Title:** Treatment of abscesses and soft tissues purulent wounds by using sorption-drainage devices

**Authors:** KACHUK D.¹, PANASIK K.¹

**Tutor/Tutors:** PhD Aslauski A.I.

**University:** ¹ 2nd Department of Surgical Diseases, Grodno State Medical University, Belarus

**INTRODUCTION:** The actual problems of surgery are the treatment of abscesses and soft tissues purulent wounds.

**AIM OF THE STUDY:** The aim is to evaluate the effectiveness of the developed method for the treatment of purulent wounds and abscesses using sorption-drainage device (CDD).

**MATERIALS AND METHODS:** From 74 patients in the basic group on whom was used the method of surgical treatment of purulent wounds, combining the use of CDD, included: 19 patients with gluteal abscesses; 48 - with soft tissues abscesses; 7 - infected by post-surgical wounds. The control group was consisted of 62 patients who were treated traditionally. After opening an abscess, the wound culture test was performed in order to identify the microorganism causing an infection and what antibiotics it is resistant to. Necrotic tissues were removed and the wound was washed with antiseptic. A CDD was inserted into the wound. (Republic of Belarus patent, %u2116 7187 issued on Jan 4th, 2011). Thereafter the devices were removed on daily basis. The wounds were treated with antiseptics.

**RESULTS:** The average length of cleaning the wounds in the basic and control groups was correspondingly 5.11±1.12 and 8.7±1.7 days (p<0.05), the average length of hospitalization was 5.64±1.17 and 7.02±1.9 days (p<0.05). As a result, faster wound cleansing and shorter lengths of bed-patient days were observed in the experimental group.

**CONCLUSIONS:** Changes of the recorded performance under the influence of CDD have led to a significant reduction in the average length of hospital stays. The reason in using this device in the treatment of purulent wounds and abscesses is proved.
**Title:** The direct results of the operations for a hand and fingers injuries

**Authors:** KACHUK D.¹, PANASIK K.¹, KANAPLITSKAYA K.¹

**Tutor/Tutors:** PhD Aslauski A.I.

**University:** ¹ 2nd Department of Surgical Diseases, Grodno State Medical University, Belarus

**INTRODUCTION:** The share of injuries of a hand and fingers among the injuries of the musculoskeletal system is from 26.1% to 30%. Indications for plastic surgery, when you have a serious trauma, are up to 50% of the number of the hospitalized.

**AIM OF THE STUDY:** To evaluate the first-hand results of operative therapy of patients with hand and finger injuries.

**MATERIALS AND METHODS:** Have been analyzed the nearest results of surgical treatment of the patients with hand and fingers injuries, operated in the regional burns Department, situated on the basis of a healthcare Institution "Grodno city emergency hospital" for 2013-2018 years. There were 153 patients under our supervision. The majority of them were men of working age -121 (79%). All patients were taken to a hospital and operated on the first day after the injury. 61 patients underwent autodermoplasty with a free split skin flap. In 7 cases it was supplemented with necrectomy. Plastic full-layer flap was made 25 times, combined plastic-7, local fabrics-28, cross-plastic 8 times. Plastic surgery using an inguinal flap was performed in 7 patients. Amputation of fingers with stump formation was performed in 10 cases.

**RESULTS:** Good and satisfactory results of plastic surgery observed in 137 (90%) patients. Unsatisfactory plastic surgery results were observed in 16 (10%) patients.

**CONCLUSIONS:** Plastic surgery for finger and hand injuries performed in the burns department of the health care institution “Grodno City Clinical Emergency Hospital” allowed to achieve good and satisfactory immediate results in 90% of patients.
Title: The impact of cold ischaemia time on frequency of bronchoscopic interventions among lung transplant recipients.

Authors: Pandel A.¹, Kokot M.¹, Gawęda M.¹, Okienica M.¹, Boroń A.¹

Tutor/Tutors: Marek Ochman MD PhD, Mirosław Nęcki MD PhD, Magdalena Latos MD

University: ¹ Department of Cardiac, Vascular and Endovascular Surgery and Transplantology, Silesian Centre for Heart Diseases, Zabrze, Medical University of Silesia, Poland

INTRODUCTION: The cold ischaemia time (CIT) is a period of time between harvesting an organ for transplantation and reperfusion of the graft’s blood supply. CIT may have an impact on frequency of complications after lung transplantation, that can be treated by means of bronchoscopic interventions (BI).

AIM OF THE STUDY: The aim of the study was to investigate the correlation between cold ischaemia time and frequency of bronchoscopic interventions.

MATERIALS AND METHODS: The retrospective study consists of 77 patients (30 women, 47 men), with at least a 3-month survival, who underwent lung transplantation from March 2012 to September 2018 in Silesian Center for Heart Diseases in Zabrze. The study includes 19 SLT recipients (24,7%) and 58 DLT recipients (75,3%). In this group we selected 32 (41,6%) patients who were in need of bronchoscopic interventions. The procedures were as follows: balloon dilation, argon plasma coagulation, endobronchial stents placement, laser therapy and cryotherapy. We divided those patients into two groups: with CIT less than or equal 8 hours (group 1) and with CIT longer than 8 hours (group 2).

RESULTS: Among the group that required BI the average CIT was 737,5 min (12,3h) and the median was 720 min (12h). In group 1 (N=36) 15 patients (41,67%) needed BI, while in group 2 (N=41) BI were necessary for 19 patients (46,34%). Balloon dilation was performed 3,71 times per person in group 1, and 5,42 times per person in group 2. If it comes to argon plasma coagulation, in group 1 it was performed one time per person, while in group 2 - 6,52 times per person.

CONCLUSIONS: Although there is only a slight difference between percentage of interventions in general (group 1- 41,67%; group 2- 46,34%), we can observe that balloon dilation procedures were more frequent in group with CIT longer than 8 hours, as well as argon plasma coagulation was more than 6 times more frequent in group 2. Taking it all into consideration, in our study CIT affects the frequency of bronchoscopic interventions.
Title: Biological medium impact on nonabsorbable polyester sutures' physical properties

Authors: Stankevicius D.¹

Tutor/Tutors: Sigitas Ryliskis

University: ¹ Faculty of medicine, Vilnius University, Lithuania

INTRODUCTION: Surgical sutures nowadays are inseparable part of any surgery. For this reason any surgical suture must be non-reactive to tissues, maintain good knot security, be strong and easily handled. Although, the alteration and expiry while sewn in vivo is still not well known. We predict that in vivo medium may affect them negatively.

AIM OF THE STUDY: To examine how in vivo medium affects physical properties of nonabsorbable polyester sutures. H₀: affected sutures will have worse physical properties than unaffected.

MATERIALS AND METHODS: Nonabsorbable braided U.S.P 2/0 size polyester sutures were used. Study group of 3 subgroups (10 sutures in each) was composed, tested and compared to control group. Each suture was implanted into laboratory rats’ subcutaneous tissue and kept for 7, 8 and 9 weeks accordingly. Further, sutures were removed, knotted on physical parameters testing system and affected by mechanical force increasing the load by 0,1N/s until they broke. Maximum load at the break point and length changes were measured. All the sutures and damaged areas were inspected under the stereo microscope. Results were statistically processed with IBM SPSS Statistics 21, MS Excel 2016 and Origin 2018 software systems. Probability value (p) of 0,05 was chosen.

RESULTS: No statistically significant difference among groups’ physical parameters were found after the experiment. More frequent break on the knot site was noticed in in vivo sutures. No breaks on the knot site were registered in control group while 1, 2 and 4 sutures broke after incubation of 7, 8 and 9 weeks accordingly. Analysis revealed statistically significant difference between the failure load among sutures which broke on the knot site and the rest of samples. After microscopic and graphical sutures load analysis, the phenomenon of partial failure was seen. It was more common in 9-week subgroup: statistically significant lengthening was noticed between the sutures with partial failure comparing to sutures without it. Sutures with partial failure lengthened by 0,032m±0,002, without it – by 0,027m±0,002.

CONCLUSIONS: Longer in vivo incubation time influences sutures to break on the knot site. Sutures, which were kept in vivo for 9 weeks lengthen due to partial failure phenomenon.
INTRODUCTION: Colorectal cancer (CC) is a common disease: according to data of American Cancer Society (ACS), as of February 2019, CC is the 4th most common type among estimated new cancer cases and the third most common type in estimated deaths in the United States, with death/new case ratio of 0.35. Also, recommended age for screening colonoscopy (SC) start is 45 years for patients with moderate risk of CC, along with highly sensitive biochemical studies. Regular SC procedure is recommended up to 75 years of age.

AIM OF THE STUDY: To evaluate effectiveness of SC on population examined in interregional endoscopic center based in 5th clinical hospital of Minsk, Belarus.

MATERIALS AND METHODS: 661 cases of SC performed on the basis of 5th Clinical Hospital of Minsk in the period from January 2017 to February 2019, were included. Interventions were selected according to the criterion of elective procedure, absence of additional intervention need within the same hospitalization, presence of full-fledged SC protocol. Demographics, length-of-stay of hospitalization, complications, effectiveness of the procedure (according to diagnosis and pathology data, where applicable) were assessed. The data were described using descriptive statistics parameters, calculated using Microsoft Office Excel 2010.

RESULTS: Of the 661 procedures, 185 were performed in men, 476 in women; mean age of patients was 60.58 years, median age was 63 years, ICD 54; 69. As final diagnosis, polyps and other benign neoplasms were detected in 420 cases, in 53 cases patients were diagnosed with divericulosis, non-infectious inflammatory bowel diseases were detected in 28 cases, irritable bowel syndrome was diagnosed in 119 cases, hemorrhoids were detected in 20 cases, malignant neoplasms were determined in 5 cases, neoplasms of unknown etiology were revealed in 8 cases, and the remaining 8 cases, one for every nosology, were defined as “other” events.

CONCLUSIONS: Based on the results obtained, it can be concluded that the average age of screening colonoscopy in Belarus is more than 60 years, and the rapid increase in the surveyed population size begins after 45 years, which corresponds to the recommended by ACS. results of pathological studies will be presented in framework of conference speech.
Title: Effects of total hip arthroplasty and pain syndrome in particular

Authors: Klemiatsich Y.¹

Tutor/Tutors: M.D. Titova Alexandra

University: ¹Traumatology and orthopedics, Belarusian State Medical University, Belarus

INTRODUCTION: In Belarus the main treatment of the diseases such as coxarthrosis and necrosis of femoral head is a total hip arthroplasty. However, despite of the large number of such operations and progress in the world surgical practice, long-term positive effects after arthroplasty are observed only in 76-89% of cases. The main factors that reduce the quality of life after operation are: instability of implant, infections, dislocations, neurological disorders and pain syndrome. It should be noted that the main reason why patients agree to the operation is to get rid of pain, but according to foreign sources 32-35% of patients in the observation period from 1 year to 10 years after operation, in the absence of other complications, are observed with a new sensation of pain or discomfort in the hip. In this regard it can be pointed out that the patient loses a positive effect of the operation and quality of life returns to the quality that was before the operation, as a result there are a lot of questions and even litigation.

AIM OF THE STUDY: To explore the pain syndrome as one of the main effect of total hip arthroplasty.

MATERIALS AND METHODS: The work is based on a questioning of 214 patients using the modified questionnaire of Russian Scientific Research Institute of Traumatology and Orthopedics named after R.R. Vreden "Questionnaire of pain syndrome," which consists of two parts, each of the parts contains 5-6 questions about the nature, location, intensity, and time of occurrence of pain, and also about the length of the limb. 50 percent of patients were examined clinically.

RESULTS: As a result of research the indications for operation, post-operative effects, frequency, reasons and mechanisms of occurrence of pain, and also main errors in the examination and treatment of patients with hip arthroplasty have been studied.

CONCLUSIONS: 1. A frequent long-term effect of total hip arthroplasty is a pain syndrome.

2. Patients with pain syndrome after hip arthroplasty are not appointed proper medical examination and treatment at the outpatient stage.

3. The reasons of occurrence or preservation of pain syndrome are variable, that's why a lot of attention should be payed to patients with hip arthroplasty in the late postoperative period.
Title: Natural killer cells in gastric cancer patients

Authors: Cummings K.¹, Jurczuk A.², Niewinski A.¹

Tutor/Tutors: Dr hab. n med. Zbigniew Kamocki, dr hab. Joanna Osada

University: ¹ Medical University of Białystok, Poland ² 2nd Department of General and Gastroenterological Surgery Department, Medical University of Białystok, Poland

INTRODUCTION: Natural killer (NK) cells are granular lymphocytes in the innate immune system that kill infected cells. Previous studies have proven that NK cells can also stimulate cancer cell apoptosis, preventing tumor growth completely or reducing the tumor’s growth rate. This study provided insight on how the concentration of NK cells changes in patients with gastric cancer (GC) in comparison to healthy individuals.

AIM OF THE STUDY: The aim was to determine NK cells concentration in gastric cancer patients depending on the clinical stage.

MATERIALS AND METHODS: This study involved 142 gastric cancer patients, were prepared for surgery. NK cell concentrations were examined via immunofluorescence flow cytometry. Gender, age, BMI of patients, unintentional weight loss, staging of cancer, and Lauren classification were analyzed. The control group consisted of 30 healthy individuals. The statistical analysis was performed via the Mann-Whitney U test, statistical significance was p < 0.05.

RESULTS: Group consisted of 99 men and 43 women, from ages 35 to 91, with the mean age of 66. Unintentional weight loss of > 10% was found in 51 patients [mean 16.5% ± 5.91]. 23 patients had early gastric cancer, 50 had locally advanced gastric cancer, and 69 had gastric cancer metastasis, of which 16 were inoperable. In patients with early GC, the mean of NK cells was 256.47 cells/μl. In patients with locally advanced GC, the mean result was 260.57 cells/μl. In metastatic GC patients, the mean NK cell concentration was 257.08 cells/μl, which was significantly reduced (p = 0.0430). In inoperable patients, the mean NK cell concentration was 283.54 cells/μl.

CONCLUSIONS: Patients with metastatic gastric cancer demonstrated a significantly lower amount of NK cells.
**Title:** Symptomatic vs asymptomatic stenosis of the carotid artery in patients undergoing carotid endarterectomy – what are the main differences in clinical picture?

**Authors:** Glowacki M.\(^1\), Chmiel J.\(^1\), Kołodziejczyk B.\(^1\), Krzywoń J.\(^1\), Śliwińska A.\(^1\)

**Tutor/Tutors:** lek. Paweł Iwaszczuk, dr Andrzej Brzychczy, dr Mariusz Trystuła

**University:** \(^1\) Student’s Scientific Society Jagiellonian University Medical College, Poland

**INTRODUCTION:** Carotid endarterectomy (CEA) is one of leading procedures used in reducing risk of stroke among patients with carotid atherosclerosis. Treatment strategies vary depending on the presence and severity of symptoms. Study examines epidemiological profile in groups of symptomatic and asymptomatic patients.

**AIM OF THE STUDY:** Comparison of preoperative (clinical and radiological) factors in patients with symptomatic and asymptomatic carotid artery stenosis who were scheduled for CEA.

**MATERIALS AND METHODS:** The study group comprises 1434 patients who underwent a CEA procedure between 2009 and 2018. Symptomatic group included patients with ischemic stroke, transient ischemic attack or transient ocular ischemia in previous 6 months (all ipsilateral to operated site). Preoperative, and procedural data was collected retrospectively, especially internal carotid artery (ICA) stenosis and occlusion based on ultrasound imaging or angiography (NASCET method).

**RESULTS:** Study shows 48.1% (690) of patients were symptomatic and 51.9% (744) were asymptomatic. The mean age of studied population was 70 ± 9 years (70.1 ± 8.2 years in symptomatic vs 69.6 ± 9.3 years in asymptomatic group, p=0.46). Females constituted 36.5% (34.3% and 39.2% among symptomatic and asymptomatic patients respectively, p=0.055). Mean artery stenosis was 86.1 ± 9.9% in symptomatic and 84.3 ± 8.2 % in asymptomatic group (p<0.001). There were observed 6.81% (47) vs 1.88% (13) ipsilateral ICA occlusions (symptomatic vs asymptomatic, p<0.001). Contralateral ICA occlusions were reported in 7.1% (49) symptomatic and in 12.37% (92) asymptomatic patients (p=0.002). The incidence of chronic diseases was as follows (symptomatic vs asymptomatic): atrial fibrillation (10.3% vs 13.8%, p=0.039), myocardial infarction (20.4% vs 25.1%, p=0.034), peripheral artery disease (34.5% vs 41%, p=0.011), diabetes mellitus (28.8% vs 33.6%, p=0.052).

**CONCLUSIONS:** Symptomatic patients were characterized by greater ICA stenosis, however the difference may not be radiologically significant. Number of ipsilateral ICA occlusions was higher in symptomatic group, but contralateral ICA occlusions were reported more often in asymptomatic patients. Chronic diseases incidence was higher in asymptomatic patients.
Title: Delayed graft function and acute rejection incidence and risk factor analysis in kidney transplant patients

Authors: Grizāne A., Matkeviča D.

Tutor/Tutors: Aleksandrs Maļcevs, PhD

University: 1 Faculty of Medicine, Riga Stradiņš University, Latvia

INTRODUCTION: Delayed graft function and acute rejection are dangerous complications in kidney transplantation. According to American Journal of Transplantation, delayed graft function and acute rejection are associated with future impaired graft function and recipient death.

AIM OF THE STUDY: The objective of this retrospective study was to evaluate the incidence and risk factors of delayed graft function and acute rejection.

MATERIALS AND METHODS: A retrospective study was carried out using the data of 146 patients who had undergone kidney transplantation between the years 2014 and 2016 at the Latvian Transplantation centre. The data were collected from medical records. Data were analysed with IBM SPSS.

RESULTS: A total of 141 patients participated in the study. Mean patient age was 51.44 years. Patients received kidneys from total number of 83 donors. Mean donor age was 49.43 years. 23 (16.31%) patients had delayed transplant function, 22 (15.61%) patients developed acute transplant rejection. Donor, recipient and surgery factors were analysed. Out of donor factors, donor age and weight were found risk factors for delayed graft function. Median donor age for primary function was 49 years (Q1=39, Q3=59), for delayed – 56.5 (Q1=46.5, Q3=60.25), p=0.042; median donor weight for primary function was 79.5 kg (Q1=70, Q3=89.25), for delayed – 82.5 (Q1=80, Q3=97), p=0.023. No recipient factors showed correlation with graft function. Out of surgery factors, cold ischemia influenced graft function, with median time for primary function 15 hours (Q1=12.5, Q3=18.5), for delayed – 18.75 (Q1=16.75, Q3=22.25), p=0.002; as well as surgery length, with median age for primary function of 172 min (Q1 = 150, Q3=200), for delayed – 202.5 min (Q1=167.5, Q3=275), p=0.004. Only donor age was found as a risk factor for acute rejection, with median age for no rejection was 49 years (Q1=39, Q3=57), for acute rejection – was 58 years (Q1=47.25, Q3=64), p=0.029.

CONCLUSIONS: Delayed graft function and acute rejection are common complication after kidney transplantation. Donor age and weight, cold ischemia and surgery length appear to be significant risk factors for delayed graft function. Donor age was found a risk factor for acute rejection.
Title: One-year follow-up functional outcomes for surgically treated patients after b2 type pelvic ring fracture

Authors: Bobina R.1

Tutor/Tutors: Giedrius Petryla, MD

University: 1 Faculty of medicine, Vilnius University, Lithuania

INTRODUCTION: Pelvic fractures account for 2-8% of all fractures. They cause a significant functional deficit, which has an impact on daily and leisure activities, working capacity and emotional well-being thus affecting patients’ quality of life. Pelvic ring fixation surgery is one of the treatment methods intended to reduce the functional deficit after pelvic fracture.

AIM OF THE STUDY: To evaluate the one-year follow-up functional outcomes after pelvic ring fixation surgery for patients with 61B2 pelvic fractures according to AO/OTA classification.

MATERIALS AND METHODS: All patients hospitalized in Republican Vilnius University Hospital with pelvic fractures between June 2013 and December 2018 were registered in a database. 210 of them suffered a 61B2 pelvic fracture. Pelvic ring function was assessed using Iowa and Majeed scores. Patients were asked to fill in Iowa and Majeed questionnaires three times. During the first hospitalization patients filled in questionnaires concerning their pre-trauma condition. During two postoperative consultations (2 and 12 months after surgery) patients were asked to complete questionnaires concerning their state at that time. Data were analyzed using IBM SPSS Statistics 23.0.

RESULTS: 17 patients filled in all required questionnaires. There were 15 (88.2%) women and 2 (11.8%) men. Mean age was 37.35±13.276 years. Mean Iowa and Majeed scores were: pre-trauma 97.82±5.423 and 97.94±6.388 respectively; 2 months after surgery 64.06±15.114 and 64.71±16.966 respectively; 12 months after surgery 85.82±14.527 and 84.88±13.550 respectively. Mean Iowa and Majeed scores were significantly lower 2 months after surgery compared with pre-trauma scores (p<0.001, p<0.001 respectively). 12 months after surgery mean Iowa and Majeed scores were significantly higher compared with the scores of 2 months after surgery (p<0.001, p<0.001 respectively). However, mean scores of Iowa and Majeed 12 months after surgery were significantly lower compared with pre-trauma scores (p=0.002, p=0.001 respectively).

CONCLUSIONS: Compared with an early postoperative period, the function of the pelvic ring during one-year follow-up significantly improved but did not reach the pre-trauma level for surgically treated patients with 61B2 pelvic fractures.
Title: Acute paediatric elbow dislocation with or without medial or lateral epicondyle fracture: 8 years’ experience from a single paediatric traumatology and orthopaedics centre of Lithuania

Authors: Baltuonis M.¹

Tutor/Tutors: Dr. Jolanta Labanauskienė

University: ¹ Faculty of medicine, Vilnius University, Lithuania

INTRODUCTION: Acute elbow dislocation (AED) is the most common of large joint dislocations in the children. Up to 80% of AED are associated with elbow bones fractures from which the most common are medial and lateral epicondyle fractures. Despite of the fact that trauma mechanism is well studied, treatment method criteria are still controversal.

AIM OF THE STUDY: This study was conducted to explore epidemiology, demographics, treatment methods, short-term outcomes of AED and most common related fractures in children population.

MATERIALS AND METHODS: A retrospective single-centre analysis was performed of 66 paediatric (0-17 y.) patients who were treated for AED with or without related medial or lateral epicondyle fractures from 2010 to 2018 at the Children’s Hospital, Affiliate of Vilnius University Hospital Santaros Klinikos. Demographics, trauma mechanism, fracture localization, treatment options, time to surgery, were analysed for association with length of hospital stay, repeated treatment and complications. Epidemiological data was acquired from Lithuanian Institute of Hygiene.

RESULTS: In 2017 the incidence of pure AED in paediatric population of Lithuania was 24/100 000. Adolescent males are the group at risk. Most common specific trauma mechanisms include bicycle, trampoline and blunt trauma. Pure AED was in 37 cases and 29 were associated with lateral or medial epicondyle fracture. All pure AED and 3 cases of AED with epicondyles fractures were treated conservatively. Reposition or surgery was performed in 6 hours from patients’ admission to emergency department in 84.85% of cases. Open reposition of AED related elbow fracture is associated with 1.93 times longer hospital stay comparing to conservative tactics. 1 case of a median nerve neuropathy was observed in a case of AED with medial epicondyle fracture. 3 cases of conservative treatment were unsuccessful and required surgical intervention.

CONCLUSIONS: Paediatric AED occurs after a relatively high energy trauma and nearly a half of cases were concomitant with an epicondyle fracture which prolongs hospital stay. Adequate conservative or surgical treatment is considered safe and effective with a relatively low chance of short-term complications.
Title: Analysis of the thromboembolic incidents in a group of 12-18-year-olds.

Authors: Bernatek D.¹, Baran M.¹

Tutor/Tutors: dr n.med. Andrzej Bulandra

University: ¹ Oddział Chirurgii i Urologii Górnośląskiego Centrum Zdrowia Dziecka im. Jana Pawła II, Medical University of Silesia in Katowice, Poland

INTRODUCTION: In recent years, we have observed an increase of the frequency of thromboembolic diseases in children. Unfortunately, there are no epidemiological data on the occurrence of this phenomenon in our country, but statistical surveys from the US and Canada show an increase from 5.3 children per 10,000 hospitalizations in 1994, by 34 per 10,000 hospitalizations in 2001, up to 58 children per 10,000 hospitalization in 2007.

AIM OF THE STUDY: In our study we analyzed risk factors for thromboembolic diseases in older children. Based on the obtained data, we tried to choose the most sensitive tool to assess the risk of a thromboembolic episode in children.

MATERIALS AND METHODS: The research group are patients of the pediatric surgery clinic in 2010-2018. The risk factors analysis was based on available medical data and through telephone contact with children's parents. The factors analyzed are those considered in the Wells scale, in the recommendations of the Cincinnati Children 'Hospital and in the scale according to Princess Margaret Hospital, Perth.

RESULTS: In our opinion, there is no ideal tool that would cover the most common causes of thromboembolic episode in older children.

CONCLUSIONS: Statistical work on risk factors is important and necessary. It is possible that a deeper analysis will allow to create an appropriate tool to assess the risk of a thromboembolic episode in older children.
Title: From the first attempts in laparoscopic surgery to assistance in urological operation

Authors: Sacharczuk Ł.¹, Zajączkowska K.¹, Roleder J.¹

Tutor/Tutors: Dr n. med. Grzegorz Młynarczyk

University: ¹ Faculty of Medicine, Medical University of Białystok, Poland

INTRODUCTION: While non-invasive techniques are popularized in urology, more and more departments of urology in Poland perform surgical procedures with laparoscopic approach. One of the most significant and worth mentioning topics is the possibility of self development for young adepts in this technique.

AIM OF THE STUDY: The presentation of self-constructed laparoscopic endotrainer and basic exercises available for young medical students.

MATERIALS AND METHODS: Detailed overview of the endotrainer construction and essential tools for the individual training. Demonstration of exercises based on European laparoscopic training programme E-BLUS.

RESULTS: The most significant difference between self-constructed endotrainer and laparoscopic trainers made by professional companies is lower cost of the first one. The technique of performed exercises remains the same. The more repetitions, the better eye-hand coordination was observed. The amount of time performing techniques has shortened a few times. The best method that led to perfection was systematic and intensive training.

CONCLUSIONS: Self-study is a very important part in education of young urologist and may be a great introduction for students as well. A good way to advance skills is to practise on a homemade laparoscopic trainer, which construction is not much complicated. The wide spectrum of exercises should deeply inspire every young student, who wants to develop his or her skills in laparoscopy. Self-constructed endotrainer helps to individualise training of laparoscopic techniques as well as broaden knowledge about these procedures.
Gynecology and Obstetrics
**Title:** Synchronous endometrial and ovarian cancers: single institution review.

**Authors:** Tomaszewska M.¹

**Tutor/Tutors:** dr n. med. Piotr Bernaczyk

**University:** ¹ Pathomorphology, Medical University of Białystok, Poland

**INTRODUCTION:** Synchronous endometrial and ovarian cancer consists of over a half (40-53%) of all synchronous gynecologic malignancies and can be found in 3,3-5% of patients with endometrial cancer and in 2,7-10% of patients with ovarian cancer.

**AIM OF THE STUDY:** The aim of the study was to characterize patients diagnosed with synchronous primary carcinomas of the endometrium and the ovary. We also try to confirm the simultaneous, non-metachronic origin of these tumors.

9 women diagnosed with synchronous endometrial and ovarian cancer were identified between 2011-2018 in the Pathomorphology Department of the Medical University of Białystok.

**MATERIALS AND METHODS:** All analyzed information was obtained from the pathological reports and the database.

**RESULTS:** Median age at diagnosis was 54 years and the range of the patients’ age was 42-73. 4 women had stage IA of endometrial cancer, single women had stage IB, IIIA and IIIC and 2 women had IVA stage. 5 patients had IA stage of ovarian cancer, 2 patients had stage IIIA and another 2 had IIIC stage. All women presented endometrioid type of the endometrial cancer (five of them had grade G1, two had G2 and one had G3), 8 of the patients had also endometrioid type of the ovarian cancer (seven had grade G2 and one had G3).

**CONCLUSIONS:** Histologically and immunohistologically it’s difficult and unclear to establish whether the tumor has primary independent or metastatic origin. However, this study proves that synchronous endometrial and ovarian carcinomas are usually detected at younger age of the patients, are diagnosed at earlier stage, have lower histological grade and have much more favorable prognosis that is opposite to metastatic disease.
Title: Is 40th gestational week is the best time to induce labor for patients with gestational diabetes? Experience of Vilnius University Hospital Santaros Clinics’ Centre of Obstetrics and Gynecology

Authors: Varnelis P. 1 , Didžiokaitė G. 2

Tutor/Tutors: Gabija Didžiokaitė, Jelena Volochovič

University: 1 Faculty of medicine, Vilnius University, Lithuania 2 Faculty of Medicine, Vilnius University, Vilnius University Hospital Santaros Clinics, Lithuania

INTRODUCTION: The prevalence of Gestational Diabetes Mellitus (GDM) and Pregestational Diabetes Mellitus (PGDM) across the world is increasing rapidly. Constant uncontrolled maternal hyperglycemia is the risk factor for macrosomia resulting in greater risk for Caesarian delivery (CD).

AIM OF THE STUDY: To evaluate the outcomes of induced labors for women with GDM at 40th gestational week (GW) and identify if this GW could possibly be optimal to induce labor.

MATERIALS AND METHODS: Santaros Clinics’ database of 4 years and 5 months was reviewed. All women with GDM or PGDM who delivered on the 40th GW and was assigned to group 2A of Robson’s classification were included. Delivery mode, newborn weight (NW) and indications for CD were analyzed. Newborn weight was classified into three group according to World Health Organization percentile recommendations (low<11, 10>normal>90, 89<large).

RESULTS: In total, 158 women were included of whom CD were performed for 39 (24.7%). Mean NW (MNW) was 3632.27±422.034 g for vaginal delivery (VD) and 3803.97±547.016 g for CD. MNW differed significantly between CD and VD (p=0.043). Relationship between NW (according to WHO) and delivery mode was strong (p=0.001, Phi=0.266) making it more likely that large for gestational age (LAG) fetus will be delivered by CD. While 48.1% LAG fetuses were delivered by CD, only 19% of normal-weight were delivered so. When compared to normal-weight-fetus no association between low-weight-fetus and delivery mode (DM) was discovered (p=0.482). Most CDs were performed for LAG, less if fetus’ weight was normal or low. Among indications for CD, dystocia mostly occurred for LAG along with insufficiency of uterus’ contraction (IUC), as well high percentage of IUC was observed if fetus weight was normal. Hypoxia was the main reason to perform CD since fetus’ weight was low or normal.

CONCLUSIONS: The outcomes of induced labor on 40th GW for women with GDM and PGDM are related to the weight of fetus. If it is estimated that on this week fetus could possibly be LAG, it is better to induce labor earlier to lower the risk of dystocia and thus CD. VD is more likely to be successful if fetus weight is prognosticated to be normal or low.
INTRODUCTION: Low weight newborns have a higher risk of having respiratory problem, increased risk of infection and etc. So we made a study to find out if taking dietary supplements may affect the weight of newborns.

AIM OF THE STUDY: Evaluate the influence of dietary supplements and vitamins which comes with food consumption during pregnancy on the weight of newborns.

MATERIALS AND METHODS: The study was conducted using an original anonymous questionnaire consisting of 35 questions to find out the physical data of the pregnant women and newborns and the main factors that affect the condition of pregnant women and newborns. A survey was conducted by interviewing women who gave birth in the Department of Obstetrics of Vilnius University Santaros Clinic. According to provided data, women were divided into 2 groups. One group included women who took dietary supplements during pregnancy (only those who consumed supplements like calcium, magnesium, zinc, vitamins A, B, C, omega fatty acids, complex vitamins) and took more than 400 grames of fruits/vegetables per day. The other group included women who did not take dietary supplements. Newborns were divided into 6 subgroups according to their weight: 1st <5 percentiles; 2nd 5-10 percentiles, 3rd 10-25 percentiles, 4th 25-75 percentiles, 5th 75-95 percentiles, 6th <95 percentiles. The relation between the newborns weight and the use of supplements during pregnancy has been researched. Statistical analysis of data was performed using SPSS and MS Excel software. The results were statistically significant at p <0.05.

RESULTS: 62% (116) women consumed dietary supplements and took more than 400 grames of fruits/vegetables per day, 38% (71 women) did not. In the first group the numbers of newborns in subgroups were: 1st 1, 2nd 3, 3rd 19, 4th 51, 5th 40, 6th 2. In the second group: 1st 4, 2nd 2, 3rd 14, 4th 33, 5th 16, 6th 2. The weight of newborns was not statistically different (p = 0.11) in both groups. Women’s groups did not differ by other factors (nutrition, smoking, alcohol consumption, previous pregnancies and their outcomes). The smoking factor was not statistically significant (p = 0.76).

CONCLUSIONS: The consumption of dietary supplements and fruits/vegetables has no influence on newborns weight.
Title: Dietary supplements intake influence on well-being during pregnancy

Authors: Plikaityte S., Pilvelyte J.

Tutor/Tutors: D. Ramasauskaite

University: Faculty of Medicine, Vilnius University Santaros Clinics, Lithuania

INTRODUCTION: Pregnancy is a challenge from the nutritional point of view because nutrient requirements are increased and its intake can affect maternal and fetal health. It is recommended supplementation with folic acid in doses of 400 mcg/day and should begin at least one month before conception and during the first 12 weeks gestation. However there are a lot of others food supplements for pregnant women which benefits valued differently.

AIM OF THE STUDY: Evaluate if dietary supplements used during pregnancy can affect women’s well-being during pregnancy and well-being after they gave birth.

MATERIALS AND METHODS: The study was conducted by surveying women who gave birth in the Department of Obstetrics of Vilnius University Santaros Clinic from November 2017 till April 2018. Two groups of women were formed: women took dietary supplements during pregnancy and women who did not. It was calculated how many women in these groups felt well, satisfactorily and poorly at the time of pregnancy and after they gave birth, what was their opinion on the use of food supplements and what was their lowest level of hemoglobin during pregnancy (>110mg/l; 110-105mg/l; <105mg/l).

RESULTS: 187 women participated in the study, of which 116 took dietary supplements. 111 (95,7%) of them answered that they are heard about the benefits of the use of dietary supplemets during pregnancy and it positively affects their health. 108 (93,1%) women felt well, 8 (6,9%) - satisfactorily during their pregnancy. 100 (86,2%) women felt well, 14 (12,1%) – satisfactorily, 1 (1,4%) - poorly after they gave birth. 71 women did not take dietary supplements during pregnancy and 38 (53,5%) of them answered that it is not necessary to use dietary supplemets. In this group 48 (67,6%) women felt well, 22 (31%) - satisfactorily, 1 (1,4%) - poorly during their pregnancy. 40 (56,3%) women felt well, 29 (40,9%) - satisfactorily, 2 (1,4%) - poorly after they gave birth. The use of dietary supplemets had a statistically significantly (p <0.001) influence on women’s conditions during pregnancy and after they gave birth. Hemoglobin level did not have the influence on the pregnant women’s condition (p=0,99).

CONCLUSIONS: The consumption of dietary supplements may improve the condition of women during the pregnancy and after giving birth.
Title: Adherence to breast cancer screening in a rural area in Poland

Authors: Szczęsna A.¹

Tutor/Tutors: Joanna Kacperczyk-Bartnik MD, Agnieszka Dobrowolska-Redo MD, Ewa Romejko-Wolniewicz PhD MD

University: ¹ 2nd Department of Obstetrics and Gynecology, Scientific Group Affiliated to the 2nd Department of Obstetrics and Gynecology, Poland

INTRODUCTION: According to the International Agency for Research on Cancer, the incidence of breast cancer among Polish women in 2018 was 59 per 100 000, representing 22.4% of newly diagnosed malignancies. Increase in breast cancer incidence is observed in other countries of West and in Central-East Europe as well. In 2018, the Polish Society of Gynecologists and Obstetricians introduced screening guidelines, in which breast ultrasound is recommended for every pregnant woman.

AIM OF THE STUDY: The aim of the study was to examine breast cancer screening adherence in rural area in Poland.

MATERIALS AND METHODS: It was a cross-sectional survey study performed by means of paper questionnaires distributed to mothers and teachers during parents’ gathering in a primary school in a rural area in Holy Cross Province. Altogether 170 surveys were collected.

RESULTS: Mean age of surveyed women was 38 (between 19-63 years old). 12% of respondents had a positive family history of breast cancer. 3% had breast biopsy and 2.3% underwent treatment for breast cancer. 49% of surveyed women had palpation breast examination performed by a physician, 22% underwent breast ultrasound and 1.7% had a mammography. During pregnancy – 49% had a palpation examination by physician and 14% had breast ultrasound. 90% of respondents believed that breast ultrasound is an effective way of early breast cancer detection and decrease in mortality rate. 65% were recommended by a physician to undergo this examination – 62% by a gynecologist and 6% by a general physician. 77% of women performed breast self-exam, however only 30% did it regularly once a month.

CONCLUSIONS: Percentage of women living in rural areas who undergo prophylactic breast examinations on regular basis is not satisfactory. Routine screening in pregnancy as well as referral by general physicians could be valuable for early detection of breast cancer due to higher screening adherence.
Title: Dysmenorrhea and medical students knowledge about endometriosis

Authors: Cerniauskaite M.¹

Tutor/Tutors: Prof. dr Diana Ramasauskaite

University: ¹ Vilnius University, Faculty of Medicine, Lithuania

INTRODUCTION: Endometriosis is defined as the disease when endometrial-type mucosa appears outside the uterus. It affects approximately 10% of all reproductive age women. Endometriosis is the leading cause of secondary dysmenorrhea in young women.

AIM OF THE STUDY: Our goal was to verify if those medical students, who have severe pain during menstruations know more about endometriosis.

MATERIALS AND METHODS: The questionnaire survey was performed in 2018-2019 years at VUH ‘Santaros’ Clinics. 98 4th and 5th year medical students, who did not have lecture about endometriosis before were asked to answer 10 questions test about basics of endometriosis and also three questions about severity of pain during menstruations. Two groups was formed considering to severity of pain during menstruations (0-10 numeric pain rating scale). In the first group students felt mild pain (1-6 scores) and in the second group women described their pain from 7 to 10 scores. Also in the second group 25 students felt pain despite treatment with nonsteroidal antiinflammatory drugs. The analysis was done with Microsoft Excel and SPSS 23.0 programs.

RESULTS: Each group included 49 students (50%). In the first group average number of collected correct answers was 6,47 out of 10, and in the second – 6,31 and it was not statistically significant (p=0,615). Only one question out of 10, which was about primary treatment of endometriosis was statistically significant (p=0,046): 30 students from the first group chose correct answer and 39 students from the second group. Most correct answers were received in the question about long-term endometriosis complications and what age group has the highest risk of endometriosis.

CONCLUSIONS: Medical students who feel severe pain or pain even with nonsteroidal antiinflammatory drugs during menstruations did not have more knowledge about endometriosis except about the primary treatment of endometriosis.
**Title:** Antibiotic resistance patterns and the prevalence of macrolide-lincosamide-streptogramin b (MLSB) resistance in Streptococcus agalactiae clinical isolates

**Authors:** Suprewicz Ł.¹, Walewska A.¹, Skłodowski K.¹

**Tutor/Tutors:** dr n. med. Anna Gutowska

**University:** ¹ Microbiological Diagnostics and Infectious Immunology, Medical University of Bialystok, Poland

**INTRODUCTION:** *Streptococcus agalactiae* (Group B Streptococcus - GBS) is the leading cause of neonatal infections, such as sepsis, pneumonia, and meningitis. Treatment of these infections is difficult due to increasing resistance of these bacteria to many antibiotics. Especially, the incidence of *S. agalactiae* strains harboring resistance determinants to macrolide-lincosamide-streptogramin B (MLSB) antibiotics has risen over the past decade.

**AIM OF THE STUDY:** The aim of this study was to determine the susceptibility to antibiotics and the prevalence of MLSB resistance among *S. agalactiae* clinical isolates.

**MATERIALS AND METHODS:** Twenty-five *S. agalactiae* isolated from vagino-anorectal samples obtained from patients hospitalized in University Hospital in Bialystok, since 10.2017 - 05.2018, were analyzed. Each isolate was identified by automated VITEK2 system and by inoculation onto selective Granada medium (GM). Susceptibility to antibiotics (penicillin G, levofloxacin, vancomycin, tetracycline, chloramphenicol, linezolid, and trimethoprim-sulfamethoxazole) and the occurrence of MLSB phenotypes (D-zone test) were determined using the disc diffusion method and interpreted according to the newest EUCAST guidelines.

**RESULTS:** All GBS (100%) were susceptible to penicillin, vancomycin, trimethoprim-sulfamethoxazole, levofloxacin, chloramphenicol, and linezolid. High level of resistance were observed for tetracycline (92%). Moreover, 4% of tested isolates were resistant to penicillin G. D-zone test showed that 60% of tested isolates were susceptible to both clindamycin and erythromycin. Inducible clindamycin resistance was detected in 4%, constitutive resistance - in 28% of tested strains. Interestingly, two isolates (8%) were identified as rare L-phenotype.

**CONCLUSIONS:** This study showed very high level of resistance to tetracycline and an alarming prevalence of MLSb phenotypes. Continuous monitoring of the antibiotic resistance levels among *S. agalactiae* in our hospital is essential to carry out adequate surveillance and appropriate procedures for the control and prevention of GBS infection.
Title: Trends, attitude and knowledge about the methods of labour pain management among Polish women

Authors: Falis M.1, Żebrowska K.1

Tutor/Tutors: Iek.Bartosz Godek, dr hab. n. med. Katarzyna Kosińska-Kaczyńska

University: 1 First Department of Obstetrics and Gynaecology, Medical University of Warsaw, Student Scientific Society of First Department of Obstetrics and Gynaecology, Poland

INTRODUCTION: According to ministerial decree of 16 August 2018 each woman in Poland during childbirth has the right to the pharmacological and non-pharmacological labour pain management (LPM).

AIM OF THE STUDY: The aim of the study was to assess the knowledge of Polish mothers about pharmacological and non-pharmacological LPM, to investigate which methods they chose and their satisfaction of chosen ones.

MATERIALS AND METHODS: A prospective cross-sectional study was performed among women, who gave birth between 2015 and 2018. The self-composed questionnaire was distributed via Internet in October 2018.

RESULTS: 13 727 women participated in the study. 75% have learned about LPM from the Internet. 68% of them did not gain any information on LPM from doctors during their prenatal appointments. Safety of the newborn (46%), midwife’s advice (40%) and the chance of the immediate pain relief (39%) were the most important issues while choosing LPM. Respondents used a wide range of non-pharmacological methods, such as assistance of partner during labour (81%), physical activity (58%), immersion in water (37%), relaxation techniques (15%) and others. 11% of mothers did not use any of the LPM methods. 52% of women declared, that they wanted to use the pharmacological anaesthesia, while 49% had it performed (28% epidural, 16% inhaled anaesthesia, 5% parenteral opioids). Pharmacological methods were unavailable due to lack of anaesthesiologist in maternity ward (41%) or inaccessibility of the chosen methods in the hospital (31%) and too advanced labour (43%). 48% of respondents did not decide to use pharmacological methods, because pain was bearable (29%), anxiety of child’s health (17%), or belief that the pain is natural and it should not be avoided (16%). 83% of respondents believed that epidural analgesia have no influence on time needed to gain a full cervix dilatation and 81% of them claimed that serious spinal cord injury is a common side effect of epidural. 51% believed that epidural increases the risk of caesarean section.

CONCLUSIONS: The knowledge about the methods of LPM is not satisfactory. We should focus on well-maintained education guided by doctors, midwives and media.
INTRODUCTION: During an OBGYN course for undergraduate medical students different types of activities are performed – seminars, interviewing patients, participation in department duties, and classes in center for medical simulation. According to many studies, training on gynecological phantoms as well as ultrasound workshops increase students' clinical skills.

AIM OF THE STUDY: The aim of the study was to analyze students' subjective assessment of their practical skills and anxiety associated with individual patient management – before and after the classes.

MATERIALS AND METHODS: Final year undergraduate medical students during obstetrics and gynecology classes in center for medical simulation were enrolled in this cross-sectional study. Participants answered anonymous questionnaires assessing their skills, confidence and anxiety of independent patient management using Likert scale. Questionnaires were distributed twice - before and after the classes. Simulations included physiological delivery trained with Victoria S2200 Birthing Delivery Simulator, 3rd trimester obstetric ultrasound performed on mannequin with ACUSON NX2 Ultrasound System, and perineal repair using silicone episiotomy and suturing simulators. The Mann-Whitney-U Test was used for statistical comparison.

RESULTS: Study group included 26 students. Competences associated with delivery were assessed as increased – in case of delivery in a hospital (p=0.001) and outside the hospital (p<0.001). Obstetric ultrasound competences were assessed as increased regarding fetal presentation (p<0.001), estimation of fetal weight (p<0.001), placental location (p<0.001), and amount of amniotic fluid assessment (p<0.001). Suturing skills and perineal repair were also assessed as improved after the classes (p<0.001). No change in anxiety levels associated with individual patients management in real life situations - delivery, ultrasound and perineal repair - were observed.

CONCLUSIONS: Participation in classes in center for medical simulation is an effective way of teaching practical skills needed in OBGYN. However, it does not affect the way students perceive their readiness for management of real patients. A combination of both – simulation and participation in department work might be a good solution.
INTRODUCTION: These days women in Lithuania are experiencing longer active and more qualitative life after the menopause than before. That is why the menopause is becoming more important.

AIM OF THE STUDY: Since the life expectancy is getting longer, our aim was to identify the knowledge that women have about menopause and to evaluate experienced menopausal symptoms impact on self-esteem and quality of life in a group of middle-aged Lithuanian women.

MATERIALS AND METHODS: Altogether 266 women aged 40 to 66 (the mean of age was 56) were enrolled to the cross-sectional study. Females were given a questionnaire regarding menopause as period of life and whether or not they know/knew about menopause, was it expected or not. Also, the survey included 28 different symptoms of menopause and questions if those symptoms had impact on women's life and self-esteem.

RESULTS: 66.16% (n=266) females reported that they knew about menopause and that it was expected. 20.67% have not noticed any significant changes. For 6% of correspondents menopause was unanticipated and they had no clue about this period of life and what was happening. And 4% of women were afraid of this period. Much more than half of women (78.1%) stated that menopause had no unfavorable effect on their self-esteem and 79% of them did not notice any significant changes in the quality of life at the onset of menopause. Whereas the remaining proportion of women (respectively 21.8% and 20.7%) claimed that they felt their quality of life and self-esteem deteriorating. The majority of women (60-70%) who perceived menopause as self-esteem and quality of life affecting process were those who linked psychological symptoms such as depressive mood and irritability with this life period.

CONCLUSIONS: Vast majority of correspondent women knew about menopause and was not surprised by the onset of symptoms. One tenth of women did not know what was happening or was afraid of this period. Only little over a fifth of women held negative view of menopause, while the great majority of women did not notice a change in life quality and a decline in self-esteem. Similar studies are important for women to acknowledge the changes in the body and consequently enable them to improve the quality of life.
Title: Diagnostic and prognostic relevance of microparticles in peripheral and uterine blood of patients with endometrial cancer

Authors: Wąsińska A.¹, Chmura O.¹, Kościuszko M.³

Tutor/Tutors: Marek Dziechciowski, Barbara Zapala

University: ¹ Department of Clinical Biochemistry, Jagiellonian University Medical College, Poland

INTRODUCTION: Exosomes — microvesicles which are secreted by living cells — can be produced from different cell types and detected in various body fluids. They are the carriers of intercellular information which regulate tumor microenvironment and are considered to be involved in tumor progression and metastasis. Cancer cells can secrete more exosomes than healthy cells, and are expected to be potential tools for tumor diagnosis and treatment.

AIM OF THE STUDY: The aim of the study was to determine the amount of total (TF+), endothelial (CD144+) and monocytic (CD14+) microparticles.

MATERIALS AND METHODS: In this report, we present the results of microparticle analysis in peripheral and uterine blood of patients with endometrial cancer. To the best of our knowledge, this study has been the first to report microvesicle status in peripheral and uterine blood samples. The counting of the selected microparticles in citrate plasma was performed using flow cytometry on the BD Canto II cytometer.

RESULTS: We found that the total amount of microparticles in cancer patients was much higher than in healthy controls. Moreover, microparticle count in uterine blood was higher than in peripheral blood of patients with endometrial cancer. We also demonstrated that the amount of microparticles correlates with the histologic grade and clinical stage of the tumor.

CONCLUSIONS: The most interesting finding in this work was the high level of TF, CD144 and CD14 MPs in uterine blood samples. Thus we can consider the monocyte-macrophage-derived MPs as a candidate marker of endometrial cancer and maybe very critical part of the endometrial carcinogenesis.
**Title:** The allergy problem in couples treated for infertility.

**Authors:** Zielińska J.¹, Leśny M.²

**Tutor/Tutors:** dr n med. Natalia Sokołowska-Ukleja, prof. dr hab. n. med. Zbigniew Bartuzi

**University:**¹ Department and Clinic of Allergology, Clinical Immunology and Internal Diseases, Ludwik Rydygier Collegium Medicum in Bydgoszcz NCU, Students' scientific group of Allergology., Poland

² Department and Clinic of Allergology, Clinical Immunology and Internal Diseases, Ludwik Rydygier Collegium Medicum in Bydgoszcz NCU, Students' scientific group of Allergology., Poland

**INTRODUCTION:** Allergy affects to the functioning of the whole organism, causing chronic inflammation and causing the formation of pro-inflammatory cytokines that can have a serious impact on fertility and reproductive processes. The problem of infertility applies to both women and men, but there is still a lack of research that would attempt to link allergies to commonly known allergens with infertility.

**AIM OF THE STUDY:** The study analyzes the frequency of allergy to selected allergens in couples treated for infertility.

**MATERIALS AND METHODS:** In the survey took part 82 couples (average age of women: 37 years, average age of men: 38 years) randomly selected from NZOZ Zdrówko patients, diagnosed and treated for infertility. An accurate medical history, medication and detailed gynecological history was collected with all patients. Then, skin prick tests were carried out with inhalation allergens, food allergens and fur animal allergens using the company HAL kit (common hazel, silver birch, common mugwort, rye, dog, cat, dermatophagoides farinae, dermatophagoides pteron, alder, alternaria, grass mix).

**RESULTS:** Positive skin tests for at least one allergen were found in 30 women (36.6%). In the examined group of women, allergy to grass (22%), mugwort (19.5%), rye (19.5%), and house dust mite allergens (D.farinae 14.6%, D.pteron 13.4%) were most often diagnosed. In the group of men, allergy was diagnosed in 35 patients (42.7%). In this group, allergy to grasses (26.8%) was also most commonly found, moreover was found allergy to rye allergens (23.1%), birch (19.5%), house dust mites (D.farinae 4.6%, D.pteron 18.2%), mugwort (15.8%), alder (14.6%), hazel (14.6%), cat (12.1%). However, sensitization to dog allergens and alternaria was found in 5 people. What is more, 12 pairs of both female and male positive skin tests were found.

**CONCLUSIONS:** In the study group, the frequency of positive skin prick tests is relatively high and affects 36% of women and over 42% of men. In both groups, allergy to allergens of grass mixture were most often diagnosed. The results clearly show that the allergy problem affects a significant number of women and men treated for infertility, and in some cases affects both partners at the same time.
INTRODUCTION: Dysmenorrhea is one of the common conditions, related to pain in women of reproductive age. It is associated with high prevalence among young girls. Teenage girls almost always are quietly suffering from the pain caused by dysmenorrhea and its associated symptoms, therefore it can lead to a negative impact on women's quality of life.

AIM OF THE STUDY: To find out the associated symptoms of dysmenorrhea and to see if dysmenorrhea impacts psychosocial functioning among young girls.

MATERIALS AND METHODS: The study was carried out from November 2018 to February 2019 in 14 high schools of Latvia. 460 students aged 16 to 19 were voluntary surveyed by self-structured questionnaire. Obtained data was statistically analyzed by Microsoft Excel 2013 and IBM SPSS software, version 20.0.

RESULTS: 64.8% (n=298) of all girls had dysmenorrhea. The most common physical symptoms associated with dysmenorrhea were headache 42.6% (n=196) and backache 37.0% (n=170). From all the girls who were having dysmenorrhea, emotional symptoms were less likely to have in girls whose menarche was at age older than 13 years – 73% (n=46), p<0,05 (p=0,003). Emotional symptoms often occurred in girls whose cycle was irregular – 90.5% (n=38), p<0,05 (p=0,03) and whose menstruation flow was heavy – 89.9% (n=186), p<0,05 (p=0,012). Severe dysmenorrhea often was found in cases when the menstrual flow was heavy – 82.8% (n=48), p<0,05 (p=0,034). 22.1% (n=66) of all girls with dysmenorrhea during menstruation didn’t attend school, 47.3% (n=141) released sport activities, 40.9% (n=122) avoided social activities, 56.0% (n=167) confirmed difficulties in learning process because of pain or dysmenorrhea associated symptoms.

CONCLUSIONS: Dysmenorrhea significantly affects emotional and physical health in adolescent. It is necessary to educate girls and society about the negative impact of dysmenorrhea, causing psychosocial impairment and to try to screen this problem to reduce or make easier the suffering of young girls.
**Title:** Insufficient awareness of women about breast cancer in pregnant women examined by an online survey

**Authors:** Jańczyk M.¹, Samek I.¹, Kozyra M.¹, Grabowska M.¹, Dacka R.¹

**Tutor/Tutors:** dr n. med. Katarzyna Sidor, dr n. o zdr. Joanna Milanowska

**University:** ¹ I medical department with the dental department, SKN przy Zakładzie Psychologii Stosowanej UM Lublin, Poland

**INTRODUCTION:** Breast cancer belongs to malignant tumors. It develops locally from the cells of the breast gland. Metastases appear in the lymph nodes and internal organs. According to the National Cancer Registry, 18106 women had breast cancer in 2015. It affects one in every 3000 pregnant women, but the percentage of cases increases. The subject of breast cancer is rarely discussed in the context of pregnant women, which is why in this work it has been depicted.

**AIM OF THE STUDY:** The aim of the work is to present the knowledge of women about breast cancer in pregnant women.

**MATERIALS AND METHODS:** The research was conducted in February 2019 among women of all ages. The research technique was an online original questionnaire consisting of 14 questions. 206 questionnaires were collected. The collected research material was analyzed and subjected to statistical analysis.

**RESULTS:** Vast majority of respondents correctly determine the main risk factors for breast cancer. Almost all examined (90.8%) give a nodule or thickening as a symptom, which differs from the rest of the breast in touch. Women, however, do not have sufficient knowledge about the overlap of pregnancy symptoms and ailments caused by cancer. There was a statistically significant difference between the number of respondents accurately differentiating the effects of vs incorrectly differentiating the effects of this cancer in pregnant women compared to non-pregnant women (Ch²=65,2, df=1, p<0,001). Only 21.8% of respondents correctly differentiate the effects of this cancer in pregnant women compared to non-pregnant women.

There was a significant difference between the number of women who consider ionizing radiation as a factor causing gene mutations and fetal malformations (chi² = 8,4, df=1, p<0,05). The choice of two basic diagnostic methods used in pregnant women is presented in a similar way. Of the respondents, 36.4% do not indicate mastectomy as the safest method of breast cancer treatment for pregnant women in the fetus.

**CONCLUSIONS:** There was a lack of sufficient knowledge of women about breast cancer in pregnant women. Women’s awareness should be extended, for example, through information prevention campaigns.
Dentistry
Title: Pregnancy as a risk factor of reducing calcium and phosphorus in the oral fluid

Authors: Volchok A.¹

Tutor/Tutors: Bulvilovsky Aleksander, Bulatova Victoriya

University: ¹ Belorusian State Medical University, the 2nd Terapeutic Dentistry Department, student, Belarus

INTRODUCTION: The risk of caries is increasing during pregnancy. A change of the saliva biochemical components during this period affects on enamel and its resistance to microorganisms. The change of calcium and inorganic phosphorus concentration in saliva of pregnant women in the Republic of Belarus and comparison getting data with standard indicators isn’t made and it’s represented relevance. So that it is necessary to prevent dental caries.

AIM OF THE STUDY: to determine calcium and phosphorus concentration in saliva of pregnant women.

MATERIALS AND METHODS: Saliva is gotten from 20 pregnant women in volume of 1,5 ml during dental appointment at the a.m. The final stage was made in the analytical laboratory of chemical department of BSU. Calcium concentration was identified by photometric method with o-cresolphthaleincomplexon on the spectrophotometer SOLAR at the wavelength of 574 nm. Phosphorus concentration was identified by reaction with ammonium molibdate on the spectrophotometer SOLAR at the wavelength of 340 nm. Calculation of getting data was made in program STATISTIKA 10.0.

RESULTS: Mediana of getting calcium concentration was 0,457 (0,316-0,626) mmol/l, inorganic phosphorus 4,810 (3,583-5.750) mmol/l. Molar ratio of Ca/P was 0,09 and this data is much less than normal molar ratio. Getting results are comparable to the literature for this group of patients. Analysis of the first and the second semester showed that in the first semester mediana of calcium concentration was 0,457 (0,316-0,515) mmol/l, inorganic phosphorus 4,828 (3,890-5,750) mmol/l, in the second semester mediana of calcium concentration was 0,488 (0,382-0,793) mmol/l, inorganic phosphorus 4,366 (3,583-5,342) mmol/l. The assessment of difference between the first and the second semester is statistically insignificant by Mann-Whitney’s criterion p= 0,610 and p=0,746 accordingly.

CONCLUSIONS: Calcium and phosphorus concentration in saliva of studied pregnant women are on the low end of normal.
Title: Colloid silver as an antiseptic in the means of oral hygiene

Authors: Ginko K.¹, Volchok A.¹

Tutor/Tutors: Irina Gavrilova

University: ¹ Microbiology, virology, immunology, student, Belarus

INTRODUCTION: Many manufactures claim antimicrobial components (colloid silver) of toothpastes and mouth rinses, which affect the growth of tooth decay.

AIM OF THE STUDY: research of the antimicrobial efficiency of the toothpastes and mouth rinses.

MATERIALS AND METHODS: Mouth rinse and toothpaste ¹21161 contained colloid silver as an active ingredient, mouth rinse ¹21162 and toothpaste ¹21163 contained sodium fluoride, toothpaste ¹21162 - a combination of triclosan and sodium fluoride. The effectiveness of mouth rinses was evaluated in the quantitative suspension method for typical strains of S. aureus, E. coli, P. aeruginosa and C. albicans and microorganisms from mouth swabs. The accounting was carried out by comparing the number of surviving microorganisms in the experiment (mouth rinse exposure 3 and 10 minutes) compared with the control (distilled water exposure). The effectiveness of the use of mouth rinses in vivo was also evaluated rinsing the oral cavity for 1 minute. Experimental and control specimens were sown on blood agar, the number of colonies in the experience and the control counted the next day. The effectiveness of toothpastes was evaluated by their diffusion into agar nutrient media sown with typical cultures of bacteria and fungi. The accounting was conducted by measuring the diameters of zones of growth inhibition around of the toothpaste.

RESULTS: The studied mouth rinses were characterized by low activity against microorganisms and test cultures after the exposure of 3 minutes in vitro. The mouth rinse with silver particles showed the greatest effectiveness against staphylococci when the exposure time of the mouth rinse is 10 minutes. The decrease of the number of colonies is observed after exposure to the mouthwash in vivo. The highest inhibitory action is set to paste ¹21162 when evaluated antimicrobial efficiency of toothpastes. The diameters of the growth of the delay zones in the experiment were: E. coli – 21.7 mm, S. aureus – 41.7 mm, C. albicans – 19 mm, P. aeruginosa – no inhibition of growth.

CONCLUSIONS: Adding colloid silver as an antimicrobial agent to oral hygiene products is justified, but the application time should be increased several times for greater efficiency.
INTRODUCTION: The maxillary permanent canine impaction frequency is 0.9-3%. The condition is more than twice as common in girls as in boys. Since patients with canine impactions usually have complications and longer treatment time, early diagnosis is crucial. Some studies estimated facial bone parameters using CT scans, panoramic and lateral cephalometric radiographs but none of them evaluated external face parameters. This is the first study done in Lithuania that evaluates external face parameters.

AIM OF THE STUDY: The aim of this pilot study is to determine whether impaction of a maxillary permanent canine can be predicted by measuring external face parameters.

MATERIALS AND METHODS: A prospective research was performed in Vilnius University Hospital Zalgris Clinics. 31 patients (9 boys and 22 girls) with unilateral or bilateral impacted maxillary permanent canines age 10-16 were investigated. The study was carried out using anthropometric calipers and measuring tape. To compare, control group data was taken from a cross sectional anthropometric study on facial growth, carried out in Lithuania. Statistical analysis was performed with SPSS 21.0, MS Excel 2016 programmes.

RESULTS: Initial study showed that in both genders and all age groups the medians of the participants height of lateral dermal part of upper lip and width of philtrum are below the 50% compared to the same parameters of the control group. 70.97% of participants have face width that is below the 50% and 77.42% have width of the skull base below 5%. The study also showed that depth of lower and middle third of the face in the research group is smaller than in control group. Moreover, 86.36% of 10-16 year old girls have lower depth of upper third of the face value than control group. From them, 36.36% are below the 5%.

CONCLUSIONS: Since the pilot study is limited due to a small sample size we can not assess statistical significance. However the tendency towards significantly lower values for sagital and transversal facial measurements and lip parameters in children with impacted maxillary permanent canine has been found. Depth of the middle and lower thirds of the face, width of the face and skull base as well as philtrum width showed the most difference between control and study group.
INTRODUCTION: A proper knowledge about risk factors of oral cancer is key to prevent oral cancer development among dental and medical students who are future medical professionals.

AIM OF THE STUDY: To evaluate the knowledge of oral cancer risk factors among international dental and medical students in Lithuanian University of Health Sciences.

MATERIALS AND METHODS: A cross-sectional study was conducted among international medical and dental students at the Lithuanian University of Health Sciences in 2018-2019. In total 253 students participated with a response rate 79.5%. Later participants were grouped into medical, dental preclinical (1st and 2nd study year) and clinical (3rd-5th study year) students. A self-administered English questionnaire consisting items with options (yes, no, I don’t know) about oral cancer risk factors. Statistical data analysis was carried out by using SPSS 22 version. To establish relationships between categorical variables, the Pearson chi-squared test ($\chi^2$) was used. The level of significance was set at $p<0.05$. The study was approved by the Bioethics Center of the Lithuanian University of Health Sciences (No BEC-OF-50).

RESULTS: Overall majority of participants (96.8%) agreed that usage of tobacco is a risk factor of oral cancer. Meanwhile, merely a half (52.2%) of students reported excessive alcohol consumption as a risk factor. Surprisingly, significantly more preclinical group of dental students (72.5%) answered correctly than clinical group (50.7%) ($p=0.025$). Considering the sunlight’s exposure as a risk factor of oral cancer, more dental students (34.8%) were aware than medical students (23.2%) ($p=0.047$). Moreover, preclinical dental students showed better knowledge over clinical dental group (52.5% vs. 25.3%) ($p=0.007$). More international medical (38.4%) than dental students (19.1%) knew that oral cancer is related to gender ($p=0.003$). Majority of participants (85.4%) found additional training important and necessary.

CONCLUSIONS: International medical and dental students reported good knowledge about the main risk factors of oral cancer. Surprisingly preclinical dental students seem to be more aware about risk factors than clinical dental students.
**Title:** Association between TMD and personality type in Lithuanian students

**Authors:** Jonikaite I.¹

**Tutor/Tutors:** Rolandas Pletkus

**University:** ¹ Faculty of medicine, Vilnius University, Lithuania

**INTRODUCTION:** Stress is an integral part of everyday life in the modern world. Each person responds to external stimuli differently, depending on personal characteristics. The entirety of external factors and personal qualities affects the tendency to various diseases and promotes their manifestation. One such disorder is the dysfunction of the temporomandibular joint (TMD).

**AIM OF THE STUDY:** Determine the spread of the temporomandibular joint dysfunction and the distribution of the Myers-Briggs personality types among Dentistry and Public Health students and compare the results among student groups from different study fields.

**MATERIALS AND METHODS:** VU MF 1st-5th year Odontology and 1st-4th year Public Health students participated in the research. Questionnaires were submitted to assess the prevalence of the TMJ dysfunction and the distribution of the personality types. To determine TMJ dysfunction and personality types Fonseca questionnaire and personality test by Myers-Briggs type indicator was used respectively. The obtained data was processed using the statistical packet of SPSS 17.00 (Statistical Package for the Social Sciences), applying the One-way ANOVA and Chi-Square criteria as well as descriptive statistics. Statistical reliability is determined when the value is less than or equal to 0.05 (p≤0.05).

**RESULTS:** 58.8% of Dentistry students and 66.3% of Public Health students were diagnosed with TMJ dysfunction. Majority of the questioned people had a consol personality type. TMD was most common in commander (80%), debater (80%) ir adventurer (77.8%) personality types. The manifestation of TMJ dysfunction was found to be independent of the personality types (p> 0.05).

**CONCLUSIONS:** A high prevalence of mild TMD was found in student population. Various studies shows that psychosocial factors as stress, anxiety and depression had a statistically significant association with TMD. The study did not show a correlation between TMD and personality types.
Title: Correlation between periodontal condition and heart diseases, taking into consideration level of D-dimers.

Authors: Imadova K.¹, Miskiewicz A.¹, Siyaqat A.¹

Tutor/Tutors: Prof. Renata Górska

University: ¹ Periodontology, Medical University of Warsaw, Poland

INTRODUCTION: For the quiet some time, dentists and physicians were focusing their attention strictly towards their fields, however, numerous researches have strongly suggested that the state of oral health can indicate the presence of systemic disease. D-dimer is one of the protein parts that results when a blood clot gets dissolved in the body. In a healthy individual, it is mostly undetectable or detectable at a very low level. With the exception that the body is forming and constantly breaking down blood clots. D-Dimer is a polymer that is released during the destruction of the fibrin clot during fibrinolysis. Concentrations of D-dimer above the normal range in the plasma are a direct indication of activation of the fibrinolytic system, and as we know D-Dimer is a polymer released during the dissolution of the fibrin clot during fibrinolysis, it works as an indirect indicator that a blood clot has formed somewhere in the body.

AIM OF THE STUDY: Establishing correlation between periodontal state and concentration of D-dimers in the blood.

MATERIALS AND METHODS: The test group includes 20 patients (18-65 years old). Patients are divided into two categories:

1) No periodontal disease to mild cases of gingivitis
2) Presence of periodontal disease (from early to advanced periodontitis)

Blood test provided to count D-dimers in the blood. Tests take place in the department of Internal medicine and Cardiology. Evaluation of data and comparison of results.

RESULTS: The results will be presented in the form of a comparison of a periodontal state with a concentration of d-dimers in the blood. So far we can see a strong correlation between periodontal state and a blood count of D-dimer. In patients presented with more severe periodontal state we clearly see a higher count of D-dimers, and in contra patients with healthy gums had a normal range of D-dimers or none at all.

CONCLUSIONS: We can see solid correlation between D-dimer’s count in the blood and presence of pathological periodontal condition and we are opening the opportunity of predicting blood clothing rate according to periodontal state.
INTRODUCTION: Oral health awareness is still a very underrated topic in Polish dental care. Although periodontal diseases are considered as a social problem patients knowledge about them and their correlation to oral hygiene level is on a very low level.

AIM OF THE STUDY: To evaluate patients self-awareness of oral hygiene procedures.

MATERIALS AND METHODS: The survey was conducted in the Outpatient Clinic in the Department of Periodontal and Oral Mucosa Diseases Medical University of Bialystok among 301 participants aged 21-80 (mean age 49.8), 65.5% were females and 36.5% first-time patients). The questionnaire included questions concerning general knowledge about periodontal diseases, as well as daily routine regarding oral hygiene. The results were statistically analyzed in age groups: 21-30, 31-40, 41-50, 51-60, 61-70 and 71-80 years old. Additionally patients were divided into group of new patients and group of patients continuing periodontal treatment.

RESULTS: Among all participants the highest percentage (66%) brushed their teeth twice a day, 23% brushed three times or more and only 9% did it once per day or didn’t do it at all. Most of the attendees preferred manual tooth brushes (77%) to electric ones (22%). There was statistical dependence between age and toothbrush used. Older patients preferred manual toothbrushes (p<0.001). Women used dental floss more often than men (p<0.001). There was statistically important dependence between age and dental flossing (p=0.023), using toothpicks (p=0.03) and mouthrinses (p=0.03). The analysis did not show the difference between first-time and continuing treatment patients regarding the use of additional oral hygiene products. Most patients agreed that insufficient oral hygiene (88%) and pathogenic oral bacteria (81%) are important factor in etiology of periodontal disease.

CONCLUSIONS: According to obtained answers most patients own sufficient knowledge regarding the importance of oral hygiene in preventing periodontal diseases. But too few patients actually use additional oral hygiene products. So it is crucial to put more effort in patients education.
**Title:** Recovery of high fractures of the mandibular condyle. Biomechanical aspects

**Authors:** Mironchyk M.¹

**Tutor/Tutors:** Assoc. Prof. Michail Goltsev, PhD, Antanina Nikalayeva-Kisialevich, MD

**University:** ¹ Dentistry, Belarusian State Medical University, Belarus

**INTRODUCTION:** Among facial bone fractures, mandible bone fractures are most common 70-85%, and condylar fractures are one of the most common fractures in the mandible 21–24 %. In the same time diagnosis and treatment of high condylar fractures is an undecided issue. A lot of studies have investigated treatment methods but the indications for choosing closed or open treatment methods are also a debatable question. For getting a predictable result of high condylar fractures treatment we have to understand all biomechanical processes in temporal-mandibular joint.

**AIM OF THE STUDY:** to evaluate a results of non-surgical closed treatment. To prove success of non-surgical treatment with a help of the biomechanical images of processes of the TMG moving.

**MATERIALS AND METHODS:** Clinical and radiological examinations of 30 patients with intracapsular fractures of the mandibular condyle was performed after closed treatment between 2014 and 2018.

**RESULTS:** The most patients show mild TMG dysfunction after non-surgical high condylar fractures treatment: 1-4points in TMJ clinical dysfunction index (Di) by Helkimo. By radiological examination: high condylar fractures lost up to 20% vertical height of the mandibular condyle compared to the height on the opposite side.

**CONCLUSIONS:** Most of the mandibular high condylar fractures recovered acceptably after conservative non-surgical treatment with functional rehabilitation, even with some anatomical shortening of the condylar height.
PhD Session II
Title: Validating diabetes remission prediction models after sleeve gastrectomy in Polish population

Authors: Langi G.¹, Szczerbinski L.¹, Citko A.¹, Puchta U.¹, Siewiec E.¹

Tutor/Tutors: Prof. dr hab. n. med. Adam Jacek Krętowski

University: ¹ Centrum Badań Klinicznych, Uniwersytet Medyczny w Białymstoku, Poland

INTRODUCTION: Bariatric surgery can improve insulin sensitivity in diabetic patients. Sleeve gastrectomy (SG) is currently the most common type of bariatric surgery, but its effect on diabetes remission is still not well-known. Numerous diabetes remission prediction models have been developed in the last few years, but none has been validated on the Polish population.

AIM OF THE STUDY: To validate existing diabetes remission prediction models in SG patients from an ongoing project “Bialystok Bariatric Surgery Study” held at the Medical University of Białystok.

MATERIALS AND METHODS: 30 obese and diabetic patients undergoing SG, recruited between 2014 and 2018, were included in this study. Detailed physical assessment and measures of glucose homeostasis were done before and after SG. Post-surgery evaluation was done at four time-points: 1, 3, 6, and 12 months after the surgery. Five prediction models, which have been validated in SG patients, were compared: DiaRem, AdDiaRem, DiaBetter, IMS, and Dixon’s logistic regression model. Comparison and assessments were done using the model’s discrimination and calibration properties. Discrimination power was determined from the area under the receiver operating characteristic (ROC) curve (AUC). Calibration was performed using the Hosmer-Lemeshow test.

RESULTS: All models, except for Dixon, have excellent discrimination power in predicting diabetes remission after 12 months (AUC > 0.8). The best performing model is DiaRem (AUC = 0.96). The models also demonstrate good fits based on the Hosmer-Lemeshow test (p > 0.05). IMS underestimated remission, while Dixon overestimated remission compared to observed rates. However, the models had worse performance in predicting short-term diabetes remission (1-6 months post-surgery). DiaRem’s short-term AUCs were significantly worse than its long-term AUC (p < 0.05). Overall, AdDiaRem performed well in predicting both for short-term and long-term remission after SG. Dixon consistently performed poorly compared to other models at all time points.

CONCLUSIONS: The existing models predicted well long-term remission in MUB SG patients, except for Dixon. However, the models performed worse in predicting short-term remission after SG. More SG participants are needed to confirm these findings.
Title: Pharmacotherapy of patients referred by primary care physicians to the geriatric ward.

Authors: Jankowska P.1, Kamiński P.2, Królik P.3, Rudnicka-Drożak E.1, Jankowski K.1

Tutor/Tutors: Grzegorz Mizerski

University: 1 Chair and Department of Family Medicine, Medical University of Lublin, Poland2 Chair and Department of Trauma Surgery and Emergency Medicine, Medical University of Lublin, Poland3 Geriatric Department, Specialistic Hospital in Jasło, Poland

INTRODUCTION: Most clinical guidelines focus almost exclusively on selected diseases. If, especially in the elderly, there are several chronic diseases, adherence to the guidelines for each of them leads invariably to polypragmasy. On the other hand, in elderly, often some relevant health problems are not treated due to fear of drug interactions, having deleterious impact on general health state.

AIM OF THE STUDY: The aim of the study was to characterize pharmacotherapy of a group of patients referred by primary care physicians to the geriatric ward and assess ways of its modification.

MATERIALS AND METHODS: It was a retrospective study. There were 912 patients referred by primary care physicians to the Geriatrics Department of the Specialist Hospital in Jasło in the years 2016-2017 involved. The research method was medical documentation analysis. Statistical assay was performed using Statistica PL v. 13.0 and chi2 test.

RESULTS: Among aberrations in pharmacotherapy, the most common was use of several same-effect-drugs (18.0%, N: 31), usually a combination of 4 to 6 neuroleptics, benzodiazepines, hypnotics and antidepressants (54.8%, N: 17), drug addiction (15.1%, N: 26) mainly benzodiazepines (92.3%, N: 24) and drug-induced hypotension (9.3%, N: 16). Pharmacotherapy defects were significantly more common in > 80-year-old patients (21.5%, N: 107, p=0.026) and presenting low level of instrumental functional abilities, according to the I-ADL (45.3%, N: 78, p=0.005). The largest group were, however, patients who did not have the drugs prescribed despite the indications for their use (29.7%, N: 51), mostly patients with atrial fibrillation without proper anticoagulant treatment (92.2%, N: 47). Most of the patients received 4-8 medications. The drugs that were withdrawn from therapy after the patient's hospitalisation were ASA (8.5%, N: 73), PPI (6.1%, N: 52), aldosterone antagonists (7.1%, N: 61), digitalis prep. (4.5%, N: 39), neuroleptics, hypnotics and sedatives (8.4%, N: 72).

CONCLUSIONS: Pharmacotherapy of geriatric patient is a burning problem. Many elderly patients experience detrimental consequences of drug interactions among them hypotension and increased risk of falls. Education in this field, especially for GPs is required.
Title: Eye fundus vessel parameters, brain volumes and deviation of light sensitivity thresholds in hypertensive patients

Authors: Bur A. ¹

Tutor/Tutors: Prof., dr. Kubarko Alexei Ivanovich

University: ¹ Normal Physiology, Belarusian State Medical University, Belarus

INTRODUCTION: It is known, that not only eye vessels, but also retinal cells develop from the same source as brain neural tissue and vessels. Consequently, it might be expected, that brain and eye vessels may react likewise in respond for the same stimuli and can undergo the similar changes in pathological conditions.

AIM OF THE STUDY: Aim of the study was to measure brain volumes and morphological parameters of the retina vessels, deviation of thresholds of light sensitivity as the functional parameter and to estimate the character of associations between these parameters.

MATERIALS AND METHODS: 21 patients were included in the study, 11 of them (gr.1) had elevated blood pressure (BP), and 10 were included into the control group (gr.2) with normal BP. Total brain volume (TBV) and total ventricle volume (TVV) were calculated using the software «3D-Slicer». The morphological parameters (number, diameter) of the retinal parapapillary vessels were estimated by the original software «Vessels». The deviation of light sensitivity thresholds from age normal values was calculated based on the results of static computer perimetry («Humphrey» perimeter).

RESULTS: The number of arteries in patients of gr.1 – 9 (8,0-11,0) – was less than in patients of the gr.2 – 12 (12,0-13,0). The ratio of TBV to intracranial volume was higher in patients of gr.2 – 0,88 (0,86-0,91) than in patients of gr.1 – 0,80 (0,71-0,84). The TVV relative to the TBV was larger in patients with elevated BP than in the patients of the gr.2 – 0,038 (0,028-0,047) and 0,017 (0,015-0,018) correspondingly. Larger TVV was associated with lesser TBV ρ=−0,7 (p<0,05), whereas larger TBV was associated with more numerous arteries [ρ=0,5 (p<0,05)]. 5 from 10 patients of the gr.2 and 7 from 11 patients of gr.1 had decreased light sensitivity.

CONCLUSIONS: The results of the research show that in patients with elevated BP the number of retinal arteries decreases, which is consistent with the literature data about vessel rarefaction in patients with arterial hypertension. Changes of brain volumes (decrease of TBV and increase TVV) which were revealed in patients with arterial hypertension compared to the patients with normal BP may indicate the consequences of vascular changes in brain.
Title: Controlling immune response in patients with peri-mucositis diagnosis using polyphenols and flavonoids substrats

Authors: Gleiznys D.1, Abraškevičiūtė L.1

Tutor/Tutors: prof. Jurgina Sakalauskienė, prof. Alvydas Gleiznys

University: 1 Department of Prosthodontics, Lithuania University of Health Sciences, Lithuania

INTRODUCTION: Peri-implant diseases are inflammatory conditions affecting the soft and (or) hard tissues around dental implants and it is classified to peri-implant mucositis and periimplantitis. The prevalence of these diseases various 29,48%-46,83% of peri-mucositis and 9,25%-19,83% of periimplantitis. At histological level it is known the establishment of B- and T-cell-dominated inflammatory cell infiltrates. It has been considering to find components of medicaments in order to control destructive processes in periimplant tissues.

AIM OF THE STUDY: Was to analyse the immunomodulating effect of polyphenols and flavonoids substrat (PFS) from some kinds of plants and propolis on the production of interleukins of peripheral venous blood leukocytes medium (PBLM) from patients with diagnosed peri-implant mucositis.

MATERIALS AND METHODS: Sixty non-smoking people take part in this study and were divided in groups: patients with healthy implants and patients with peri – implant mucositis diagnosis. Peri-mucositis was confirmed by clinical and radiologic examination. The PBLM from MP were treated with PFS at different concentrations. The levels of Interleukins secreted by the PBLM unstimulated and stimulated with viable Porphyromonas gingivalis in vitro were determined by the enzyme amplified sensitivity immunoassay method.

RESULTS: We found that the unstimulated and stimulated PBLM and treated with different concentrations of PFS of MP produced significantly higher levels IL-10 (P <0.001, P <0.001) that the analogous PBLM of HP. After the treatment with PFS only concentrations 10.0 mg/ml the IL-1β levels decreased more considerably in the stimulated PBLM of the MP than in those of HP (P <0.001).

CONCLUSIONS: This suggests that the solution of PFS may offer perspectives for the development of a new therapeutic approach to the prevention and treatment of inflammatory of MP.
Title: The examination of the state of health of Polish semi-supercentenarians

Authors: Kroczek W.¹

Tutor/Tutors: prof. dr hab. n. med. Jadwiga Jośko-Ochojska

University: ¹ Department of Environmental Medicine and Epidemiology, Medical University of Silesia, Poland

INTRODUCTION: Semi-supercentenarians are extremely rare population group of people who live beyond the age of 105 years. It is estimated that there are approximately 100 living semi-supercentenarians in Poland and the number is growing every year.

AIM OF THE STUDY: The aim of the study is to examine the state of health and independence of performing activities among the surveyed group of semi-supercentenarians depending on the age, gender and other factors.

MATERIALS AND METHODS: The author has personally met several semi-supercentenarians between the ages of 105 and 112 years of life and performed the following tests: the Activities of Daily Living Scale according to Katz (ADL) was applied for the functional evaluation. This scale enables to assess six activities: bathing, dressing, toileting, transferring, continence, and feeding. The Tinetti balance and gait test formed basis for evaluation of physical activity. The Tinetti test was focused on the patient’s ability to perform 5 specific tasks (with help of person/tools or without any help): arising, immediate standing balance, walking 3 meters, turning 180 degrees and sitting down. Each of the semi-supercentenarians included in the study had their age validated by the modern age validation standards used by the Gerontology Research Group.

RESULTS: According to ADL scale, 43% of respondents (36% F, 6% M) were classified as dependent (score: 0-2), 37% (33% F, 4% M) as partially dependent (score: 3-4) and 20% (10% F, 10% M) as independent (score: 5-6). Males were significantly more independent than females. According to the Tinetti test, the good general health status, was presented by 23% of semi-supercentenarian women and 43% of semi-supercentenarian men. 34% of the subjects were able to perform at least 3 tasks of the Tinetti test without any help, 50% of the subjects were able to perform at least 3 tasks with help, and 16% of semi-supercentenarians were unable to perform 3 or more tasks of the test.

CONCLUSIONS: Polish semi-supercentenarians are characterized by a relatively high level of physical activity; however, women present poorer physical activity than men.
INTRODUCTION: The problem of obesity has become global over the past decades. It's known that visceral obesity is often combined with metabolic syndrome (MetS), which is considered as a potential negative factor affecting the quality of sperm and the possible cause of infertility in men.

AIM OF THE STUDY: To investigate the effect of obesity and MetS on the semen quality and to establish correlations between sperm parameters.

MATERIALS AND METHODS: The study included 46 men. Patients’ waist circumference (WC) and arterial pressure were measured and the body mass index (BMI) was calculated. The blood samples were analyzed for glucose concentrations, triglycerides and high-density lipoprotein cholesterol. Two groups of patients were formed according to the National Cholesterol Education Program's Adult Treatment Panel III criteria: MetS group (n = 24) and control group (CG) with practically healthy persons (n = 22). The ejaculate was evaluated for volume, sperm concentration, total sperm count, progressive (PR) and total motility, vitality, leucocyte concentration. The study didn’t include patients with leukospermia (>1x10⁶ ml) and disorders of the reproductive system (varicocele, epididymitis, prostatitis). Statistical significance was considered at p < 0.05.

RESULTS: The mean age of men in the CG was 34.9±6.3 years, while in the MetS group was 33.3±7.1 years. Two groups didn’t differ significantly in age (p=0.3597). The MetS group displayed reduced sperm concentration (p=0.0027), total sperm count (p=0.0137), PR (p=0.0021), total motility (p=0.0471) and sperm vitality (p<0.001). There was no significant difference in the volume of sperm between the groups (p=0.8478). A negative correlation was found between the BMI and the volume of ejaculate (r=-0.44), the concentration (r=-0.51) and total sperm count (r=-0.52). However, BMI weakly correlated with sperm vitality (r=-0.29), PR (r=-0.28) and total motility (r=0.27).

CONCLUSIONS: The results of the present study demonstrated that men with 3 or more criteria of MetS had significantly worse sperm quality, in particular, concentration and total sperm count, motility, vitality as compared to the control group. It is confirmed that with the growth of BMI the parameters of spermogram deteriorate.


**Title:** Rocuronium concentrations in the blood after administration of sugammadex at a dose of 2 mg/kg in pediatric patients

**Authors:** Malec M.  

**Tutor/Tutors:** Agnieszka Bienert, PhD

**University:** ¹ Department of Clinical Pharmacy and Biopharmacy, Poznan University of Medical Sciences, Poland

**INTRODUCTION:** Rocuronium is the neuromuscular blocking agent of the first choice. Although having fast onset as well as the intermediate duration of action and a lack of prolonged effects, which make it suitable for continuous infusion, intermittent administration has been standardly used, probably because of its large inter-individual variations of action after bolus and continuous administration. Its neuromuscular blocking effect may also be influenced by the amount of muscle and sensitivity to neuromuscular receptors as well as its plasma concentration, which make it difficult to maintain an adequate level of neuromuscular blockade.

**AIM OF THE STUDY:** The study aimed to determine serum concentrations of rocuronium after administration of sugammadex at a dose of 2 mg/kg in pediatric patients. This will allow evaluating the effectiveness of sugammadex in the reversal of neuromuscular blockade.

**MATERIALS AND METHODS:** The permission of the bioethical commission was obtained for conducting the research. Seventeen patients undergoing elective surgery procedures with a standardized sevoflurane-fentanyl-rocuronium anesthetic technique received sugammadex at doses of 2 mg/kg for reversal of neuromuscular blockade. During the operation, blood samples (2 ml) were collected at the time-determined points after the rocuronium intubation dose - 2 and 15 minutes after rocuronium administration, just before sugammadex and 2, 5, 15, 60 minutes and 6 hours after sugammadex. The concentrations of drugs were determined by HPLC-MS/MS. The analytical procedure was validated, and all steps of the validation confirmed that the applied analytical procedure was suitable for the intended purpose.

**RESULTS:** In every patient, an increase in rocuronium plasma concentrations was seen after administration of sugammadex. This is a result of redistribution of the NMBA due to complex formation with sugammadex. The increase in rocuronium occurred between 2 and 15 minutes after administration of sugammadex. However, this did not lead to recurarisation, which may be dangerous for the patient's health and life.

**CONCLUSIONS:** The findings indicate sugammadex at a dose of 2 mg/kg can be given effectively for the reversal of rocuronium-induced neuromuscular blockade in pediatric patients.
Title: Premature mortality due to main causes of death in Poland in 2016

Authors: Cwalina K.¹

Tutor/Tutors: prof. dr hab. n.med. Małgorzata Żendzian-Piotrowska; dr n. med. Michalina Krzyżak

University: ¹ Faculty of Hygiene, Epidemiology and Ergonomics, PhD student, Poland

INTRODUCTION: Information about deaths is the most commonly used data to assess the health status of the population. Deaths in younger age groups cause a greater social and economic loss burden because they are the reason for more potential years of life lost (PYLL). The PYLL indicator is counted among the basic measures of premature mortality. According to OECD data, Poland belongs to this group of developed countries, which have a clear problem with premature mortality. For the death of the early, death was assumed before the age of 70. For this reason, deaths at a younger age are more important than in elder one.

AIM OF THE STUDY: The aim of the study was to analyze premature mortality due to the main causes of death in Poland in 2016.

MATERIALS AND METHODS: The material was based on the data from the Central Statistical Office of Poland on the number of deaths registered in 2016. The indicator of PYLL in Poland in total, including sex and causes of death. Differences in the risk of premature deaths between men and women were presented using the male/female index.

RESULTS: The study showed that in Poland in 2016 the main causes of premature mortality of men and women were in the order of: cancers, cardiovascular diseases, external causes of deaths.

In 2016, Poland has lost 1825565 years of age in total. Among men the highest percentage of life years lost was due to: CVDs-21,76%, external causes-21,38% and cancer-19,75%. In women, the order was reversed: death from cancer resulted in a loss of 38,18% of years of life, CVDs-16,76%, external causes-9,46%.

Premature mortality due to the analyzed main causes of death was higher in the male population than in women population.

CONCLUSIONS: The main causes of premature mortality in Poland are "avoidable deaths". In 2016, both in the population of men and women, they were CVDs, cancers and external causes. The number of PYLL lost for men was 2.5 times higher than for women, this situation indicates the urgent need to intensify prevention activities among young men. The basis for planning public health interventions is current and reliable knowledge about the health situation of the population and the implementation of activities in the field of health promotion and disease prevention.
Title: Changes in body composition parameters among children treated for neoplastic diseases

Authors: Kania A.¹, Pogorzelska K.¹

Tutor/Tutors: Małgorzata Sawicka-Żukowska MD, PhD; Prof. Maryna Krawczuk-Rybak MD, PhD

University: ¹ Department of Pediatrics, Oncology and Hematology, Medical University of Białystok, Poland

INTRODUCTION: Overweight and obesity are well-known side effects of anticancer therapy in children. Steroids and limitation of physical activity are listed among many complex causes of these complications.

AIM OF THE STUDY: The aim of the study was to estimate body composition parameters: weight, body mass index (BMI), waist-hip ratio (WHR) and percentage of fat tissue (PBF) in children before, during and after completed antineoplastic treatment.

MATERIALS AND METHODS: Study group consisted of 43 children (male:24; female:19) between 2.2 and 18 year of age (mean age 8.68) treated for neoplastic diseases in the Department of Pediatrics, Oncology and Hematology in Białystok. Control group consisted of 74 children, including cancer survivors’ healthy siblings and children hospitalized with other than neoplasm diagnosis. Study group included children treated for acute leukemias (n=32) and Hodgkin/non-Hodgkin lymphomas (n=11). Measurements were carried out with stadiometer and InBody370 analyzer, using bioimpedance method, estimating patients' weight and BMI before treatment, and weight, BMI, WHR and PBF during and shortly after the treatment.

RESULTS: Study showed that in children at the moment of diagnosis overweight appeared at the level of 16.3%, while in the control group – 16.4%. During the treatment 18.6% of children were overweight, 18.6% had WHR above norm and 65.1% elevated PBF. Shortly after treatment termination 26.4% of children remained or became overweight, 18.4% had elevated WHR, 55.3% increased PBF. In control group we observed 12.3% of children with increased WHR and 30.1% with PBF above norm. The difference between study and control group is statistically significant in terms of PBF both during and after treatment termination (p=.00174 and p=.02642, consecutively).

CONCLUSIONS: Study showed that percentage of overweight children increases during and after anticancer therapy. Children undergoing anticancer treatment and cancer survivors have relatively higher WHR and PBF than healthy children, but only difference in PBF is statistically significant. This parameter may be considered as marker of abdominal obesity. Analysis should be continued to investigate if overweight continues to increase in further years after anticancer treatment.
Public Health II
Title: Risk status assessment in pregnant women in rural areas of Belagavi, India

Authors: Marcinkiewicz B., Rybaczek M.

Tutor/Tutors: Assoc. Prof. Sulakshana Baliga, Department of Community Medicine, Jawaharlal Nehru Medical College, Belagavi, India

University: Uniwersytet Medyczny w Białymstoku, Poland

INTRODUCTION: High-risk pregnancy is defined as one which is complicated by factor or factors that adversely affects the pregnancy outcome (maternal, perinatal or both). Global Health Observatory data shows that Maternal Mortality Ratio for United States of America is 14 per 100 000 live births, in India – 174 per 100 000 live births. In India about 20-30% pregnancies belong to high risk category, which is responsible for 75% of perinatal morbidity and mortality. So timely detection of high risk pregnancies is important. In view of above facts, the present study was planned to assess risk status in rural areas of Belagavi, India.

AIM OF THE STUDY: The aim of the study was to know the prevalence of high risk pregnancy among pregnant women and to identify the risk factors for high risk pregnancy.

MATERIAL AND METHODS: The cross-sectional study in Primary Health Centre and surrounding subcenters at field practice area of Department of Community Medicine, Jawaharlal Nehru Medical College, Belagavi, India. The data were obtained from group of pregnant women attending prenatal clinics under Primary Health Centre during the study period (1st – 31st August 2018). Data was collected through interviewing the study participants during prenatal investigation by prepared questionnaire, before medical examination.

RESULTS: In results from 412 participants, age range of the women 17-41 years. According to the scoring system used, 68.2% of the women had a high risk pregnancy. From total amount of study participants 32,8% were registered after 12 weeks of gestation. Among study group 17,5% women were high risk, due to age of first pregnancy <18 or >30 years. Significant impact on study had anemia, previous mode of delivery, previous obstetric complications and chronic diseases.

CONCLUSIONS: The prevalence of high risk pregnancy in our study was 68,2% which is very high. In study group anemia was the most common risk factor during pregnancy. Prevalence of high risk pregnancy was found higher in lower socioeconomic status and in lower education group. Low socioeconomic status is a high risk factor, such as more probability occurrence of infection or obstetric complications, due to poor maintenance of hygiene, difficulties with access to healthcare facilities.
Title: Is the level of knowledge about vaccinations among medical professionals sufficient?

Authors: Kędra K.1, Michalik I.1, Popiel B.1, Rolek K.1, Jędrusik S.1, Pelc J.1

Tutor/Tutors: Hanna Czajka M.D. PhD

University: 1 Department of Medicine, Student Research Group for the Prevention of Infectious Diseases, Poland

INTRODUCTION: Vaccines are used to avoid infectious diseases which pose risk of severe manifestation, life-threatening complications or even death. Due to the increasing range of anti-vaccine movements high level of knowledge about vaccinations among medical professionals and providing reliable information to parents are really important.

AIM OF THE STUDY: Finding out what is the level of knowledge about vaccinations of polish physicians and nurses. Investigating if medical staff can be a source of false information about vaccinations.

MATERIAL AND METHODS: Survey was carried out on a group of 781 respondents - physicians and nurses. The research tool was a questionnaire in paper. Participation was voluntary and anonymous.

RESULTS: Surprisingly, internet (17%) is the second source of information about vaccines among healthcare professionals. Almost 91% of respondents were in favor of vaccinations, but 45% weren’t vaccinated against influenza. Among the respondents, 39% want to immunize themselves/children against all possible diseases, while still 55% want to immunize themselves/children only against life-threatening diseases. 92% of doctors correctly answered the question about disease that is eradicated because of vaccinations, while only 58% of nurses answered the same question correctly. 91% of respondents believe that the statement "vaccine causes autism" is false, but still 9% think that vaccines cause neurological disorders. Among medical personnel that is not taking active part in protective vaccinations, over 54% are not vaccinated against influenza at all, while among the medical staff involved in the implementation of vaccinations, the percentage of non-vaccined is below 23%.

CONCLUSIONS: On the basis of the results, it can be seen that the level of knowledge about vaccines among nurses is significantly lower than among doctors. Medical professionals employed in the implementation of vaccinations seem to be more aware of importance of vaccinations and influenza themselves against influenza more often than those who are not taking active part in protective vaccinations. Summarizing, it is important to improve the level of knowledge about vaccinations among medical professionals.
Title: The importance of newborn hearing screening program in the opinion of Polish society.

Authors: Mystkowska E.¹, Pipiro-Belka J.¹

Tutor/Tutors: Emilia Harasim-Piszczatowska PhD

University: ¹ Department of Integrated Medical Care, Student Scientific Circle of Medical Volunteers, Poland

INTRODUCTION: The program of newborn hearing screening is the largest preventive health program in Poland. Its primary goal is to examine every newborn child for hearing damage and to analyze risk factors predisposing to hearing loss.

AIM OF THE STUDY: The aim of this study is to reference the level of importance of newborn hearing screening in the opinion of Polish society.

MATERIALS AND METHODS: A proprietary questionnaire consisting of 19 questions was provided to a group of 300 people. The analysis of the questionnaires was made in Microsoft Excel.

RESULTS: 49% of respondents have heard about newborn hearing screening program, and 15% of them referenced the Internet or family/friends as the source of their knowledge on this matter. Over 30% of respondents believe that hearing screening is performed to check the auditory system of newborn child. Only 24% of respondents know that transiently-evoked otoacoustic emission is used in the newborn hearing screening program to examine infant’s hearing. Yet only 26% states that this hearing test should be performed at the beginning of baby’s second day of life. Almost 26% of respondents knows that the newborn hearing screening program has existed in Poland since 2002, and only 19% has indicated the Great Orchestra of Christmas Charity as an organization, which finances this program and equipment. Almost 29% of respondents stated that in the case of abnormal test results the diagnostics should be broadened by going to a superordinate institution, where a more accurate hearing test of the newborn will be carried out. 48% of respondents do not know that a certificate of the child’s hearing status is attached to the child’s health booklet.

CONCLUSIONS:
1. The knowledge of Polish society about the importance of newborn hearing screening program is insufficient.
2. Polish society do not have information on the types and levels of advancement of specialist institutions dealing with children with established hearing loss.
INTRODUCTION: Nutritional status of the patient has significant impact on the success of the therapy. Appropriate diet is recommended as one of the treatment steps in the guidelines for the management of exacerbation of respiratory failure. On admission to the ward, every patient's nutrition status card is filled out. Based on this, the hospital dietitian gets information about the necessity of introducing recommendations or considering a specific diet for every patient.

AIM OF THE STUDY: The aim of the study was to evaluate nutritional status of patients with lung disease department, and the implementation of dietary recommendations

MATERIALS AND METHODS: We used the data of patients with exacerbation of COPD, exacerbation of asthma, cancer, interstitial lung diseases and obstructive sleep apnea syndrome hospitalized in the Pneumonology Department in the second half of 2018. We took into account their diagnosis, reason and mode of admission, BMI and based on the data we have compared how the nutritional status card was filled in on the day of acceptance, with how it should be completed. Preliminary results of the study were developed on the basis of data from 110 patients.

RESULTS: After analyzing the patient's nutritional questionnaires, we calculated that in 18% of cases the doctor did not complete the questionnaire at all, while 24% of completed forms were filled incorrectly. Anthropometric measurements were made in less than half of the patients (47%). Out of 110 analyzed patients only one of them had nutritional recommendations in medical history.

CONCLUSIONS: Dietary recommendations are considered as treatment in respiratory failure exacerbation which is why it is important to assess patients nutritional status. Absence of nutritional assessment or inaccuracy in filling out the questionnaires makes cooperation with hospital dietitian more difficult. This leads to not identifying patients needing specific diet or nutrition. The matter of dietary care in Polish hospitals needs further evaluation.
**Title:** Comparison of the body parts and its relations with Instagram use

**Authors:** Sarskute A.¹, Guzas J.²

**Tutor/Tutors:** Vilma Andrejauskiene

**University:** ¹ Faculty of medicine, Vilnius University, Lithuania ² Faculty of Philosophy, Vilnius University, Lithuania

**INTRODUCTION:** Frequent comparing of one’s own body with another person of the same gender is considered as a risk factor for developing an eating disorder. It is discussed that Instagram facilitate the process and encourage the comparison of one’s body parts, however there is no research addressing the issue.

**AIM OF THE STUDY:** To identify the features of body part’s comparison and assess its relations with Instagram use peculiarities in young adults.

**MATERIALS AND METHODS:** 101 young adults (age $M=17.89$, $SD=.53$), 43 female and 58 male participants took part in the study. Participants filled separate body parts questionnaire created by us, Instagram Intensity Scale ($\alpha=.915$), Passive and Active Use Instagram Questionnaire ($\alpha=.922$ for active use scale, $\alpha=.859$ for passive use scale).

**RESULTS:** Comparing with male, female ones were found to compare their nose (mean rank 63.85 vs 41.47, $U=694.5$, $Z=-4.132$, $p<.001$), lips (mean rank 62.99 vs 42.11, $U=731.5$, $Z=-4.001$, $p<.001$), face shape (mean rank 58.31 vs 45.58, $U=932.5$, $Z=-.904$, $p<.05$), abdomen (mean rank 62.59 vs 42.41, $U=748.5$, $Z=-3.583$, $p<.001$), buttocks (mean rank 63.99 vs. 41.37, $U=688.5$, $Z=-4.086$, $p<.001$), hips (mean rank=62.74 vs 42.29, $U=742.0$, $Z=-3.942$, $p<.001$) and tights (mean rank 63.05 vs 42.07, $U=729.0$, $Z=-3.847$, $p<.001$) with other same gender person’s respective body parts more. Whereas in comparison with female, male were found to compare their shoulders (mean rank 44.6 vs 55.74, $U=972.0$, $Z=-2.098$, $p<.05$) more. Females are more prone to comparing their hair, abdomen, buttocks, tights and breasts, whereas hands, feet and ears were rarely compared. Among males hair, chest, shoulders comparisons prevailed. Least compared body parts among male participants were feet and ears. Nose, lips, hair, face shape, abdomen, buttocks, hips and tights comparison was found to be related to a greater engagement in Instagram activities, such as spending more time on the application, having a higher number of followers as well as active/passive Instagram use ($rs$ from .215 to .789, $p$ from .047 to .000).

**CONCLUSIONS:** The findings suggest that young females tend to compare their body parts considerably more than males. There is relation between Instagram use and frequent body part’s comparing but more research is needed.
Title: Evaluation of Latvian adolescent’s sexual activity and knowledge of sexually transmitted diseases.

Authors: Baltmane V., Zaičenko A., Tomiņa K., Dorogojs A., Liepiņa I., Pavloviča T.

Tutor/Tutors: PhD, assist.prof. Ingus Skadiņš

University: 1 Medical Faculty, Rīga Stradiņš university, Latvia

INTRODUCTION: According to World Health Organisation (WHO) data, most of European young people become sexually active before age of 19. Center for Disease Control and Prevention (CDC) research shows that one in four sexually transmitted diseases (STD) occurs in teenagers. It is highly important to understand, if youth knows basic principles of contraception and STD transmission to prevent unwanted pregnancy and STDs.

AIM OF THE STUDY: The aim was to identify sexual habits of adolescents and determine their knowledge about contraception and STDs.

MATERIALS AND METHODS: The anonymous survey was distributed among Latvian adolescents. Received data were analyzed using IBM SPSS.

RESULTS. 287 responses of adolescents aged from 13 to 19 years were received. 54.7% of them has already become sexually active. Mean age, when people had their first sexual intercourse was 17 years. Average number of partners was 2. 83.4% of sexually active individuals use contraceptives to avoid STDs, 14.6% - do not. 63.1% use contraceptives during each sexual contact, 14.6% use it almost always, 8.9% - sometimes, 4.4% - rare, 1.2% - never. 7.6% prefer contraceptive method, which needs to be used every day. 89.2% use condoms, 14% use coitus interruptus, 9.6% - emergency contraception or hormonal oral contraception, 7.6% - calendar method, 4.5% - other methods. By verifying knowledge of all respondents about STDs, results were as follows: 62.4% do not know, that STD and venereal disease mean the same. 72.8% know that STDs can be transmitted via another route and 61.7% know about vertical transmission, but 45.3% - that some STD’s are carcinogenic. When asked to choose which belong to STD, 92.6% respondents knew that HIV/AIDS is a venereal disease. 73.9% encountered genital herpes as STD, 49.5% - gonorrhea, 40.4% - HPV, 39% - chlamydiosis, 35.5% - hepatitis B and C.

CONCLUSIONS: More than half of respondents are already sexually active and have had two partners in average. 83.4% of respondents protect themselves from STDs. The mostly used contraceptive method among adolescents is condom, however the methods which do not protect from STDs are still used. 29.1% do not use contraception during each sexual intercourse. The overall knowledge about STDs is mediocre.
Title: Sexual dysfunction in patients with psoriasis

Authors: Wnuk-Kłosińska A.¹, Bielanowska E.¹

Tutor/Tutors: Assoc. Prof. Dorota Jenerowicz, MD, PhD

University: ¹ Chair and Department of Dermatology, Poznan University of Medical Science, Poland

INTRODUCTION: Psoriasis is a chronic inflammatory skin disease with an estimated prevalence of 1.5-2% in the industrialized countries. Psoriasis influences many areas of patients’ lives. For many years, it has been observed that depressive disorders often accompany psoriasis. Recently, there has been a growing interest in the influence of psoriasis on patients’ sexual lives.

AIM OF THE STUDY: This study’s aim was to determine the frequency and the intensity of sexual disorders of patients with psoriasis depending on selected clinical and environmental conditions, as well as comparing those results to the results of the control group.

MATERIALS AND METHODS: The study was conducted between April 2016 and November 2018. The participants were 118 women (41 with psoriasis and 77 healthy volunteers) and 120 men (77 with psoriasis and 43 healthy volunteers). The participants’ ages were between 18 and 70. For describing the severity of psoriasis, we used a Psoriasis Area and Severity Index (PASI). For determining selected sexual functions, we used Female Sexual Function Index questionnaire (FSFI) for women and International Index of Erectile Function (IIEF) for men. The statistical analysis was conducted using Statistica software.

RESULTS: The FSFI result was much lower for women with psoriasis in comparison to the control group (22.3 vs. 29.81; p<0.01). The IIEF total score was also found to be significantly lower in men with psoriasis (57.57 vs. 67.18; p<0.01). For both women and men, the statistical analysis did not show a significant correlation between the intensity of sexual disorders and 1) the duration of the disease (p>0.05); 2) PASI results (p>0.05).

CONCLUSIONS: The sexual disorders are more frequent for men and women with psoriasis in comparison to the control groups. It seems that they are dependent on neither the intensity of the dermatological changes nor the duration of the disease.
INTRODUCTION: According to WHO estimates, 235 million people suffer from asthma and the number of patients increases by an average of 50% over a decade. Despite this, asthma is still insufficiently diagnosed and under-treated, which largely depends on the lack of public awareness of this disease. Women’s awareness of the course of asthma during pregnancy is very important to pass this period in peace, to know what complications a child may suffer from uncontrolled asthma in pregnancy and how to avoid it.

AIM OF THE STUDY: The aim of the study was to find out what is the state of women’s knowledge about pregnancy asthma in different age groups and from different social backgrounds.

MATERIALS AND METHODS: Google survey forms were used to obtain data. We have created a proprietary questionnaire containing 36 questions. One question was open, 4 were multiple-choice questions, others one-choice. The questions for the survey were based on the latest literature and current guidelines of the Polish Society of Lung Diseases and the Polish Gynecological Society, while the Polish guidelines coincide with the European guidelines. The questionnaire was published on wide range of forums, as we wanted to get the most diverse group of people.

RESULTS: 125 women took part in the survey. 52% of them were aged 18-24. 49.6% of respondents remarked that they are in the process of studying. Nearly 35.2% (44 women) of pollsters suffer from asthma. 60.8% of women indicated that there is a person suffering from asthma in their environment. Response to the question of how asthma will behave in pregnant women, 44% said they are exacerbated, only 4% of women think that asthma may be milder, and 35.2% of women believe that every possibility is likely. In the case of questions about pharmacotherapy during pregnancy, 79.2% of women indicated that drugs should be changed and 65% indicated that steroids should be avoided during pregnancy.

CONCLUSIONS: The results of this study indicate that women have limited knowledge about the prevalence, pharmacotherapy and complications of asthma during pregnancy, while nearly half of responding are involved in health sciences. Given the high incidence of asthma, awareness of the importance of optimal course of asthma during pregnancy should be raised.
**Title:** Undiagnosed thyroid nodules in a population of Bialystok

**Authors:** Zubaidi S.\(^1\), Amin A.\(^2\), Paniczko M.\(^1\), Szpakowicz M.\(^2\), Lapinska M.\(^2\), Krishna Guggilla R.\(^1\)

**Tutor/Tutors:** Pawel Sowa MPH PhD

**University:** \(^1\) Department of Population Medicine and Civilization Diseases Prevention, Medical University of Bialystok, Poland \(^2\) Department of Population Medicine and Civilization Diseases Prevention, Medical University of Bialystok, Poland

**INTRODUCTION:** Thyroid nodules (ThN) are an overgrowth of the thyroid cells. Possible factors that can contribute to the development of ThN are: female gender, iodine deficiency, age, exposure to radiation, family history and genetic conditions. Iodine deficiency and exposure to radiation used to be considered major risk factors of ThN in North Eastern Poland. Previous studies reveal a prevalence of ThN 2-6% when assessed with palpation during physical examination, 19-35% with ultrasound, and up to 65% in some autopsy studies. ThN may be present in the course of nodular goitre – inactive or toxic, but also in thyroid cancer.

**AIM OF THE STUDY:** The aim of the study was to analyze the prevalence of undiagnosed ThN in a sample of Bialystok inhabitants.

**MATERIALS AND METHODS:** Data used for the study comes from the Longitudinal Cohort Study Bialystok PLUS. A total number of 255 participants was randomly drawn from the population. The thyroid USG, body composition assessment and interview on lifestyle risk factors were performed. Thirty nine participants reported previous diagnosis of ThN and hence were excluded from part of the analysis. The analysis of prevalence of undiagnosed ThN was performed on a group of 218 people (58,3% female, average age 49,4 min. 20, max. 79).

**RESULTS:** The incidence of newly diagnosed ThN in the studied group was 32,1% (n=70) and it was higher among women - 38,6% (men= 23,1%, p<0,05). The median age of patients with newly diagnosed ThN was 55 (F) and 60 (M). Moreover, these participants had significantly higher total fat mass (p<0,05). Diagnosis of ThN was not related to differences in lifestyle risk factors like smoking, drinking alcohol.

**CONCLUSIONS:** The studied sample of Bialystok population indicates that the ThN may be underdiagnosed. Given potential health hazard posed by ThN, their high prevalence in Bialystok population deserves further in depth study.

**keywords:** thyroid nodules, Bialystok PLUS, epidemiology, prevalence
Title: The prevalence of sarcopenic obesity in patients with ischemic heart disease.

Authors: Mieleszko P.¹, Drobek N.¹, Szpakowicz M.¹, Łapińska M.¹, Paniczko M.¹

Tutor/Tutors: dr n. o zdr. Paweł Sowa, dr n. med. inż. Jacek Jamiołkowski

University: ¹ Department of Population Medicine and Civilization Diseases Prevention, Medical University of Białystok, Poland

INTRODUCTION: The importance of geriatric syndromes in our healthcare system is increasing due to the aging of our society. Sarcopenic obesity (SO) combines both obesity and sarcopenia in elderly people. SO should be defined as excessive body fat coexisting with loss of muscle mass and function, which is associated with frailty, impairment of physical function and instrumental activities of daily living. Currently, it is not well-known which methods and cut-off points should be used to assess this increasing phenomenon.

AIM OF THE STUDY: The aim of the study was to compare different methods of assessing SO among patients with ischemic heart disease and those who are not affected.

MATERIALS AND METHODS: The study group consisted of 183 patients (≥65) examined in the project Białystok PLUS - 60 drawn from the general population of Białystok (PG) and 123 Białystok inhabitants diagnosed with Ischemic Heart Disease (IHD). The weight, height, appendicular lean mass (ALM), body mass index (BMI=weight/(height)^2) and body fat percentage using DEXA were measured. Muscle strength was tested with hand-grip strength. 4 different methods and criteria of assessing SO were used: ALM/BMI (women <0.512, men<0.789), ALM/height^2 (women <=5.67, men<=7.23), handgrip (women<16 kg men<26 kg), handgrip/BMI (women <0.56, men<1.00), all of them coexisting with body fat percentage >25% for men and >35% for women.

RESULTS: The prevalence of SO according to various methods were respectively: ALM/BMI 0 in PG, 29 in IHD (23.6%); ALM/ht^2 3 in PG (5%), 14 in IHD (11.4%); handgrip 1 in PG (1.7%), 5 in IHD (4.1%) and handgrip/BMI 4 in PG (6.7%), 18 in IHD (14.6%). In accordance with 2 methods (handgrip/BMI and ALM/BMI), the SO occurred more frequently among patients with IHD (p<0.05).

CONCLUSIONS: The prevalence of sarcopenic obesity varies depending on the chosen method of defining it. Different methods define different patients as obese and sarcopenic. Group of patients with ischemic heart disease presented higher prevalence of SO, regardless of the method used. Differences in definitions of SO lead to the variety of reports of clinical outcomes. Therefore standardization of the terminology and method ought to be performed.
Title: What high school students and university students of Rzeszow think about vaccinations - differences and similarities

Authors: Pałka P.¹, Barczak K.¹, Bilas P.¹, Branewska J.¹, Ostrowska B.¹, Brandys K.¹

Tutor/Tutors: dr n. med. Hanna Czajka

University: ¹ University of Rzeszów, Poland

INTRODUCTION: The discussion about the validity of vaccinations is getting louder and louder. Once, vaccinations saved lives, and today they have become the subject of much controversy. Therefore, it is necessary to analyze the causes of social phenomena that have occurred recently.

AIM OF THE STUDY: The aim of the study was to check if they exist and what the differences in the opinions and attitudes of high school students and university students about vaccination result from.

MATERIALS AND METHODS: Cross-sectional research was carried out among 2343 high school students and university students of Rzeszów. The research tool was a voluntary and anonymous proprietary questionnaire containing 21 single-choice questions. The questionnaire checked knowledge and attitudes related to vaccinations.

RESULTS: Results from 1973 respondents were received, which accounts for 84.12% of the total number of questionnaires distributed. Among the respondents, 46.59% were high school students, and 53.41% were university students. 71.80% of high school students are considered to be proponents of vaccination, compared to university students, of which 58.46% support vaccination. 8.07% more high school students than university students think that they should undergo obligatory and recommended vaccinations. In the last year, 70.91% of high school students and 47.99% of university students have been vaccinated. University Students significantly more often do not cling to the flu (77.38%), compared to high school students (68.43%). 18.10% of university students think that extra tack is unnecessary, while high school students have the same sentence of 7.35%. The rest of results are under development.

CONCLUSIONS: Differences in opinions and knowledge about vaccination between high school students and university students are noticeable. They can result from the influence of parents, the media and information acquired during the course of teaching. This may be reflected in decisions made in the future.
Pediatrics and Neonatology II
Title: Epidemiology of diabetes mellitus type 1 among children aged 0-14 in Podlaskie voivodeship in years 1989-2017 – one center study

Authors: Żołądek K., Panas P., Szabłowski M.

Tutor/Tutors: prof. dr hab. n. med. Barbara Głowińska-Olszewska, Milena Jamiołkowska, prof. dr hab. n. med. Artur Bosowski

University: 1 Department of Pediatrics, Endocrinology, Diabetology with Cardiology Division, Medical University of Bialystok, Poland

INTRODUCTION: Recent epidemiological studies conducted all over the world show a rising trend in incidence of diabetes, including diabetes mellitus type 1 (DMT1) in children patients. Diabetes appears to be one of the most dangerous 21st century epidemics.

AIM OF THE STUDY: To assess the (DMT1) incidence in children from Podlaskie Voivodeship in years 1989-2017 and the dynamics of changes in this phenomenon.

MATERIALS AND METHODS: The study group consisted of 1159 children (494 boys and 431 girls) who were treated in Department of Pediatrics, Endocrinology, Diabetology with Cardiology Division, Medical University of Bialystok, Poland between 1989-2017. The DMT1 incidence rate was calculated as the number of all newly diagnosed cases per 100 000 persons aged 0–14, gender and certain age groups. Statistical analysis was performed using STATISTICA.

RESULTS: In a studied 30-years period DMT1 was diagnosed in 1127 children aged 0–14 years, 588 boys and 539 girls, in Podlasie Voivodeship. The highest number of new cases was found in 2017: 54, with the lowest number in 1989: 26, and in 2001: 29. The average incidence rate in the studied period was 13,10/100 000 population, aged matched. The lowest incidence rate was found in 0–4 years old group: 11,53 /100 000, in 5–9 years old group was: 18,20/100 000 and was highest in 10–14 years old group: 20,83/100 000. The highest increase in incidence rate was noted in the youngest group: from 1,51/100 000 in 1989, to 30,61/100 000 in 2017. The difference in the number of cases between male and female patients was not statistically significant. Rise in incidence rate was found in the studied period from 6,49/100 000 in 1989, to 31,54/100 000 in 2017.

CONCLUSIONS: 1. The DMT1 incidence rate among children aged 0–14 years, in Podlasie Province, during 1989–2017 years was 13,10/100 000.

2. Incidence of DMT1 increased nearly 5 times during studied period.

3. The increase in incidence of DMT1 is in large measure the consequence of dramatic rise of incidence in the youngest age group.
INTRODUCTION: Deep vein thrombosis (DVT) can occur during the whole life, but increased frequency of this disorder is observed nowadays among children in developmental age. It is mostly related with numerous factors, including congenital thrombophilia, as well as environmental factors which include sedentary lifestyle and absence of physical activity.

AIM OF THE STUDY: The purpose of the study was to analyze the dependency between risk factors, localization and values of blood parameters occurring at patients hospitalized in the Department of Paediatric Oncology and Haematology from 2009-07 to 2019-03.

MATERIALS AND METHODS: The study group consisted of 26 children (male: 16, 1-18 years, mean age 13,1442±4,9955) treated from DVT in the Department of Paediatric Oncology and Haematology. The assessment was based on medical histories of the patients. All patients received LMWH. Parameters taken into consideration were: age, localization of DVT, potential causes. In every patient blood parameters including D-dimers, platelets and evolution of these parameters during treatment were evaluated. Localization of DVT was appraised by Doppler USG. All of the laboratory determinations were performed with standardized laboratory methods.

RESULTS: Every patient presented symptoms. 69,24% (n=18) of the children were between 13-18 years of age, 15,38% (n=4) were between 6-13 years of age, 7,69% (n=2) were between 1-6 years of age, 7,69% (n=2) were between 0-12 months of age. 27% patients (n=7) had positive family history of blood coagulation disorders. In 23,08 % of analyzed cases (n=9) DVT referred to femoral vein, 17,95% (n=7) to saphenous vein, 10,26 % (n=4) to deep veins of calf and the same to basilic vein. Analysis of patients blood parameters revealed that: 50% (n=13) had increased level of D-dimers (laboratory norm <500 ug/l; mean value: 1302,65±1619,05), 100% had normal values of platelets (mean value: 287,12 x 10^3±77,81 x10^3). All of the patients had antithrombotic treatment and in all of them the symptoms ceased.

CONCLUSIONS: Frequency of DVT among children is increasing. The Doppler USG remains the most available and best diagnostic method. Early recognition and start of the therapy promotes therapeutic success and relief of the symptoms.
Title: Hemolytic uremic syndrome in children with acute infectious pathology

Authors: Dryzhynskaya T.1, Hlod K.1

Tutor/Tutors: Lastauka Inna, Sidorovich Pavel

University: 1 Department of Pediatric Infectious Diseases, Belarusian State Medical University, Belarus

INTRODUCTION: Children’s incidence of hemolytic-uremic syndrome (HUS) in Belarus is one of the highest in Europe. HUS is a serious therapeutic problem in pediatrics and pediatric nephrology. Also HUS is one of the leading causes of acute renal failure (ARF) with potential transformation into terminal chronic renal failure (ESRD) at various times from the onset of the disease.

AIM OF THE STUDY: determine the features of the etiology, clinical course, diagnosis of hemolytic-uremic syndrome in children with acute infectious diseases

MATERIALS AND METHODS: A retrospective analysis of 42 case histories of children who were treated at Minsk Children's Hospital of Infectious Diseases from 2015 till 2018.

RESULTS: Girls 29 (69%) prevailed in the sexual structure of the disease compared with boys - 13 (31%), p <0.05. Median (Me) of age - 3 years 3 months. Children up to 3 years old - 21 (50%), from 3 to 5 years old - 18 (42.9%), over 5 years old - 3 (7.1%). In the prodromal period, 34 (81%) patients were preceded by diarrhea syndrome, 8 (19%) of them developed hemocolitis. Following nosological forms prevailed: acute gastroenteritis - 21 (50%), acute enterocolitis - 4 (9.5%), acute gastroenterocolitis - 5 (11.9%), ARVI - 3 (7.1%), ARI + abdominal syndrome - 2 (4.8%).

HUS was characterized by a classic triad: non-immune hemolytic anemia — 31 (73.8%), with schizocytes in a blood - 26 (65%) patients, thrombocytopenia - 34 (85%) patients, AKI with oligoanuric stage - in 2 (4.8%) children, with anuric - 4 (9.5%) and non-oligoanuric stage - in 36 (85.7%) patients. Azotemia was detected in 27 patients: urea - 21.1 ± 11.8 mmol/l, creatinine - 307 ± 19.7 mmol/l. 12 children developed subcompensated metabolic acidosis, pH = 7.308 ± 0.04, BE = −8.7 ± 3.3. 14.3% were discharged with improvement, 85.7% patients were transferred to other hospitals.

CONCLUSIONS: There was an increase in the incidence in children under 3 years old, p <0.05, in girls, p <0.05. Patients with AKI non-oligoanuric stage are characterized by high frequency of occurrence. Extrarenal lesions were more often associated with gastrointestinal tract involvement (acute gastroenteritis -21%, while hemocolitis in patients with diarrhea developed in 19% of cases)
**INTRODUCTION:** Irritable bowel disease (IBD) is a group of digestive tract inflammatory diseases, which is more and more often diagnosed in children. Proper lifestyle and nutrition are key for maintaining their rapid growth and maturing.

**AIM OF THE STUDY:** Assessment of Polish parents of children suffering from IBD lifestyle knowledge, pro-health behaviour and knowledge sources.

**MATERIALS AND METHODS:** 32 parents took part in the study, 25 were qualified. Qualification criteria were the child’s age (up to 20) and diagnosed IBD (Crohn’s disease or colitis ulcerosa). The study was conducted using an original questionnaire based on the current lifestyle guidelines (nutritional for people with IBD and physical activity guidelines for children).

**RESULTS:** 56% of children were underweight or malnourished. Their diet was based on cooked vegetables and fruits (96%), refined grain products (groat, pasta, rice) (92%), wheat bread (88%), lean dairy (84%) and lean meat (88%), especially poultry. Most common dietary mistakes were increased consumption of chocolate and sweets (84%), salt (80%) and fat meat products (60%). Most popular methods of cooking were boiling (55%), fat-free braising (14%) and roasting and baking (10%). 80% children did not smoke or consume alcohol. 60% did not use any special medical diet. Others used low-fibre (8%), lactose-free (8%), gluten free and vegetarian. 44% of parents declared lack, or could not determine the physical activity of their children. What should be alarming, 64% of parents based their knowledge on the information found online (groups, information gained from other people on chats), while 56% followed the doctor’s advice or read popular science articles. Only 20% took advantage of nutritional consultations led by qualified dietitians. Most parents rated their lifestyle knowledge as ‘good’ or ‘rather good’ (48% and 36% respectively).

**CONCLUSIONS:** Parents’ knowledge is unsatisfactory and its supplementation in some key aspects is advised. Further education is required, especially led by qualified medical professionals, highlighting the key role of the dietitian who should be present in every therapeutical team. More studies on the topic should be performed, as it is uncovered both in Poland and abroad.
Title: Urinary ngal after anticancer treatment in childhood cancer survivors.

Authors: Konończuk K.¹

Tutor/Tutors: Eryk Latoch, PhD

University: ¹ Pediatric Oncology and Hematology, Uniwersytet Medyczny w Białymstoku, Poland

INTRODUCTION: Nephrotoxic drugs used in anticancer treatment have a toxic influence on kidney cells. U-NGAL (Urine-Neutrophil Gelatinase-Associated Lipocalin) is an extracellular protein found in a proximal renal tube. Proximal renal tube damage decreases NGAL absorption, which contributes to the increase in the level of the protein in urine.

AIM OF THE STUDY: The evaluation and comparison of the u-NGAL, u-NGAL/u-Creatinine ratio in childhood cancer survivors according to diagnosis.

MATERIALS AND METHODS: The study group included 81 patients (male: 38, female: 43). The mean age at the time of study was 14.55 ± 5.10 years. The mean age after completed treatment was 6.45 ± 3.65 years. The study group was divided into two groups: patients treated for leukemia and Non-Hodgkin lymphoma (NHL) (n= 56; 69.14%), and solid tumors (n= 25; 30.86%).

RESULTS: eGFR was below the range norm for the given age in 23.46% of patients. U-albumin/u-Creatinine ratio (ACR) level was higher than 30 mg/g in 72.84% of patients. There was a negative correlation in the levels of eGFR and u-NGAL (rs= -0.327; p< 0.05). However, comparison of eGFR and u-NGAL separately for two groups revealed correlation only in patients treated for leukemia and NHL (rs= -0.384; p< 0.05). Urine albumin and u-NGAL (rs= 0.276; p< 0.05); u-NGAL/u-Creatinine ratio and u-NGAL (rs= 0.870; p< 0.05) as well as urine creatinine (u-Cr) and u-NGAL (rs= 0.237; p< 0.05) correlated positively in the whole group. There was no significant difference in u-NGAL levels and u-NGAL/u-Creatinine ratio between the two groups. The mean level of u-NGAL was 6.89 µg/l (1.83; 12.84) vs. 7.88 µg/l (1.19; 19.34) (p= 0.503); u-Cr 0.12 g/l (0.08; 0.18) vs. 0.09 g/l (0.07; 0.18) (p= 0.334); u-NGAL/u-Creatinine ratio 58.43 µg/g (13.74; 125.45) vs. 33.19 µg/g (14.30; 117.92) (p= 0.750); urine albumin 3.00 mg/l (3.00; 15.25) vs. 4.30 mg/l (3.00; 30.80) (p= 0.581); ACR 51.76 mg/g (25.21; 113.25) vs. 56.54 mg/g (34.88; 216.27) (p= 0.273); eGFR 113.03 ml/min/1.73 m² (98.80; 135.91) vs. 122.06 ml/min/1.73 m² (102.00; 143.18) (p= 0.608) respectively.

CONCLUSIONS: Almost 24% of patients had eGFR below the norm range for the given age. ACR was increased in 73% of patients. There was correlation in NGAL levels and u-NGAL/u-Creatinine ratio in patients in two groups in the first decade after the completion of treatment.
Title: Congenital nasolacrimal duct obstruction risk factors

Authors: Paulaitytė G.¹, Padvariškytė S.¹

Tutor/Tutors: Salomėja Ignotienė

University: ¹ Medicine Faculty, Vilnius University, Lithuania

INTRODUCTION: Congenital nasolacrimal duct obstruction (CNLDO) is most common cause of ocular discharge and epiphora. The frequency of this condition is about 11%. There is not much known about the risk factors for this condition. Several studies have documented the possible association between incidence of CNLDO and delivery by Cesarean section compared with vaginal delivery.

AIM OF THE STUDY: To find potential risk factors for developing congenital nasolacrimal duct obstruction

MATERIALS AND METHODS: Our study included 53 patients who were diagnosed with congenital nasolacrimal duct obstruction and treated in tertiary care childrens hospital in Vilnius, Lithuania between November 2018 and March 2019 with lacrimal probing. After obtaining informed consent, the parents underwent a medical interview. We analyzed potential risk factors for CNLDO.

RESULTS: Mean age of the baby presented in tertiary care centre for lacrimal probing was 28,92 weeks. The youngest infant was 4 weeks old and the oldest was 2 years and 4 months old. Mean birth time was 39,19 weeks. 4 of 54 babies were premature. A higher percentage of patients with congenital nasolacrimal duct obstruction (73,6%) were born during vaginal delivery and 26,4% were cesarean sections. 27 (50,9 %) women gave birth with epidural anesthesia. Mean age of the mother was 30,17 years. 11 of 53 women were 28 year old (20,8 %). It was the first child to 20 women (37,7 %). 33 women had a total of 2 or more children, out of them 9 had another child with nasolacrimal duct obstruction (27,3 %). No statistically significant associations were found between birth time, mode of birth, epidural anesthesia, age of the mother, number of children (genetics) (p>0,05).

CONCLUSIONS: Our study did not identify any potential risk factors for congenital nasolacrimal duct obstruction. We did not find any statistically significant association between maturity, mode of birth, epidural anesthesia, age of the mother, genetics and CNLDO. However, further investigation is needed due to the small size of our study group.
Title: Microbiological and epidemiological characteristics of bacterial otitis media among pediatric patients

Authors: Tomiņa K. 1, Dāle D. 1

Tutor/Tutors: Dr. Jānis Sokolovs, Children’s Clinical University Hospital, Latvia

University: 1 Faculty of Medicine, Riga Stradiņš university, Latvia

INTRODUCTION: Considering differences in children’s anatomy and immune system, they are more susceptible for ear infections, hence bacterial middle ear infections are significant diseases among pediatric patients.

AIM OF THE STUDY: was to summarize and analyze epidemiological and microbiological data in cases of bacterial otitis media among pediatric patients.

MATERIALS AND METHODS: This retrospective study includes data of 192 pediatric patients with middle ear infections, admitted to Children’s Clinical University Hospital in Latvia, from 1.01.2015. to 31.12.2018. Data was collected from patients’ clinical records; gender, age at time of admission, hospital stay in days, microbial culture test results were analyzed and categorized according to diagnoses: acute and chronic suppurative otitis media. For data analysis Microsoft Excel was used.

RESULTS: Among 100 patients with acute suppurative otitis media 52 (52.0%) were males and 48 (48.0%) females. Mean age in this group was 5.2 years (range 0.2-17.8 years); median hospital stay 6.5 days. Most prevalent bacteria found were Staphylococcus spp. (37.2%), Streptococcus spp. (28.4%). Also Corynebacterium spp. (8.1%), Pseudomonas spp. (6.1%), Haemophilus spp. (4.7%) and other species were found. Infection was monomicrobial in 63% of cases, polymicrobial in 37%. Acute mastoiditis was a complication in 42 of otitis media cases. Among these patients 24 (57.1%) were males, 18 (42.9%) females, mean age 4.1 years, mean hospital stay 10.2 days, prevalent bacteria: Staphylococcus spp. (39.3%) and Streptococcus spp. (37.5%). Among 92 patients with chronic suppurative otitis media 67 (72.8%) were males, 25 (27.2%) females; mean age was 12.0 years (range 0.3-17.9 years). Mean hospital stay 7.9 days. Most common bacteria found were Staphylococcus spp. (36.2%), followed by Corynebacterium spp. (18.9%), Pseudomonas spp. (9.7%), Streptococcus spp. (5.9%) and others. In 33.7% of cases infection was monomicrobial, 66.3% - polymicrobial.

CONCLUSIONS: Most common bacteria found were Staphylococcus spp., followed by Streptococcus spp., Corynebacterium spp., Pseudomonas spp. Polymicrobial infection was detected more often in cases of chronic otitis media. Median age was higher in cases of chronic otitis media.
**Title:** Special needs children in Lithuania. Their lifestyle, employment prospects and self determination.

**Authors:** Mulokas N.¹, Paulaitytė G.¹

**Tutor/Tutors:** Prof. dr. Sigita Lesinskiene

**University:** ¹ Faculty of medicine, Vilnius University, Lithuania

**INTRODUCTION:** Choosing a future career, child needs information support, another person support and self-awareness help. With regard to each individual child’s competence and awareness of their limitations and external realities, each of that is important to the developing mind and outside-the-box thinking we generally associate with children. According to Lithuanian Department of Statistics 3656 children attended Special needs schools in Lithuania in 2017-2018. Special needs children in Lithuania are rarely asked about their personal interests. This directly contrasts with typical children who are frequently asked and thus readily provide thought out responses to such questions regarding their likes or dislikes and even imagined career choices based on their activities.

**AIM OF THE STUDY:** To analyse special needs children interests and self realisation

**MATERIALS AND METHODS:** At the beginning of 2019, a research was carried out in Special Needs „%u0160ilas” school in Vilnius, Lithuania. We were able to individually interview special needs children and discuss with each of them their own personal likes or dislikes within school subjects, their afterschool activities, most favorite hobbies, as well as their immediate outside of school family situation which influences both the manifestation and follow-through of these interests. Each student’s medical and psychiatric history including IQ were noted with each interview result, but kept anonymous.

**RESULTS:** A total of 27 children took part in the research. They include 10 females (37%) and 17 males (73%), between the ages of 10 and 21, with the average age at 16 years old. 18 of them have brothers and/or sisters and 9 are the only child in the family. Most of the children noted their interest in mobile phones and computer games, art and different afterschool activities. 19 children (70,4%) said that they know what they want to do after they finish their school.

**CONCLUSIONS:** The level of IQ has statistically significant association on each student’s ability to comprehend and answer the questions, but social exposure to the topics of personal interests and other external factors have a great influence on each student’s self realisation.
**Title:** Childhood anemia after infancy

**Authors:** Parambul K., Wyszyńska K., Tarasiuk K.

**Tutor/Tutors:** Małgorzata Sawicka-Żukowska, PhD

**University:** Department of Pediatric Oncology and Hematology, Medical University of Bialystok, Poland

**INTRODUCTION:** Childhood anemia is a crucial hematologic issue. Deficiency anemia may be caused by lack of iron, folic acid or vitamin B12, it can also coexist with clinical situations like inflammation, gastrointestinal bleeding, abundant menstruations.

**AIM OF THE STUDY:** The aim of the study was to determine the causes, blood morphology, other parameters and treatment of anemia among children aged above 1 year.

**MATERIALS AND METHODS:** Medical documentation of patients hospitalized from February 2016 to February 2019 in the Department of Pediatric Oncology and Hematology, Medical University of Bialystok was analysed. The examined group comprised 53 children aged 1–17 years (8 + 5,69 yrs, 34 girls). Medical history, family history, diet and symptoms were analysed. The analysis included blood morphology parameters - RBC, Hb, MCHC, MCH, MCV, reticulocytes, RET-He, ferritin and iron concentration, UIBC, vitamin B12 and folic acid concentration, anti-tTG, presence of H. pylori infection, presence of blood in stool, calprotectin concentration in stool, urine, CRP.

**RESULTS:** 64% cases of anemia were observed in girls. The most common symptom of anemia was fatigue. In 8 patients anemia was diagnosed coincidentally. The most common cause was iron deficiency (n=15) due to menorrhagia (n=7), gastrointestinal diseases (n=8) like H. pylori infection (n=4), celiac disease (n=2), short bowel syndrome (n=1), colitis (n=1). 23 patients required transfusion, 19 patients received iron parenterally. Simultaneous vitamin B12 and iron deficiency was diagnosed in 3 cases. 14 patients were hospitalized for hereditary anemia (spherocytosis n=6, thalassemia minor n=6). Median Hb concentration was 8,2 g/dl, MCV 70 fl. The lowest reticulocytosis (1,2‰) and RET-He (14,2 pg) were observed in patients with deficiency anemia. Ferritin and iron concentration were statistically lower in patients with iron deficiency anemia, but platelets level was higher than in other types (p<0,01).

**CONCLUSIONS:** Childhood anemia may have various causes and be linked to different clinical situations. In most cases ambulatory care is sufficient, but some require hospitalization for proper diagnosis and treatment. Blood morphology evaluation should be performed at least once or more frequently in children from risk groups.
INTRODUCTION: Necrotizing enterocolitis is a severe multifactorial intestinal damage neonatal period. In 70 - 90% it concerns prematurely born children with mass body below 1500g. The etiopathogenesis of necrotizing enterocolitis is complex and has not remained fully explained.

AIM OF THE STUDY: The aim of our work was to try to select the risk factors for necrotizing inflammation intestines in full-term newborns as well as analysis of the treatment used within this group of patients.

MATERIALS AND METHODS: The research group consists of 12 patients of the Newborn Intensive Care and Pathology Department, hospitalized in 2010-2018. The inclusion criteria were the criteria of occurrence of necrotizing enterocolitis in newborns born after 36 and 6/7 weeks of pregnancy. It is a retrospective study and the analysis was based on available medical data.

RESULTS: In the examined group of patients, the significant repetition of the factors occur, such as: birth weight less than 3000 g, birth via cesarean section, anemia and the occurrence of a heart defect. The degree was also analyzed disease advancement and treatment.

CONCLUSIONS: Due to the incidence and severity of necrotizing enterocolitis of newborns, further work on the full explanation of the aetiopathogenesis is extremely important and should be continued. A better understanding of the reasons for occurrence of NEC will allow precise identification of at-risk patients and more effective disease prevention.
INTRODUCTION: The incidence of type 1 diabetes mellitus (DM I) is rising. Newly discovered peptides: adropin, afamin and neudesin may play a key role in the diagnostic process in the future. Most studies assessing the relationship of those peptides provide data obtained from studies conducted on animals, adults with type DM II and women with gestational DM. There are only few studies concerning these relationships in children.

AIM OF THE STUDY: The aim of the study was to evaluate the concentration of adropin, afamin and neudensin in blood serum of children with DM I and the control group, taking into consideration the duration of the disease.

MATERIALS AND METHODS: The study population consisted of 138 patients aged 5-18 years (male: 40.58%). The examination was performed in the group of children with diabetes mellitus type I (n=68), and the control group (n=70). The diabetic group was divided into 4 subgroups: (I) newly diagnosed patients, (II) duration no longer than 5 years, (III) 5 to 10 years and (IV) > 10 years. Serum concentrations of all peptides were assessed and compared. P<0.05 was considered statistically significant.

RESULTS: Mean level of adropin and afamin and were statistically higher in subgroup III than in I: adropin (I 5978.18 vs III 10457.15 p=0.023), afamin (74.09 vs 95.72 p=0.037). Comparing subgroup I and IV there was the difference in adropin (5978.18 vs 9559.7 p=0.04). There was higher level of afamin in the subgroup II comparing to III (75.74 vs 95.72 p=0.018). There were statistical significant differences in below mentioned peptides and the control group: adropin, afamin and neudensin in the subgroup I; afamin and neudensin in subgroup II, adropin and afamin in subgroup III and afamin and neudensin in subgroup IV. The differences such as statistically significant increased mean level of adropin and afamin and stable mean level of neudensin correlated to longer duration of the disease were observed.

CONCLUSIONS: Our study shows that the concentration of adropin, afamin and neudesin may be connected with the time of current DM I and may change during the duration of the illness. That knowledge can be used in the future to use these peptides as biomarkers of this disease. However further studies are needed.
**Title:** Evaluation of risk factors associated with prolonged length of hospital stay in children with sepsis

**Authors:** Szewczak B.¹, Kowalska M.¹, Salameh S.¹, Altin T.¹

**Tutor/Tutors:** Kacper Toczylowski

**University:** ¹ Department of Pediatric Infectious Diseases, Medical University of Bialystok, Poland

**INTRODUCTION:** The mortality of sepsis in adult population has decreased since the implementation of the Surviving Sepsis Campaign guidelines. Unfortunately, however, the management of pediatric sepsis depends on expert consensus and evidence extrapolated from adult sepsis. There is a necessity for individualized management guidelines for pediatric population.

**AIM OF THE STUDY:** We aimed to identify early-available prognostic factors associated with prolonged length of hospital stay.

**MATERIALS AND METHODS:** We retrospectively analyzed the medical records of patients with sepsis, hospitalized in the University Children’s Clinical Hospital of Bialystok between 2016-2018.

**RESULTS:** A total of 38 children were enrolled in the analysis. The prolonged stay was described as the length of stay >75th percentile of the cohort (27 days) in 9 children. The analysis of risk factors revealed that blood leukocytes, blood platelets, serum albumin concentration, activated partial thromboplastin time (APTT), age under 1 year, and weekend hospital admission were associated with prolonged hospital stay. However, in multiple logit regression on blood leukocytes and APTT remained statistically significant. Optimal cut off-values calculated in ROC analysis revealed that blood leukocytes <4200/mL and APTT>34.8s predicted prolonged stay (respectively, OR 35.0; 95% CI: 3.21-381.61; P = 0.0035; OR 27.0; 95% CI: 3.67-198.70 P = 0.0012).

**CONCLUSIONS:** Prolonged APTT and leukopenia on admission are important factors predicting extended therapy period and worse outcome in children with sepsis. In order to improve management of pediatric sepsis, there is a need for individualized therapy targeting these two challenges.
Title: Analysis of the prevalence of haptens in bath preparations for atopic skin available in Polish online drugstores.

Authors: Natkańska A.¹, Nędzi M.¹

Tutor/Tutors: Katarzyna Kunkiel MD, Wojciech Feleszko MD PhD

University: ¹ Department of Pediatric Respiratory Diseases and Allergy, Medical University of Warsaw, Poland

INTRODUCTION: Atopic dermatitis (AD) is common inflammatory disease with skin barrier dysfunction. The current guidelines for AD recommend bath preparations in basic therapy but there is no strong evidence of clinical benefits. For skin sensitization, emulsifiers, fragrances substances and preservatives in dermo-cosmetics belong to major culprits. Furthermore, the economic burden of bath products has been increasing.

AIM OF THE STUDY: This study was performed to determine the prevalence of haptens from European Baseline Series, Cosmetic and Fragrance series in bath preparations available in polish online drugstores.

MATERIALS AND METHODS: Systematic analysis of products (described as “bath preparations” and “intended for atopic skin”) was performed in 19 largest retail chain polish drugstores in 2018 by two independent researchers. Detailed composition of products, based on INCI (International Nomenclature of Cosmetics Ingredients), were analyzed and compared with 145 different haptens listed in European Baseline Series, Fragrance and Cosmetic Series.

RESULTS: 137 bath preparations met out inclusion criteria. For 6,6% of them information on their ingredients was not identified. The analysis of the date revealed that 113 (82,5%) preparations contain from 1 to 17 different haptens (average 2,9 allergens). The most common compounds were parfums in 49,6% of products, cocamidopropyl betaine – 45,1%, tocopheryl acetate or tocopherol- 37,2%, propylene glycol- 23% and phenoxyethanol-16,5%. Additionally, soaps comprised fewer potential sensitizers than the other cosmetics forms (46,15% of them were hapten-free products). Whichever of the products’ price, both more and less expensive than 2,5 €/100ml contained similar number of haptens (3 and 2,8 haptens, respectively).

CONCLUSIONS: This analysis revealed that regardless of price, a significant number of bath products for atopic skin contained haptens. Surprisingly, despite the evidence of skin frequent sensitization, parfums have proved to be the most common of them. A large number of products available on the market allows appropriate selection of cosmetics, which seems to be a chance for patients with AD reducing the risk of contact dermatitis.
Title: Evaluation of patients' preference of leave-on emollients - a survey on patients with atopic dermatitis.

Authors: Nędzi. 1, Natkańska A.1

Tutor/Tutors: Katarzyna Kunkiel M.D., Wojciech Feleszko M.D., Ph.D..

University: 1 Department Of Pediatric Respiratory Diseases And Allergy, Medical University of Warsaw, Poland

INTRODUCTION: Atopic dermatitis (AD) is a chronic disease affecting up to 20% of children. The growing concern relating to the skin barrier dysfunction resulted in development of market of dermo-cosmetics and wide choice of emollients for atopic skin. The selection of the best emollient is usually based on „trial and error” and it poses a challenge to patients and clinicians.

AIM OF THE STUDY: The primary objective of our study was to evaluate factors that influence on patient’s emollient preferences.

MATERIALS AND METHODS: We conducted telephone and online surveys among 250 parents of children between 1 and 18 years (median age of 3) with physician-confirmed AD. Parents determined the level of importance of the different factors that impact on buying decisions of emollients in 1 to 5 scale (1 - not at all important, 2 - slightly important, 3 - moderately important, 4 - very important, 5 - extremely important).

RESULTS: We took into consideration 12 features of products, 3 different types of recommendations and preferred types of emollient packaging. Most of our responders indicate personal tailoring of emollients to the skin as particularly important (91% - very important and extremely important). Other important features of emollient, being important and extremely important for AD patients were: lack for preservatives and allergens (82%), hydrating activity (67%), presence of vitamins and probiotics (61%), vegetable products (51%), and greasiness (51%). Surprisingly, neither colour (91%), scent (81%), storage conditions (48%), nor shelf-life (43%) were regarded as important or slightly important.

Physicians were regarded as the most trustful source of recommendation while choosing an emollient (54%). Internet and TV were considered as slightly or not important (61%). The majority of respondents (74%) prefer a bottle with a pump as an application tool.

CONCLUSIONS: Parents strongly perceive doctors as expert advice. Due to individual-dependent characteristics and different severity of atopic dermatitis, the indication of one best preparation for patients is problematic, downright impossible. However, we believe that recommendation of specific free-haptens emollients is one of milestones on the way to the best emollient individually tailored to the patient’s skin.
Interdisciplinary Session
INTRODUCTION: Cornea damages are widely spread over the world and have great social and economic outcome. The main method of corneal damage therapy is corneal transplantation, but it encounters a number of problems. In the same time, stem cell therapy appears to be perspective way to treating eye diseases.

AIM OF THE STUDY: The aim of study was to define the efficiency of application of limbal stem cells and adipose stem cells of the orbit of the eye in the cell therapy of cornea inflammatory and degenerative diseases.

MATERIALS AND METHODS: The research was carried on 10 rabbits. Firstly, we get limbal and adipose steam cells. Than cornea alkaline burn was modulated. During treating the right (experimental) eye the application of stem cells, lubricants and antibiotics were used. The treating of the left (monitoring) eye was almost the same, but without stem cells application. The rabbits were removed from experiment on 5th, 14th and 30th day.

RESULTS: In experimental slides on the 5th day epithelium irregular regeneration and connective tissue edema were founded. In the control slides a massive defect of the epithelium and severe inflammation were noticed. On the 14th day, in experimental slides sings of cornea vessels fullness and complete epithelialization, which indicated active regeneration. In the control slides there was a weak, irregular regeneration, dystrophic changes in the epithelium. On the 30th day on the experimental slide no irregular regeneration of the epithelium, edema of connective tissue was observed. In the control slide, regeneration also took place, but it was irregular in the form of thinning, thickening of the epithelium and its villous growths. Edema in the connective tissue persisted.

CONCLUSIONS: The analysis of the material allowed us to define that using stem cells in the recovery proceeds much better, the structure of the cornea is approaching normal. At the same time, treatment with traditional methods without the using stem cells is accompanied by irregular regeneration and significant pathological changes. As result we can say, that cell therapy using mesenchymal cells is an important step in regenerative medicine of eye diseases.
Title: Status of selective thyroid hormones in women after kidney transplantation

Authors: Golubeva M.¹

Tutor/Tutors: Prof. Tatiana Mokhort, MD Anastasia Kudrytskaya

University: ¹ Endocrinology, Belarusian State Medical University, Belarus

INTRODUCTION: Chronic kidney disease (CKD) takes one of the leading places in the world among chronic noncommunicable diseases. According to the International Society of Nephrology the prevalence of CKD reaches 12%. Terminal stage of renal failure (ESRD) is associated with impaired function of the thyroid gland. Patients receiving hemodialysis (HD) experience changes in the level of thyroid, gonadal hormones. Kidney transplantation (KT) is a golden standard in treatment of ESRD and is vital for improving the longevity and quality of life in these patients.

AIM OF THE STUDY: To investigate thyroid functional state in women of reproductive age after kidney transplantation.

MATERIALS AND METHODS: The study included 61 women. A study group (SG) consisted of 34 women (36.00±5.81 years) with a transplanted, adequately functioning kidney who were operated in the period of 2010-2018. Before KT all patients received HD (duration is 27.78±40.18 mo.). The control group (CG) consisted of 27 healthy women (29.00±7.71 years). Thyrotropin (TSH), free thyroxin (FT4), anti-thyroid autoantibody (anti-TPO) were examined in all patients by ELISA.

RESULTS: Among the women of CG no abnormalities were found in the studied hormones (AT-TPO 10.00±69.84 ME/ml vs 8±4.09ME/ml), TSH (2.11±1.21 mmol/ml vs 1.93±1.45 mmol/ml), FT4 (13.1±2.39 pmol/L vs 13.45±1.8 pmol/L). There were no differences between the total SG and the CG for the estimated parameters. At the same time differences in the level of FT4 were noted depending on the observation period after transplantation. The decrease in AT-TPO levels (8±3.58 ME/ml vs 9±4.58 ME/ml), TSH (1.61±1.25 mmol/ml vs 2.14±1.58 mmol/ml), FT4 (14.10±1.46 pmol/L vs 13.30±2.09 pmol/L) was observed in the SG of the graft period 37 months and more after transplantation (96.00±11.32 mo., n=16), compared to the patients with a shorter graft period (24.00±28.72 mo., n=18).

CONCLUSIONS: The results have shown that KT contributes to the restoration of the thyroid functional state in women with a gradual decrease in TSH and an increase in FT4, no differences in anti-TPO measurements.
Title: Biomechanically corrected intraocular pressure measurements using a dynamic scheimpflug analyzer after corneal collagen cross-linking in patients with keratoconus

Authors: Malugina V., Avotina E.

Tutor/Tutors: Asoc. Prof. Igors Solomatins, Dr. Med. Jana Gertnere

University: Faculty of Medicine, University of Latvia, Latvia

INTRODUCTION: The dynamic Scheimpflug analyzer provides a new and validated biomechanically corrected IOP measurement. The algorithm for biomechanically corrected IOP is based on numerical simulation of the dynamic Scheimpflug analyzer procedure as applied on human eye models with different tomographies, material properties, and true IOPs. The biomechanically corrected IOP is an estimate of true IOP or corrected value of the measured IOP, which considers the biomechanical response of the cornea to air pressure, including the effects of the variation in CCT and material behaviour.

AIM OF THE STUDY: To evaluate the biomechanically corrected intraocular pressure (IOP) and uncorrected IOP measurements after corneal collagen cross-linking (CXL) using a dynamic Scheimpflug analyzer (Corvis ST).

MATERIALS AND METHODS: This study included 26 eyes of patients with keratoconus (KC) having CXL. Using a non-contact tonometer with a high-speed Scheimpflug camera (Corvis ST) biomechanically corrected IOP and uncorrected IOP parameters were recorded preoperatively and 6 months postoperatively. Obtained results were processed by the software IBM SPSS Statistics 25.0.

RESULTS: Data were collected from 26 eyes of 26 patients having CXL. The mean age of the patients (male 21, female 5) was 29.0 years ± 6.6 (SD). Biomechanically corrected IOP and uncorrected IOP was higher after CXL (respectively 0.66 ± 1.64, P=0.049 and 0.24 ± 0.33, P=0.472). Preoperatively the uncorrected IOP (10.65 ± 2.00) was lower than the corrected IOP (12.22 ± 1.84). Postoperatively the uncorrected IOP (10.89 ± 2.10) was also lower than the corrected IOP (12.88 ± 2.00).

CONCLUSIONS: Results indicate statistically significant changes in biomechanically corrected IOP. The dynamic Scheimpflug analyzer showed stable biomechanically corrected IOP measurements preoperatively and postoperatively.
Title: The experience of pain among opioid dependent patients in methadone maintenance treatment

Authors: Fudalej M.¹, Maksimiuk M.¹

Tutor/Tutors: dr hab. n. med. Sylwia Fudalej

University: ¹ Faculty of Medicine, Medical University of Warsaw, Poland

INTRODUCTION: Methadone maintenance treatment is aimed at helping opioid dependent patients. As of 2017, some 2,500 patients participated in this program in Poland, which made up about 15% of all opioid-dependent individuals. Chronic pain is common among these patients with 45-61% suffering from it.

AIM OF THE STUDY: The aim of the study was to evaluate the incidence of pain among methadone maintenance treatment patients and the relationship between its presence and patients’ mental and somatic health as well as their social and professional functioning.

MATERIALS AND METHODS: The study was conducted on a group of 237 methadone maintenance treatment patients. They were given a survey containing: Brief Pain Inventory (BPI), Short Form Health Survey (SF36), Suicidal Intent Scale (SIS), Beck’s Scale for Suicidal Ideation (BSS), Michigan Alcohol Screening Test (MAST), Barratt Impulsiveness Scale (BIS-11), as well as questions about suicidal attempts, legal issues, and socioeconomic status. χ² and Mann-Whitney U tests were applied to investigate differences between those suffering and free from the pain according to BPI.

RESULTS: 54,9% of the patients stated being in pain, yet 70,9% of them did not take any medications (including analgesics). We reported correlation between being in pain and worse physical functioning (p=0,001), role limitations due to physical health (p<0,001) and due to emotional problems (p=0,042). We also found patients in pain achieved higher results in BSS (p=0,005) and SIS (p=0,045). They also were more likely to having attempted suicide (p=0,003) and to develop alcohol addiction (p=0,051). They more frequently experienced violence to the point of fear for their life before turning 18 (p<0,001). There was no correlation between experiencing pain and age, sex, education, impulsiveness, social status, legal status.

CONCLUSIONS: Our study highlights the importance of pain among methadone maintenance patients. It leads to worsening of quality of life, alcohol addiction, suicidal ideation and attempts. This implies an increased need for routine assessment and accurate treatment of pain in these patients. The positive correlation of pain and violence experienced at youth implies a necessity for taking action against domestic violence.
Title: Impressions of patients after phacoemulsification cataract surgery and intraocular lens implantation under topical anaesthesia – retrospective study.

Authors: Zimnoch J.\(^1\), Konon K.\(^1\)

Tutor/Tutors: Joanna Konopińska MD, PhD Emil Saeed MD

University: \(^1\) Department of Ophtalmology, Medical Univeristy of Bialystok, Poland

INTRODUCTION: In Poland the cataract has affected 800000 people. It’s one of the most common causes of blindness world wide. The most widely used form of treatment is lens phacoemulsification, a single day admission surgery requiring cooperation with the patient, thus recognising patients’ perspective during and after the operation may be crucial to cataract surgery outcomes.

AIM OF THE STUDY: The aim of this study was to assemble information about subjective experiences after operation.

MATERIALS AND METHODS: The analysis was performed retrospectively according to the data surveyed from 52 patients (38 women, 14 men) in mean age of 77,2 (SD=±8) years, qualified for phacoemulsification.

RESULTS: During surgery 22 patients (42 %) suffered from pain in the operated eye though pain relievers were needed for 6 patients (12%). Apart from the eye 8 patients (15%) felt pain in the another parts of their body . The bandage on the eye caused discomfort among 15 patients (29%). 21 patients (40%) felt dizziness after the surgery. 6 patients (12%) would prefer to be operated in other body position: sitting (2) (4%) and half-sitting (4) (8%). Difficulties with standing up after procedure affected 23 patients (44%). 35 patients (67%) expected precise information concerning surgery’s success. 2 patients (4%) would like to remain alone in the first hours after the surgery. 25 patients (48%) would like leave the hospital immediately after the surgery. Waiting for the discharge form was tiresome for 14 patients (27%). The surgery was shorter than expected for 25 patients (48%), longer for 10 (19%) of them. The information given to the patients were sufficient to the 34 of them (65%).

CONCLUSIONS: Majority of the patients didn’t suffer pain after the operation. Only few of them were in need of painkillers. The most common complication was dizziness. This indicates that phacoemulsification is relatively complication-free type of surgery. However many of the patients expected precise information about the outcome of surgery and were willing to leave the hospital just after the operation. Our future efforts in this field should focus on minimalizing the time required for discharging the patient and making his waiting more pleasant.
INTRODUCTION: Enucleation and evisceration are the final methods of the eye treatment, when others methods, conservative or operative failed. The most common indications are advanced tumors and “painful blind eye” after end-stage ocular diseases. The less common is removal due to severe eye trauma. Evisceration is technically easier procedure than enucleation, cause less disorders of the eye socket and less complications after surgery. Enucleation is done most often in case of intraocular malignancies.

AIM OF THE STUDY: Comparison of the frequency of operation types, amount of complications, indications to surgery, visual acuity and accompanying diseases in patients subjected to surgeries.

MATERIALS AND METHODS: Documentation of 45 patients who underwent enucleation or evisceration in Department and Clinic of Ophthalmology II WL WUM, in years 2015-2017 was retrospectively analyzed. Analyzed parameters were: demographics, primary clinical diagnosis, main cause of ophthalmic surgery, type of surgery and accompanying diseases. The postoperative control visits were investigated for complication connected to surgery in 3 months follow up.

RESULTS: Examined group was 18 man (40%) and 27 woman (60%). Average age in time of operation was 59,4. 19 (42,22%) patients underwent enucleation and 26 (57,78%) had evisceration. Eye implant was implanted to 38 patients. The most common indication was glaucoma (48,89%), next were corneal perforations (28,89%), injuries and inflammations (both 26,67%) and neoplasms (4%). 33% has accompanying diseases – the most common was diabetes. 46,67% patients has complications after surgery, most often was purulent secretion from conjunctival sack, edema and necessity of eye socket plasticity. Statistically significant difference between enucleation and evisceration has not been revealed in this study.

CONCLUSIONS: Evisceration was executed more often. The most common indication was “painful blind eye” due to glaucoma. There was no statistically significant difference between the frequency and type of complication of these techniques. The most common complication was purulent secretion from conjunctival sack.
Title: Relative eye axial length changes after one hour of induced short term monocular defocus.

Authors: Avotina E.1, Malugina V.1

Tutor/Tutors: Mg. Sc. Janis Baltraitis, Prof. Igors Solomatins

University: 1 Faculty of Medicine, University of Latvia, Latvia

INTRODUCTION: Australian researchers demonstrated that axial length reduces after exposure to myopic defocus and axial length elongates after hyperopic defocus [3]. Also significant transient elongation of axial length during short periods of accommodation has been observed in young adults. It has been hypothesised that this axial length elongation during accommodation may be produced by the force applied to the equatorial choroid by ciliary muscle contraction, thus necessitating posterior pole elongation to maintain a constant ocular volume. [4]

AIM OF THE STUDY: The aim of the current study was to investigate if human eye axial length (the distance between anterior cornea to retinal pigment epithelium) changes depending on induced short term monocular defocus (+3D; -3D; diffuse).

MATERIALS AND METHODS: Twenty-five adults evaluated in this study. Mean age 25±3,4. Everyone was tested with three monocular defocus each on a different day: diffuse, myopic (+3D defocus), hypermetropic (-3D defocus). Before, after thirty minutes and sixty minutes of defocus, everyone was tested with autorefractometer and ZEISS IOLMaster where we measured axial length. With -3 lense we got hypermetropic effect which means light rays focuses behind the retina, with + 3 lense - myopic effect when light rays focuses in front of the retina.

RESULTS: Using paired-t test AL at baseline and AL after one hour mean value of hypermetropic (-3D) defocus before and after one hour did not show any statistically significant difference in the axial length (SD=0,015; p>0,05). Mean value of diffuse defocus before and after one hour also did not show any statistically significant difference in the axial length (SD=0,127; p=>0,05). Mean value of myopic (+3D) defocus before and after one hour showed statistically significant difference in the axial length (SD=0,117; p=<0,05). The relative changes with hypermetropic defocus was 2,4µm, myopic defocus -8,4µm and with diffuse it was 3,2µm.

CONCLUSIONS: We have found statistically significant axial length changes using myopic defocus (+3D). We observed that anatomical structures of the eye can be influenced by solely optical manipulations and that shows significant role of using appropriate optical correction method on daily basis.
**Title:** Evaluation of treatment outcomes in patients treated with primary radiotherapy for laryngeal squamous cell carcinoma in 2007-2017

**Authors:** Bubilaite A.¹, Zakaitiene G.¹

**Tutor/Tutors:** dr. Evaldas Padervinskis (Department of Otorhinolaryngology) and dr. Viktoras Rudzianskas (Department of Oncology)

**University:** ¹ Lithuanian University of Health Sciences Medical Academy, Lithuania

**INTRODUCTION:** Radiotherapy (RT) is a treatment modality for laryngeal cancer in its early stages and in several advanced stages neoplasms combined with chemotherapy (CRT).

**AIM OF THE STUDY:** To analyze the results of primary RT in the treatment of laryngeal cancer and patients survival rate.

**MATERIALS AND METHODS:** 95 patients who underwent primary RT or CRT for biopsy-proven laryngeal squamous cell carcinoma or carcinoma in situ (CIS) during 2007-2017 were included in the study. Patients records, videolaryngostroboscopy (VLS) and Computer Tomography (CT) results, treatment modalities, outcomes and death data were investigated. 5-year survival rate was calculated and compared within the groups. Influence of different factors on recurrence and progression of the disease as well as on patients survival prognosis was analyzed.

**RESULTS:** 30% of patients were identified as having 1st stage cancer, 22% - 2nd stage, 14% - 3rd stage, 22% - 4th stage and 12% CIS. Most of the patients' histology revealed Grade 2. Nodal disease was presented in 26% of cases. 19% revealed to have recurrence of the disease, 11% progression, 2% both recurrence and necrosis, 4% necrosis alone and 20% subjects outcome is unknown due to not attending the follow up. Recurrence did not depend on stage, though progression of disease was higher in advanced-stage (3rd-4th stages) group (p=0.02). Neither recurrence nor progression depended on age, grade, VLS and CT parameters (p>0.5). Progression of disease was higher in patients who presented nodal disease (p=0.01). 5-year survival in 1st, 2nd, 3rd, and 4th stages were 69%, 40%, 47%, and 38% respectively. Statistically significant difference was found between early (47 months) and advanced (37.6 months) stages survival (p=0.01). Death risk rate was 3.4 times higher in advanced stage group patients who were treated with RT alone compared to those treated with CRT. For the recurrence or necrosis, salvage surgery with or without flap was performed.

**CONCLUSIONS:** RT for the advanced stages laryngeal carcinoma should be considered with caution as disease progression rate and death risk is higher. 5-year survival is poor in the 2nd stage group and treatment methods for this stage should be revised in our hospital.
Title: Perivascular epithelioid cell tumor (PEComa) - single-center clinical analysis of 21 cases with emphasis on systemic treatment

Authors: Jastrzębiowska K.¹, Sobiborowicz A.¹

Tutor/Tutors: prof. dr hab. n. med. Piotr Rutkowski, dr hab. n. med. Anna Czarnecka, lek. Paweł Tetrycz

University: ¹ Department of Soft Tissue/Bone Sarcoma and Melanoma, Maria Sklodowska-Curie Institute-Oncology Center in Warsaw, Poland

INTRODUCTION: Perivascular epithelioid cell tumors (also known as PEComas) are mesenchymal neoplasms composed of spindle cells expressing both melanocytic and smooth muscle markers. Heterogeneous PEComa family includes renal angiomyolipomas, lymphangioleiomyomatosis of the lungs, as well as a variety of tumors originating from different anatomical sites which are referred to as ‘PEComa not otherwise specified’ (PEComa-NOS).

AIM OF THE STUDY: The aim of this study was to analyze and compare the treatment of PEComa with doxorubicin and sirolimus, in order to improve our knowledge about effectiveness of the systemic therapy in this family of tumors.

MATERIALS AND METHODS: 21 (15 females and 6 males) consecutive PEComa patients (pts) diagnosed and treated in Department of Soft Tissue/Bone Sarcoma and Melanoma, Maria Sklodowska-Curie Institute-Oncology Center in Warsaw between 1999 and 2018 due to PEComa, 7 of them (5 female and 2 male) were eligible for systemic therapy due to metastatic/inoperable disease.

RESULTS: In this cohort 4 patients were treated with sirolimus up-front, while 3 received doxorubicin-based therapy before availability of sirolimus and received this targeted therapy in second line. The median observation time reached 44 months. The mean age at the diagnosis of metastatic disease was 45 years. No other modalities (surgery, radiotherapy) were used in treatment of those 7 patients in metastatic setting. Median progression free survival (PFS) was 4.9 months (95% CI: 4.0-NA) for doxorubicin-based treatment and 42.0 months (95% CI: 9.5-NA) for sirolimus therapy. There were no objective response (OR) in doxorubicin group. The OR rate reached 71% (5/7 cases) for sirolimus, while in 2 cases stabilization of the disease was observed. 2 patients died due to disease after 29 and 32 months since the spread of the disease.

CONCLUSIONS: To our best knowledge this is the second largest single-center database concerning PEComa-NOS. For metastatic/inoperable disease sirolimus is the best choice of systemic therapy.
**Title:** The impact of anterior commissure involvement in glottic carcinoma on local recurrence for patients undergoing partial laryngeal resection

**Authors:** Gavare P.¹

**Tutor/Tutors:** Elza Rāte, MD

**University:** ¹ Faculty of Medicine, Riga East Clinical University hospital, Oncology Center of Latvia, University of Latvia, Latvia

**INTRODUCTION:** There has been a lot of discussion and controversy over the role of anterior commissure (AC) involvement in local recurrence of glottic cancer. Due to its anatomy, it is seen as a weak point in case of tumor spreading and is thus often associated with a higher local recurrence rate, especially in its advanced stages when penetrating the thyroid cartilage and paraglottic space. Though is there a difference in early-staged glottic carcinoma with AC involvement treated with partial laryngectomy.

**AIM OF THE STUDY:** To compare the involvement impact of early glottic tumor - both with and without anterior commissure involvement - on oncological outcomes, using partial laryngeal resection (vertical lateral and fronto-lateral partial laryngectomy) as a treatment.

**MATERIALS AND METHODS:** Patients that were diagnosed with carcinoma of the larynx between 2008 and 2012 were selected for the purposes of the trial. After retrospective analysis those patients with early (T2) glottic carcinoma were divided into two groups: group A - early glottic carcinoma without AC involvement, and group B - early glottic carcinoma with AC involvement.

**RESULTS:** Fifty-three patients were selected presenting early glottic carcinoma staged as T2. Group A included 38 (72%) patients, of which two were staged N1 (5.2%) and one patient - N2 (2.6%). This group underwent vertical lateral partial laryngectomy. Group B included 15 (28%) patients, and fronto-lateral partial laryngectomy was used for a tumor removal. The rate of local recurrence was 7.9% (n=3) when anterior commissure wasn’t involved, and 6.7% (n=1) when this site was involved. No statistical significance was found in this difference (p=0.87). For 51 patients (96.8%), postoperative radiotherapy was also applied but no difference was found. The statistical significance was however found between recurrence and stage N as it grew (p=0.001).

**CONCLUSIONS:** In this research AC involvement didn’t prove an increased local recurrence rate, which would imply that there is not a significant effect in tumor recurrence at this point, and that partial laryngectomy is a safe treatment for early glottic carcinoma. Though other factors can be involved, it proved that regional lymph node involvement caused a greater impact on tumor recurrence.
**Title:** Partial laryngeal resection in laryngeal tumors

**Authors:** Gavare P.¹

**Tutor/Tutors:** Elza Rāte, MD

**University:** ¹ Faculty of Medicine, Riga East Clinical University hospital, Oncology Center of Latvia, University of Latvia, Latvia

**INTRODUCTION:** The incidence of malignant laryngeal tumours is growing from year to year and consequently the methods of partial laryngeal resection and reconstruction are developing, allowing successful tumour eradication and laryngeal function reconstruction.

**AIM OF THE STUDY:** The aim of the trial is to summarise and analyse the methods of partial laryngeal resection at Oncology Centre of Latvia from 2008 to 2012 with focus to their efficacy as well as describe and compare the used methods with other possible partial resection methods.

**MATERIALS AND METHODS:** The data for this retrospective trial purposes were collected selecting the patients with diagnosis No C32.0 and partial laryngeal resection carried out from 2008 to 2012.

**RESULTS:** The medical data of 84 patients (81 male, 2 female) were analysed for the trial purposes. Cordectomy was performed for stage I and II tumours with T1 and T2. Patients without complications were discharged from the hospital in 7.56 (SD ± 4.2) days in average. The five-year recurrence free period was 93.8%. Vertical lateral laryngeal resection was performed for stage II, III and IV, tumours with T2 and T3. In 26.1% cases postsurgical complications occurred with average discharge from the hospital in 9.43 (SD ± 2.1) days after surgery and five-year recurrence free period in 89.1% cases. Frontolateral resection was performed for stage II T2 tumours. In 18.7% cases postsurgical complications occurred, patients were discharged in 9.9 (SD ± 4.1) days after the surgery. Five-year recurrence free period among these patients was 93.8%. The statistically significant correlation was observed between the surgery type and the tumour stage (rs=0.31; p=0.004), T stage (rs=0.341; p=0.002) and duration of the hospitalisation (rs=0.36; p=0.001). The statistically significant correlation was observed also regarding the impact of adjuvant radiotherapy to the recurrence frequency in relation to surgery type (p=<0.05).

**CONCLUSIONS:** Partial laryngeal resection mostly is done in early laryngeal tumors. If possible, it is recommend to use method with smaller resection field, since it reduces the risk of complications and also hospitalization stay. In this research the tumor mass and adjuvant radiotherapy did not affect the frequency of recurrence.
INTRODUCTION: Platelet rich fibrin (PRF) therapy is a quite modern rejuvenation technique that uses patient’s own plasma, enriched with platelets, fibrin and mesenchymal stem cells. It is also known as the second-generation version of platelet rich plasma (PRP), it enmeshes glycosaminoglycans from the blood and platelets, which have a strong affinity with small circulating peptides and a great capacity to support cell migrations and healing processes.

PRF is achieved with a very simplified preparation by centrifugating blood at a slower rate with no biochemical manipulation. The benefits are - highest values of platelets, PDGF, VEGF, TGF, leukocytes, furthermore functions are extremely representative of fibrin, fibronectin and vitronectin.

Acne vulgaris is affecting at least 90% of adolescents and persistent 13% of adults. Post-acne scars exacerbates quality of life, negatively influences psychoemotional status, even leading to depression in more severe cases.

AIM OF THE STUDY: The aim of the study is to reveal the efficacy of iPRF injection method on post-acne scar therapy.

MATERIALS AND METHODS: Prospective investigation research was done. 10 both gender Caucasian patients (skin phototype was II-III according Fitzpatrick classification) were analyzed at Dermatologijas klinika, Riga, Latvia. The clinical condition of the skin was evaluated, as well as the type of scars (Ice Pick, Boxcar, Rolling, Hypertrophic or Keloid) and its severity. All patients underwent screening blood tests on chronic infectious diseases. Generally, 4 to 5 tubes of each patient’s blood were processed in centrifuge “DUO”. The injections (2 ml PRP per side) were administered laterally using 27 G 38 mm cannulas.

RESULTS: The method has demonstrated that skin relief become smoother in post-acne scars, skin quality is improving, atrophic and ice pick scars are getting smoother. The method is recommended for rejuvenation of post-acne scars and improvement of skin quality.

CONCLUSIONS: In each patient the scar formation is mainly influenced by the genetic factor and the skin capacity to respond to an injury. Therefore individualised treatment is required in each case and results may vary. The treatment of acne inflammation in prevention of post-acne scars plays a major role.
**Title:** Urological challenges after spinal cord injury

**Authors:** Barnaś A.¹

**Tutor/Tutors:** Ewa Chlebuś MD, Przemysław Lisiński MD Prof.

**University:** ¹ Medicine, Poznan University of Medical Sciences, Poland

**INTRODUCTION:** Neurogenic bladder affects the quality of life permanently, moreover is a source of infections. Profound study of neurogenic bladder will contribute to more appropriate choice of therapy and will prevent complication of this medical condition. Essential research in this subject were published in the previous decade. This indicates the need for an update and broaden the knowledge.

**AIM OF THE STUDY:** The purpose of this study is to investigate if there is a relationship between the level of SCI and parameters of urodynamic test and the bacterial strain.

**MATERIALS AND METHODS:** Retrospective study, which analysed results of urodynamic examination: urodynamic cystometry, bladder storage phase, voiding phase, medical history of patients, admitted to the Neurological Rehabilitation Ward of the Rehabilitation Clinic in the Orthopedic-Rehabilitation Hospital in Poznan in years 2010-2018. The statistical analysis of 100 medical records of 54 patients with SCI (cervical, thoracic, lumbar) has been made. Inclusion criteria are: incomplete SCI, complete medical records, the results of the urodynamic tests by admission, urine culture test.

**RESULTS:** Depending on the level of SCI, the severity of the urological dysfunction increases. Patients with the cervical SCI experience worse detrusor compliance than patients with lumbar SCI (p=0.001). The sensation in the urethra and bladder fullness are significantly more often preserved after the lumbar SCI than in cervical SCI. There was significant relationship between the level of SCI and specific bacterial strain (Klebsiella (p=0.034), Staphylococcus (p=0.009)).

**CONCLUSIONS:** The level of SCI strongly determines urological dysfunctions. Urodynamic evaluation should be considered essential in neurogenic bladder management. Appropriate antybiotic therapy will cure lower urinary tract infection more efficiently and will prevent serious complications.
INTRODUCTION: Literature reports dental students are a group of young people that are more stressed than general population taking other studies. It is said the pursuit of academic excellence and high demand of social interrelationship along with limited time for relaxation may easily lead to work overload which carries a negative impact on health.

AIM OF THE STUDY: Evaluation of components of stress connected to dental studies in order to investigate factors that induce the most stress.

MATERIALS AND METHODS: The survey was carried out in 2018 in dental students of both Polish and English programs undertaking dental education in our University and dental students from University of Louisville School of Dentistry, USA. The Dental Environmental Stress (DES) questionnaire modified by the authors for the purpose of the reality at Polish medical universities and the Perceived Stress Scale (PSS-10) questionnaire, which evaluates the general mood and attitude to life, were used in the research. The correlation between each year students and type of study courses was assessed. The results were statistically analyzed in R program and the significance level was assigned to 0.05.

RESULTS: A total of 309 students from the Polish course (76 men), 61 from the English (22 men) and 98 from USA (40 men) was evaluated. Students from Polish division and USA had statistically higher results in PSS-10 (21,77±6,38; 16,89±7,02) than students from the English course (22,57±5,88; p&lt;0,001). In DES the highest results had USA students (2,01±0,56) then Polish (1,82±0,57) and then English (1,34±0,65; p&lt;0,001). Polish and USA students had higher results in the scale of personal problems (1,93±0,78; 1,75±0,66 vs. 1,4±0,69 p=0,001) and studying conditions (2,85±0,71; 2,91±0,55 vs. 2,41±1,05 p=0,04). In general the group with the lowest results were the English students in almost all the categories in DES. The age correlates with the DES- the older students were, the higher results they had. Women had statistically higher results than men in PSS-10 (21,41±6,09 vs. 18,25±7,2 p&lt;0,001) and DES (1,9±0,56 vs. 1,71±0,59 p=0,001).

CONCLUSIONS: The study demonstrates how overloaded by educational program duties dental students are. Special attention should be devoted to women, in the latest years of studies.
Title: Skin condition assessment while following ketogenic diet

Authors: Rudziaite G.¹, Rimsaite R.¹

Tutor/Tutors: Dr. Edita Gaveliene

University: ¹ Faculty of medicine, Vilnius University, Lithuania

INTRODUCTION: Ketogenic diet involves drastically reducing carbohydrate intake and replacing it with fat. Scientific data suggests that the benefits of low-glycaemic-load diets could include improved skin quality.

AIM OF THE STUDY: To investigate skin condition of ketogenic diet users.

MATERIALS AND METHODS: 59 respondents: 53(89,8%) women and 6(10,2%) men with average age 35 were given an online survey to fill in. Their average BMI is 25,45 kg/m², 33(55,9%) are overweight, although 81,4% claim their weight reduction due to ketogenic diet. 55,9% of respondents follow the diet for 1 to 6 months. Main stimuli for a change were health issues, gained knowledge and curiosity. All respondents limit carbohydrate intake, in addition, 34(57,6%) follow gluten-free diet. Food supplements are used by 44(74,6%) people with electrolytes, Omega-3 and vitamins D, C, B being most frequent. 33,9% of respondents claim to have a skin disease: dermatitis, acne, fungal infections, psoriasis, rosacea (8;7;3;2;2 cases, respectively).

RESULTS: The majority have combination (52,4%) or normal (22%) skin. Respondents evaluate their overall skin condition 7,46 out of 10 on average. Among skin features, the greatest effect after diet change was on pustular (47,5%) and maculopapular (45,8%) rashes – respondents claim they decreased significantly. 29(49,2%) note that their skin looks less oedemic and swollen, while other features of the skin remain the same. 43,8% of those who have a skin disease find the symptoms to be less present. Average hair condition was marked as 7,42/10 with decreased hair loss and hair fragility as well as increase in scalp hair growth being the most common answers (14;11;10 respondents, respectively). Average score for nails was 7,73. Respondents experienced their nails to be stronger (16;27,1%) and less brittle (15;25,4%). Overall 50(84,8%) claim positive impact of ketogenic diet on their physical health and 47(79,7%) – on emotional well-being.

CONCLUSIONS: According to the followers of ketogenic diet, this type of nutrition has a positive effect on general skin, hair and nail condition. In addition, it alleviates the symptoms of the existing skin disease. Due to nutrient limitation, diet should always be supervised by a dietetic physician.
Title: Skin condition assessment among vegetarians

Authors: Rimsaite R., Rudzikaite G.

Tutor/Tutors: dr. Edita Gaveliene

University: Faculty of medicine, Vilnius University, Lithuania

INTRODUCTION: Vegetarian diet is thought to have a beneficial effect on chronic skin diseases like atopic dermatitis and psoriasis. Other scientists suggest that high intake of vegetables may work protectively against skin ageing processes.

AIM OF THE STUDY: To investigate skin condition of vegetarians.

MATERIALS AND METHODS: 108 respondents: 104 women and 3 men with the average age 23.2 years filled in an anonymous online survey. Their average BMI was 20.17 kg/m², however 6 were overweight and 5 obese. Ecological beliefs, 70.4%, gained knowledge, 24.1% and health issues, 21.3% determined respondents’ diet change. The duration of using vegetarian diet is from 1 to 5 years and more than 5 years. 73 use food supplements, mostly electrolytes, vitamin D, C, B (36.6%; 43.8%; 38.4%; 34.2%), iron salts and omega-3. All respondents refuse to eat red meat, 99–chicken, more than 50% do not eat seafood. 37 claimed to have skin diseases, like acne (48.7%), atopic and allergic dermatitis (32.4%), fungal skin infections, psoriasis, rosacea.

RESULTS: 51.9% of the respondents have combination skin type. Vegetarians evaluated their skin at the average - 7.26/10. 51.9% respondents claimed to see the reduction of pustular and macropapular rashes. Moreover, the skin became less sensitive and oily. 19 out of 37 respondents who have skin diseases declare symptom reduction. Hair condition was evaluated as 7.65/10 on average. 34 declare decreased hair loss and scalp oiliness. 26 claimed to have increased hair growth. The average nail score was 7.78/10. Responders’ nails were less brittle, 18.5% and firmer, 26.9%. 15 thinks that the pigmentation in the nail plate has reduced. Overall, more than 2/3 of the respondents’ state that diet change had a positive impact on their physical and mental health.

CONCLUSIONS: As stated by the survey responders’ vegetarianism has improved skin condition and it’s appendages and reduced symptoms of skin diseases. Due to high risk of some nutrients deficiency in vegetarian diet, the diet should always be supervised by a dietetic physician.
INTRODUCTION: The intranasal trigeminal nerve system is a sensory mechanism, detecting irritating substances in the upper airways, alerting us that potentially toxic substances are entering the lower airways. Nasal mucosa is innervated with branches of maxillary nerve (V2). Intranasal trigeminal nerve is known to affect olfactory perception, possibly interacting in numerous locations, from olfactory epithelium to olfactory bulb. It is likely that toxic substances in cigarette smoke could damage sensory receptors of nasal mucosa, impairing this mechanism.

AIM OF THE STUDY: The aim of this study was to assess the influence of smoking on intranasal trigeminal stimuli perception.

MATERIALS AND METHODS: A total number of 60 patients aged from 19 to 26 were evaluated: 30 smokers, 30 non-smokers. Assessment of trigeminal nerve function was performed using modified set based on the olfactory test called ‘Sniffin Sticks’, containing felt-tip pens, filled with trigeminal substances. Trigeminal stimuli threshold, discrimination and lateralization were evaluated respectively. Initially the patient was asked to describe his or her sensation to the following stimuli: ethanol, menthol, eucalyptol and camphor, in order to identify nasal trigeminal stimuli perception. Threshold was assessed with a set of increasing menthol concentrations presented to the patient in a triple selection mode. The discrimination test was performed for all 4 initial substances. The patient’s task was to determine trigeminal stimulus in a triple selection mode. Lastly, the lateralisation test was performed during which the patient was asked to identify to which nostril the trigeminal stimulus was presented. The sum of the scores from the three subtests (Threshold, Discrimination, Lateralisation) resulted in the total score with a maximum of 34 points; with 10, 4 and 20 points for each subtest respectively.

RESULTS: A number of 60 patients were evaluated using trigeminal ‘Sniffin Sticks’. The highest average score was obtained by the non-smoking population, the lowest by the smoking population. Statistical significance was estimated using p-value.

CONCLUSIONS: The preliminary results of this study identify cigarette smoke as a possible factor damaging nasal trigeminal nerve receptors.
**Title:** Reconstruction of the bone fracture mechanism in an aviation accident based on post-mortem imaging

**Authors:** Radziszewska M.¹

**Tutor/Tutors:** Aleksandra Borowska-Solonynko

**University:** ¹ Warszawa, Students’ Scientific Society of the Department of Forensic Medicine of Medical University of Warsaw, Poland

**INTRODUCTION:** The number of aircrafts increases with small single-engine airplanes representing up to 65% of them. Furthermore, single-engine airplanes hold the highest accident rate. Identification and investigation of bodies of victims involved in airplane disasters is often very difficult due to the massive damage to the body, although it may be crucial in the investigation concerning the cause of disaster, especially in small airplanes crashes. In cases of such challenging autopsies Post Mortem Computed Tomography (PMCT) may be a valuable addition to the investigation.

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

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

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

**CONCLUSIONS:** Thanks to the analysis of bone fractures images obtained via PMCT we can imagine the possible falling path of the airplane and we can presume who was in charge of controlling the aircraft at the time of the accident. Due to that, analysis of bone fractures of aviation disaster victims can be valuable in the investigation concerning the cause of accident.
Pharmacy
**Title:** Anticancer effect of 1,2-diazole-platinum(II) complexes in human breast cancer cells

**Authors:** Gębala M.¹, Czarnomysy R.², Muszyńska A.²

**Tutor/Tutors:** Professor Krzysztof Bielawski, PhD; Department of Synthesis and Technology of Drugs, Medical University of Bialystok

**University:** ¹ Faculty of Pharmacy, Medical University of Bialystok, Poland ² Department of Synthesis and Technology of Drugs, Medical University of Bialystok, Poland

**INTRODUCTION:** The basic tasks of modern chemotherapy are the inhibition of tumor cell proliferation by putting them on the path of apoptosis. Alkylating agents, for example platinum(II) complexes, have been used for the treatment of breast cancer for over six decades, yet their repertoire continues to grow. Their systemic toxicity and drug resistance are major obstacles in limiting their clinical efficacy. This fact still motivate researchers to look for more efficient, less toxic, and higher specific platinum(II) complexes. Following this trend, a new group of 1,2-diazole-platinum(II) complexes was synthesized in Department of Synthesis and Technology of Drugs, Medical University of Bialystok.

**AIM OF THE STUDY:** In this study we examined the impact of 1,2-diazole-platinum(II) complexes on induction of apoptosis and activation of caspases (−8, −9) in MCF-7 and MDA-MB-231 breast cancer cells.

**MATERIALS AND METHODS:** Evaluation of apoptosis induction was done with the Annexin V-fluorescein isothiocyanate/propidium iodide assay. In addition, using a flow cytometer, was determined the influence of test compounds on caspase-8, and -9 activity. Moreover, using the flow cytometer, the effects of the test compounds on mitochondrial potential change were assessed.

**RESULTS:** Our study showed that 1,2-diazole-platinum(II) complexes inhibited the proliferation of MCF-7 and MDA-MB-231 breast cancer cells by increasing the number of apoptotic cells. Moreover, we observed a significant increase activation of caspases−8 and −9, as compared to untreated control. Our analysis associated with the response of MCF-7 and MDA-MB-231 cells showed that it leads the cells through the external and intrinsic (mitochondrial) apoptotic pathway.

**CONCLUSIONS:** Flow cytometry data indicate that the cytotoxic effects of the synthesized compounds in a culture of MCF-7 and MDA-MB-231 cells are mediated by apoptosis. Results of caspases analysis suggested that the 1,2-diazole-platinum(II) complexes induce apoptosis in breast cancer cells in caspases-dependent way.
Title: Bactericidal activity of ceragenin CSA-13 in the presence of lysozyme

Authors: Gołaszewska A., Cieśluk M., Prasad S.

Tutor/Tutors: prof. dr hab. Robert Bucki

University: Department of Microbiological and Nanobiomedical Engineering, Medical University of Białystok, Mickiewicza 2C, 15-222 Białystok, Poland, Medical University of Białystok, Poland

INTRODUCTION: Bacillus subtilis and other bacteria from genus of bacilli, cause post-traumatic and post-surgery endophthalmitis. Lysozyme is known as a natural protein found in tissues (e.g. on mucosal surfaces of respiratory also intestinal and urogenital tracts), body fluids (such as tears, saliva, serum or breast milk) and cells being in contact with external environment. This protein exerts direct antibacterial activity and modulates the immune response in inflammation. Ceragenins (CSAs) - cationic steroid antimicrobials, are a new class of synthetic amphiphilic compounds consisting of a sterol backbone. CSA-13 is characterized by extensive antibacterial activity against Gram-positive and Gram-negative bacteria, fungi, parasites and some viruses.

AIM OF THE STUDY: The aim of study was to evaluate whether a combination of ceragenin CSA-13 and lysozyme will show higher bactericidal activity against Bacillus subtilis when compared to their activity alone.

MATERIALS AND METHODS: Killing assay was used to examine the antimicrobial activities of ceragenin CSA-13 alone, lysozyme alone and their combination. Visualization of changes in morphology of bacteria cell induced by performed treatment by atomic force microscopy (AFM) was carried out. Additionally, reduction in number of bacteria and synergistic effects values were used to analyze interaction among the tested compounds.

RESULTS: It was observed that combined treatment consisting of ceragenin CSA-13 and lysozyme against Bacillus subtilis exerts synergistic antibacterial activity.

CONCLUSIONS: Synergistic antibacterial activity of CSA-13 and lysozyme might be used in development of new methods to treat infections caused by Bacillus subtilis.
INTRODUCTION: Phloroglucinol (PHG) is a natural, phenolic compound synthesized eg. algae *Ecklonia cava* or gut microbiota. In some countries it is used as a constituent of a spasmolytic drugs eg. in stomachache, irritable bowel syndrome, bile and renal colic, painful menstruation or to prevent preterm birth. However, recent study shows that it might also have anti-diabetic properties due to its similarity to resveratrol.

AIM OF THE STUDY: The aim of a present study was to determine the effect of phloroglucinol on liver steatosis, glucose uptake, lipid metabolism, and inflammation in NAFLD.

MATERIALS AND METHODS: The experiments were conducted on HepG2 cells incubated with either 100uM PHG and/or 0,5mM palmitic acid (PA) during 16h exposure. PHG concentration was chosen basing on a liver steatosis study conducted with wide range of its concentrations (25uM-1000uM). Hepatic steatosis was estimated using Oil Red O staining and assessed in colorimetric test. The expression of SIRT1 and TNFα was estimated using ELIS kits. Glucose uptake was assessed on Cobas biochemical analyzer. The data was analyzed with ANOVA test and results were considered to be statistically significant at p ≤ 0.05.

RESULTS: Exposure to both PHG and PHG combined with PA resulted in a significant dose-dependent decrease of lipid accumulation in HepG2 cells (50uM PHG: -29,7%; 100uM PHG: -36,1%; 400uM PHG: -28,1%; 1000uM PHG: -53,8% p<0,05) (PA:+25,3%, PA+50uM PHG: -18,1%; PA+100uM PHG: -43,4%; PA+200uM PHG: -8,0%; PA+400uM PHG: -27,7%; PA+1000uM PHG: -57,0% p<0,05). Moreover, PHG increased TNFα in incubation media (PA:+9,4%; PHG:+12,8%, PA+PHG: +24,2%; p<0,05) and decreased SIRT1 expression (PA:-11,1%; PHG:-21,6%; p<0,05). PHG significantly increased hepatic glucose uptake both in 16h incubation (PA:-25,9%; PA+PHG: +25,3%; p<0,05) and 40h incubation (PA:-56,8%; PA+PHG: -48,1%; p<0,05).

CONCLUSIONS: The results of the present investigation demonstrate hepatoprotective effects of PHG supplementation. However, the underlying mechanisms of PHG action in a field of lipid and carbohydrate metabolism remains unknown.
**Title:** The influence of Citrus aurantium (bitter orange) stem cell extract on the viability and the DNA biosynthesis in human fibroblast cells

**Authors:** Lendzion K.¹, Gornowicz A.¹, Popławska B.¹, Bielawska A.¹

**Tutor/Tutors:** Professor Anna Bielawska

**University:** ¹ Department of Biotechnology, Medical University of Bialystok, Poland

**INTRODUCTION:** In recent years there has been observed a rapidly growing interest in natural skin care. Combined with the demand for an effective anti-aging therapy, as well as the ethical aspects of the use of animal derived ingredients, the cosmetic industry has found a niche. Therefore, technologists have turned their mind to new components obtained from plant stem cell cultures, which are a possibly limitless source of undifferentiated cells with regenerative properties.

**AIM OF THE STUDY:** The study was conducted to determine the impact of the bitter orange stem cell extract on the viability and the DNA biosynthesis, as well as the concentration of IL-10, MMP-2 and TNF-α in human fibroblast cells.

**MATERIALS AND METHODS:** The human fibroblast cells were treated with Citrus aurantium stem cell extract in various concentrations and then further tests were conducted. The MTT assay was used to determine the viability of the cells. The influence of the extract on DNA biosynthesis in fibroblasts was identified by detecting radioactive [3H]-thymidine incorporated into the DNA of human fibroblasts. The concentrations of interleukin-10, metalloproteinase-2 and TNF-α were measured by ELISA technique.

**RESULTS:** The Citrus aurantium stem cell extract was not cytotoxic towards human fibroblast cells. The interleukin-10 level was noticeably increased and the TNF-α level was reduced. Studies have not showed any significant change in the concentration of MMP-2, nor has the extract influenced the biosynthesis of the DNA.

**CONCLUSIONS:** Due to its anti-inflammatory properties, as well as the lack of cytotoxic activity, the extract of Citrus aurantium stem cells might be considered a potential ingredient in cosmetic products for sensitive and prone to damage skin. Nevertheless, further research should be conducted in order to identify other characteristics of the extract.
Title: Solid phase synthesis of new analogues of trimethoprim with elongated methylene bridge

Authors: Chmielewski D.1, Baszanowska H.1, Borkowska P.1, Wróbel A.1, Maliszewski D.1, Drozdowska D.1

Tutor/Tutors: dr hab. n. farm. Agnieszka Markowska

University: 1 Department of Organic Chemistry, Medical University of Białystok, Poland

INTRODUCTION: Understanding the mechanisms of drug resistance is one of the most important trends underway research both in the treatment of infectious diseases, as well as work on treatment methods of cancer. Trimethoprim TMP [2,4-diamino-5-(3,4,5-trimethoxybenzyl)pyrimidine] which has been used clinically either alone or in combination with a sulfonamide (e.g., sulfamethoxazole, sulfadiazine), is a synthetic, broad-spectrum antimicrobial agent. This antibiotic is a pyrimidine antifolate drug used mainly in the treatment of urinary tract infections, which selectively inhibit the bacterial enzyme dihydrofolate reductase.

AIM OF THE STUDY: The purpose of the study was solid phase synthesis of new analogues of trimethoprim 1-4 with introduced amide bond and elongated methylene bridge.

MATERIALS AND METHODS: The preparation of trimethoprim derivatives has been performed with four-fold excess of 2-amino-5-nitropyridine, 2-chloro-5-nitroniline, 2-fluoro-5-nitroaniline, 2-iodo-5-nitroaniline, which were dissolved in DCM (only 2-fluoro-5-nitroaniline ratio 1: 1 DCM / DMF due to poorer solubility) and then it was linked to p-nitrophenyl Wang resin. The obtained intermediates were reduced by solution of SnCl2 in DMF. Next, the coupling reactions were carried out overnight at room temperature used activated 3-(3,4,5-trimethoxybenzyl) propanoyl chloride. Every resin-bound intermediates were washed before proceeding to the next step. Finally, the resin was separated from the final product by TFA/DCM (1:1).

RESULTS: Our studies presented elaborated method of solid phase synthesis, that was provided to obtain new trimethoprim analogues. Assumptions of the process includes: immobilise the synthesized molecule, use the excess of reactants, wash solid support after each synthetic step, cleave final product from the resin. After evaporation of the solvents, new obtained compounds 1-4 were characterized. The purity and homogeneity of compounds will be confirmed by TLC methods (UV identification). A general procedure of the new compounds was described. It presents the parallel synthesis of four derivatives containing amide bond.

CONCLUSIONS: Structures of novel compounds 1-4 will be confirmed based on 1H and 13C nuclear magnetic resonance spectroscopy. In the future, biological tests of anticancer and antimicrobial activity will be carried out.
Title: The relation between physical crosslinking and water-soluble drug release from chitosan-based microparticles

Authors: Potaś J., Dąbrowska M., Szymańska E., Winnicka K.

Tutor/Tutors: dr Emilia Szymańska, prof. dr hab. Katarzyna Winnicka

University: Department of Pharmaceutical Technology, Medical University of Bialystok, Poland

INTRODUCTION: Chitosan glutamate (gCS) is polycationic polysaccharide which due to its biocompatibility and mucoadhesiveness has been extensively studied in pharmaceutical technology. Despite these advantages, its high water solubility may be considered as factor limiting gCS application in controlled-release formulations. Physical crosslinking of chitosan has been recently considered as a strategy to prolong release behaviour of poorly water-soluble drug. Nonetheless, since to our best knowledge there is no data regarding the impact of gCS modification on the release profile of water-soluble drug.

AIM OF THE STUDY: The aim was therefore to evaluate the impact of ion crosslinker on the drug release from gCS-based microparticles (MPs). Water-soluble zidovudine (ZVD) – antiretroviral drug with potential to be applied as vaginal microbicide – was selected as model drug, whereas β-glycerophosphate disodium – as crosslinking factor (CF).

MATERIALS AND METHODS: MPs were prepared using a BUCHI Mini Spray Dryer B-290 from azeotropic cosolvent system. Apart from different gCS:CF ratios, the content of ZVD and inlet process temperature were chosen as variables with potential effect on drug dissolution profile. In vitro drug release was determined using Enhancer cell through Cuprophan membrane in USP dissolution Apparatus II (Agilent 708-DS) with simulated vaginal fluid pH 4.2 as acceptor medium.

RESULTS: Overall, 15 formulations were prepared and characterized in terms of encapsulation efficacy and moisture content. The presence of CF was found to improve the encapsulation efficiency significantly. Profound differences in drug release rate (which lasted from 60min for up to 210min) were observed among tested formulations. Initial burst effect was demonstrated in all MPs in the first 30min of studies. Relatively reduced burst release (to about 20% of drug dose) was noticed in MPs with the highest amount of CF (gCS:CF 1:1). In turn, gCS:ZVD ratio was found to be significant in respect to time required for 80% drug release and formulations with the lowest amount of encapsulated drug followed prolonged drug release up to 210min.

CONCLUSIONS: The results suggest that dissolution rate was strongly depended on gCS:ZVD ratio whereas ionic interaction between CF and gCS exerted only little impact on extending drug release rate.
Title: Cellular effects of bortezomib in breast cancer MDA-MB-231 cell line in normoxic and hypoxic conditions

Authors: Klimek M.¹

Tutor/Tutors: dr hab. Marzanna Cechowska-Paszko, dr Rafał Krętowski

University: ¹ Department of Pharmaceutical Biochemistry, Medical University of Białystok, Poland

INTRODUCTION: Bortezomib is a competitive inhibitor of 20S proteasome activity. The inhibition of the proteasome results in many toxic effects, including the accumulation of unfolded and damaged proteins, which may lead to apoptosis.

AIM OF THE STUDY: The cellular effects of the proteasome inhibitor - bortezomib - on breast cancer MDA-MB-231 cells – are as yet poorly characterised. We decided to study the effect of bortezomib on viability and apoptosis of these cells.

MATERIALS AND METHODS: The human breast cancer MDA-MB-231 cells were cultured in high-glucose DMEM with various concentrations of bortezomib (from 25 to 1,000 nmol/L) for 12, 24 and 48h in normoxic and hypoxic conditions. MDA-MB-231 cells viability was measured according to the method of Carmichael. The viability of the cells incubated in hypoxic conditions was calculated as percentage of control cells, incubated in normoxia. Hypoxia was evoked by 12, 24 and 48h incubation of cells in atmosphere containing a reduced to 1% oxygen concentration in hypoxia chamber. Apoptosis was evaluated by flow cytometry on FAScanto II cytometer. The cells were stained following the manufacturer’s instructions (FITC Annexin V apoptosis detection Kit I). Data was analyzed with FASCDiva software. All the experiments were done in duplicate in at least three cultures.

RESULTS: Bortezomib, in the concentration from 25 nmol/L to 1,000 nmol/L, caused a time-dependent and dose-dependent strong reduction in cell viability of the MDA-MB-231 cells. IC₅₀ was achieved after incubation for 12, 24 or 48 hours of MDA-MB-231 cells only with 25 nmol/L and 50 nmol/L of bortezomib. Moreover, our results demonstrate the efficient, dose-dependent and time-dependent, induction of apoptosis by bortezomib in the MDA-MB-231 cells. Incubation of these cells for 48h with 25nmol/l of bortezomib resulted in an increase of apoptosis up to 30% and up to 70% with 50nmol/l of bortezomib in normoxia and hypoxia conditions.

CONCLUSION: Bortezomib induces apoptosis by inhibition of 20S proteasome activity in MDA-MB-231 cells and may be the candidate for the future evaluation as chemotherapeutic agent for human breast cancer.
Title: Solid phase synthesis of new trimethoprim analogues contain 2-fluoro- and 2- chloro- substituted benzene ring.

Authors: Kaczorowska P.¹, Kujawiński A.¹, Kitlas A.¹, Wróbel A.¹, Maliszewski D.¹, Drozdowska D.¹

Tutor/Tutors: dr hab. n. farm. Agnieszka Markowska

University: ¹ Department of Organic Chemistry, Medical University of Bialystok, Poland

INTRODUCTION: Trimethoprim is the gold standard of treatment of urinary tract infections(UTI) and uncomplicated UTIs in women, which is caused mainly by E.coli but also by P.mirabilis, Klebsiella ssp., other Enterobacteriaceae ssp., and Staphylococcus saprophyticus(5% each). Our study presents new attempt to obtain new analogues of trimethoprim, used method of solid phase synthesis.

AIM OF THE STUDY: Our investigation assume to obtain four new(1-4) derivatives containing fluorine atom as substituent in the benzene ring connected to the 3,4,5-trimethoxybenzene ring.

MATERIALS AND METHODS: The preparation of trimethoprim derivatives has been performed with 2-chloro-5-nitroaniline, which were dissolved in DCM and then they were linked to p-nitrophenyl Wang resin. The obtained intermediatives were reduced by solution of SnCl₂ in DMF. Next, the coupling reactions were carried out overnight at room temperature used E₁-3,4,5-trimethoxyphenylacetic acid or E₂-ethyl-3-(3,4,5-trimethoxyphenyl)propionate. Every resin-bound intermediates were washed before proceeding to the next step. Finally, the resin was separated from the final product by TFA/DCM(1:1).

RESULTS: Our studies presented elaborated method of solid phase synthesis, that was provided to obtain new trimethoprim analogues. The applied method is characterized by the ability to increase efficiency through the use of excess reagents and the ease of their removal after each stage of the reaction. It is more economical and faster than classical synthesis. After evaporation of the solvents, obtained new 1-4 compounds were characterized. The purity and homogeneity of compounds will be confirmed by TLC methods(UV identification).

CONCLUSIONS: In summary, we obtained 1-4 novel analogues of TMP based on single method of solid phase synthesis. Structures of new compounds will be confirmed based on ¹H and ¹³C nuclear magnetic resonance spectroscopy. In the future, biological tests for anticancer and antimicrobial activity will be carried out.
Case Report I
Title: Very rare pigment retinitis of one eye

Authors: Kalvelyte G.¹

Tutor/Tutors: Rasa Strupaitė

University: ¹ Faculty of medicine, Vilnius University, Lithuania

BACKGROUND: Pigmentary Retinitis is an eye disease that manifests itself in typical retinal changes. The word pigmentosa describes the image of the bottom of the eye, where the pigment in the retina is visible. Symptoms of pigment retinitis usually occur in youth or in the middle age: night vision deteriorates, field of vision narrows, contrast and color vision weakens, later visual acuity deteriorates.

CASE REPORT: A 20-year-old patient in the left eye began to see fluttering flies, after 5 years the ophthalmologist discovered retinal scars, suspected it was a complication of botulism. When the patient was 52 years old she was suspected of having left eye pigment retinitis. 2016 After examining the patient’s eyes, the right eye sees 0.8, left 0.32 of a Snellen chart. The ophthalmoscope in the left eye shows the lens’s mild turbidity in the sub-capsular layer at the center. The middle periphery of the optic nerve disc shows abundant bone cells, narrowed blood vessels. In 2016, a genetic study was performed to investigate the coding sequences of the RHO and PRPH2 genes, but no mutations were detected. More than 100 genes are responsible for pigment retinitis, so the possible mutation is in another gene. In 2017, the left eye shows a pale nerve disc, an epiretin membrane in the macula. A computer perimetry was performed and a narrowing field of vision of the left eye was diagnosed. Electroretinography was performed, and show the low-b wave of the left eye, that means the damage of the photoreceptors. In 2018, the left eye cataract was cleared for the patient and implanted intraocular lens with 24.5 diopters. Pigment retinitis is an incurable disease, only complications can be treated, in this case - cataract. When the patient is blind, bionic eye can be used.

CONCLUSIONS: The case analyzes the extremely rare pigment retinitis of one eye, diagnostic tests and possible treatment.
BACKGROUND: Branch retinal artery occlusion (BRAO) occurs in 38% of acute retinal artery obstruction cases.[1] Most common cause of retinal artery occlusions are emboli from the carotid artery. BRAO leads to ischemia and reorganization of the retinal layers which can cause blindness.[2] We present a clinical case of a total carotid artery stenosis which led to BRAO.

CASE REPORT: A 56-year-old man presented to the emergency room with “dimming” of the vision in the left eye. On examination, best corrected visual acuity- OD 1.0 and OS 0.6. Intraocular pressure were normal. Ophthalmoscopy of the left eye revealed retinal emboli superior to the optic disc associated with retinal ischemia. Patient denied any other diseases.

He was admitted to the hospital and treated with Pentoxifylline, Acetazolamide, peribulbar injection of Dexamethasone, Timolol and hyperbaric oxygen. Blood workup showed that patient had hypercholesterolemia and cardiologist diagnosed him with hypertension primaria stage 2. Patient was started on Aspirin and Perindoprilum treatment. Head and neck angiography showed significant left internal carotid artery occlusion of 100%, also a 75% stenosis of the left a.vertebralis (which is significant and needs treatment in order to prevent cortical blindness). Patient underwent endarterectomy of the left a. vertebralis. His left internal carotid artery was not dilated because there was a sufficient collateral circulation from a. communicans posterior to a. cerebri media. Patient was discharged two days after the surgery.

CONCLUSIONS: There is no evidence based treatment for BRAO which might improve visual function so management of these patients must focus on determining etiology for acute retinal ischemia and treating it. The key point is to determine risk factors as soon as possible and manage them in order to prevent any future vascular disease.

BACKGROUND: Multiple sclerosis (MS) is a chronic inflammatory demyelinating disease of the central nervous system leading to oligodendrocyte degeneration and the destruction of neurons and axons. Parkinson’s disease (PD) is a progressive movement disorder that affects predominately dopamine-producing neurons. Both, MS and PD, can be classified as neurodegenerative disorders, however, it remains unclear whether MS can cause parkinsonian symptoms or the coexistence of both diseases in the same patient is incidental.

CASE REPORT: A 66-year old, right-handed man, presented with an 15–year history of gait difficulties with progressive deterioration. Patient initial problems began in 1986 with numbness in his bilateral hands. In 2004 the patient noticed increasing pain and weakness of the right lower extremity and in 2007 weakness of the left lower extremity. On neurological examination there was also evidence of tremor of the right hand and a possible extrapyramidal syndrome was diagnosed. During the last years, patient had increasing difficulty in walking and increased tremor of the right hand. He received dopamine therapy with some improvement. MRI of the brain and spinal cord in 2015 revealed some changes suggestive of demyelination. Over the last year patient is apparently decompensated, he is no ambulating and wheel-chair-bound due to severe paraparesis (Expanded Disability Status Scale, EDSS-7.0). Control MRI of the brain and spinal cord in 2018 revealed extensive demyelination with evidence of the active process which was related with progressive form of multiple sclerosis. Patient did have lumbar puncture in the past but did not have tests for demyelinating disease. On neurological examination patient also appears to be suffering from parkinsonism most likely related to Parkinson’s disease due to good response to Dopamine therapy.

CONCLUSIONS: Occurrence of two neurodegenerative diseases of the central nervous system is very rare, and we report a case with concomitant MS and PD diagnosis based on both clinic and radiological findings.
Title: Wilson’s disease - a case report.

Authors: Pasierowska I.¹, Kulikowska J.¹, Mickiewicz K.¹, Ulicka A.¹

Tutor/Tutors: Professor Alina Kułakowska, MD, PhD, Agata Czarnowska, MD, Katarzyna Kapica-Topczewska, MD, PhD

University: ¹ Department of Neurology, Medical University of Bialystok, Poland

BACKGROUND: Wilson’s Disease (WD) is an autosomal recessive disorder resulting in impaired copper metabolism and accumulation of copper in many tissues (mainly liver, brain, cornea), leading to their damage. The symptoms of the disease may be predominantly hepatic, neurological or psychiatric. The disease is characterized by a multitude of clinical forms and symptoms, which cause diagnostic difficulties.

CASE REPORT: A 29-year-old woman, with a history of three miscarriages, was transferred to the Department of Neurology from the Psychiatry Ward, where she was hospitalized due to treatment-refractory depression. On admission, the patient presented the following neurological symptoms: mild cognitive deterioration, dysarthria, hypomimia, and visual disturbances. Features of extrapyramidal disorder, such as bradykinesia, increased muscle tone, tremor of extremities, balance disorders, were also visible. Magnetic resonance imaging (MRI) of the brain showed non-characteristic T2 hyperintensity beginning symmetrically in basal ganglia and descending to the level of brainstem. The cerebrospinal fluid (CSF) examination revealed no abnormalities. The liver function tests were within the normal range. The serum copper concentration and ceruloplasmin levels were low, while copper concentration in 24-hour urine collection was high. Moreover, Kayser-Fleischer rings were found in the corneas of both eyes. Thus, the diagnosis of a WD was made. The patient was treated with zinc sulphate. After over 3 months of pharmacological and rehabilitation therapy, there was no improvement of patient's clinical condition.

CONCLUSIONS: In the coexistence of depression and neurological symptoms, WD should be taken into consideration in differential diagnosis. Even in 20% of cases, psychiatric symptoms such as depression may precede somatic disorders in the early stages of WD. Early diagnosis is crucial to start effective therapy.
Title: Atypical case of tick-borne encephalitis in multiple sclerosis patient receiving fingolimod

Authors: Kaklauskaite J.¹

Tutor/Tutors: Natasa Giedraitiene

University: ¹ Faculty of medicine, Vilnius University, Lithuania

BACKGROUND: Multiple sclerosis (MS) is the most common chronic demyelinating disease of the central nervous system (CNS) for young adults. Fingolimod is an immunomodulatory drug used as a second line therapy for relapsing forms of MS. There are concerns about the possibility of it being linked to increased risk of infections and to the development of its atypical forms. Tick-borne encephalitis (TBE) is a serious acute CNS infection that can result in death or long-term neurological dysfunctions. Vaccination against TBE is recommended, however, it is unknown if routine vaccination is safe for MS patients and if patients on immunomodulatory therapy are able to acquire the immune response.

CASE REPORT: We present the case of 35 year old man with a 5-year history of relapsing-remitting MS, who was admitted to emergency room with high fever (up to 40 °C) and psychosis, that lasted for 5 days. He was using fingolimod for 14 months switched after interferon beta. Absolute lymphocyte count was 0.84*10⁹/l. In cerebrospinal fluid (CSF) elevated levels of protein (1.124 g/l), pleocytosis 45/µl (29% lymphocytes, 49% neutrophils) were detected. IV acyclovir 2.7 g and ceftriaxone 4 g per day were started. The patient required sedation, was intubated and transferred to the intensive care unit. Using PCR method herpes simplex virus IgG antibodies; IgM and IgG TBE meningoencephalitis antibodies were detected. The patient was not vaccinated. Magnetic resonance imaging (MRI) revealed a one new subtentorial demyelinating lesion, but no signs of encephalitis. Cervical MRI showed no pathological changes. In a few weeks he has become tetraparetic and then tetraplegic. During a course of treatment the patient developed pneumothorax, hidrothorax, sepsis and urinary tract infection. After 2 months of treatment without positive dynamics the patient was transferred to a palative care hospital.

CONCLUSIONS: The use of immunomodulatory drugs can increase MS patient’s susceptibility for infections; lead to more severe, atypical conditions. To minimize these complications vaccination should be considered. Some data have shown that there is no association between vaccination and radiological or clinical MS activity.
Title: Severe case of neuroborreliosis with lethal consequences

Authors: Peciulyte M.1

Tutor/Tutors: Daiva Radzisauskiene

University: 1 Faculty of medicine, Vilnius University, Lithuania

BACKGROUND: Lyme borreliosis (LB) is a common tick-born infection in Europe. It can affect multiple organs including nervous system (in 10 to 15% of a cases). Most of the patients recover with no residual consequences. However, in some cases it can cause severe disability. Acute or chronic myelitis is one of examples which can result in devastating effects. It is a rare manifestation of LB affecting central nervous system. This case report presents that effects of LB can be lethal and reminds the importance of rapid diagnostic and prevention.

CASE REPORT: It is the case of 88 – year – old man with myelitis due to LB. Before the patient got sick, he was independent. He decided to seek for medical help because of suddenly weakened left leg and fever (38°C). At the emergency room the patient was somnolent, strength of the left leg was 2p (Lovett scale was used), meningeal symptoms were negative. In about 10 days patient got worse – strength of his legs decreased (right leg 3p, left leg 1p), sensory disorder and urine retention presented. Tests of cerebrospinal fluid showed cytosis (592 (10⁶/l), lymphocytes 92%), elevated level of protein (5,77g/l), glucose was 3,65 mmol/l (5,7 mmol/l in blood). Also, intrathecal synthesis of B.Burgdorferi IgG was detected. MRI showed intramedullary myelopathy in Th1-Th3 region. Intramedullary tumour was excluded. LB was treated with Ceftriaxone. Because of urine retention episiotomy was formatted, it resulted in urinary tract infection caused by S.Marsces and urosepsis. Because of severe condition patient was not mobile. This might have been one of the reasons of additional respiratory tract infection, which ended up in his death.

CONCLUSIONS: Although. LB usually is not a life-threatening disease some of its manifestations might cause devastating effects. It is a must to make tests identifying LB in case of myelitis. Since there is no specific prevention of LB it is important to use non-specific prevention tools such as avoiding environment where ticks can be expected, using repellents, performing daily checks for ticks, removing them quickly and correctly.
**Title:** Panuveitis as a consequence of STD

**Authors:** Zabulis A.¹

**Tutor/Tutors:** Assoc. prof., dr. Andrius Cimbalas

**University:** ¹ Faculty of medicine, Vilnius University, Lithuania

**BACKGROUND:** Uveitis is a rare sight-threatening inflammation inside the eye that affects both the uveal tract, and adjacent structures and is one of the major causes of blindness in the world. Uveitis can be categorised into anterior, intermediate and posterior uveitis and panuveitis - generalized inflammation of whole uveal tract, retina and vitreous. Syphilis is a rare cause of uveitis. In US uveitis has an estimated prevalence of about 38 cases per 100,000 population, uveitis caused by Treponema Pallidum accounts for only 0.6% of cases. Patient should be prescribed aggressive systemic antibiotic treatment. The case reports panuveitis as a first manifestation of syphilis and HIV.

**CASE REPORT:** 32 years old Caucasian male was consulted by ophthalmologist in December 2018 because of worsened vision with complains of “floaters”, clouds moving through the field of vision and new occurring specks. During the examination patient was diagnosed with both eyes myopia and astigmatism, left eye showed white granulomatous keratic precipitates, anterior chamber cells 3+, hypopyon, iris posterior synechiae, and 3+ vitreous haze, best corrected visual acuity (BCVA) – 0.01 (Snellen). OCT showed optic neuritis (RNFL - 178 µm) and macular oedema. On physical examination - neck, armpits and groins lymph nodes were increased, upper lip and mouth erosions was detected. Patient was consulted by infectious disease specialist because of suspected sexually transmitted diseases (STD) and positive results for T. Pallidum and HIV infection were received. CSF test revealed neurosyphilis. Local ocular treatment of dexamethasone and atropine and intravenous treatment of penicillin G 24 million units per day for 14 days was started. After 2 weeks patients’ condition improved (OCT: RNFL – 158 µm, macular oedema decreased), BCVA – 1.0 (Snellen) and the patient was released from the hospital with recommendations for further treatment of uveitis and STD and follow-up.

**CONCLUSIONS:** Panuveitis caused by T. Pallidum is an extremely rare and serious disorder, is often overlooked and undiagnosed. Early detection and treatment are important to reduce the risk of permanent vision loss. Patients with manifestations of ocular syphilis should be checked for other STDs including HIV.
Title: Case report: locked-in seizures

Authors: Tutkus J.¹

Tutor/Tutors: Šarūnas Judickas

University: ¹ Medicine Faculty, Vilnius University, Lithuania

BACKGROUND: Basilar artery occlusion (BAO) is a rare and potentially fatal disease, representing 1-4% of all ischemic strokes. Opposite to hemispheric ischemia, where there is an acute onset of focal symptoms, BAO may mimic other non-stroke conditions. Diagnosis can be challenging, especially when the presenting symptoms are seizure-like contractions that may be confused with epilepsy.

CASE REPORT: A 43 year old male was admitted to a province emergency department after having a generalized tonic clonic seizures. He had a history of alcohol abuse and provoked seizures after binge alcohol drinking in 2015, however then his electroencephalogram did not show any epileptiform pattern. On admission, neurological examination showed spontaneous eye opening, flexor limb response to pain, and no verbal response. The patient was intubated, and diagnosis of symptomatic generalized epilepsy and unidentified coma was made. The following day, patient showed no signs of neurological improvement and was transfered to tertiary hospital, where urgent brain computed tomography (CT) angiography demonstrated BAO. As it was longer than 24 hours from onset of the disease, reperfusion therapy was not indicated, and patient was admitted to intensive care unit. The following day, on neurological examination patient was quadriplegic, anarthric, with spontaneous eye opening. Surprisingly, it was noted that our patient could move his eyes vertically and blink. A communication strategy of “look up for yes” and “look down for no” was established and it was identified, that our patient had preserved consciousness, thus a diagnosis of locked-in syndrome was made. A few days later, after critical condition was stabilised, patient was dicharged to a hospice for palliative care.

CONCLUSIONS: Diagnosing BAO can be difficult, due to wide array of its symptoms, especially when presented with “seizures”, which can be potentially mistaken with epileptic events. Physicians need to be aware of this and perform a CT angiogram, especially when the patient after epileptic like event remains with a disturbed level of consciousness and focal symptoms. Untreated BAO leads to a high rate of morbidity and mortality, or, as in our case, to a rarer outcome – locked-in syndrome.
BACKGROUND: Fungal infections of the central nervous system (CNS) are relatively rare, although with the increasing number of organ transplants, chemotherapy and human immunodeficiency virus (HIV) infections the number of immunocompromised patients as susceptible hosts is growing and fungal infections of the CNS are more frequently encountered. This clinical report shows the possible fungal infection of CNS which appeared for two women with hematological diseases.

CASE REPORT: A 40 years woman with Hodgkin lymphoma, febrile neutropenia, anemia and altered consciousness with eyes deviation to the left was urgently transferred to intensive care unit (ICU). Hypotension (84/40mmHg), coma with Glasgow Coma Scale (GCS) score of 6 and respiratory failure were diagnosed. MRT of the head (T2, T2_dark_fuild) showed multiple hyperdense focal lesions in cerebellum and thalamus, which most likely presented brain abscesses, vascular cerebral fungal infections or cryptococcomas. Blood test showed CRP 269.8mg/l, leukopenia with WBC 0.96*10^9/l, RBC 2.40*10^12/l, HgB 70g/l. Patient’s condition was hemodynamically unstable with high vasopressors doses. One day later another woman with acute mieloleukenia and subdural hematoma was transferred to ICU after neurosurgery operation with GCS score of 9. Few days later the patient deteriorated with GCS score of 6. MRT of the head showed almost the same multiple focal lesions around thalamus as previous patient’s. Both patients had lumbar punctions, but no significant proves of bacterial or fungal infections were found. Although, both of them were immunosupressed and all other tests showed possibility of lesions caused by infection so they had complex antibacterial and antifungal therapy. Despite that patients deteriorated to bradycardia, unstable hemodynamics and asystole.

CONCLUSIONS: Neuroradiological manifestations of fungal CNS infections are often nonspecific, that makes diagnostic challenging. Early diagnosis may allow aggressive treatment and achieve successful results, while delay of treatment is associated with a high mortality rate.
Title: Neuropsychiatric symptoms associated with avitaminosis

Authors: Zemaitis A.¹

Tutor/Tutors: Dr Edgaras Dlugauskas

University: ¹ Faculty of medicine, Vilnius University, Lithuania

BACKGROUND: Vitamin B12, also called cobalamin, is important for hematopoiesis and nervous system normal functioning. Cobalamin deficiency appears, when concentration in blood decrease below 156 pmol/l. Third of patients the deficiency of cobalamin occurs only with megaloblastic anemia or only neuropsychiatric syndrome without anemia signs. Due to different clinical manifestation differential diagnosis becomes more difficult. The prevalence of cobalamin deficiency between USA and UK citizens are about 6%.

CASE REPORT: 45-years-old women submitted to VUL SK Psychiatry department due to several months lasting depressed mood, poor sleep and appetite, inactivity, decreased concentration, general weakness, globus sensation in chest, stomach ache, severe arms and leg numbness, dizziness and therefore she can’t walk. First symptoms, cough and stomach ache, appeared six months before. Subsequently during the night panic disorder appeared with high increased blood pressure. The negative condition progresses: weakening muscles, numbness of the legs, arms, depressed mood, looses of appetite, had lost 20 kilograms. General practitioner and neurologist arranged CBC, TTH tests, neurological examination and cranial MRI. There were no significant findings. Due to remaining neuropsychiatric symptoms with negative dynamic patient submitted to VUL SK Psychiatry department. Primary diagnosis severe depression and dissociative motor disorder. Treatment tab. Escitoloprami 20mg/d, tab. Diazepami 5mg/d, tab. Carbamazepini 200mg/d. Routine CBC test results showed megaloblastic anemia. Hematologist recommended examine cobalamin concentration, which were 108 pmol/l. Final diagnosis severe depression, megaloblastic anemia due to cobalamin deficiency. Prescribed treatment sol. Cyanocobalaminum 1ml, tab. Escitoloprami 20mg/d, tab. Diazepami 5mg/d, tab. Carbamazepini 200mg/d. The positive dynamics improved.

CONCLUSIONS: The case shows that tactic of combined patient examination leads to successful treatment. Psychiatrists evaluating mental state should never forget to think about organic origin of symptoms even though previous test showed insignificant results. Cobalamin deficiency signs can appear very late after the first symptoms emerged.
Title: One wrong decision, a life-long disability - case report

Authors: Zbroja M.\textsuperscript{1}, Cyranka W.\textsuperscript{1}, Drelich K.\textsuperscript{1}, Rożek I.\textsuperscript{1}, Bochyński K.\textsuperscript{1}

Tutor/Tutors: Maryla Kuczyńska, Luiza Grzycka-Kowalczyk

University: \textsuperscript{1} Students Scientific Society at the Department of Interventional Radiology and Neuroradiology, Medical University of Lublin, Poland

BACKGROUND: Suicide is an increasingly common phenomenon. It is estimated that about 15 people take their lives each day. Patients after unsuccessful suicide attempts are referred for CT scan and / or MR examination.

CASE REPORT: The man, 38 years old, after a failed suicide attempt. The patient jumped from the height of the 3rd floor. He was transported to the hospital with paresis of lower limbs and suspected multiple-organ trauma. A CT scan was performed in the politrauma protocol and MR examination of the spine in a typical protocol with no contrast. CT revealed: Th11 tear fracture in the left part of the vertebral body, Th12 multi-fragmental fracture in the vertebral body, both arches, right posterior arch and spinous process, vertical fracture of the right L1 vertebral body and L3 burst vertebral body fracture. In the MR examination, there were visible bone fragments, which at the upper half of the Th12 vertebral body cause spinal canal stenosis and compression of the spinal cord. The spinal cord at this height is swollen. In addition, a large hematoma was found in the MR examination, arranged above the diaphragm on the left side, going down and arranged aortically and around the broken vertebral bodies Th11 and Th12. The hematoma is also present in the vertebral canal and extends to the levels of the Th11, Th12, L1, L2 and L3 vertebral bodies. Additionally at the height Th11 the tearing of the dural sack draws attention.

CONCLUSIONS: In patients after suicide attempts, the CT scan is a routine examination and allows the assessment of fractures in the bone structures of the spine, while the MR examination is used to confirm / rule out lesions in the dural sack and spinal cord.
Title: A novel mutation of the hint1 gene associated with autosomal recessive axonal neuropathy with neuromyotonia: a case report

Authors: Jasinyte G.¹

Tutor/Tutors: Ramunė Bunevičiūtė, MD, Birutė Burnytė, MD, PhD

University: ¹ Faculty of medicine, Vilnius University, Lithuania

BACKGROUND: Mutations in the gene encoding the histidine triad nucleotide-binding protein 1 (HINT1) were recently revealed to cause motor predominant axonal polyneuropathy with neuromyotonia. We present the first clinical case in Lithuania with a novel HINT1 gene mutation.

CASE REPORT: A 40-year-old woman presented with gait impairment, distal weakness of lower limbs and bilateral foot drop at 12 years of age. Muscle weakness had been slowly progressing in a length-dependent manner. Later action neuromyotonia with difficulties in releasing grip after a strong voluntary hand contraction developed. Neurological examination revealed muscle wasting of the lower limb, light distal tetraparesis more prominent in the legs. We found diminished biceps brachii, triceps, patellar reflexes, and absent Achilles reflexes. Sensory examination and coordination were normal. Electrodiagnostic testing revealed pure motor axonal neuropathy in the lower extremities. We found borderline-low CMAP amplitudes of motor nerves in the upper limbs. Sensory nerves were completely normal. EMG studies showed several neuromyotonic discharges in the intrinsic hand muscles. The genetic test was performed using targeted next-generation sequencing, which was conducted using a panel kit for hereditary neuropathy. A novel homozygous mutation c.299A>G, (p.(Glu100Gly)) was identified in the HINT1 gene. The same mutation was identified on her clinically affected brother’s DNA in homozygosity, and on mother’s DNA in heterozygosity.

CONCLUSIONS: Our genetic findings improve the knowledge about the genotypic spectrum of HINT1 mutations. HINT1 should be included in the list of genes to be tested in the diagnostic work-up of patients with motor predominant axonal neuropathy with neuromyotonic features.
Title: Spontaneous intracranial hypotension - an important cause of headaches

Authors: Serelyte M.¹

Tutor/Tutors: doc. dr. Renata Balnytė, Gintarė Urniežiūtė

University: ¹ Neurology, Lithuanian University of Health Sciences, Lithuania

BACKGROUND: Spontaneous intracranial hypotension (SIH) is characterized by an orthostatic headache caused by loss of cerebral spinal fluid (CFS) volume, also without a recent history of dural puncture and not attributable to another disorder. Diagnosis is more common in women, ratio of 2:1, annual incidence of 5 per 100,000. SIH has gained more attention in the past years and is now recognized as an important cause of headaches. Associated symptoms include neck pain, postural headache, a change in hearing, diplopia, facial numbness, cognitive abnormalities and even coma. SIH particularly often can be wrongly maintained as migraine or neuroinfection.

CASE REPORT: In 2018-08-17, a 51-year-old patient hospitalized to the Hospital of Lithuanian University of Health Sciences, Kauno Klinikos (LUHS KK) Neurology department due to unbearably strong orthostatic positional headache, diplopia and tightening neck pain. In 2018-07-31 patient was bitten by mite. According to neurological analysis was found impaired connexion between right eye and lateral side. On the right side, a slight eyelid ptosis was observed, also indicated double vision when looking down and to the right. The tongue leaned towards the left. MRI was performed on the brain and changes were suspected as probably specific to SIH. Lumbar puncture results: cerebrospinal fluid with artificial blood, negative pressure. In blood was found B. burgdorferi IgM 5,3 (positive). The condition was evaluated and treated as neuroinfection. In 2018-10-16 orthostatic positional headache, diplopia, tightening neck pain returned. The patient was hospitalized again in hospital of LUHS KK with suspicion of SHI according previous anamnesis. MRI was repeated once more. Observed MRI changes and clinical symptoms were evaluated as spontaneous intracranial hypotension. Epidural blood patch procedure was performed. After the procedure - Trendelenburg’s position for 20 minutes.

CONCLUSIONS: In this case, the patient treatment took about several months to reach best health improvement and find right diagnosis. It is very important to suspect all possible reasons of headaches, also SIH should be suspected for all patients with orthostatic headache.
BACKGROUND: Dissection of internal carotid artery occurs rather rare but it is considered to be an important aetiological factor of stroke and transient ischemic attack (TIA) in young and middle-age. It is estimated that 1/3 causes of dissection are complicated by cerebrovascular accident (CVA). The course and clinical picture of this disease entity is very different.

CASE REPORT: 37-years old female patient was referred to hospital because of transient incident of speech disorder. At the moment of admission the patient was in good general condition with no neurological deficit. After a few hours her neurological condition suddenly worsened: sensory aphasia, pyramid syndrome, paresis of the right upper limb appeared. After the angio-CT examination, the patient was qualified for thrombolytic therapy, which did not improve the neurological state. Therefore, a mechanical thrombectomy with reperfusion of L-ICA and L-MCA was performed and the stent was implanted at the L-ICA dissection area. An improvement in neurological state was noted. On the 8th day of hospitalization, the patient was transferred to the neurological rehabilitation department.

CONCLUSIONS: The choice of appropriate diagnostic and therapeutic methods should be adapted to the course of the disease. Such an individual approach to the patient greatly increases the effectiveness of treatment. There is also a necessity to remember, that rehabilitation is important part of therapy.
Title: Case report: intraocular foreign body

Authors: Jonaityte G.¹

Tutor/Tutors: Ginte Sirvydyte

University: ¹ Faculty of medicine, Vilnius University, Lithuania

BACKGROUND: Ocular foreign bodies are one of the most common eye emergencies. Intraocular foreign body injuries may result in a wide range of intraocular pathology and visual outcomes based on the mechanism of injury, type of foreign body, and subsequent complications.

CASE REPORT: A 55-year-old man sustained injury of the right eye with a piece of metal wire. He was working with an angle grinder when he felt some particle hitting over right eye. Few hours later he began to feel dull, aching pain. On admission visual acuity was VOD: 0.02, intraocular tension was not measured. Corneal entry wound was noticed in the centre of the cornea and slightly downwards. Furthermore, eye examination revealed hypopyon in the anterior chamber of the eye and metallic wire passing through the iris and lens, conjunctiva of the right eye was injected and the lens was cloudy. Skull X-ray findings clarified localization of a foreign body of 14 mm in length. Intraocular foreign body removal was done by anatomical forceps. Visual acuity on discharge was VOD: 0.04 and intraocular tension was within normal limits (17 mmHg).

CONCLUSIONS: Penetrating foreign body injury require thorough examination of all eye structures. Early diagnosis and adequate treatment prevent serious complications. Eye sight does not recover in most analogous cases, however in this case, visual acuity improved after the foreign body removal. All eye-care providers need to emphasize the need for proper eye protection to patients who engage in high risk activities that may lead to penetrating ocular trauma.
Case Report II
Title: A case of basic alterations in the delusional structure, value system and hallucinatory content in a schizophrenic subject.

Authors: Navickas L.¹

Tutor/Tutors: Aurelija Vaitkevičienė

University: ¹ Faculty of medicine, Vilnius University, Lithuania

BACKGROUND: The patient A.S. is a 73 year old unmarried female diagnosed with paranoid schizophrenia in 2000. She lives alone with daily assistance of her siblings. She has a doctoral degree in economics.

CASE REPORT: The patient has been hospitalized in March 2019 following an outbreak of a painful herpetic rash that was followed by an exacerbation of a general somatic pain disorder. Her leading symptoms are chronic, progressive uncomfortable and painful somatic sensations. They are accompanied by pronounced posturing and mannerisms. She performs them compulsively because they reduce somatic tension. Mannerisms gradually disappear during conversation and reappear only some time later. Previous medical records report delusions of control relating to the bodily symptoms.

In 2017 a psychotic break manifested with persecutory delusions, mental automatisms, grandiosity, verbal hallucinations. The hallucinations directed her to study religious texts, “revealed hidden knowledge,” which the patient tried to understand for spiritual heightening. This corresponds to her intellectual attitude. She also believed herself to incarnate the body of St Paul.

Now she expresses sadness over her inability to work physically, regrets not having done more of it in the past and thinks this to be one of the causes of her state. Her judgment about the mental sphere seems to have been inverted with the physical: she now claims spiritual, intellectual pursuits to be superficial, void of importance, while the physical world, physical activity is given high value, said to have „depth“ and „life force“. It seems that the delusional explanations of her somatic sensations have disappeared. She is doubtful as to their origin and thinks it is somehow internal to the body or proper to schizophrenia. Furthermore, she critically reflects on her psychotic experience. She still feels herself to incarnate the body of St Paul, but expresses uncertainty on this point. Verbal pseudohallucinations are still present, but are reduced to one-phrase imperatives (relating to physical activity) whose origin she attributes to herself.

CONCLUSIONS: Delusional judgments have abated with a simultaneous shift in the content of verbal pseudohallucinations and an inversion of value of mental and physical activity.
Title: Identification of an unknown psychoactive substance ingested by a 15-year-old patient with borderline personality features - a case report

Authors: Kuna M.¹

Tutor/Tutors: dr Maja Herman

University: ¹ Psychiatry Clinic, Department of Physiotherapy, Medical University of Warsaw, Psychiatry Students’ Club of Prof. Jan Mazurkiewicz, Poland

BACKGROUND: While market for designer drugs is ever growing, it might matter to bear in mind some simple errors that could preclude proper identification of psychoactive substance an actual patient might have consumed.

CASE REPORT: A 15-year-old female patient with the borderline personality features was admitted to an observation due to substance abuse, self-mutilation and suicide attempts in the past. On the day of admission, parents noticed patient’s strange behaviour but they were unable to connect it with the use of narcotics. On admission, the patient seemed to be under the influence of drugs and acknowledged taking large amounts of benzodiazepines, purchased from a social media acquainted dealer. Drug tests for narcotics were positive only for PCP. Due to the family conflict and suicide threat, the patient was admitted to a strict supervision. The applied treatment comprised of daily psychotherapy, therapeutic contact with patient’s carers and pharmacotherapy with quetiapine. The patient was discharged with recommendations including psychotherapy continuation and psychiatric care under the supervision of a distant family, in changed environment. The chemical analysis of the designer pill, found in the patient’s room, did not match for any compound in the database. Correcting laboratory errors allowed for appropriate determination of the substance that turned out to be clonezapam. Several factors contributed to the hindered identification. In standard rapid drug tests for benzodiazepines, antibodies against diazepam are used. Clonazepam due to its distinct chemical structure is not bound by this antibody in comparison with other substances in the group. Then, during the chromatographic analysis, its composition could not be determined because of the foul chromatographic columns and only their swap allowed for proper identification. The presence of phencyclidine analog could be the reason for a positive PCP test. The designer origin of the tablet was indicated by its appearance.

CONCLUSIONS: The above case proves that various false positive and false negative results can significantly impede the process of identifying an unknown psychoactive substance.
Title: Diagnostic and therapeutic challenge in an immunosuppressed patient with tick-borne encephalitis: a case report

Authors: Borawski B.¹

Tutor/Tutors: Professor J. Zajkowska

University: ¹ Department of Infectious Diseases and Neuroinfections, Medical University of Białystok, Poland

BACKGROUND: Tick-borne encephalitis virus remains one of the most frequent causes of central nervous system infections in Europe. Between 2000-2015 in Poland 3662 TBE cases were reported. The main transmission route for TBEV is by tick bites. Age, severity of illness in the acute stage, and low initial neutralizing antibody titers are associated with illness severity. TBE can be fatal, especially in immunosuppressed patients.

CASE REPORT: A 36-year-old female with a history of double corneal transplant was admitted to the hospital due to headache, nausea, dizziness, vomiting and fever. The patient had been on post-transplant immunosuppressive therapy for past six months. The neurological examination at admission revealed impaired consciousness, mutism, left-side limbs weakness, bilateral positive Babinski’s sign, nystagmus and roving eye movement. CSF analysis revealed lymphocytic pleocytosis, however serological assays were negative for TBEV. Initial MRI revealed changes that could have corresponded to Creutzfeldt-Jacob’s disease, nonetheless CSF analysis for protein 14-3-3 was negative. The patient received dexamethasone, acyclovir and ceftriaxone. During hospitalization tonic-clonic seizures, decreased saturation, tachypnea, tachycardia, dysphagia and features of pulmonary edema were observed. Patient was transferred to the ICU where she was intubated and ventilated mechanically. She was hypotensive and had recurrent seizures. Pharmacological coma was induced. Although first sample of CSF was negative for TBE antibodies, the second and third sample were positive. During next 4 months of hospitalization at ICU neurological deficits were gradually increasing in the form of total lack of response to stimuli, anisocoria and flaccid tetraparesis. Due to lack of therapeutic possibilities i.v. immunoglobulins were administered without any effect. The outcome of the disease, despite the symptomatic treatment, was fatal.

CONCLUSIONS: Clinical course of TBE is unpredictable and in immunocompromised patients tends to be more severe including. Due to delayed production of anti-TBE antibodies in some of the patients undergoing immunosuppressive therapy establishing the correct diagnosis can be challenging and might require serological CSF reevaluation.
Title: The role of magnetic resonance in the diagnosis of ischemic changes in the brain in a patient with severe perinatal asphyxia a case report.

Authors: Cyranka W.1, Zbroja M.1, Bochyński K.1, Lipińska K.1

Tutor/Tutors: dr. hab. n. med. Magdalena Woźniak

University: 1 Students Scientific Society at Department of Pediatric Radiology, Medical University of Lublin, Poland

BACKGROUND: A baby born at 38 weeks of pregnancy was resuscitated and treated with hypothermia. As a result of cardiac arrest, seizures, thrombocytopenia and disorders in the circulatory system, the patient was referred for imaging examinations - transfontanellar ultrasonography and MRI of the head with suspicion of severe perinatal asphyxia and resulting ischemic changes in the brain.

CASE REPORT: The patient underwent three transfonanellar ultrasound examinations (on the first day of life, 2 and 3 days after birth). Four MR head scans were also performed, the first in the 7th day of life, without the administration of a contrast agent. Next in 1, 8 and 9 months of life. The examination was performed with the Siemens Magnetom Aera 48 1.5T scanner. The FSE, DARK FLUID (DF), ISO 3D, DWI sequences were used to obtain T1 and T2-dependent images in the transverse, sagittal and coronal plane before and after i.v. administration of a paramagnetic contrast agent.

In the first ultrasound examination (first day of life), only the features of a slight cerebral edema were found, except for that no focal changes in the brain structures or widening of the ventricular system were observed. In the MRI examination performed on the 7th day of life bilaterally in the basal ganglia and the thalamus, abnormally increased signal intensity in T1-weighted images and low signal intensity in T2-weighted images were visualized. Maturity of the brain and the degree of white matter myelination were adequate for age. There were no additional changes in the brain structures. In subsequent MR brain scan, the progression of the lesions was diagnosed and ventricular dilatation increased.

CONCLUSIONS: MR examination shows greater sensitivity than ultrasound in assessing the evolution of changes in the course of severe hypoxic ischemic brain damage. It should be the method of choice among other diagnostic imaging techniques in newborns with severe perinatal asphyxia.
Title: Psoriasis as a side effect of natalizumab treatment of muliple sclerosis- case report

Authors: Janosz P., Kulikowska J.

Tutor/Tutors: phd Katarzyna Kapica-Topczewska, prof. Alina Kulakowska

University: Department of Neurology of Medical University of Białystok, Studenckie Koło Naukowe przy Klinice Neurologii UMB, Poland

BACKGROUND: Multiple sclerosis and psoriasis are autoimmune disorders and some authors show immune (key role of autoaggressive Th17 lymphocytes) and genetic (IL-23 receptor gene polymorphisms) connections in both diseases. Natalizumab treatment of MS prevents T cells from migrating through blood-brain barrier, so it is associated with some known immune-based side effects, for example progressive multifocal leukoencephalopathy caused by reactivation of latent JCV infection. Natalizumab is also suspected of causing psoriasis.

CASE REPORT: 60 years old female patient was diagnosed with retrobulbar neuritis at the age of 26, and diagnosed with MS at the age of 40 by MRI findings. She had flare-ups in 2001, 2002, 2003, 2004, 2005, 2006, 2010 and 2013. Until June 2005 she had 3,5 points in EDSS scale, from June 2005 to May 2011 4 EDSS, from May 2011 to 2013 4,5 EDSS, and from 2013 until today 6 EDSS. From 2005 to 2006 she was treated with BG00012, and from 2008 to June 2010 with daclizumab. She resigned from daclizumab therapy after disseminated eczema occured, which was suspected as side effect of daclizumab. She began her natalizumab treatment in 2011 and her JCV laboratory findings are negative. In June 2018 she noticed cutaneous lesions on both shins and left hand. In Dermatology Unit she was diagnosed with psoriasis. There she was treated with dithranol, methyl salicylate, Hasceral, Novate and Lorinden C ointments and due to this treatment lesions resolved. In December 2018 it was decided to continue natalizumab therapy because of good clinical response.

CONCLUSIONS: Patient developed psoriasis 7 years after beginning of natalizumab treatment, so it is hard to say whether there is a link between these two events. It is not known whether natalizumab can induce or aggravate psoriasis. It also remains unclear whether natalizumab can cause psoriasis in patients without genetic predispositions, or just accelerate development of disease in patients with family history of psoriasis (key role of genetic predispositions). More research is needed. This case highlights importance of awareness about rare side effects of biological therapy and careful patient observation.
**Title:** The role of MRI in the agenesis of corpus callosum

**Authors:** Paulaityte G.¹

**Tutor/Tutors:** Nomeda Valevičienė

**University:** ¹ Medicine Faculty, Vilnius University, Lithuania

**BACKGROUND:** The main routine test during pregnancy is ultrasound (US), but there are some cases when it is not possible to see abnormalities using US and we can consider using MRI for fetal examination. Corpus callosum is the largest interhemispheric commissure, consisting of >200 million fibers connecting the two brain hemispheres. Agenesis of the corpus callosum (ACC) is one of the most common malformations in the human brain. The ability of fetal MRI to better evaluate the structural integrity of the corpus callosum is most likely due to direct visualization of the corpus callosum on a midline sagittal MR image. We can not be sure how often disorders of the corpus callosum actually occur since no one knows how many individuals have callosal conditions but are not diagnosed.

**CASE REPORT:** No1. Woman, 27y.o.; Suspected corpus callosum agenesis during US exam at 22 week, confirmed with MRI. Axial view, T2 cor view of the head reveals the corpus callosum agenesis. The mother was sent to deliver to the tertiary care University hospital. The newborn after birth had to be evaluated by a multidisciplinary team of experienced clinicians involving neonatologists, neuroradiologists, neurologists and geneticists. No2. Man, 22y.o.; Diagnosis: Structural epilepsy after herpetic encephalitis: focal motor seizures. Severe mental retardation. Autism. Behavioural disorder. Severe seizures started 3 years ago, usually seen in the evening, patient moves his head to the left side, eyes also rotated to the left side, becomes aloof. Seizures last 30-60 minutes. MRI findings - F, O, T lobe agenesis on the left side of the brain. Corpus callosum partial agenesis. Lateral ventricles asymmetric, prominent horn extended to the left. Apple of the left eye is smaller in size.

**CONCLUSIONS:** In conclusion MRI is very important tool to diagnose the corpus callosum agenesis before delivery. Long-term neurodevelopmental outcome is expected to be normal in approximately 75% of isolated corpus callosum agenesis cases. This means that continuation of pregnancy can be preferred. Parents should be offered genetic counselling and infants with ACC need long-term multidisciplinary follow-up to assess development and address other comorbidities such as epilepsy and feeding problems.
Title: Bilateral vestibular hypofunction

Authors: Padvariskyte S.¹

Tutor/Tutors: Aiste Paskoniene

University: ¹ Vilnius University, Faculty of Medicine, Lithuania

BACKGROUND: Bilateral vestibular hypofunction (BVH) is an uncommon heterogeneous disorder that results in difficulty maintaining balance, particularly when walking on uneven surface or in the dark. People also suffer from visual symptoms, which are called “oscillopsia” and occur when the head is moving. Objects may appear to bounce or wobble with head motion, especially while driving. Majority of BVM cases are idiopathic in nature because an underlying cause cannot be identified. Therefore our aim is to report the case of a 53-year-old female, who was diagnosed with bilateral vestibular hypofunction.

CASE REPORT: A 53-year-old female has been admitted to the Vilnius University Clinics’ Ear, Nose and Throat Department with complaints of intense feeling of being off-balance, especially in the dark, floating, tilting sensation, spatial orientation problems. This condition is constant; there are no central vertigo attacks. Severe dizziness started 2,5 months after pituitary adenoma operation. Patient had no history of any postural or vestibular deficits before. Vestibular function was examined using tests such as rotational chair, videonystagmography(VNG) and head impulse (HIT) tests. All of them showed bilateral vestibular areflexia. It was impossible to perform computer posturography test because of the severity of postural instability. Vestibular rehabilitation and medication had no positive significant impact on patient’s health.

CONCLUSIONS: Diagnosing BVH can be difficult and, therefore, BVH is often under- or misdiagnosed. Increasing evidence shows that BVH causes a high decrease in quality of life and imposes a high socioeconomic burden due to work related disabilities. In this case patient was left with severe health issues even after intensive rehabilitation.
Title: The role of medical imaging of genetic diseases of central nervous system by the example of adrenoleukodystrophy linked to the X chromosome

Authors: Grzegorczyk M.¹, Gębska M.¹, Sobczuk R.¹, Dyzma P.¹, Woliński O.¹

Tutor/Tutors: dr n. med. Monika Miazga, dr hab. n. med. Anna Drelich-Zbroja

University: ¹ Medical University of Lublin, Poland

BACKGROUND: Adrenoleukodystrophy linked to X chromosome is a metabolic genetic disorder in which long-chain fatty acids are accumulated and responsible for demyelination of white matter of CNS. In early childhood, symptoms are usually uncharacteristic or absent, may resemble autism. Most important clinical symptoms for youth are cognitive and behavioral disorders, hearing and visual impairment, and mobility disorders. Progression of disease is usually rapid, within 3 years patient develops complete dementia, disability and ultimately dies. Radiological diagnostics is based on MR examination of head, in which T2-dependent images show symmetrically diffuse demyelination zones near triangles of lateral ventricles, and parietal-occipital lobes. Morphology of changed areas allows initial and differential diagnosis.

CASE REPORT: 23-year-old man was referred to neurologist due to behavioral and mobility disorders. The interview established that during childhood first symptoms were vision disorders, corrected with glasses, then problems with learning and movement, so diagnoses of spine diseases were carried out. It was only when epilepsy appeared, he was referred for CT of the head, result of which showed areas of diffuse reduction of densities and moderate edema in both occipital and posterior parts of parietal lobes. Next MR examination of the head was performed in which increased signal, symmetrically in parietal-occipital region were visualized in T2-dependent images, within triangles of lateral ventricles, trunk of corpus callosum and thalamus. Genetic disorder, adrenoleukodystrophy linked to X chromosome, has been suggested, which was later confirmed by genetic tests. In this case, disease developed insidiously and unusually, rest of family members were healthy and only occurrence of epilepsy prompted doctors to perform MR examination.

CONCLUSIONS: MR imaging is sensitive, but not specific and often does not allow for clear diagnosis of genetic disease of CNS. It allows for differential diagnosis and appropriate laboratory and genetic testing. Due to the fact that changes in MR examination in many genetic diseases of CNS precede the occurrence of clinical symptoms, such examination should be performed as first-line examination, in order to make initial diagnosis.
Title: The importance of radiological findings in a rare neuromuscular disease - camptocormia case report.

Authors: Krawczyk J.¹

Tutor/Tutors: dr hab. Sławomir Michalak

University: ¹ Department of Neurology, Poznań University of Medical Science, Poland

BACKGROUND: Camptocormia, also known as bent spine syndrome or “cyphose hystérique”, is a rare manifestation of various, very often idiopathic pathologies of neuromuscular origin. It presents itself with involuntary thoracolumbar spinal flexion, sometimes accompanied by pain. While it had been perceived as a psychosomatic disorder in the past, modern findings support its origin within nervous and muscular system, which can be proven by the means of magnetic resonance imaging. This allows to introduce appropriate treatment and alleviate the suffering of those affected.

CASE REPORT: A 57-year old man was admitted to the Department of Neurology, presenting with paroxysmal torso bending paired with significant pain – both of those symptoms persisted for around 10 years before the admission. Apart from that, the patient did not complain of any other disease. Neurological examination revealed no abnormalities on admission. Video-EEG and 24h-EEG registered an episode that had been earlier described by the patient, yet it did not manifest itself with any changes in the electric activity of the brain. MRI of the thoracic spine revealed radiographic features highly suggestive of the final diagnosis – camptocormia. This case report presents those radiological findings, their importance for the introduced treatment and the outcome of the patient.

CONCLUSIONS: Rare disorders of the nervous systems very often pose a serious diagnostic challenge. Relatively low awareness on their symptomatology, very often on the verge of neurology and psychiatry, contributes to unnecessary long diagnostic process and delay in treatment. It is of the utmost importance to seek for objective findings that allow to plan the best care for the patient, as it was in this camptocormia case.
Title: Appearance are deceptive - encephalitis, of etiology of HIV, known not only from the book

Authors: Makarewicz O.¹, Nakwasińska G.¹

Tutor/Tutors: dr Bernard Zając

University: ¹ Wrocław Medical University, Poland

BACKGROUND: Inflammation of the brain is a rare condition of great importance for public health, as it is characterized by a high rate of complications and high mortality. The most common causes of encephalitis are HSV-1, VZV, measles, influenza, CMV or HIV. Among approximately 40 million people infected with HIV, only about 2 million are infected with the HIV-2 virus type, which shows a greater CNS tropism compared to HIV-1.

CASE REPORT: 25-year-old man admitted in ICU due to the deterioration of the general condition, with consciousness disorders and symptoms of respiratory failure. Interview: the patient reported to the emergency with behavioral disorders. He was sent to the poison department, and then, with a suspected episode of depression, he was transferred to a psychiatric hospital. After 2 weeks, upon admission to the ICU, the patient was deeply unconscious (GCS 3), pupils wide, non-reactive, mechanical ventilated, and the meningeal symptoms were absent. Laboratory tests revealed decreased lymphocyte levels, increased inflammatory parameters and hypokalemia. Urgent CT scan of the head, showed 2 tumors with massive edema and inclination of the tonsils, without the features of fresh intracranial hemorrhage. During the ICU stay, virological tests confirmed HIV infection. Prohibited act was disclosed during the completion of the interview from a patient’s friend in the local ICU. Seven days after admission, the patient died. A sectional examination performed 38 hours after death showed that the cause was cardiorespiratory failure dictated by viral encephalitis with the etiology of HIV with multifocal softening and acute bronchopneumonia.

CONCLUSIONS: Inflammation of the brain caused by HIV infection is uncommon, especially in European conditions, of CNS disease. This condition is a therapeutic challenge and requires careful diagnosis, which in the presented case has been discontinued. It should be remembered that every patient needs a broadly understood medical care.
Title: Case report: the cause of mental disorder- neurosyphilis

Authors: Zalimas J.¹

Tutor/Tutors: Veronika Žalimienė, MD; Mindaugas Buta, MD

University: ¹ Medicine Faculty, Vilnius University, Lithuania

BACKGROUND: Mental disorders due to brain damage, dysfunction or somatic disease that, among other organs, directly affect the brain. These disorders are not a psychological reaction to the disease. Organic CNS damage can be manifested by various symptoms: delusional disorder, hallucinosis, various mood disorders, anxiety disorder, asthenic disorder, and others.

CASE REPORT: Patient (born in 1961) for 9 days in 2012 treated in Acute Psychiatric Department was diagnosed with unspecified mental disorder caused by brain injury, dysfunction and somatic disease. Wife’s initiative the patient was taken to the general hospital because of his changed behavior and insomnia. During the inspection in hospital’s reception was noticed that patient eye pupils was dilated, he was irritating, angry and had a memory changes. Because of these symptoms the brain CT was performed. The conclusion of the CT study was diffuse, atrophic changes in brain, predominant frontotemporal, light grade hydrocephalic dilatation of the lateral ventricles. During the examination, the patient’s behavior became increasingly inadequate therefore he was directed to a psychiatric hospital. The patient’s wife indicated that patient’s behavior had changed for several months: he became irritable, was telling the memories of youth and didn’t remember what happened a few days ago, told his daughter to leave home for no reason. In the psychiatric department the patient was calm, had a formal contact and was asking why the doctors are healing him. Patient was counselled by neurologist who diagnosed that patient didn’t have organic CNS disease but after EEG established rhythm dysfunction. Psychologist’s conclusion: slight organic changes. Organic CNS pathology was differentiated with Pick’s disease, frontal lobe syndrome and neurosyphilis. It was decided to repeat the CT, EEG and blood test to determine if the patient was suffering from neurosyphilis. Blood test results showed that the patient had neurosyphilis. Treatment with high doses of penicillin was effective.

CONCLUSIONS: Less common diseases can cause mental disorders. Less often thought about their consequences therefore differential diagnosis with various other diseases in this case neurosyphilis are quite difficult.
**Title:** Massive scoliosis as a result of spina bifida occulta : a case study

**Authors:** Marchewka W. ¹

**Tutor/Tutors:** Sławomir Duda MD

**University:** ¹ Katedra Historii Medycyny, Koło Naukowe Humanistyki Medycznej CMUJ, Poland

**BACKGROUND:** Spina Bifida (SB; from Latin means spine split), is a congenital disease in which the spinal canal is not closed as a result of the absence of posterior vertebral arches. This disorder can be divided into two types: spina bifida occulta and spina bifida cystica. Occulta from Latin means hidden and this form occurs in only 15% of patients with SB and it is the mildest type of the mentioned disease. In this form, the external part of some of the vertebrae is not completely closed which causes scoliosis. The spinal cord does not deviate and the skin in most cases is normal in the place of the lesion. Spina bifida occulta is detected mostly by accident during spine x-ray as a result of 'back pain' which is related to scoliosis.

**CASE REPORT:** 12-year-old male patient complained of back pain, which appeared about six months ago after summer break. The pain intensifies as a result of longer walks, running and carrying loads. The orthopedic examination revealed: normal walk, possible on toes and heels. Axial compression, Lasegue and Mackiewicz tests were negative. The muscle strength of the lower limbs were normal. Range of motion (ROM) of the spine was normal. During right torso bending the pain appears at the top of kyphosis of the lumbar spine. Waistline was more expressed on the left side and the pelvis was slightly slanted. Spine x-ray revealed kyphoscoliosis which probably was responsible for back pain. MRI scan confirmed Spina Bifida Occulta at the L1/L2 and a massive kyphoscoliosis. The patient was admitted to the hospital in an urgent mode for posterior spondylodesis surgery. The spinal column was redub using orthopedic screws drilled into vertebral body which were then connected with orthopedic rods. After the surgery, patient stayed in the intensive care unit. He was transferred to the general department after 24 hours. Immediately after the physiotherapy started and analgesics were continued.

**CONCLUSIONS:** The operation improved not only the frontal but also sagittal structure of the spine. Moreover it secured against further disease progression and formation of degenerative changes in the operation field. Indirectly the operation decompressed spinal canal. Thanks to all above, the patient will be able to return to do sports without pain.
**Title:** Huntington's disease from the perspective of a radiologist - an image of rare disease entity.

**Authors:** Grzegorczyk M.¹, Gębska M.¹, Sobczuk R.¹, Dyzma P.¹

**Tutor/Tutors:** Lek. Maryla Kuczyńska, Dr hab. n. med. Anna Drelich-Zbroja

**University:** ¹ Students Scientific Society at the Department of Interventional Radiology and Neuroradiology, Medical University of Lublin, Poland

**BACKGROUND:** Huntington's disease is a neurodegenerative genetic disease with autosomal dominant inheritance. The onset often occurs in third decade of life. Characteristic symptoms of disease are variable chorea movements, executive function disorders and attention disorders. Genetic and imaging examination are used in diagnosis. In MRI examination at early-stage, atrophy of caudate nucleus and widening of lateral horn of lateral ventricle is visible. Later stage is followed by atrophy and thinning in cortical and subcortical areas of the brain. Brain lesions may also be qualified by measuring ratio of distances between the anterior horns of lateral ventricles (FH) to distance between the inner surfaces of caudal nuclei (CC), and between the inner surfaces of the caudate nuclei (CC) to distance between inner table of skull at the temporal regions (IT).

**CASE REPORT:** 40-year-old patient was referred to neurologist with movement disorders, such as clumsiness, falling out of signal. She said that her parent died at the age of 40 for unknown reasons. In MR scan of head an elevated signal was seen in projection of right putamen on T2-dependent images and generalized, advanced, inadequate age-related cortico-subcortical atrophy accompanied by widening of fluid spaces. Measurements of distance between the inner surfaces of caudal nuclei (CC = 2.57 cm), the anterior horns of lateral ventricles (FH = 3.74 cm), and inner table of skull at the temporal regions (IT = 11.14 cm) were made. Distance quotient CC: IT was 0.23 [N = 0.09-0.12], the quotient FH: CC was 1.45, [N = 2.2-2.6]. In addition, a decrease in height of the corpus callosum was observed. Whole picture suggested occurrence of changes characteristic of Huntington's disease.

**CONCLUSIONS:** Based on results of imaging tests, patient should be diagnosed with Huntington's disease, which may additionally be indicated by unclear family history. In next stage, genetic tests should be done to definitely verify the diagnosis.
Title: MRI examination of lacunar stroke. Case report.

Authors: Sobczuk R.¹, Grzegorczyk M.¹, Gębska M.¹, Dyzma P.¹

Tutor/Tutors: dr hab n. med. Anna Drelich – Zbroja, Dr n. med. Monika Miazga

University: ¹ Students Scientific Society at the Department of Interventional Radiology and Neuroradiology, Poland

BACKGROUND: Among many forms of ischemic stroke, one of them is the so-called lacunar stroke, caused mostly by obstruction of penetrating arteries or small vessels. Usually it is a result of chronic hypertension and is characterized by the small lacunar infarcts (0,5-15mm) located in deep brain structures. Symptoms depend on the extent of the stroke but in many cases there might be no sign of sickness or they might be hardly visible.

CASE REPORT: Patient aged 45, admitted to neurology department of Independent Public Hospital No.4 in Lublin with right-sided hemiparesis, dysarthia and so called clumsy hand. Patient in the past was diagnosed with hypertension (one of ischemic stroke risk factors causing lyphohyalinosis of small vessels) but it wasn’t controlled properly. Computer tomography (CT) was performed, however there were no visible signs of a stroke. MRI revealed a left-sided lacunar stroke located in deep structures of the brain: the caudate nucleus head, putamen as well as cortical and subcortical zone within left frontal lobe as a result of occlusion of recurrent artery of Heubner and lenticulostriate arteries. The lacunar stroke was confirmed in DWI (diffusion weighted imaging) as restricted diffusion of water, which spoke for acute phase of a stroke. There were no signs of intracranial hemorrhage.

CONCLUSIONS: In some cases when there are no signs of stroke area in CT we should perform MRI which is more sensitive than CT in detection of ischemic lesion especially among patients with lacunar infarcts located in deep brain structures, which are relatively small and harder to detect.
Title: Uveitis: TB or not TB?

Authors: Trepenaityte G.1, Skurkaite A.1

Tutor/Tutors: Saulius Galgauskas, MD

University: 1 Faculty of medicine, Vilnius University, Lithuania

BACKGROUND: Uveitis is an inflammation of the iris, ciliary body or choroid. Uveitis may lead to numerous sight-threatening complications, including macular edema, increased intraocular pressure and retinal ischemia, and it is the cause of 5% of cases of legal blindness. The most common type is acute anterior uveitis. It usually presents with red, sore and inflamed eye, blurred vision, sensitivity to light and a small or irregular-shaped pupil. Some of the most common causes of anterior uveitis include infections (herpes viruses, tuberculosis, syphilis, toxoplasmosis), autoimmune or autoinflammatory diseases (ankylosing spondilitis, sarcoidosis, psoriatic arthritis). Anamnesis and clinical examination are crucial parts in diagnosing this disease. However, sometimes the differential diagnosis can be extremely complicated, especially when there is more than one risk factor.

CASE REPORT: A 61-year-old male patient was transferred to the Ophthalmology department from the department of drug-sensitive tuberculosis. Tuberculosis had been diagnosed two months earlier. His complaints included worsened vision in his left eye followed by a strong pain in the left eye radiating to the head and forehead. On examination, his left eye presented with mixed injection, corneal edema, descemetitis, hypopion, iris hyperaemia and posterior synechiae. The patient was diagnosed with acute uveitis and secondary glaucoma and treated with Dexamethasone, Atropine and antitubercular drugs. In addition, the patient suffers from psoriatic arthritis and takes methylprednizolone occasionally. During his hospitalization in the Ophthalmology department, he was also consulted by a rheumatologist. Following the treatment, his eye condition improved, however it was not possible to differentiate whether the uveitis was caused by tuberculosis or psoriatic arthritis.

CONCLUSIONS: Although the treatment was effective in this case, it was not possible to determine the definite cause of the disease. An exacerbation of psoriatic arthritis or the tuberculosis infection in an immunosuppressive state could both be the cause. However, this case reminds us of the importance of excluding all the possible underlying causes and treat all the concomitant diseases in order to achieve the best therapeutic results.
Title: Sarcoid uveitis: not just a simple inflammation

Authors: Trepenaityte G.¹

Tutor/Tutors: Andrius Cimbalas, MD

University: ¹ Faculty of medicine, Vilnius University, Lithuania

BACKGROUND: Sarcoidosis is a systemic inflammatory disease of unknown etiology. It is characterised by the formation of noncaseating granulomas in affected organs. Around 25% of sarcoidosis patients present with ocular involvement. The most common form of such involvement is uveitis. Sarcoid uveitis usually presents with redness of the eye, blurred vision, photophobia, floaters. The most common signs are granulomatous or mutton-fat keratic precipitates, iris nodules, synechiae. Posterior involvement includes vitreitis, vasculitis, and choroidal lesions. Cystoid macular edema is the most important and sight-threatening consequence.

CASE REPORT: The patient is a 34-year-old male, diagnosed with sarcoidosis in 2016, but not treated. In December 2017, he came to the hospital due to decreased vision in his left eye and was diagnosed with sarcoid panuveitis. He was treated with topical, systemic and subconjunctival corticosteroids and his condition improved, however after two months, following an attempt to reduce the dose, it worsened again. Therefore, the dose was increased and methotrexate was added. However, the treatment was not effective enough, therefore biological therapy was considered. In June 2018, the patient underwent pars plana vitrectomy and cataract surgery with intraocular lens placement due to retinal detachment and in July biological therapy with adalimumab was started. Retinal detachment including the macula reoccurred in August, but it was decided not to repeat the surgery due to the remaining inflammation of the eye. Finally, methotrexate was stopped in November, methylprednisolone in December and until now the patient is being treated with adalimumab, in order to prevent the spread of uveitis into the right eye and to retain the remaining sight in the left one (hand motion).

CONCLUSIONS: It is reported that almost two-thirds of patients with sarcoid uveitis experience a benign self-limiting disease with spontaneous remission. However, it is evident in this case that it is a disease which can be very difficult to manage and can lead to serious sight-threatening complications. Therefore, a timely diagnosis and adequate treatment with sufficient immunosuppression are crucial in achieving the best therapeutic effect possible.
Case Report III
Title: Selective intrauterine growth restriction in monochorionic-diamniotic twin pregnancy – a case report

Authors: Palus A.¹

Tutor/Tutors: Asst. Prof. Iwona Szymusik M.D. PhD

University: ¹ 1st Department of Obstetrics and Gynecology, Medical University of Warsaw, Poland

BACKGROUND: Multiple gestations are associated with high risk of pregnancy complications and stillbirth. Selective intrauterine growth restriction (sIUGR) is one of them – it occurs more often in monochorionic than in dichorionic twin gestations. In the majority of cases it is due to uneven placental share, which may be accompanied by vessel anastomoses, various in number and size. As a result one twin is growing significantly slower than the other. In utero demise of either of the twins may have tragic consequences for the other.

CASE REPORT: A report of a case of 34-year old woman in monochorionic-diamniotic twin pregnancy complicated by sIUGR is presented.

The patient was referred to the hospital at 16 weeks of gestation due to the significant disproportion of intrauterine growth of fetuses. Initial ultrasound examination revealed sIUGR and oligohydramnios of the second fetus, not meeting the Quintero criteria of twin-to-twin transfusion syndrome. Next imaging tests also showed cardiomyopathy, pericardial effusion, abnormal blood flow and anhydramnios of the smaller fetus. There were no abnormalities in the properly growing co-twin. Moreover, there was a high risk of preeclampsia confirmed at 27th week of gestation in biochemical tests. At 28th week of gestation caesarean section was performed due to a very high risk of intrauterine demise of the second fetus.

The first female fetus with 220g of body weight was born in a critical condition and died 30 minutes after the delivery. The second female fetus was delivered in good general condition, weighing 1100g. During her stay at neonatal intensive care unit the newborn required mechanical ventilation, antibiotics, blood transfusion. The baby was discharged after 74 days of hospitalization in good general condition, weighing 3090g.

CONCLUSIONS: Multiple gestation carries an increased risk of adverse perinatal outcomes. Therefore, proper perinatal assessment based on ultrasonography is essential, especially in monochorionic pregnancies. In cases complicated by sIUGR the decision to deliver is especially difficult and requires wide clinical experience in order to increase the chances of survival for any of the two twins and to decrease the risk of complications resulting from prematurity.
BACKGROUND: Uterine fibroids are benign smooth muscle tumours of the uterus. Large myomas, greater than 10 kg, are extremely rare. Fibroids may press heart. lungs, bladder and cause pain during sex, lower back pain, dysmenorrhea, abnormal bleeding. About 20% to 80% of women develop fibroids by the age of 50.

CASE REPORT: We present a case of 48-year old woman who had been diagnosed with a gigantic intra-abdominal mass. The patient complained of increased abdominal circumference, shortness of breath, weakness, anaemia and fever. Abdominal and pelvic CT scan revealed a multifocal 32 x 30cm size mass and free fluid in abdominal cavity. Due to suspicion of the gynaecologic cancer, ineffective antibiotic treatment, deteriorative patient’s condition, increasing inflammatory markers and dyspnoea, laparotomy was performed. During the operation, a gigantic 35-40cm intra-abdominal mass, originating from the uterine fundus, with neovascularisation between mass, terminal ileum and mesentery of the sigmoid colon was observed. Also, adhesions with surrounding structures, 2000ml of serous fluid in the abdominal cavity and enlarged to 2.5cm paraaortic lymph nodes were found. Total hysterectomy, adnexectomy, selective paraaortic lymphadenectomy and adhesiolysis was performed. The operation was complicated with a diffuse bleeding from the Lodz’s of the mass, pelvic wall and the mesentery of intestines and patient’s respiratory failure. Therefore, the patient has received 5 days intensive treatment for haemorrhagic shock in the intensive care unit.

CONCLUSIONS: A patient was successfully treated with total resection of a 35cm x 40cm diameter and 13kg weight mass. Histological examination revealed the final diagnosis of submucosal, intramural and subserosal uterine fibroids with necrosis and suppuration. Uterine fibroids have to be differentiated with adenomyoma, ovarian or endometrial cancer, uterine sarcoma, pregnancy and tumours of gastrointestinal tract. Radiological investigations are helpful in differentiating fibroids from other masses. Increased inflammatory markers and dyspnoea could be first symptoms of large uterine fibroids. An individual treatment for every woman should be considered depending of the leiomyoma localization, size and performed symptoms.
Title: Pregnant patient with obstructive hydrocephalus caused by shunt dysfunction and tectal glioma

Authors: Butkeviciute A.¹

Tutor/Tutors: Prof. Diana Ramasauskaite

University: ¹Faculty of medicine, Vilnius University, Lithuania

BACKGROUND: Obstructive hydrocephalus is a disorder of abnormal accumulation of cerebrospinal fluid in the intracranial space, usually in the cerebral ventricles caused by cerebrospinal fluid flow obstruction. It is a rare complication during pregnancy, which mainly affects women with ventriculoperitoneal shunts. In pregnant women, shunt malfunction develops due to increased intra-abdominal pressure, accumulation of water and intracranial cerebrospinal fluid volume. It is a complex situation that requires timely diagnosis and a combined neurosurgical and obstetrical approach.

CASE REPORT: A 33 year old woman, 22 weeks pregnant, arrived at the emergency room with severe fatigue, somnolence, memory dysfunction, anorexia lasting for 9 days. She had history of hydrocephalus and cerebral shunt at age of 13. Patient had positive Babinski sign and weak deep tendon reflexes. She was admitted to the hospital and using MRI diagnosed with obstructive hydrocephalus caused by a non-aggressive tectal glioma and shunt dysfunction. Considering low risk of postoperative pregnancy pathology, a multidisciplinary team decided to perform elective neurosurgery on the patient. While waiting for the surgery, patient’s neurological state started to deteriorate (GCS – 9) and she had an emergent neurosurgery: right ventriculostomy, septostomy and external drainage. Afterwards, the patient was treated in the intensive care unit for 8 days with a varying neurological state. When patient’s general state was stabilised, she had repeated neurosurgery. A week later, the patient had premature rupture of membranes, which led to a decision to end the pregnancy by an elective Cesarean delivery. Patient’s neurological state at that time remained serious (GCS 10-11). Three days later, the patient had Cesarean section at 26 gestational weeks and a healthy male newborn was delivered with APGAR score 8/8. After that, the patient was treated in the ICU and a neurosurgical department for 3 weeks and underwent a physical rehabilitation of 2 months.

CONCLUSIONS: Hydrocephalus during pregnancy can be a difficult clinical scenario which requires an emergent and prolonged management by a multidisciplinary team of obstetricians, perinatologists, anesthesiologists, neonatologists and neurosurgeons.
Title: Pregnancy in woman with galactosemia and premature ovarian insufficiency

Authors: Leki A.¹, Kruszewska J.¹, Krzywdzińska S.¹

Tutor/Tutors: Monika Grymowicz MD,PhD

University: ¹ Department of Gynecological Endocrinology, Medical University of Warsaw, Poland

BACKGROUND: Classic galactosemia is a metabolic genetic autosomal-recessive disorder, associated with deficiency of the galactose-1-phosphate uridiltransferase enzyme (GALT). Affected patients need to preserve lifelong dietary restrictions and avoid galactose intake in order to prevent complications such as damage of liver, brain, kidneys and cataract. Despite adequate diet, in majority of individuals premature ovarian insufficiency (POI) develop. Such patients have diminished number of follicles, thus small chances for successful pregnancies.

CASE REPORT: A 20 year old woman presented to her gynecologist in 10th week of gestation. Just after birth she was diagnosed with galactosemia due to indigestion and gases. She was put on galactose-free diet ever since. At the age of 14 she had premature ovarian insufficiency confirmed by paediatricians, for which she was prescribed hormonal replacement therapy. On a transition to adulthood, the female was admitted to the Department of Gynecological Endocrinology for routine evaluation. Most of the results of hormonal tests came back normal, including those assessing liver and kidney function. Hormonal profile was compatible with the application of hormonal replacement therapy. Level of AMH (Anti-Mullerian Hormone) was almost undetectable, connoting very low ovarian reserve. Pelvic ultrasound was normal, showing even one maturing follicle. The hormonal replacement therapy was continued. Surprisingly in May 2018 she became pregnant. Her pregnancy proceeded without any complications. Spontaneous labour took place in 40th week of pregnancy, her son was born weighing 3500g. The child was examined in the Department of Metabolic Diseases and is a healthy carrier of galactosemia gene mutation.

CONCLUSIONS: Prevalence of POI is high in women with galactosemia and may be a reason of potential infertility. Nevertheless, in very small percentage of affected individuals, spontaneous pregnancies may occur. This should be taken into consideration while taking care of patients with galactosemia and POI who are trying to conceive and also those who might need adequate contraception methods to prevent unwanted pregnancy.
Title: An unusual onset of lupus nephritis during pregnancy in a previously healthy woman

Authors: Gajiyeva E.¹, Amin A.¹

Tutor/Tutors: Dr hab. n. med. Edyta Zbroch

University: ¹ Second Department of Nephrology and Hypertension with Dialysis Unit, Medical University of Bialystok, Poland

BACKGROUND: Proteinuria of >0.3 g/day occurring after 20 week of pregnancy is in most cases suggestive of preeclampsia, onset before 20 week of gestation is more likely of renal disease rather than preeclampsia. Differential diagnosis of such includes glomerulonephritis, diabetes, renal vein thrombosis, amyloidosis, and hereditary nephritis. Lupus nephritis is a serious manifestation of SLE and it is especially rare if a previously healthy individual suddenly experiences such complication during pregnancy. SLE specific antibodies can be present years before clinical symptoms appear, which usually follow some triggering events such as UV exposure, infections, lupus-inducing drugs usage and hormonal changes or a combination of many different factors in genetically susceptible individuals.

CASE REPORT: Previously healthy 19 years old primigravid patient at 14th week of gestation with complaints of extensive peripheral edema, pleural effusion and ascites diagnosed with nephrotic syndrome and preserved renal function. Lab results showed proteinuria of 14 g/day, hypercholesterolemia, low albumin, positive SLE antibodies tests, low complementary proteins count. Starting from 15th week of pregnancy treated with Encorton 1 mg/kg. C-section performed at 30th week of gestation. Postpartum patient was admitted to department of nephrology at the teaching university hospital of Bialystok for further investigations. Renal biopsy confirmed membranous lupus nephritis type V. Currently treated with ALMS steroids scheme, mycophenolate mofetil, statins, ACE-inhibitors. Patient is in a good condition with improved lab results.

CONCLUSIONS: Since pregnancy involves complex interactions between hormonal and immunological factors, it is plausible that it could have differing effects on the development of autoimmune diseases such as SLE. For previously SLE diagnosed patients a period of at least 6 months remission before pregnancy is crucial, because pregnant patients suspected of lupus nephritis have a high risk of complications with possibility of fatal outcome and have to be managed with steroids in order to control the disease as well as to help fetal lung maturation. Early C-section is advisable in order to avoid complications of hypercoagulability state.
Title: Case report: pregnancy complicated by influenza A infection requiring extracorporeal membrane oxygenation treatment

Authors: Tutkus J.¹

Tutor/Tutors: Lukas Balčiūnas

University: ¹ Medicine, Vilnius University, Lithuania

BACKGROUND: Pregnant women are 7 times more likely to be hospitalized and 4 times more likely to be admitted to intensive care unit (ICU) due to influenza virus infection, compared to non-gravid women. Physiological changes like decreased oncotic pressure and reduced lung residual capacity predispose pregnant women for various respiratory complications. Extracorporeal membrane oxygenation (ECMO) can be used as a rescue therapy to treat refractory hypoxemia, and literature shows relatively high survival for both mother and the fetus.

CASE REPORT: A previously healthy 41-year-old woman (gravida 6, para 5), presented at 21 weeks of gestation, attended in the emergency department with a history of 5-day flu-like symptoms and fever of 38.8 °C. Her molecular test for influenza A virus was positive and chest radiography showed bilateral diffuse patchy infiltrates. Due to respiratory failure she was transferred to the ICU, and given oxygen through a high flow nasal cannula. Her respiratory status deteriorated over next 24 hours, necessitating intubation. The patient was mechanically ventilated with 100% oxygen, but without signs of clinical improvement, a multidisciplinary decision indicated veno-venous ECMO installation. Through cannulation of the right jugular vein, a double lumen cannula was inserted. On the 6th day of ECMO therapy our patient’s condition was complicated by ventilator associated pneumonia, caused by Acinetobacter baumanii. Colistin was prescribed and over the next week clinical condition slowly improved, resulting in reduction of oxygen needs and chest radiography showed resolving patchy infiltrates. Fetal ultrasound showed no morphological abnormalities through the ICU stay. After 20 days in ICU (10 days under ECMO and 14 days under mechanical ventilation) and 2 days in the department of pulmonology, patient was successfully discharged from hospital.

CONCLUSIONS: In the past, the use of ECMO in adults caused many complications and was used as a last resort therapy. However, recent improvements in cannulas and membrane oxygenators made ECMO therapy less invasive and safer for both mother and fetus. Early diagnosis and aggressive treatment of influenza virus infection is crucial during pregnancy to prevent major morbidity and mortality.
Title: Single fetal death in twin-to-twin transfusion syndrome

Authors: Lipka A.¹

Tutor/Tutors: Katarzyna Panecka-Mysza, prof. Mariola Ropacka-Lesiak

University: ¹ Poznan University of Medical Science, Poland

BACKGROUND: Twin-to-twin transfusion syndrome (TTTS) is a serious complication of monochorionic twin pregnancy and its prevalence is approximately 1-3 per 10,000 births. The imbalance of blood flow through the placental anastomoses may lead to various complications, such as fetal death due to hydrops or hypovolemia resulting in hypoxia. TTTS may develop at any time in gestation, and without intrauterine therapy, the loss of at least 1 fetus is very common. Therapeutic options described for TTTS include expectant management, amnioreduction, intentional septostomy of the intervening membrane, fetoscopic laser photocoagulation of placental anastomoses and selective reduction.

CASE REPORT: A 32-year-old patient with monochorionic diamniotic twins, at 29 week of gestation, was admitted to the hospital after detecting substantial difference in fetuses weight (>30%). Single fetal death was revealed during further diagnostic procedure. At 32 week of gestation, due to the remaining fetus condition (emergence of periventricular leukomalacia, enlargement of the posterior horns of the lateral ventricles, cardiomegaly) and lack of effective intrauterine therapy, premature termination of pregnancy by C-section was performed - twin I with an APGAR score 9,9 and macerated twin II were delivered.

CONCLUSIONS: Monochorionic diamniotic pregnancies are under the great risk of developing TTTS. Early detection remains crucial, hence single twin survival rates in TTTS vary widely between 15-70%, depending on the gestational age at diagnosis and severity of disease. TTTS often does not progress in a predictable manner. In Quintero stage V, characterised by the death of one twin, expectant management is recommended, resulting in demise of the remaining twin occurring in only about 10% of cases of twin demise, and neurologic handicap affecting 10-30% of co-twin remaining survivors.
BACKGROUND: CMV is the most common cause of congenital infection and complicates approximately 1% of all live births. This human herpes virus is prevalent worldwide with an estimated seroprevalence of 45% to 100% in general population. Transmission can occur through contact with CMV-infected body fluids during primary infection or episodes of reactivation from latency. When considering pregnant women, major risk factor of CMV contraction is a prolonged contact with children under the age of 2, due to their ability to excrete virus up to 24 months after the infection. Primary maternal CMV infection carries a 30% to 40% risk of vertical transmission. Of all pregnancies with confirmed vertical transmission, only 10% to 20% of the fetuses will have evidence of clinical infection at birth such as intrauterine growth restriction, microcephaly, hepatosplenomegaly, jaundice, anemia or chorioretinitis.

CASE REPORT: A 34-year-old patient with a well-dated spontaneous conception was admitted to the hospital at 27 week of gestation. According to the examination, fetus was noted to have cardiomegaly, thrombocytopenia and intrauterine growth restriction. Maternal serologic tests performed in light of the ultrasound findings revealed elevated CMV IgG and IgM titers. Amniotic fluid was strongly positive for CMV DNA by quantitative real-time polymerase chain reaction (RT-qPCR). Due to developing heart failure of the fetus, patient was qualified to cesarean section. A female infant was delivered, weighing 780g with Apgar scores of 4, 6, and 6.

CONCLUSIONS: The only reliable confirmation of intrauterine CMV infection is PCR testing for the CMV genome in amniotic fluid. According to Nigro and co-authors CMV hyperimmune globulin (HIG) may be effective in minimizing the damage caused by CMV infection during the pregnancy. However, the optimum dosage along with confirmation of its efficacy still needs to be identified. Newborns with confirmed intrauterine infection are recommended to be treated with antivirals such as ganciclovir and monitored regularly during the first year of their life, considering the 15% risk of neurosensory hearing loss and psychomotor delay.
Title: A case of twin gestation complicated by cholestasis and oligohydramnios.

Authors: Szczęsna A.¹

Tutor/Tutors: Joanna Kacperczyk-Bartnik MD

University: ¹2nd Department of Obstetrics and Gynecology, Scientific Group Affiliated to the 2nd Department of Obstetrics and Gynecology, Poland

BACKGROUND: The prolonged use of non-steroidal anti-inflammatory drugs (NSAIDs) antenatally is well described in literature to be damaging for fetus. However, a case of renal vasoconstrictive insufficiency in fetus following ingestion of statins and ibuprofen has not been described yet. Hereby a case of twin gestation with oligohydramnios and renal vasoconstrictive insufficiency in the setting of maternal cholestasis, gestational diabetes mellitus and tobacco abuse is presented.

CASE REPORT: A 37-year-old woman gravida 7 para 7 in 30th week of twin dichorionic diamniotic gestation was referred to the hospital due to severe oligohydramnios. On the admission she presented jaundice, low body-mass index and fatigue. Her laboratory blood test showed anaemia, transaminitis, elevated serum bile acids concentration. Ultrasound obstetrical examination confirmed oligohydramnios and cardiotocography revealed profound decelerations. A decision to deliver urgently was set on the basis of fetal condition. A 6-7 apgarred 1130g female fetus (twin A) and a 6-6 apgarred 1130g female fetus (twin B) were born by a Cesarean section with a meconium staining of amniotic fluid in both amniotic sacs. Neonates were admitted to the NICU for preterm status, fetal acidosis and respiratory distress. Twin A was diagnosed with acute kidney injury (AKI) on the basis of laboratory blood test and ultrasound image. During the hospitalisation process AKI elapsed and the infant was discharged from the NICU on the 52nd day of life. Twin B suffered birth asphyxia, anuria, perinatal cardiovascular and respiratory insufficiency. The child died on second day after delivery. Maternal postpartum course was uncomplicated. The medical history was reassembled after the event and the patient reported rosuvastatin intake until the 7 week of gestation and analgesics intake throughout the pregnancy.

CONCLUSIONS: In the setting of oligohydramnios with significant mother’s transaminitis and ICP, consideration of substance intake proves to be important during differential diagnosis. In conclusion, early counselling should comprise an education about over-the-counter obtainable pharmaceuticals and their adverse effects on pregnancy.
Title: Acute fatty liver of pregnancy in twin gestation - case report.

Authors: Kurlenko K.¹, Zgliczyńska M.¹

Tutor/Tutors: dr hab. n. med. Iwona Szymusik

University: ¹ Department of Obstetrics and Gynecology, Medical University of Warsaw, Poland

BACKGROUND: Acute fatty liver of pregnancy (AFLP) is a very rare obstetric condition. It manifests as maternal liver dysfunction or failure possibly leading to fatal complication, including death of a pregnant woman or a fetus. The etiopathogenesis of this disease is still unclear, however some risk factors have been identified, e.g. fetal long-chain 3-hydroxyacyl CoA dehydrogenase deficiency, multiple gestation, male fetal sex, low maternal BMI.

CASE REPORT: We present a case of a 35-year-old woman, gravida 4, para 2. She was admitted to the Department of Obstetrics and Gynecology in 38th week of a twin pregnancy due to rupture of membranes. Caesarean section (CS) was performed and two male fetuses were delivered in good general condition. At the time of surgery initial lab tests revealed very low concentration of fibrinogen with no signs of bleeding disorder. Shortly after CS vomiting, malaise, signs of jaundice and itchiness occurred. Performed blood tests showed hepatic failure. The patient was transferred to the Department of Hepatology due to the suspicion of Acute Fatty Liver of Pregnancy (AFLP). Due to the unstable state of the patient and alarming symptoms, such as flapping tremor and hypoglycemia, the patient was administered intravenous infusions of acetylcysteine and the procedure of urgent qualification for the liver transplant had been initiated. During the next few days blood tests revealed the improvement of liver function, but the patient was still anemic with acidosis and tendency to hypoglycemia. Moreover, laboratory premises of disseminated intravascular coagulation appeared. Doctors decided to perform the plasmapheresis procedure thrice with no complications. After 8 days, the patient had been discharged from the hospital with satisfying blood tests results and no need for a liver transplant.

CONCLUSIONS: AFLP is a potentially lethal complication of pregnancy, requiring immediate action - a prompt delivery and supporting maternal therapy. Although it is a very rare condition, obstetricians should be aware of the possibility of its occurrence, especially in patients with risk factors, which could help to quickly implement appropriate actions. In this case, plasmapheresis effectively helped to stabilize the patient's condition.
Title: Monochorionic diamniotic pregnancy with twin reversed arterial perfusion sequence

Authors: Paździor D.¹

Tutor/Tutors: Asst. Prof. Iwona Szymusik MD PhD

University: ¹ 1st Department of Obstetrics and Gynecology Medical University of Warsaw, Students’ Research Group at the 1st Department of Obstetrics and Gynecology, Poland

BACKGROUND: Twin reversed arterial perfusion (TRAP) sequence is a rare and severe complication occurring in monochorionic twin pregnancies. Found in approximately 1 out of 35000 pregnancies, TRAP sequence involves a presence of a vascular anastomosis between the so-called acardiac and a healthy fetus (pump twin). As blood flow is reversed, it leads to transfer of deoxygenated blood from umbilical artery of a pump twin to the acardiacus, which is responsible for its abnormal growth and finally heart failure of the healthy one.

CASE REPORT: A 30 -year old patient was referred to the Department at 23 weeks of monochorionic diamniotic gestation with a diagnosis of twin reversed arterial perfusion sequence accompanied by the signs of heart failure of the pump twin. Upon diagnosis confirmation, interstitial laser coagulation of the acardiac pelvic region was performed. Fetal karyotype from amniocytes drawn from amniotic fluid was normal (46, XY). In subsequent ultrasonograms the proper fetal growth of the pump twin was confirmed, while there was no blood flow in acardiac twin. At 29 weeks of gestation the patient went into spontaneous labour. She delivered a male baby, weighing 1280g, with Apgar scores of 7-7. Acardiac acephalic twin was subsequently born, weighing 280g. The acardiac twin examination confirmed the absence of thorax and cephalic structures.

CONCLUSIONS: As in monochorionic pregnancies the risk of specific complications is substantially higher, TRAP sequence should be kept in mind while performing first trimester scan. Early diagnosis enables to implement proper treatment prior to heart failure of the pump twin and abnormal growth of the acardicus. Such management allows to decrease the risk of preterm delivery.
**Title:** Pharmacological treatment of cervical ectopic pregnancy - case report

**Authors:** Choroszun T.¹

**Tutor/Tutors:** Barbara Suchońska, MD PhD

**University:** ¹ 1st Department of Obstetrics and Gynaecology MUW, Medical University of Warsaw, Poland

**BACKGROUND:** Ectopic pregnancy is a severe complication of pregnancy, when the blastocyst implants and grows outside the uterine cavity. It accounts for about 1% of all pregnancies. Cervical pregnancy is a very rare type of ectopic pregnancy with an incidence 0.2% of ectopic pregnancies. Non-diagnosed cervical pregnancy is associated with a certain risk of mortality due to significant haemorrhage. Risk factors for this type of pregnancy include abortions, C-sections, IVF, surgical injuries, advanced maternal age, diethylstilbestrol, uterine myomas and Asherman's syndrome. In the past, the only one way of treatment was hysterectomy due to women lost their fertility forever. Nowadays it’s essential to choose an approach of management according to the current knowledge and keep a good cooperation between gynaecologist and patient.

**CASE REPORT:** A 40-year-old primigravida was referred to the 1st Department of Obstetrics and Gynaecology MUW following 7 weeks of amenorrhea due to cervical ectopic pregnancy suspicion. Transvaginal USG revealed an empty uterine cavity and gestational sac with yellow sac in cervical canal. The level of b-HCG was 5116 mIU/ml. After obstetric counselling the decision of pharmacological treatment by methotrexate was made. The patient got 100mg s.c in one dose. She expelled the tissue during intravaginal examination following her 6th day of treatment. The whole material was sent to pathomorphological test which confirmed it was trophoblast. The next day an empty cervical canal was shown in controlling USG. The level of b-HCG was decreasing and on the 10th day of hospitalisation the woman was discharged in good general condition. It was required to control b-HCG level in one week and visit her doctor with the results.

**CONCLUSIONS:** The success of pharmacological treatment by methotrexate allows to avoid surgical interventions saving woman’s uterus and fertility. The conditions for methotrexate therapy classifying can be less strict comparing with other types of ectopic pregnancies, because there are no alternatives for this kind of management attempting to save the uterus. For successful and less traumatic treatment it’s necessary to diagnose an ectopic pregnancy as early as possible, that is why it’s very important to be alert with the patients from group of risk.
Title: An 18-year-old female with 47, XXY karyotype and androgen insensitivity syndrome

Authors: Ziółkowski M.¹, Skalska K.¹

Tutor/Tutors: Monika Grymowicz MD, PhD; Prof. Roman Smolarczyk MD, PhD

University: ¹ Department of Gynecological Endocrinology, Medical University of Warsaw, Poland

BACKGROUND: Klinefelter syndrome (47, XXY) is a set of symptoms, in which extra X chromosome affects 1 in 500 to 1000 newborn males. Its clinical implications include hypergonadotrophic hypogonadism, infertility, azoospermia, gynecomastia, wide hips and tall height. Facial and pubic hair also do not develop as in men with a normal karyotype. Androgen insensitivity syndrome (AIS) is an X-linked recessive disease, in which normal male karyotype (46, XY) is found, but sex differentiation is incorrect due to mutation in AR gene encoding androgen receptor. There are 7 degrees of AIS and one of them is complete androgen sensitivity syndrome (CAIS). Patients with CAIS are phenotypic females with well developed breasts and external female genitalia, but they also have abdominal or inguinal testes. The uterus, fallopian tubes and the upper part of the vagina are absent. We present a very rare case of a patient with both syndromes described above.

CASE REPORT: An 18-year-old female was admitted to the Department of Gynecological Endocrinology for the purpose of hormonal tests. She has three sisters, one of whom has CAIS with karyotype 46, XY. Due to primary lack of menstruation, the patient underwent genetic tests at the age of 15. An abnormal male karyotype (47, XXY with SRY gene) and tissue androgen insensitivity were revealed. In ultrasound examination uterus was not found. After bilateral gonadectomy presence of testes in the pre-pubertal stage has been confirmed histopathologically. Estrogen treatment has been implemented. In hormonal tests performed in a patient aged 18 years, an increase in estrogen levels and a decrease in testosterone level were observed. Furthermore, patient was directed for bone density examination, the result of which was normal.

CONCLUSIONS: Lack of ovaries, uterus and fallopian tubes eliminates the possibility of physiological procreation in women with CAIS and KS. The associated estrogen deficiency leads to premature osteoporosis. Gonadectomy is recommended because of the risk of malignant neoplasms in abnormally developed testes. Also supplementation of estradiol prevents osteoporosis at an early age.
Title: Pregnancy after lobectomy

Authors: Jaczyńska N.¹, Osowska B.², Kacperczyk-Bartnik J.², Dobrowska-Redo A.², Romejko-Wolniewicz E.²


University: ¹ 2nd Department of Obstetrics and Gynecology, Medical University of Warsaw, Students’ Scientific Group affiliated to 2nd Department of Obstetrics and Gynecology, Medical University of Warsaw, Poland² 2nd Department of Obstetrics and Gynecology, Medical University of Warsaw, Students’ Scientific Group affiliated to 2nd Department of Obstetrics and Gynecology, Medical University of Warsaw, Poland

BACKGROUND: Functioning of respiratory system during pregnancy changes a lot in comparison to non pregnant population. Enlarging uterus causes elevation of the diaphragm, we can also observe reduction of functional residual capacity. The oxygen consumption increases as well as ventilation and respiratory drive, which is due to progesterone. Pregnant women are also susceptible to dyspnea of pregnancy. The pregnancy is demanding time of woman’s life, and even more when she doesn’t have a half of lung. We present a case of a woman with a history of double lobectomy on account of lung cancer who went through a gestation and labor.

CASE REPORT: A 37-year-old primiparous pregnant female at thirty-five weeks of gestation was admitted to the hospital due to premature rupture of membranes. The patient's history revealed a surgical excision of adenocarcinoma of the right lung in 2010 (middle lobe) and in 2015 (upper lobe). In both cases metastases to the lymph nodes were absent and there was no need to undertake additional oncological treatment methods. Moreover, the patient was after cervical conization due to CIN III and was GBS positive. The pregnancy proceed without any complications until occurrence of the PROM. The seeping amniotic fluid was clear and the fetal movements were clearly perceptible. Nevertheless, because of the history of double lobectomy, thoracic surgeon recommended the cesarean section as a safest way of delivery. The decision of performing cesarean section was made in order to minimize perinatal trauma to the fetus and ensure the safety of maternal health. Cesarean section was performed 3 days after admission (37 hbd). Alive and healthy son was born with mild breathing difficulties (2720/52, 10-9 Apgar score). The patient revealed no respiratory problem aggravated due to the labour and was discharged without any complications.

CONCLUSIONS: The presented patient was heavily burdened. It is important to find risk factors and take action to prevent maternal and fetal complications, because their risk increases in natural mode of delivery. Presented case also shows that frequently controlled pregnancy and multidisciplinary care may enable the patient without almost one lung to go through the gestation and delivery safely.
Title: Neonatal abstinence syndrome - a case report

Authors: Jaczyńska N.1, Osowska B.1, Kacperczyk-Bartnik J.1, Dobrowolska-Redo A.1, Romejko-Wolniewicz E.1


University: 1 2nd Department of Obstetrics and Gynecology, Medical University of Warsaw, Students' Scientific Group affiliated to 2nd Department of Obstetrics and Gynecology, Medical University of Warsaw, Poland

BACKGROUND: Opioid use disorder in pregnancy is a phenomenon that still gains an importance as opioid addiction incidence increases worldwide. Heroin use during gestation involves maternal, gestational and neonatal risk, including miscarriage, stillbirth, abruption of placenta, premature rupture of membranes, labor and delivery, intra-amniotic infection, septic thrombophlebitis, etc. Infant may also present neonatal abstinence syndrome.

CASE REPORT: A 35-year old woman in fourth pregnancy was admitted to the obstetric clinic in 35 week of gestation with labor in progress. The patient was heroin-addicted and had no obstetric care during pregnancy. She smoked cigarettes and used heroin every day during gestation. She was also positive for HCV and GBS. Amniotic fluid was purulent. She gave birth to a daughter, 2340 g, 50 cm, with 10 points in Apgar score. The mother was discharged from the hospital after 4 days postpartum and was directed to the drug rehab clinic. Due to suspected abstinence syndrome, the newborn was transmitted to The Neonatal Unit for observation. She was being given morphine for 23 days with gradual dose reduction. Neurological consultation and cranial ultrasound examination revealed no signs of focal damage to the CNS and let estimate the gestational age at delivery as 38 weeks. However, abdominal ultrasound scan revealed cystic ovaries, bilaterally enlarged. Ophthalmological consultation firstly revealed a narrow line without vessels located temporally and a small supraretinal extravasation in left eye, however control consultation showed no abnormalities. The case was sent to the court who decided to pass the custody over the child to the orphanage. The girl was discharged after 35 days of hospitalization in general good condition.

CONCLUSIONS: The occurrence of neonatal opioid withdrawal syndrome is connected with rising opioid painkillers and heroin use. The main goal of maternal therapy is to minimize abstinence syndrome symptoms in the newborn. The methadone or buprenorphine therapy is preferred rather than sudden opioid withdrawal in pregnancy. Methadone clinic admission of heroin-dependent pregnant women may be also beneficial as it allows to provide an obstetric care for these women, which was absent in presented case.
**Title:** Difficulties in the treatment of fetal atrial flutter.

**Authors:** Łomańska A.¹, Wojdyga M.¹

**Tutor/Tutors:** Assoc. Prof. Ewa Romejko-Wolniewicz MD, PhD, Agnieszka Dobrowolska-Redo MD, Joanna Kacperczyk-Bartnik MD

**University:** ¹ 2nd Department of Obstetrics and Gynecology, Students’ Scientific Group affiliated to 2nd Department of Obstetrics and Gynecology, Medical University of Warsaw, Poland

**BACKGROUND:** Atrial fibrillation is a recurrent supraventricular tachyarrhythmia, with an atrial operating frequency of 250-500/min. In the pediatric population usually occurs with congenital heart defects, but can also perform with a morphologically healthy heart. In most cases the diagnosis is established in the prenatal period.

**CASE REPORT:** A 28-year-old pregnant patient in 30th week of pregnancy underwent a routine ultrasound examination, which revealed supraventricular arrhythmia of the fetus. The patient was admitted to hospital. Conservative treatment, cardiotocography and ultrasonography were performed. In an unborn baby (fetus) atrial flutter was diagnosed - 390-410/min with 2:1 conduction without heart failure. After cardiological consultation digoxin and amiodarone treatment was implemented without significant improvement. The patient was transferred to Department of Pathology of Pregnancy. During the treatment, the drug concentration reached the level of toxicity, however, it did not adversely affect the fetus nor the mother. A newborn baby was born in 37th weeks of pregnancy in good general condition with heart rate 170-180/min, received 10 points on the Apgar scale.

**CONCLUSIONS:** After the diagnosis of atrial flutter there are 3 possibilities: observation, intrauterine treatment or early termination of pregnancy. Untreated disease may lead to fetal circulatory insufficiency, generalized oedema, neurological complications or intrauterine death. However, it is known that premature termination of pregnancy due to atrial flutter worsens the prognosis in comparison with newborn babies after prenatal arrhythmia therapy. Intrauterine therapy is possible and can be safe. During treatment it is essential to control the maternal and fetal condition by frequent fetal echocardiography and drug concentration in patient organism.
Case Report IV
**Title:** The uncommon electrocardiographic manifestation of critical left anterior descending artery stenosis.

**Authors:** Brzezinska B. ¹

**Tutor/Tutors:** Rafał Dankowski, MD PhD

**University:** ¹ Department of Cardiology, Poznań University of Medical Sciences, Poland

**BACKGROUND:** De Winter syndrome is an uncommon electrocardiographic manifestation of acute occlusion in the proximal segment of the left anterior descending artery (LAD). It is characterized by exceptional electrocardiogram (ECG) pattern that includes ST-segment depression at the J point, tall, symmetrically peaked T waves in the precordial leads and ST-segment elevation in the aVR lead.

**CASE REPORT:** A 55-year-old man was admitted to the hospital with typical chest pain and angina. Symptoms were observed since a day before with escalating at night. The patient had a past medical history of anterior wall acute myocardial infarction treated with streptokinase (2004), percutaneous coronary intervention (PCI) with implantation stent in the middle left circumflex artery (LCx) (2004), PCI on LAD (2009) and ST-Segment Elevation Myocardial Infarction (STEMI) treated with PCI on LAD with implantation stent (2013). The patient suffered from hypertension and mixed dyslipidemia. Admission electrocardiogram (ECG) revealed ST-segment depression in leads I, II, III, aVF, and V2-6 with tall, symmetrical T-waves in leads V2-5. Further, lead aVR showed ST-segment elevation. Troponin on admission was negative, but the next obtained samples were significantly elevated. The patient was diagnosed with acute coronary syndrome: myocardial infarction with ST-segment elevation. Performed coronary angiography showed atherosclerosis with critical occlusion of LAD. Successful coronary angioplasty was done using a drug-eluting stent. Post-procedure ECG substantially improved. On the 7th postoperative day, the patient reported the chest pain. Repeated coronary angiography revealed recently formed thrombus in a previously stented segment. The emergency intervention was done and coronary flow was restored. Echocardiographic examination revealed left ventricular contractility impairment with the deterioration of left ventricular ejection fraction (LVEF). After 14 days long hospitalization the patient was discharged home in good condition.

**CONCLUSIONS:** Clinicians should be alert to patients presenting chest pain and characteristic ECG changes that are not typical of STEMI. Failure to recognize de Winter syndrome may lead to undertreatment and delay in reperfusion therapy with catastrophic results.
Title: Cardiovascular manifestation and assessment in a patient suffering from alagille syndrome with an indication for orthotopic liver transplantation: case report.

Authors: Kubinowska B.¹

Tutor/Tutors: Renata Główczyńska1, MD, PhD, Joanna Raszeja-Wyszomirska2, MD, PhD, Grzegorz Opolski1, MD, PhD

University: ¹ 1st Department of Cardiology/ Department of General, Transplant and Liver Surgery, Medical University of Warsaw, Poland

BACKGROUND: Alagille syndrome (AS) is a rare autosomal-dominant disorder, which manifests as a paucity of intrahepatic bile ducts resulting in neonatal cholestatic hepatic dysfunction. It often affects heart, eyes, skeleton, kidneys and face. Orthotopic liver transplantation OLT is indicated in 21-33% of patients. It is necessary to provide a relevant and minute multidisciplinary assessment and perioperative management to reduce the critical events and mortality in patients with this multiorgan dysfunction.

CASE REPORT: A 22 year-old man with AS was referred for the cardiovascular qualification for OLT. He developed severe liver cirrhosis due to cholestasis with portal hypertension. He presented with worsening jaundice, gastro-esophageal varices with tendency for bleeding, splenomegaly, hypersplenism, pruritus. The patient also suffered from fungal laryngitis and varicose veins leading to skin ulcers of the lower limbs. A comprehensive echocardiographic assessment of his cardiovascular system revealed moderate stenosis of hypoplastic pulmonary arteries (maximum/mean pressure gradient 39/20 mmHg, LPA 9 mm, RPA 8 mm, truncus 2.3 mm), mild mitral and tricuspid regurgitation, enlarged right atrium and widened right ventricular inflow tract. Exercise capacity during dynamic stress test was adequate to the age and sex. Holter ECG unveiled no pathologic arrhythmias. Therefore, no contraindications for OLT procedures were detected.

CONCLUSIONS: Decreased quality of life due to the progressive liver cirrhosis in the course of AS, manifesting in the form of irritating pruritus, tendency for bleeding from esophageal varices or aggravating jaundice is an indication for OLT. The qualification for this procedure requires profound assessment of the cardiovascular system, because congenital heart defects may evoke adverse hemodynamic effects prior to, during and following transplantation. Higher mortality rates in the perioperative period have been attributed to cardiopulmonary abnormalities.
Title: Postoperative recurrence of splenic cyst - case report

Authors: Hawryluk N.¹

Tutor/Tutors: dr n. med. Wojciech Choiński, dr n. med. Michał Puliński

University: ¹ Collegium Medicum, wydział lekarski, University of Warmia and Mazury in Olsztyn, Poland

BACKGROUND: Splenic cysts are not typical lesions, especially for children. They are divided into primary cysts, which are subdivided into parasitic and non-parasitic, and secondary cysts. This classification is based on etiology and pathophysiology of splenic cysts. Most often, they are asymptomatic or characterized by abdominal discomfort. The treatment of splenic cysts depends on size and location. In this case report, a postoperative recurrence of splenic cyst in a 10-year-old male is presented.

CASE REPORT: A 10-year-old male was admitted to pediatric surgery ward with abdominal pain in left upper quadrant and suffering from diarrhoea. On physical examination, there was a mass located in the upper left side of abdomen, spleen was enlarged. The USG revealed a cystic mass in the upper pole of spleen. Serological examinations allowed to rule out parasitic and viral etiology. Blood tests results were in optimal ranges. Surgeons classified him to laparoscopic excision of splenic cyst. The large splenic cyst was identified. 300 ml of yellow fluid was aspirated. Then the anterior wall of cyst was excised with electric knife BiCision. An omental flap was placed into the cyst bottom. At pathological report, the cyst was composed of fibrous tissue with calcified parts. After 4 months from laparoscopy the follow-up USG was done, it revealed a recurrent cystic lesion of 73x54 mm in the very same location. After next 3 months the same symptoms occured. At ward, ultrasonography revealed a cystic mass 64x65x61 mm. Surgeons classified him for the next laparoscopic surgery. The same procedure was done. Pathologic examination disclosed an epithelial cyst with stratified squamous epithelium; fibrous tissue and calcification in the wall. Patient was discharged from the hospital in good shape. After 2 months from the second laparoscopy, USG revealed again a recurrent splenic mass of 52x45 mm in the same location. He is under surgery clinic control.

CONCLUSIONS: Recurrence of splenic cysts are very rare lesions. There are various alternative methods of saving the spleen that has essential immunologic role in young patient. On the other hand, alluding to repeated recurrence of splenic cyst, other more restrictive techniques may be necessary to use eventually.
**Title:** Successful bloodless surgical repair of jehovah`s witness patient with acute type a aortic dissection

**Authors:** Charkiewicz K.¹

**Tutor/Tutors:** Professor Tomasz Hirnle PhD Adrian Stankiewicz

**University:** ¹ Department of Cardiac Surgery, Medical University of Bialystok, Poland

**BACKGROUND:** Surgery of acute aortic dissection almost always requires transfusion of relatively large amounts of allogeneic blood products. Recently we were faced with a very rare problem of acute aortic dissection in a adolescent who refused the transfusion of any type of allogeneic blood or blood products because of his religion.

**CASE REPORT:** A 17-year old patient was admitted to Cardiac Surgery Department as an emergency case. A computed tomographic scan of the chest was performed, which showed dissection of the entire aorta (Stanford type A). The operative risk was assessed as extremely high because he was not accepted for surgery with using blood transfusion arise of his religion. Because of emergency case the erythropoietin wasn`t administered. The patient and his parents accepted surgical therapy when the surgeons had decided to modify surgical strategies. There was performed basic cardiac surgery procedure without blood transfusion. Dissected ascending aorta was replaced using supracoronary vascular prosthesis, without open aortic arch repair. Precise surgical technique was applied throughout the procedure and meticulous hemostasis was performed at the end of surgery. The patient was transferred to the intensive care unit with good condition. The hemodynamic situation was stable without a need for inotropic agents. He was discharged home with general good condition with recommendation to conduct angio-CT scan of aorta every year to monitor residual dissection of the arch and descending aorta.

**CONCLUSIONS:** We need to come up with medical challenges and adapt new techniques to patient`s requirements. There was performed successful and bloodless surgical repair of Jehovah`s witness patient with acute type A aortic dissection without complications during the surgery.
Title: The rare case of recurrent myopericarditis in an adolescent mimicking acute myocardial infarction

Authors: Keževičiūtė M.  

Tutor/Tutors: Marija Jakutovič, Eitautė Jakutienė, Vilija Černiauskienė, Rita Sudikienė, Škaštė Sendžikaitė, Odeta Kinčinienė

University: Vilnius University, Faculty of Medicine, Lithuania

BACKGROUND: The rare case report highlights clinical picture of recurrent myopericarditis in adolescent. Myopericarditis in adolescents can mimic acute myocardial infarction due to very severe chest pain, dramatically elevated cardiac biomarkers, similar ECG and echocardiographic findings. Young age and increased inflammation markers are more often associated with myopericarditis.

CASE REPORT: 17-years-old previously healthy male patient was admitted to cardiology department twice within 18 months period due to complaints of acute sharp sudden onset retrosternal chest pain at rest. Acute diarrhoea before the first episode and acute upper respiratory infection before the second episode were documented and symptomatically treated in outpatient department. Cardiac biomarkers were highly elevated and dramatically increased in a few hours after the admission to the hospital (troponin I increased from 7271ng/l up to 21880 ng/l, CK-MB - from 39.45 mkg/l up to 101.80 mkg/l, BNP - from 46.7 ng/l up to 136.9 ng/l) CRP was slightly elevated too. Other laboratory tests were normal. ECG showed ST segment widespread elevation, echocardiography revealed moderately impaired left ventricular function and pericardial effusion. The patient was initially treated as acute coronary syndrome using dual antiplatelet treatment, β-blockers, nitrates and analgetics at a start of both episodes. Coronary angiography was performed during the acute phase only on first admission. It revealed normal coronary arteries. Clinical diagnosis was confirmed by CMR. Myocardial oedema and delayed gadolinium enhancement regions in subendocardial layers, mainly in inferior and lateral segments were present on first cardiac magnetic resonance (CMR). Second CMR imaging showed evidence of recurrent myopericarditis with progressive appearance of new areas of myocardial delayed enhancement demonstrating extensive fibrosis in multiple segments of interventricular septum and lateral wall.

CONCLUSIONS: Acute myopericarditis mimicking myocardial infarction with ST segment elevation is a well-known phenomenon, but recurrence of illness and progression of myocardial damage are quietly rare in paediatric practice.
Title: A challenging case of a girl with hypoparathyroidism.

Authors: Pasierowska I., Panas P.

Tutor/Tutors: Hanna Borysewicz-Sańczyk, MD, PhD, Professor Artur Bossowski, MD, PhD

University: Department of Pediatrics, Endocrinology, Diabetology with Cardiology Division, Medical University of Bialystok, Poland

BACKGROUND: Hypoparathyroidism is a disease characterized by inadequately low serum parathyroid hormone (PTH) concentration resulting in low serum calcium level and increased serum phosphate level. The symptoms resulting from increased neuromuscular irritability include tingling, muscle cramps and seizures. The most common causes of the disease are inadvertent removal or injury of the parathyroid glands during neck surgery, followed by genetic and autoimmune diseases. Conventional treatment includes activated vitamin D and calcium supplementation.

CASE REPORT: A 10-year-old girl, with a history of epilepsy and LQT syndrome, was admitted to the Clinic presenting the following symptoms: apathy, somnolence, walking abnormalities, hypertelorism. Laboratory tests revealed hypocalcemia, hyperphosphatemia, and significantly decreased serum PTH concentration, that confirmed the diagnosis of hypoparathyroidism. The girl was treated with calcium supplements, activated vitamin D, and phosphate binders but there was not satisfactory result of the therapy. While diagnosing there were tumors, infectious agents and gene mutations excluded. During the hospitalization inflammatory parameters increased. Imaging such as computed tomography (CT) of the thorax, abdomen and pelvis, magnetic resonance imaging (MRI) of the head, and PET-MRI revealed splenomegaly, features of inflammation in lungs, exudative pleuritis, and exudative pericarditis. Based on presence of clinical criteria, systemic lupus erythematosus (SLE) was diagnosed. The patient was treated with glucocorticoids (GCs), which unexpectedly improved parameters of calcium-phosphate balance. Currently, the patient stays under the control of the Outpatient Clinic.

CONCLUSIONS: The improvement in calcium and phosphate serum concentration after GCs therapy suggests that hypoparathyroidism in the girl might be an autoimmune disease. Further observation of this patient can bring more information to this challenging case.
**Title:** Leishmaniasis in HIV positive individual

**Authors:** Pugaciute B.¹

**Tutor/Tutors:** Linas Davainis, Regina Pileckyte

**University:** ¹ Vilnius University Hospital of Santaros Clinics, Vilnius, Lithuania, Vilnius University, Faculty of Medicine, Vilnius, Lithuania, Lithuania

**BACKGROUND:** Leishmania parasites are transmitted through the bites of infected female *Phlebotominae* sandflies. It can be recognised from irregular bouts of fever, weight loss, enlargement of the spleen and liver, and anaemia. Co-infection with HIV increases the chance and development of the disease. Since the spread of HIV in 1990, leismaniasis occurs more often, especially in southern countries. Every year from 50 000 to 90 000 new cases of visceral leishmaniasis are estimated worldwide.

**CASE REPORT:** A 40-year old man with a long-standing untreated acquired immunodeficiency (HIV) complains of pain in right hypochondriac area of abdomen, fatigue and pyretic fever (up to 40°C). Five days later his condition did not improve therefore hospital admission was advised. Laboratory tests revealed mild anaemia (Hgb 114 g/l), neutropenia (1,31x10⁹/l), lymphopenia (0,11x10⁹/l) and thrombocytopenia (43x10⁹/l), elevated hepatic enzymes (ALT/GPT 119,82 U/I and AST/GOT 411,78 U/I) and C-reactive protein (171,3 mg/l) values. Blood, urine cultures were negative. Because of the pancytopenia, it was decided to take a bone marrow trephine biopsy, which revealed bone marrow leishmaniasis with a response of macrophages. Treatment consisted of liposomal amphotericin B and antiretroviral treatment (zidovudin, lamivudin, lopinavir, ritonavir). After 1 month of intense treatment, patient’s condition has improved. Symptoms have subsided and laboratory tests dropped down to normal with an exception of lymphopenia. The patient was advised to continue antiretroviral therapy.

**CONCLUSIONS:** Early suspicion and diagnosis reduces the prevalence of visceral leishmaniasis. It is critical to stay cautious when assessing immunocompromised patients. HIV patients should receive antiretroviral treatment in order to prevent development of various life-threatening (including opportunistic) infections. Leishmaniasis-HIV co-infection has spread worldwide, many cases in Eastern Europe are observed. Community-based education on HIV diagnosis and treatment could assist in avoiding life-threatening infections in HIV patients.
Title: Idiopathic acute eosinophilic pneumonia – a case report

Authors: Jurkyte R.¹

Tutor/Tutors: prof. dr. E. Danila

University: ¹ Faculty of medicine, Vilnius University, Lithuania

BACKGROUND: Acute eosinophilic pneumonia (AEP) is a rare, easily misdiagnosed illness characterized by eosinophilia within the lung parenchyma. Pathogenesis is not well understood, but may relate to the exposure to exogenous substances. Therefore, treatment includes not only glucocorticoids but also elimination of the underlying cause.

CASE REPORT: A 45-year-old female 3 days before admission to the hospital, complained of fever and progressing shortness of breath. In an ambulatory setting, the chest X-ray revealed diffuse infiltrates bilaterally. Thus, patient received amoxicillin and clavulanic acid empirically for the diagnosis of community acquired pneumonia, but failed to improve. According to pulmonary infiltrates despite antibiotics, patient was transferred to Vilnius University Hospital Santaros Klinikos. At the time of admission, blood tests were remarkable for eosinophilia, computed tomography (CT) of the chest showed diffuse ground glass opacities with bilateral pleural effusions and bronchoalveolar lavage (BAL) fluid showed nucleated cells 0,68 x 10⁹/l with 66% of eosinophils. These findings supported a diagnosis of acute eosinophilic pneumonia. Despite no exogenous trigger or parasite was identified, she was empirically treated with a 3-day course of mebendazole. During administration of antiparasitic drug, rapid recovery was observed and corticosteroids were not necessary, so she was discharged. On her follow-up 3 months later, symptoms were absent and her chest radiograph showed no infiltrations.

CONCLUSIONS: Acute eosinophilic pneumonia should be considered in the differential diagnosis of community-acquired pneumonia, when despite antibiotics patient fails to improve. If the trigger is eliminated, recovery can be rapid without corticosteroids.
BACKGROUND: Respiratory failure is a condition with dysfunction of the lungs. Extracorporeal membrane oxygenation (ECMO) is a type of prolonged mechanical cardiopulmonary support for patients with pulmonary failure that is potentially reversible and unresponsive to conventional management. This clinical report shows the possible reversible pulmonary failure resulted in multiple complications and the need of ECMO treatment.

CASE REPORT: A man with febrile temperature, dyspnea and infiltrated lungs was hospitalized. Among treatment with AB medicaments the patient has worsened, he was transferred to Pulmonology department with severe dyspnea treated with oxygen therapy. Respiratory failure and hypoxemia was observed (pCO2 mmHg 34,7 mmHg, pO2 47,5 mmHg ) and on the 14th of July the patient was transferred to intensive care unit. Intubation and artificial ventilation were performed. Patient’s condition worsened to acute respiratory distress syndrome. Lungs biopsy results showed giant cell interstitial pneumonia with diffuse pulmonary fibrosis. After console, came to a decision that this type of pneumonia is reversible and should be treated with hormone therapy. Though blood test showed slow positive dynamics but infiltration and sepsis remained. On the 14th of Aug., respiratory function deteriorated with inspiration volume less than 200ml and hypercapnia, ECMO was preferred as an alternative treatment rather than mechanical ventilation. During this treatment severe complications occurred such as recurring sepsis, lack of coagulation factors and internal bleeding, spontaneous pneumothorax. Once these problems were rectified, other complications occurred such as renal failure and sepsis again. On the 23th of Oct. bradycardia was noticed which worsened to unstable hemodynamics and asystole. The patient spent 103 days in an intensive care unit, 71 of them had been treated with ECMO.

CONCLUSIONS: ECMO therapy could be alternative to standard potentially reversible respiratory failure treatment. It is important to begin treatment as early as possible. If not treated properly, this disease can lead to severe complications or even death. Delay of treatment leads to bigger risk and health care cost.
Title: Lyell’s syndrome: challenges in identifying the causative drug

Authors: Gintautaite G.¹

Tutor/Tutors: Assistant Dr. Ingrida Lisauskiené

University: ¹ Faculty of medicine, Vilnius University, Lithuania

BACKGROUND: Lyell’s syndrome or toxic epidermal necrolysis (TEN) is a delayed-type hypersensitivity reaction to drugs. Drugs with a high risk of causing TEN are anti-infective sulfonamides, anti-epileptic drugs, NSAID, etc. TEN manifests with an “influenza-like” prodromal phase, followed by painful cutaneous and mucous membrane lesions. It is a clinical diagnosis which can only be verified histologically because no diagnostic laboratory tests exist. Clinicians should maintain a high index of suspicion for TEN because early symptoms are not specific. Late diagnosis usually leads to a fatal outcome and although the mortality rates for TEN have decreased in the last decades there is still a lack of consensus regarding appropriate diagnostic criteria for TEN.

CASE REPORT: A 44-year-old man was admitted to an infectious disease ward with fever, the whole body itchy-burning rash, pharyngeal pain, dysphagia, and eye redness. Two days ago he was prescribed amoxicillin for these symptoms and two weeks ago he started to take carbamazepine for epileptic seizures. Amoxicillin was immediately discontinued because of suspicion for Stevens-Johnson Syndrome. On day two post-admission he was transferred to an intensive care unit due to an acute respiratory failure and progressive lesions of ocular, nasal and genital mucous membranes. Afterward, as a result of the patient’s worsening condition doctors decided that lesions were provoked by carbamazepine and it was discontinued. Despite appropriate antibiotic therapy patient became infected with a nosocomial infection which was resistant to the treatment and as a consequence of severe immnosuppression patient acquired a fungal infection. 75% of the patient’s body surface was damaged. Due to the illness, multiple embolic strokes occurred and caused coma of score 3 in the Glasgow Coma Scale. Progressing sepsis and multiple organ dysfunction syndrome lead to the patient’s death.

CONCLUSIONS: TEN is one of the most severe dermatologic conditions occurring in the inpatient setting which requires a multidisciplinary approach. Immediate withdrawal of potentially causative drugs is mandatory which is why it is very important to identify which drug provoked the disease.
**Title:** Gastrointestinal symptoms heralding neuroborreliosis

**Authors:** Motiekaityte R.¹

**Tutor/Tutors:** Jurgita Valaikienė

**University:** ¹ Vilnius University, Faculty of Medicine, Lithuania

**BACKGROUND:** Lyme disease is a multisystemic tick-borne zoonosis that causes more than 654,000 cases in Europe per year. Most often clinical manifestation of Lyme disease is *erythema migrans*, followed by neuroborreliosis. In rare cases, Lyme disease starts with gastrointestinal symptoms – anorexia (23% of patients) nausea (17%), vomiting (10%), abdominal pain (8%).

**CASE REPORT:** We present a rare clinical case of Lyme neuroborreliosis that is manifested by gastrointestinal symptoms. A 73-year-old woman complained of nausea, vomiting, epigastric pain, anorexia and weight loss for the period of approximately 6 months. The patient has been investigated for suspected gastrointestinal neoplasia. As organic pathology has not been found, the disease considered to be psychosomatic. The treatment with antidepressants was ineffective, the nausea and vomiting continued. The disease progressed - ataxia and bilateral lower extremity weakness developed. There was no neck stiffness. Revision of the case history has disclosed that the patient complains of episodic fever up to 38 °C for 2-3 years and hearing loss. She lived in a Lyme disease-endemic area, however did not recall a tick bite. It was decided to perform an investigation of Lyme disease. The IgM and IgG antibodies against *Borellia burgdorferi* were positive by immunoassay. Cerebrospinal fluid examination showed an elevated white blood cell count of 404 cells/μl, with predominance of neutrophils - 319 cells/μl, increased protein of 6.5g, and decreased glucose of 1,8mmol/l. Based on clinical signs and results of the diagnostic data, neuroborreliosis with acute meningomyelitis and axonal sensimotor polyneuropathy was diagnosed. Ceftriaxone was administered 2 grams twice per day intravenously. Two days after the initiation of antibiotic therapy, the nausea and vomiting stopped. The condition gradually continued to improve – the patient began to walk and gained 2 kg of weight since two weeks of treatment.

**CONCLUSIONS:** Lyme disease may be overlooked in patients who present only with gastrointestinal symptoms. When the tick-borne infection is unrecognized, neuroborreliosis may develop. Taking a proper patient’s history is crucial for the correct diagnosis.
Title: An unusual case of pyoderma gangrenosum both with skin and internal involvement

Authors: Orlof W.1, Kossakowska P.1, Nowowiejska J.1

Tutor/Tutors: Anna Baran MD, PhD, Associate Professor; Department of Dermatology and Venereology, Medical University of Bialystok

University: 1 Department of Dermatology and Venereology, Medical University of Bialystok, Poland

BACKGROUND: Pyoderma gangrenosum (PG) is a rare neutrophilic dermatosis with an estimated incidence of 3-10/million people per year. Women are affected more frequently than men. PG presents as an inflammatory papule or pustule that progresses to a painful ulcer with a violaceous undermined border and a purulent base. PG usually affects only skin and extracutaneous involvement is extremely rare.

CASE REPORT: A 68-year-old woman presented to the Surgical Outpatient Department because of the nodule of left calf which rapidly evolved into an ulceration. It was treated as a furuncle with antibiotics with no improvement, and further the lesion was classified as a trophic ulcer. Due to further progression, the patient was admitted to the Oncology Department where skin biopsy did not reveal neoplastic cells. In the chest CT scan multiple nodules suspected to be abscesses were found. Diagnostic laparoscopy also revealed numerous lesions in the liver, peritoneum and greater omentum of non-neoplastic features. Finally the patient presented to the Dermatology Outpatient Department where PG was diagnosed and Dapsone was introduced. The ulceration was completely healed in 2 months. After 4 months lesions recurred, therefore the patient was admitted to the hospital, CT and MRI scans revealed multiple lesions in liver, spleen and lungs. Thanks to administered treatment - Dapsone, corticosteroids, ciprofloxacin and hydrocolloid dressings partial improvement of both ulcerative lesions within the skin and internal organs was observed.

CONCLUSIONS: PG can appear in any area, most commonly on lower limbs. There are only several dozen cases of unusual internal organs involvement of PG in the literature. The most commonly affected are lungs, liver, spleen, bones and heart. The diagnosis of extracutaneous PG is a great medical challenge, thus the patients require cooperation of different specialists and investigation for internal abnormalities.
Title: A rare case of Madelung’s disease.

Authors: Wieczorek A.¹, Tryniszewska M.¹, Kamińska A.¹

Tutor/Tutors: Anna Baran MD, PhD, Associate Professor; Department of Dermatology and Venereology, Medical University of Bialystok

University: ¹ Department of Dermatology and Venereology, Medical University of Bialystok, Poland

BACKGROUND: Madelung’s disease also known as multiple symmetrical lipomatosis (MSL), is a rare condition of unknown etiology. It’s characterized by progressive, excessive and symmetrical growth of adipose tissue without a capsule, concerning the neck, arms and upper back giving patients pseudoathletic or similar to corpulence appearance. Clinically patients usually report alcohol abuse. The disease commonly is associated with metabolic disorders.

CASE REPORT: A 78-year-old man with the history of mantle cell lymphoma, pneumonia, COPD, gout, atrial fibrillation and chronic heart failure was admitted to our department with a 5-year history of ulceration situated on the right thigh and numerous, symmetrical fat masses on the trunk and the proximal parts of the both upper limbs. The mobility of upper limbs was strongly limited. Primarily these tumors appeared many years ago affecting patient’s neck and have been gradually developing over the years. Since then the patient has been reporting dyspnoea, dysphagia and restricted neck mobility. Patient underwent three surgical procedures. Despite surgery gradual recurrence of lesions was observed. He had been drinking alcohol a lot and the ultrasonography revealed a hepatic steatosis. There were no other symptoms of MSL disease and no family history of similar malformations.

CONCLUSIONS: Madelung’s disease occurs very rarely with prevalence 1:25000. It affects more frequently men than women and usually appears between 30 to 70 years of age, as in the presented patient. The diagnosis is usually made on the basis of the history and clinical appearance. It’s largely under-recognized and under-reported, possibly because of unawareness of the condition by physicians. The disease is considered as slowly progressive and surgery is the most effective treatment.
Title: Long term gastrointestinal bleeding in Henoch-Schönlein Purpura in two year old boy - a case report

Authors: Moroz K.¹

Tutor/Tutors: Daiva Gorczyca MD, PhD

University: ¹ Paediatric Research Circle for English Division Students at 3rd Department and Clinic of Paediatrics, Immunology and Rheumatology of Developmental Age, Wroclaw Medical University, Poland

BACKGROUND: Henoch-Schönlein Purpura (HSP) is one of the most common childhood systemic vasculitides. Common symptoms of HSP include skin findings with a palpable purpura, abdominal pain, joint pain, and renal involvement. Serious gastrointestinal bleeding is very rare in HSP. We report a case of severe gastrointestinal bleeding resistant to standard treatment.

CASE REPORT: A two year old boy was admitted to the hospital due to petechial lesions on the upper and lower extremities, face and left ear accompanied with vomiting, fever and malaise. Shortly after admission, hematemesis and hematochezia occurred. The boy was treated with prednisone at a dose of 1 mg/kg/day, which was increased to 2 mg/kg/day. Fecal occult blood stopped for a few days but then recurred together with vomiting containing blood. An abdominal ultrasound showed no significant findings. The child’s condition worsened but there were no indications for further surgical interventions. The abdominal computed tomography excluded polyarteritis nodosa. An intravenous methylprednisolone pulse therapy (25 mg/kg/day) was administered for three consecutive days. After such therapy the boy was still in a serious state. Due to no improvement, high dose intravenous immunoglobulins (1.5 g/kg) and (1.0 g/kg) were added for two days, respectively. The next day the boy's condition significantly improved but due to blood in the stool, methylprednisolone pulse therapy was repeated. Two year follow up shows complete recovery and no secondary complications.

CONCLUSIONS: During the course of HSP serious bleeding may occur, especially in a case presenting with intense skin purpura. Treatment with methylprednisolone pulse therapy and high doses of intravenous immunoglobulins led to complete remission.
**Title:** Fourniers gangrene - multidisciplinary challenge

**Authors:** Kazlauskas G.¹

**Tutor/Tutors:** A. Zelvys

**University:** ¹ Faculty of medicine, Vilnius University, Lithuania

**BACKGROUND:** Necrotizing fasciitis of external genitalia and perineum (Fourniers gangrene) is an aggressive, rapidly progressive and frequently fatal polymicrobial soft tissue infection most commonly manifesting for males. Patient mortality rate is 20% - 40% in majority of studies and even reach 88% in some. Overall incidence of this disease is about 1,6/100,000 of males.

**CASE REPORT:** 41 years old male patient presented to the emergency department complaining of 3 days of pain in perineal region, difficulties in urinating, major weakness, hypotension (systolic ABP 70 mmHg at home) and reduced tolerance of physical activity. Life anamnes: permanent normosystolic AF, heart insufficiency C st, NYHA III f.cl. Objectively in emergency department: haemodynamically stable – ABP 108/70 mmHg with i/v fluids. Arrhythmic heart rate of 110 bpm. T-36.8°C. SpO2 – 92% with 5l of O2 through nasopharyngeal tube. Peripheral vascular spasm. Swollen penis and scrotum, ulcer in penile region, haemorrhages, haematoma and skin maceration in perineal region. Blood analysis: CRP – 398.9 mg/l, procalcitonin – 16.04 mkg/l, crea – 165 mkmol/l, hypokalemia, hyponatremia, hypochloremia, BNP – 1153,0 ng/l. Regarding sepsis, septic shock and suspicion of Fourniers gangrene - further treatment in ICU. Condition complicated to MODS, delirium, respiratory, circulatory and kidney failure. Cultures came back positive for E. coli, S. pyogenes, A. baumannii. Treatment: during 2 weeks in ICU and in urology department patient undergone multiple incisions and necrectomies. Broad antibacterial treatment: Tienam, Colistine, Metronidazole, Amoxiclav, Tazocin. Sedation and antipsychotics, artificial lung ventilation, symptomatic treatment of pain (NSAIDs and morphine), electrolyte disbalance, transfusions of blood components. When condition was stable, advancement of necrosis was stopped and wounds were clean - patient had multiple reconstructive surgeries by plastic surgeons. After 91 days in hospital patient was released home.

**CONCLUSIONS:** the most important part of Fourniers gangrene treatment remains complete, early and extended surgical debridement. This life threatening condition requires fast reaction, diagnosis and active actions from multidisciplinary medical team.
Title: Case report: adventitial cystic degeneration of the popliteal artery in a 36 year-old male

Authors: Sniauksta J.¹, Baltrunas T.²

Tutor/Tutors: dr Baltrunas Tomas

University: ¹Faculty of medicine, Vilnius University, Lithuania ²Centre of Rec. Vascular and Endovascular Surgery, Vilnius University Hospital Santaros Klinikos, Lithuania

BACKGROUND: Adventitial cystic degeneration (ACD) is a non-arteriosclerotic disease accompanied by ischemic symptoms of the lower limbs and intermittent claudication. ACD is caused by stenosis or occlusion of the blood vessel compressed by a cystic collection of mucinous material within the adventitial layer of the artery. The etiology is still unknown, although there are several hypotheses, such as dysplasia during fetal development, repeated injury, and synovial tissue intrusion into the arterial wall. No definite treatment has been established yet, while various approaches have been tried to cure ACD.

CASE REPORT: A 36 year-old man was referred to Vascular surgery clinic because of intermittent claudication of the left calf continuing for 6 months. A physical examination revealed palpable left popliteal and foot pulses at rest that persisted during knee flexion. The right and left ankle-brachial pressure indices were 1.02 and 1.13, respectively. He underwent a MRI scan which revealed contrasting defect of the left popliteal artery – a adventitial cyst compressing the vessel. A popliteal artery reconstruction was performed in which the lesional popliteal artery including the adventitial cyst was resected and then replaced by the short saphenous vein. A follow-up examination 2 months after the surgery showed no ischemia signs of the lower limbs and the patient had no complaints of intermittent claudication of the left calf.

CONCLUSIONS: Bypass graft surgery employing a short saphenous vein is worth considering as a treatment of adventitial cystic degeneration at the popliteal artery. Long-term follow up is mandatory because of the potential for recurrence or graft occlusion.
Case Report V
Title: Options after complications of bariatric surgery

Authors: Cummings K.¹, Niewinski A.¹

Tutor/Tutors: Piotr Wojskowich

University: ¹ Medical University of Białystok, Poland

BACKGROUND: Bariatric surgery is the most effective medical method for treating obesity and its accompanying comorbidities. Bariatric surgeries are most often broken down into four different techniques: gastric bypass, sleeve gastrectomy, adjustable gastric banding, and biliopancreatic diversion with duodenal switch (BPD/DS). Reasons patients undergo bariatric surgeries are most often due to the desire to lose weight and to lower the risks of comorbidities associated with severe obesity. Throughout this research, we also review the complications that may be accompanied with bariatric surgeries.

CASE REPORT: A 54-year-old female seamstress, weighing 140 kg, returned to the hospital for removal of a gastric band placed ten years ago that was causing complications. The patient's chief complaint consisted of recent onset of pain in the left hypochondriac area, reflux, and fluctuating weight loss (between 15 kg), which did not improve after 3 sessions of band tightening. The patient suffered from obesity, controlled hypertension, and obstructive sleep apnea, which required treatment with CPAP mask. Patient's family history consisted of obesity from both parents, schizophrenia on the mother's side, and hypertension on the father's side. Her claims stated that she attempted to lose weight naturally prior to the original procedure, including taking weight loss pills and trying to diet. Upon hospital admission and preparation for surgery, we discovered the patient was not compliant with the CPAP mask treatment. Due to the risk factors associated with uncontrolled obstructive sleep apnea, the patient was discharged and the gastric resection was rescheduled.

CONCLUSIONS: Even after initial bariatric surgery, which may not provide the foreseen results due to other accompanying comorbidities, our patient being a prime example, an alternative surgical treatment may be necessary to amplify the original anticipated outcome.
BACKGROUND: Meckel's diverticula are uncommon and often clinically silent, particularly in adulthood. In general population, the prevalence of Meckel's diverticulum has been estimated to be from 1.2%, of which 6.4% are of complicated clinical course. Most common symptoms are gastrointestinal bleeding, small-bowel obstruction and diverticulitis.

CASE REPORT: We present a 25 year old female who was admitted to the Department of Gastroenterology with abdominal pain and distension, melena and signs of small bowel obstruction (SBO). Her history includes diagnosis of chronic portal vein thrombosis, portal biliopathy, portal hypertension, esophageal varices. The patient had underwent Roux-en-Y hepaticojejunostomy following iatrogenic common bile duct injury. Her hemoglobin (Hgb) level was 120g / l on admission. Signs of SBO were seen in abdominal X-ray scan and computed tomography (CT) imaging. But the patients pain and abdominal distension had regressed during conservative treatment. It was decided to withhold from surgical treatment. During esophagogastroduodenoscopy and colonoscopy no site of bleeding was found. Additionally, CT angiography and conventional angiography have a sigmoidoscopy no bleeding was found. The patient was persistently defecating with blood. Hg pills vary from 81 to 112 g / l. The radiographic and clinical signs of SBO have been started. Moreover, the patient underwent an abdominal single-photon emission computed tomography (SPECT) and enter a small bowel. A bleeding site was not found. After 3 weeks of hospitalization, it was decided to perform a diagnostic laparotomy. Morning before the operation patients Hgb level was 86 g / l. Meckel's diverticulum was found in the distal part of jejunum. Postoperative commissures and the diverticulum were resected. Patients symptoms have regressed a few days after the operation.

CONCLUSIONS: Diagnosing Meckel's diverticulum can be difficult, due to the array of nonspecific signs and symptoms. Specifically in this clinical case. Therefore, physicians need to be aware of this anomaly and take it into consideration.
Title: Congenital long QT syndrome type 11: a case report

Authors: Ramanauskaite I.¹

Tutor/Tutors: Jurate Barysiene, MD, PhD

University: ¹ Faculty of Medicine, Vilnius University, Vilnius, Lithuania, Lithuania

BACKGROUND: The congenital long QT syndrome (LQTS) is a life-threatening cardiac arrhythmia syndrome characterized by abnormally prolonged ventricular repolarization due to inherited defects of cardiac sodium and potassium channels, predisposing the patients to syncope, ventricular arrhythmias and sudden cardiac death. Early diagnosis and preventive treatment are essential for prevention of sudden cardiac deaths in patients with congenital LQTS.

CASE REPORT: A 20 year - old female with a history of several episodes of palpitations, general weakness, nausea, dizziness, syncope during physical activity. She experienced these symptoms since the age of 14 years. Early in childhood, the patient was diagnosed with intermittent QT prolongation. Taking into account these symptoms, LQTS was suspected. Her 12 lead ECG, 24-h ambulatory ECG were normal and revealed no QT prolongation. Exercise stress test was discontinued because of dizziness. Echocardiography showed a structurally normal heart. Family history showed significant risk of sudden death, as the uncle of the patient had died suddenly, while being 20 year-old. Patient’s cardiologist referred her to the department of Medical genetics for genetic evaluation. Molecular genetic testing was performed by Sanger sequence analysis and the LQTS was confirmed by the presence of a AKAP9 mutation c.3313G>T, p.(Glu1105Ter) in heterozygotic form. Blood samples from her mother and father were collected and genetic testing showed that patient’s mother was heterozygous for this mutation.

CONCLUSIONS: The case of LQTS type 11 in a young patient is reported. Genetic testing revealed a AKAP9 gene c.3313G>T variant that has never been reported in literature before. Sometimes screening ECG may not reveal key findings consistent with LQTS; therefore, in the presence of corresponding clinical picture, genetic testing is to be used to confirm the diagnosis.
Title: A case series of intoxication from novel synthetic cannabinoids

Authors: Kaklauskaite J.¹

Tutor/Tutors: Gabija Laubner

University: ¹ Faculty of medicine, Vilnius University, Lithuania

BACKGROUND: Over the past decade electronic cigarettes (e-cigarettes) have become the most commonly used tobacco product among youth. But not only tabacco can be smoked. Synthetic cannabinoids or synthetic cannabinoid receptor agonists (SCRA) – a class of novel drugs of abuse. They are full agonists at CB1 and CB2 receptors, therefore clinical effects of SCRA are more severe than marijuana, which is a partial cannabinoid receptor agonist. SCRA abuse can be disastrous as toxicological effects and adverse reactions are unpredictable and may vary with the dose, route of administration, individual qualities and concomitant intake with other drugs. Clinical effects include agitated delirium, lethargy and coma, seizures, tachycardia, hypertension, vomiting, suicidal thoughts, hallucinations, etc. Treatment is primarily symptomatic.

CASE REPORT: We present a case of four 18 year old high school students, three boys and one girl. They used e-cigarettes with an unknown liquid substance. One patient was presented with symptoms of tremor, tachycardia and elevated systolic blood pressure, dizziness, agitation, elevated mood, thirst and shortness of breath. Urine drug test was performed and K2 (Spice) type along with K3 (AB-Pinaca) type of SCRA was detected. Other two patients were presented with laughter, dizziness, tachycardia, weakness and were pale. For one of them urine screening test for psychoactive substances was performed and no drugs were found. The girl has experienced heartburn, nausea, weakness, depressed mood, anxiety and fear. The urine test was not done, knowing that the patients have used the same substance from the same dealer. All were discharged from the emergency room after physical examination and symptomatic treatment within couple of hours.

CONCLUSIONS: Synthetic cannabinoids are modern abuse drugs, which can have diverse clinical manifestations that can not be predicted.
Title: Pregnancy-triggered exacerbation of arrhythmia and successful management by radiofrequency catheter ablation postpartum

Authors: Keževičiūtė M.¹

Tutor/Tutors: Prof. habil. Dr. Germanas Marinskis

University: ¹ Vilnius University, Faculty of Medicine, Lithuania

BACKGROUND: Women with arrhythmias are at risk of arrhythmia exacerbation during pregnancy. Mechanism is thought to be related to physiologic changes, but at admission, pregnant patients with tachyarrhythmias must be evaluated for the underlying structural heart disease and arrhythmia severity. Treatment in these cases is complicated because of potential alterations in pharmacokinetics, possible risks for foetus, and randomized trials in this cohort of women are lacking.

CASE REPORT: A 38-year-old woman (gravida 4, para 3), at 30 weeks of gestation, presented with episodes of lightheadedness, dyspnea and syncope. For 5 years she was suffering from ventricular premature beats and episodes of ventricular tachycardia. Symptoms were managed successfully with Metoprolol 50 mg/d. When the patient got pregnant, this drug was suspended and peroral potassium supplementation was administered. During the pregnancy episodes of dizziness and presyncope associated with palpitations begun. Gradual increase in frequency and severity of symptoms was followed by episode of syncope. At admission laboratory investigations revealed normal complete blood count, electrolytes and renal function. Cardiac monitoring showed multiple episodes of monomorphic, non-sustained ventricular tachycardia and ventricular premature beats, no ST dislocation in ECG. No structural heart disease or reduced ejection fraction in ultrasound was observed. Sotalol 160 mg/d was administered leading to resolution of symptoms. During all pregnancy foetus was supervised by cardiac assessment and as no abnormalities were observed, vaginal delivery was recommended on 37th week. After the labour symptoms of dyspnea and palpitations remained, thus radiofrequency catheter ablation of the right ventricular outflow tract arrhythmia was performed four months later. Cardiac monitoring one month after the procedure showed normal sinus rhythm and the patient had no further complaints.

CONCLUSIONS: Arrhythmias, especially of ventricular origin, can cause significant clinical problems during pregnancy. As pharmacotherapy and catheter ablation during pregnancy may be complicated, the goal should be effective long-term management, especially in fertile women age before pregnancy is expected.
**Title:** Type III familial dysbetalipoproteinemia: case report

**Authors:** Daunaraite K.¹

**Tutor/Tutors:** Prof. Z. Petrušioniene, MD U. Gargalskaite

**University:** ¹ Faculty of medicine, Vilnius University, Lithuania

**BACKGROUND:** Familial dyslipidemia is one of the most severe disorders causing serious damages to cardiovascular system. It is not always diagnosed in time. The reason for this is the altered gene inherited from one or both parents. Some of them occur in childhood, others are about thirty years of life. Often the first sign is yellowish nodules under the skin (xanthomas), around the eyes (xanthelasmas). These are cholesterol deposits that may appear around the eyes, on the buttocks, elbows, knees, and other parts of the body.

**CASE REPORT:** A 36 year old female suffered from itching buttocks, legs, back and forearm rashes. After disproved diagnosis of urticaria and psoriasis, lipid metabolism disorder was suspected and familial III-type hyperlipoproteinemia diagnosed. The initial lipidogram has shown the presence of complex dyslipidemia: total cholesterol (TCh) was 37.63 mmol/l, low-density lipoprotein cholesterol (LDLCh) 8.18 mmol/l, high-density lipoprotein cholesterol (HDLCh) 0.48 mmol/l, triglycerides (TG) 64.6 mmol/l. The patient was hospitalized at Vilnius University Hospital Santaros klinikos. The second lipidogram revealed markedly increased lipid levels, and apolipoprotein E has rocketed to 916 mg/l. Any possible reasons for secondary dyslipidemia were ruled out. After the performance of lipid electrophoresis, complex III-V-type dyslipidemia was diagnosed according to Frederickson. While staying at the clinics, the patient was administered Atorvastatin 40 mg and alternative plasma apheresis, 6 in all. After the treatment, lipid level has markedly decreased: TCh decreased to 4.57 mmol/l, LDLCh 0.56 mmol/l, HDLCh 0.27 mmol/l, TG 5.90 mmol/l. After 6 months, the test was performed again: TCh was 4.64 mmol/l, LDLCh 2.57 mmol/l, HDLCh 1.02 mmol/l, triglycerides 2.28 mmol/l, Apolipoprotein E 87.7 mg/l.

**CONCLUSIONS:** III-type familial dysbetalipoproteinemia, is the classic case of atherogenic dyslipoproteinemia. It may be suspected on the grounds of xanthomas and markedly increased level of LDLCh. For the treatment it is recommended to administer statines and fibrates in combination. In particularly severe cases, an additional alternative plasma apheresis treatment is recommended.
Title: Noncompaction of the ventricular myocardium (NEVM) clinical case report

Authors: Misiunas M.¹

Tutor/Tutors: Ramunė Vankevičienė

University: ¹ Medicine Faculty, Vilnius University, Lithuania

BACKGROUND: Noncompaction of the ventricular myocardium (NCVM) is a rare cardiomyopathy characterized by prominent trabeculae, intr trabecular recesses, and a left ventricular myocardium with two distinct layers: compacted and non-compacted. NCVM is rarely described in fetal and neonatal patients especially with an insignificant onset, and only isolated reports exist to date. My clinical case highlights all those points.

CASE REPORT: Patient is 20 days old the first child of non-consanguineous parents with no significant family history of congenital heart defects or developmental delay. There were no concerns during the initial antenatal period, but at 32 and 36 week of gestation mother had treatment for candida colpitis. He was born full term via normal vaginal delivery. His birthweight was 3940 gm (87.5th percentile). APGAR scores were 6 and 7 at 1 and 5 min after birth, respectively. He was resuscitated and ventilated. There were no immediate postnatal complications, just generic pale skin, acrocianosis, general irritability and weakness. During initial cardiology examination there were also no specific findings; no congestive cardiac failure, no tachypnea or tachycardia, however infant continued to look weak. After two detailed echocardiographies, 8 days after birth a NCVM was diagnosed. Findings were lightly thickened left ventricular, longitudinal contraction and left ventricular ejection fraction were reduced (to 39%). Data on managing NCVM are limited, especially diagnosed at this early stage. Patient began treatment with carvedilol and captopril. There is still no specific therapy for NCVM. Medical management varies with the clinical manifestations, left ventricular ejection fraction (LVEF), the presence or absence of arrhythmias, and estimated risk of thromboembolism.

CONCLUSIONS: The incidence of NCVM is still rare among neonatal, but recognition is possible. Early diagnosis may allow the clinician to anticipate potential hemodynamic compromise, appropriate support and aggressive treatment to afford successful transition to infant life in those neonates with reduced ventricular function.
Title: Venous thromboembolism (VTE) in pediatrics - clinical case report

Authors: Misiunas M.¹

Tutor/Tutors: Sonata Šaulytė-Trakymienė

University: ¹ Faculty of medicine, Vilnius University, Lithuania

BACKGROUND: The incidence of venous thromboembolism (VTE) during childhood is considerably lower than in adults; however, VTE is increasingly recognized in the pediatric population as a complication of contemporary health care. Treatment of this condition is challenging due to limited data on antithrombotic therapy in pediatric patients. As our clinical report shows this condition can be severe, persistent and without any conformation of congenital or acquired thrombophilia.

CASE REPORT: Patient has episodic proteinuria in the range of 0,25-0,5 g/l observed since 8 months of age. On 15 July 2017 patient had an appendectomy surgery. After 2 months 8-year-old girl developed thrombosis in v. cava inferior (67x16 mm), right and left renal veins and right v. iliaca communis (25 Aug, 2017). The patient was treated with nadroparinum and switched to dabigatran (clinical trial). Anticoagulation was continued for 14 months and was stopped on 26 Oct, 2018. Congenital and acquired thrombophilia was not confirmed (AT deficiency, protein C and S deficiency, FV Leiden, Prothrombin mutation, antiphospholipid antibodies). Improvement during anticoagulation therapy: complete recanalization of both renal veins, partial recanalization of v. cava and iliaca comm. 10 days after the end of anticoagulation, rethrombosis was confirmed by clinical findings (acute pain in the right abdominal region) and laboratory tests (10-fold increased D-dimers and FVIII activity). The patient restarted parenteral anticoagulation and clinical symptoms improved. The patient has persistent proteinuria in the range of 0,5-1 g/L since diagnosis of thrombosis. Following 6 months of anticoagulation percutaneous renal biopsy showed nonspecific changes.

CONCLUSIONS: This case highlights the challenges of diagnosis and treatment of pediatric venous thromboembolism and how severe and persistent may be this condition.
Title: Difficult course of juvenile dermatomyositis - resistance to treatment or psychological problem? A case report

Authors: Sadowski M., Choszczewski P., Prodan M.

Tutor/Tutors: Daiva Gorczyca MD, PhD

University: Pediatric Research Circle for English Division Students at 3rd Department and Clinic of Pediatrics, Immunology and Rheumatology of Developmental Age, Wrocław Medical University, Poland

BACKGROUND: Juvenile dermatomyositis (JDM) is an autoimmune disease which most commonly presents with skin changes and muscle inflammation leading to weakness, due to vasculopathies. This disease has a highly effective treatment course for remissions including steroids, immunoglobulins (IG) and methotrexate. We report the case of the ongoing difficult treatment of JDM in a paediatric patient.

CASE REPORT: A 9-year old girl suffering from JDM was diagnosed at the age of two. She continued to present with muscle weakness, Gottron’s nodules and heliotropic rash. Results of electromyography showed primary muscle damage and histopathological biopsy confirmed the diagnosis. In the initial treatment prednisone was started which later progressed to methotrexate and chloroquine phosphate. After 5 years of multiple treatments and when calcinosis developed, cyclosporine was added. The dosages continuously increased to almost maximum as per protocol with still no signs of remission and ongoing calcinosis. After the unusually long course of treatment, resistant JDM was considered. Looking for the potential cause of the lack of remission, cyclosporine levels in blood were evaluated and found to be 2.8 ng/ml. Since it was not possible to rule out resistance to previous treatment, 10 doses of intravenous IG (1 g/kg/day) were performed once a month with which an almost complete resolution of calcinosis was obtained. During the 6-month follow up, the patient presented with muscle weakness again and elevated creatine phosphokinase. Maximal doses of current medications with repeated IG as an inpatient is the final considered option for treatment, aside from possible psychological evaluation of both the patient and her parents, in order to gain remission of the disease.

CONCLUSIONS: In patients with JDM, remission could be achieved after following the appropriate established guidelines. After failing to obtain remission with several cycles of systemic immunosuppressive therapy and the development of calcinosis, several factors should be considered. The introduction of psychological help at the beginning of the therapy could have increased the effectiveness of treatment.
BACKGROUND: Systemic sclerosis (SSc) is an autoimmune connective tissue disease affecting skin and internal organs. Scleroderma renal crisis (SRC) is a complication unique to SSc and is defined as sudden impairment in renal function usually accompanied by increase in arterial pressure in patients with SSc. Treatment options are very limited with high dose ACE inhibitors recommended as main therapy [1]. Although introduction of ACE inhibitors significantly improved survival in SRC, prognosis is still poor with frequent requirement of hemodialysis and mortality rates up to 50%. Approximately 25% patients with SRC die already in the first period of this complication.

We report a case of 64-years old woman with diffuse SSc who developed classical symptoms of SRC.

CASE REPORT: The patient was admitted to Department of Rheumatology in November 2018 because of progressive skin disease (skin disease started 10 months earlier) and the presence of pericardial effusion. During her stay in the hospital patient developed rapid decline in kidney function, worsening of arterial hypertension and anemia. Despite use of high dose of ACE inhibitors in combination with calcium channel blocker and starting immunosuppression, progression of the disease was very rapid and resulted in the need of hemodialysis (due to hypervolemia and high serum creatine concentration of was 6 mg/dL). Diagnosis of SRC was made based on typical clinical symptoms and confirmed by histopathological examination of renal biopsy. After second infusion of cyclophosphamide patient developed severe neutropenia which was managed with blood transfusions and therapy with growth factors. In the third month of the treatment a major breakthrough was observed in patient condition including improvement in physical capacity, renal function and skin condition, disappearance of pericardial effusion and anemia.

CONCLUSIONS: The patient continues hemodialysis, cyclophosphamide, and ACE inhibitors under tight control of rheumatologists and nephrologists. Her creatine level is normal now. Although prognosis is still unsure, there is a chance for improvement of kidney function in the future.

Title: Multifaceted and challenging aspects of behçet’s disease - a case report.

Authors: Kamińska A.¹, Nowowiejska J.¹, Tryniszewska M.¹

Tutor/Tutors: Assoc. Prof. Anna Baran, MD, PhD; Julita Anna Krahel, MD; Prof. Iwona Flisiak, MD, PhD

University: ¹ Department of Dermatology and Venerology, Medical University of Białystok, Poland

BACKGROUND: Behçet’s disease is a disorder of unknown etiology. It occurs with a frequency between 1/15000-500000 in Europe, most often along the Silk Road. It is characterized by recurrent oral aphthae and any of several systemic manifestations including genital aphthae, skin lesions, ocular disease, gastrointestinal and neurological involvement, as well as vascular disease or arthritis.

CASE REPORT: A 26-year-old male, mentally retarded, with family history of four sudden deaths, was admitted to the Dermatology Department twice due to painful oral aphthae recurring for over 2 years and a scrotum ulceration which has appeared for the first time in September 2017 and rapidly evolving into ulceration. Moreover patient reported headaches and pain in the chest recurring for many years. Multiple additional investigations and specialist consultations showed heart, vascular and neurological abnormalities. Systemic treatment with azathioprine, antibiotics, antifungals and acyclovir, as well as topical agents, resulted in clinical improvement.

CONCLUSIONS: Behçet’s disease occurs in Poland very rarely, it affects more frequently men than women and usually appears between 20 to 35 years of age, as in the presented patient. The most common cause of death of such patients are aneurysm rupture or neurological complications. The young men have a poor diagnosis and they need a strict observation. Patients with Behçet’s disease require interdisciplinary cooperation of physicians of different specialties.
**Title:** Y-type urethral duplication. case report of a patient with multiple congenital abnormalities.

**Authors:** Gług W.¹

**Tutor/Tutors:** Stanisław Warchoł MD, PhD

**University:** ¹ Clinic of Pediatric Surgery and Urology, Medical University of Warsaw, Poland

**BACKGROUND:** Urethral duplications were described and classified by Effman et al. in 1976. Type IIA2 or “Y-type” duplication is very uncommon anomaly in which, urethra is duplicated below the neck of the bladder, the ectopic urethra protrudes to the lumen of the rectum. In most cases, the ectopic urethra is the functional one, while orthotopic urethra is stenotic and undeveloped. There are about 200 cases of IIA2 duplication reported in the literature. Although numerous methods of surgical repair have been described, mobilization from the rectum into the perineum is associated with the lowest risk of failure and usually is a one-step procedure.

**CASE REPORT:** A male infant, born prematurely at 34th week of gestational age, presented with asphyxia and was referred to neonatal care unit. He was diagnosed with esophageal atresia and cardiac abnormalities. Prior to first procedure of esophageal repair, urethral catheterization was not successful thus bladder puncture and urethrography was performed. Imaging study revealed leakage into the canal of the rectum. Initially, iatrogenic injury of the urethra was suspected. Further studies revealed the presence of stenotic penile urethra and functional ectopic branch communicating with the rectum. Penile ultrasound revealed underdevelopment of cavernous and spongious bodies. No anomalies of upper urinary tract were detected. After management of esophageal atresia, patient was discharged home upon reaching 2 months. Surgical correction of ectopic urethra by translocation onto perineal area is planned.

**CONCLUSIONS:** Identification of functional urethra is essential in IIA2 type duplication. Various approaches of surgical treatment of y-type duplication were described. As the patient is qualified not only for urological but also cardiac and thoracic procedures, the treatment of ectopic urethra should be performed in one step and must carry the lowest risk of failure and complications. Therefore, rectal to perineal correction of ectopic urethra was chosen for this patient.
Title: Is it flu?

Authors: Ganzijeva K.¹, Jankauskaite L.²

Tutor/Tutors: dr. Lina Jankauskaite

University: ¹ Lithuanian University of Health Sciences, Lithuania² Pediatrics, Hospital of Lithuanian university of health sciences Kauno klinikos, Lithuania

BACKGROUND: Influenza is highly infectious pathogen causing epidemics and pandemics. Rates of flu are consistently high in children with increased hospitalization during flu-season. In some cases it is hard to distinguish if patient has flu complication or virus other than influenza induced autoreactive process. Diagnostics becomes more complicated if rapid virus testing is not available. We present two clinical emergency cases during flu-season.

CASE REPORT: A 2.5yr old girl presented to ED with high fever for few days and stridor. She was healthy before with vaccination up to schedule. Her mother refused flu-shot. She was admitted for observation and got better after adrenalin inhalation. In few hours her stridor worsened and she developed RDS. She was transferred to PICU. Lab tests: increased CRP (79 mg/L), Leu–6.1x10^9/l, Ne–3.6x10^9/l, PLT–152x10^9/l. She was intubated and purulent secretion from trachea was aspirated and H.influenzae was isolated. Patient was diagnosed with acute laryngotracheitis and flu was suspected. After 4d treatment in PICU, she was transferred to pediatric department and treated with Salbutamol+ampicillin-sulbactam iv.

A 5yr old boy arrived at ED with fever for 5d, nausea, cough, 2d right ankle pain and toe walking. He was healthy before with vaccinations according to schedule (no flu-shot). General examination: no dyspnea or RDS, decreased lung sounds on the right, bilateral coarse crackles; decreased, painful ankle and hip movements. Lab tests: CRP-8.63 mg/L, Leu–5.5x10^9/l, Ne–3.3x10^9/l, PLT–165x10^9/l; increased Creatine phosphokinase (1679 IU/L). He was diagnosed with pneumonia and myositis (reactive arthritis?); Flu was suspected. After observation for 24hrs and treatment with ibuprofen+ampicillin-sulbactam he improved and was discharged as outpatient.

CONCLUSIONS: Both cases represent diagnostic complexity. Flu-season and absence of flu-shot increases possibility of influenza. However, it does not rule out other respiratory viruses. Rapid viral diagnostics would help to identify causative agent leading to specific complications. Otherwise, a suspicion and fear of flu related complications leads to increased wide spectrum antibiotic use.
Title: A rare case of calciphylaxis in the course of end-stage renal disease

Authors: Bielejewska A.¹

Tutor/Tutors: Assoc. Prof. Andrzej Jaroszyński MD, PhD

University: ¹ Jan Kochanowski University in Kielce, Poland

BACKGROUND: Calciphylaxis, also known as calcific uremic arteriolopathy (CUA), is a rare condition affecting small vessels of the skin and fatty tissue, as the calcium deposits accumulate within their walls. This, together with thrombotic occlusion, leads to ischemic necrosis of the skin, involving mostly lower extremities and causing severe pain within the affected areas. Calciphylaxis is most commonly associated with end-stage renal disease (ESRD), although it may occur in patients without kidney impairment. Its pathogenesis is complex and unclear and risk factors include: chronic kidney disease (CKD), diabetes, obesity, female sex, high parathormone level and using vitamin K antagonists. Calciphylaxis is associated with high mortality, as over 50% of patients die within a year after diagnosis.

CASE REPORT: A 64-year-old obese woman, suffering from insulin-dependent diabetes and ESRD (on hemodialysis), was admitted to hospital due to critical ischemia of fingers and toes and suspected cutaneous necrotizing vasculitis. Physical examination additionally revealed generalized edema, bluish coloring of the skin proximally to ischemic lesions and hematomas located on the skin of the abdomen and lumbosacral region. She complained of constant severe pain of hands and feet. A skin biopsy was performed but no sign of calcification was found. X-rays showed extensive calcification in projections of visceral arteries and arteries of the limbs. Due to an increased CRP, wounds were swabbed. MSSA, A. baumannii and C. parapsilosis were found and ciprofloxacin, vancomycin and ceftriaxone therapy was initiated. Patient’s general state was slowly deteriorating and necrotic areas were enlarging. The patient was preliminarily qualified for left upper limb amputation. She was treated with apixaban. Sodium thiosulfate was ordered, however the patient died before it was received.

CONCLUSIONS: Because of its high mortality and limited therapeutic options, prevention and early diagnosis are the key element of treating calciphylaxis. If a patient presents risk factors for developing calciphylaxis, its typical signs, such as painful ischemic skin lesions, should incline the necessity of further diagnostics.
**Title:** Intentional acetaminophen overdose resulting in acute liver failure and unsuccessful liver transplantation

**Authors:** Butkeviciute A.¹

**Tutor/Tutors:** Lect. Gabija Laubner

**University:** ¹ Faculty of medicine, Vilnius University, Lithuania

**BACKGROUND:** Acetaminophen is one of the most popular and safe pain medications worldwide. However, due to its wide availability it is frequently used in intentional overdoses where it can cause severe liver injury and even acute liver failure (ALF). Single acute overdose is defined as an ingestion of >4 g in a period of <1 hour. All patients with high levels of acetaminophen need admission and treatment with N-acetyl-cysteine (NAC). Despite the treatment, acetaminophen toxicity is the second most common cause of liver transplantation worldwide.

**CASE REPORT:** A 34-year-old man was delivered into the emergency room after suicidal overdose of acetaminophen. He ingested 80 tablets of 500g paracetamol each (40g) 16 hours ago. On admission, the patient was complaining of nausea, vomiting, abdominal and chest pain. It was his first suicidal attempt with no psychiatric history previously. Serum paracetamol level performed 17 hours after ingestion was 109μg/mL, thus intravenous NAC was administered. The blood test showed that liver enzymes have risen 20 times the normal value, which confirmed that the patient had an acute toxic hepatitis. Despite the treatment, ALF proceeded, therefore a clotting disorder and acute renal failure developed. The next day his liver enzymes were 160 times higher than the norm, direct bilirubin has risen 5 times the normal value. As soon as the toxicological treatment was completed, the patient was placed on the urgent list for a liver transplantation. Patient’s condition kept deteriorating, acute liver failure progressed, he developed hepatic encelopathy, metabolic acidosis, coagulopathy, moreover, he had renal replacement therapy, extracorporeal liver support therapy. After 8 days, the patient underwent orthotopic, ABO incompatible liver transplantation. Unfortunately, acute hepatic artery and portal vein thrombosis developed, and with progressing MODS the patient died.

**CONCLUSIONS:** Acetaminophen-induced ALF requires meticulous supportive care in an intensive care unit, with early administration of NAC and transfer of patients who are likely to require liver transplantation to a specialist liver centre. Nevertheless, if patients present late and have developed severe liver failure, the mortality is high.
Title: Dislodgement of septal occluder implanted by cardiac catheterization in patient with patent foramen ovale

Authors: Vithlani N.

Tutor/Tutors: Magdalena Róg-Makal

University: 1 Invasive cardiology, USK, Poland

BACKGROUND: ASD is a common congenital heart defect worldwide. The cause of ASD is thought to emerge from a mixture of genetic defects and environmental factors exposed to the mother during pregnancy. Many patients remain undiagnosed until adulthood. Cardiac catheterization with implantation of a septal occluder is a widely used technique in treating ASD but can be accompanied by serious complications. The objective of this clinical case is to highlight the importance of monitoring patients for dislodgement of the septal occluder after this procedure has been carried out.

CASE REPORT: 64 year old woman with PFO was admitted to the Department of Invasive Cardiology after the third episode of TIA for percutaneous closure of the defect. She underwent a transesophageal echocardiography and was qualified for the procedure of percutaneous closure of PFO. The percutaneous implantation of an amplatzer septal occluder 19mm was performed successfully by a qualified team. After the procedure routine echocardiographic check-up showed the occluder was present in the atrial septum. Discharge was planned the following day but during final routine echocardiographic check-up it was found that despite a successful implantation of the septal occluder, it was not present in the atrial septum. The septal occluder was found to have dislodged to the aortic arch. Two days after the initial procedure, an attempt to catch the occluder through percutaneous intervention was performed in a successful manner. Despite no complications, the patient refused to undergo another attempt of this procedure.

CONCLUSIONS: Cardiac catheterization with septal occluders is used worldwide in case of atrial septal defects. This technique yields a favorable outcome with fewer risks than open-heart surgery. But even though the implantation is done in a successful manner with experienced doctors and a patient who fulfil all the criterias for undergoing this procedure, complications may be inevitable. This case report underlines the importance of considering septal occluder dislodgement before discharging the patient, even though the procedure has been carried out successfully.
Title: Miracle child. Multi-staged surgical and interventional treatment of double outlet right ventricle.

Authors: Wójcik A.¹

Tutor/Tutors: dr Kataryna Konarska, dr n. med. Piotr Weryński

University: ¹ Pediatric Cardiology USD, Collegium Medicum in Cracow, Poland

BACKGROUND: Double outlet right ventricle (DORV) is a congenital heart disease (CHD), accounting for fewer than 1% of all CHD. It is defined as a cardiac anomaly in which both the great arteries are positioned at least 50% over the right ventricle and there is a loss of fibrous continuity between the mitral valve and the posterior semilunar valve.

CASE REPORT: The presented case is that of 5-year-old male with complex CHD which consists of DORV with extreme pulmonary valve stenosis, nonconfluent hypoplastic pulmonary arteries, persistent arterial duct, patent foramen ovale, ventricular septal defect (VSD) and multiply major aortopulmonary collateral arteries (MAPCAs). After the delivery he presented tachypnoe, dyspnea, capillary refill time 3s, saturation 85-90%. Due to the suspicion of CHD he was admitted to the Pediatric Cardiology Department where he presented signs of heart failure and cyanosis. On the basis of ECHO and cardiac catheterization the complex CHD was diagnosed. At the 17th day of hospitalization, he underwent palliative Brock procedure and left sided Black-Taussing shunt. Following year, nonconfluent pulmonary arteries were corrected using Cormatrix patch. Before total surgical correction of DORV at the age of 3, the patient underwent 4 more interventional catheterizations, including stent insertion to both pulmonary arteries and embolisation of MAPCAs and right internal mammary artery with plugs and coils. The most severe complication was stent migration to the right jugular vein which demanded surgical evacuation. After the total surgical correction he required stents in the pulmonary arteries redilatated, main pulmonary artery balloon valvuloplasty and interventional closure of the residual ventricular septal defect. The treatment was ended at the age of 5 after 7 interventional and 3 surgical procedures. The patient was discharged from the hospital with enalapril and aspirin. In 3-months follow up he remains in good condition without signs of heart failure.

CONCLUSIONS: It is worth to highlight that patients with complex CHD demand individualized diagnostic process, interventional and surgical treatment tailored to cater for the particular problems of the individual case. Cardiac catheterization has become milestone of treatment for CHD thus obviating surgery in some cases.
Case Report VI
Title: Avulsion injury of hand - to replant or not

Authors: Pranskaityte E.¹

Tutor/Tutors: Vytautas Tutkus

University: ¹ Faculty of medicine, Vilnius University, Lithuania

BACKGROUND: Replantation is the primary choice of limb amputation treatment in order to retrieve its function and aesthetics. This type of surgical treatment has some primary and relative contraindications, for example, severely crushed limb or avulsion injury. These types of injuries are a major challenge for the surgical team. However, some contraindications require further consideration if the patient is young age and does not have any comorbidities.

CASE REPORT: A 22 year old man is presented with amputated left hand that was injured with a planing machine. The patient experienced avulsion injury with wound contamination which is typically considered as contraindication for replantation. Nevertheless, considering patients young age and otherwise healthy state, his left hand was replantated. After 2 days, a pedicled groin flap was made to cover the skin defect on the dorsal side of a left hand. 4 months later, reconstruction of palmar bones using iliac crest transplant and extensor tenolysis were performed. Due to insufficient movement amplitude, surgical team performed corrective osteotomy and tenolysis. Great functional result was achieved, the patient was able to perform a grabbing movement with his thumb and index and middle fingers, he also maintained sensory function in n.ulnaris and n.radialis innervation zones.

CONCLUSIONS: Amputation with avulsion injury is one of the challenging cases in modern plastic and reconstructive surgery. However, replantation should be considered if the patient is young and has no other contraindications - there is a chance of good outcome and retrieved function.
**Title:** CNS listeriosis in a patient undergoing immunosuppressive therapy leading to potentially life-threatening complications

**Authors:** Amin A.³

**Tutor/Tutors:** Prof. Dr. Hab. Joanna Zajkowska

**University:** ¹ Infectious Diseases and Neuroinfection, Medical University of Bialystok, Poland

**BACKGROUND:** CNS listeriosis caused by Listeria monocytogenes (LM) is a potential fatal foodborne infection of the CNS. Especially due to aging of population and rising indications for immunosuppressive therapy increases the risk of CNS listeriosis. In some cases suggests that foodborne LM pass through the mucosal epithelium of the upper gastrointestinal tract which allow invasion in the brainstem by axonal migration along various cranial nerves. Once in the brainstem, LM can spread to higher brain centers and caudally to the spinal cord along axonal connections leading to life threatening complications.

**CASE REPORT:** A 23-years old female patient, underwent 6 years of immunosuppressive treatment with Azathioprine for Crohn’s Disease. On admission patient presented with fever, headache, emesis, left facial nerve paresis and neck stiffness. Lumbar puncture revealed pleocytosis of 17 cells. Blood culture revealed LM. Initial diagnosis was Listeria meningitis but due to the worsening of the patient’s condition such as impaired consciousness and tetraparesis, was transferred to the Neurology Department. MRI and CT scan showed multiple lesions surrounded by edema with mass effect, midline shift and final diagnosed as CNS Listeriosis. With patient’s deteriorating, worsening of conscious level, breathing but no speech was transferred to ICU. Several managing therapies were performed such as antibiotic therapy, antifungal therapy, intubation, oxygen therapy, central venous catheter, percutaneous endoscopic gastrostomy and mechanical ventilation. After 3 months of pharmacological coma she has regained self-breathing but still with tetraparesis and status like “lock in syndrome”. She was transferred back to Infectious Disease and Neuroinfection Department for continuation of treatment and start rehabilitation. Physical rehabilitation is still continued in high professional (including 2x stem cell injections). Patient is communicative, oriented with physical disabilities.

**CONCLUSIONS:** This case reveals that patients undergoing long term immunosuppressive therapy can be at risk with LM infections, which poses absolute disastrous ability to invade deep structures of the brain directly from the digestive system and cause potential fatal complications with slow recovery.
Title: Appendiceal mucocele - rare and precarious finding during routine appendectomy

Authors: Lorkiewicz P.¹, Łukaszewicz A.²

Tutor/Tutors: Nowiński Damian MD, Łukaszewicz Jerzy MD PhD

University: ¹ 1st Clinical Department of General and Endocrine Surgery, Student Science Club at the 1st Clinical Department of General and Endocrine Surgery, Poland ² 1st Clinical Department of General and Endocrine Surgery, Student Science Club at the 1st Clinical Department of General and Endocrine Surgery, Poland

BACKGROUND: Appendiceal mucocele is a rare clinical condition that results from distension of the appendix lumen with mucus. It is only found in 0.1% to 0.7% of all appendectomy specimens. Clinical picture is untypical, the most seen symptom is right iliac region pain thus it may be mistakenly diagnosed as a acute appendicitis. Other symptoms might be colic type pain, gastrointestinal bleeding, nausea, vomiting. 25% of cases are asymptomatic and are found incidentally. The most serious and feared complication of appendiceal mucocele is pseudomyxoma peritonei.

CASE REPORT: A 37 year old patient was admitted to I Clinic of General and Endocrinologic Surgery with acute, diffuse abdominal pain, associated with nausea lasting for 2 days. Earlier this day patient presented to ER in different hospital, treated with spasmolytic and discharged. He had taken another dose of spasmolytic at home, with no effect. Physical examination revealed positive Bloomberg sign and painfulness in right iliac region. No muscular defence or fever was observed. Blood test showed elevation of CRP level (39,5 mg/L). Urinalysis revealed elevated α-amylase(556 IU/L), 25µg of protein, 1µg of bilirubin and 10-15 RBCs. Other tests were within reference ranges. USG unveiled hypoechogenic, heterogeneous area measuring 58x53mm(probably dilated intestine or tumor) connected to blind ended structure measuring 41x11mm(probably appendix with wall thickened to 3,2mm). A preoperative diagnosis of acute appendicitis was made and patient was scheduled for urgent appendectomy. Substantially distended appendix filled with mucous content was found. The base of the appendix and mesentery were ligated, excised and extracted. Histological analysis resulted in final diagnosis of appendiceal mucocele with purulent appendicitis. After uncomplicated recovery patient was discharged from the hospital on 3rd postoperative day.

CONCLUSIONS: Although rare, tumors of appendix should be taken into consideration in differential diagnosis of acute appendicitis, and resected to avoid perilous complications such as malignant transformation. This case also proves usefulness and safety of laparoscopic approach in such tumors.
Title: Repeated, paroxysmal abdominal pain as an early symptom of paroxysmal nocturnal hemoglobinuria in a child

Authors: Paw D.¹

Tutor/Tutors: Marek Karwacki MD, PhD

University: ¹ Department of Pediatrics, Hematology and Oncology, Medical University of Warsaw, Student Research Group "Sferocyt", Poland

BACKGROUND: Paroxysmal nocturnal hemoglobinuria (PNH) is an extremely rare disease in children, acquired clonal hematopoietic stem cell disease due to the somatic mutation of the PIG-A gene causing deficiency of membrane proteins of blood-derived cells. As a consequence, spontaneous uncontrolled activation of the complement system takes place. It is characterized by intravascular hemolysis, various degrees of bone marrow failure and a tendency to venous and arterial thrombosis, especially visceral vessels.

CASE REPORT: Currently, a 16-year-old boy from 2014 complained about a seasonally recurrent, very severe spasmic abdominal pains occurring in spring and autumn. Despite repeated hospitalizations and multi-profile diagnostics (ultrasound, gastroscopy, colonoscopy, imaging examinations from angioTK and MR, capsule endoscopy), with various treatment attempts—antibiotics and glucocorticoids, practically until 2018, it was impossible to determine the cause of the disease. At that time, the second MR angiography revealed renal hemoglobin deposition, and overt hemolytic anemia with high reticulocytosis and decreased platelet count and haptoglobin levels, with free hyperbilirubinemia and very high lactate dehydrogenase (LDH) levels, as well as hyperplasia of the red blood cell system revealed in bone marrow (without other specific disorders) directed diagnostics. In January 2018, the patient was transferred to the hematological department, where the diagnosis of PNH confirmed by fluorocytometry was established during the differential diagnosis of causes of intravascular hemolysis. The presence of PNH clone in erythrocytes was revealed, but mainly in 93.8% neutrophils type III with a complete lack of GPI. Currently, the boy is being treated with eculizumab. No episodes of hemolysis were observed during the therapy, and biochemical remission was achieved after 2 months (normalization of LDH).

CONCLUSIONS: Regardless of the rarity of the disease, in children with paroxysmal abdominal pains with accompanying dark urine and anemia and/or thrombocytopenia, especially with severe hemolysis (high LDH and bilirubin, and low or unmistakable haptoglobins), PNH should also be considered in the differential diagnosis.
Title: Do not miss - a case report of acrodermatitis chronica atrophicans

Authors: Itrich P.¹, Milun E.¹, Karolkiewicz E.¹

Tutor/Tutors: Assoc. Prof. Anna Baran, MD PhD, Julita Anna Krahel, MD

University: ¹ Department of Dermatology and Venerology, Medical University of Bialystok, Students Scientific Circle at the Department of Dermatology and Venerology, Poland

BACKGROUND: Acrodermatitis chronica atrophicans (ACA) is the most common late and long-lasting manifestation of Lyme borreliosis developing after 6 months to even 8 years after a tick bite. Early red or bluish-red lesions usually located on the lower limbs lead to progressive extensive skin atrophy and further to sclerodermic lesions, which may limit movement of affected part of the body. ACA is usually diagnosed in elderly people, mostly in women. The diagnosis is based on a typical clinical picture, serological tests and histological examination. First-line treatment is antibiotic therapy.

CASE REPORT: A 79-year-old female patient was admitted to the Department of Dermatology and Venereology with a 6 months history of confluent atrophic skin lesions on her left lower limb with clearly visible blood vessels. According to the epidemiological history, the patient underwent several, asymptomatic, untreated tick bites in the last two years. Serological and histological examinations were performed and diagnosis of ACA was confirmed.

CONCLUSIONS: Despite raising awareness of borreliosis, late forms of the disease are still observed. The physicians of each specialization should consider a Borrelia infection as a differential diagnosis due to the broad spectrum of the disease. ACA diagnosis is commonly delayed due to uncharacteristic clinical picture or the lack of accompanying serious symptoms. Therefore causative treatment should be implemented as early as possible to prevent cutaneous damage.
Title: Analysis of the clinical consequences of the family pathogenic variant COL1A1

Authors: Mitrikaitė G.¹

Tutor/Tutors: Eglė Preikšaitienė

University: ¹ Faculty of medicine, Vilnius University, Lithuania

BACKGROUND: COL1A1 gene provides instructions of how to make type I collagen, which is very important for supporting many tissues in the body. Mutations in this gene are usually linked with the brittle bone disease Osteogenesis imperfecta. In this clinical case there is a mutation in COL1A1 gene presenting with familial autosomal dominant Osteogenesis imperfecta.

CASE REPORT: A 7-year female is presenting with repeated pathological bone breaks predominantly without or with mild trauma. At 10 months of age she showed a sign of swollen thigh and radiologically was diagnosed with left femoral break in diaphysis with dislocation. At 3 years of age the patient fell in the street and radiologically was diagnosed with right tibial lower 1/3 and fibular middle 1/3 break with dislocation. Fractures were fixed during multiple operations with titanium rods, immobilization and fixation.

The patient was born natural way, the 37th week of the first pregnancy, during which mother was hospitalized because of the high blood pressure. Patient’s birth weight was 3040g (33‰), height 52cm (94‰), head circumference 34 cm (54‰). Patient can hold a head from 3 months of age, walks independently from 1,5 year of age, the first teeth showed in 7 months of age. Speech development is not disturbed. Fenotype (5 years old): head circumference 49,5 cm, head circumference 49,5 cm (10-25 ‰), height 103 cm (3-10 ‰), weight 15,5 kg (3 ‰), grey – blue sclera, tooth are normal color and shape, both hand’s 4-5 finger’s contractures, post – operative scars in left thigh. From patient’s genealogy is known, that father has experienced 7 limb bone breaks and has blue – gray sclera. Father’s father has experienced several limb bone breaks, has blue – gray sclera which indicates autosomal dominant inheritance.

With new generation sequencing Ion Ampliseq were analyzed COL1A1, COL1A2, ALPL, FKBP10, LEPRE1, PLOD2, SP7 genes.

CONCLUSIONS: By studying the coding and surrounding sequences of the COL1A1 gene, the heterozygous genotype of the pathogenic DNA sequence variant was determined: NM_000088: c.3838C>T;3838=; (NP_000079: p.[Gln1280Ter];[Gln1280=]). Changes in the COL1A1 gene result in autosomal dominantly inherited Osteogenesis imperfecta.
Title: Cat scratch disease in a 14-year-old girl - case report

Authors: Gościńska A.¹, Paszkowska I.¹


University: ¹ Department of Pediatrics, Pediatric Nephrology and Allergology, Military Institute of Medicine, Students’ Scientific Group affiliated to Department of Pediatrics, Pediatric Nephrology and Allergology, Military Institute of Medicine, Poland

BACKGROUND: Cat’s scratch disease is a bacterial zoonotic disease caused most often by gram-negative bacteria Bartonella henselae (95%). Child most often becomes infected after being scratched by a host animal, mainly by young cats. The disease usually occurs in the form of local lymphadenopathy spontaneously subside to 8-12 weeks. In the United States alone, about 12,000 people are diagnosed with a diagnosis of cat’s scratch disease, of which about 500 require hospitalization.

CASE REPORT: A fourteen-year-old girl admitted to the Clinic due to unilateral enlargement of the neck lymph nodes, fever to 38.8°C and right ear pain. On admission, in addition to the enlargement of the neck lymph nodes on the right side, the presence of secretion in the right external auditory canal and a linear scar on the skin of the right arm were found. In the additional tests no irregularities were found. The test results for toxoplasmosis, infectious mononucleosis, tuberculosis and CMV infection were negative. Ultrasound examination of the abdomen revealed hepatosplenomegaly. Based on the clinical picture, lymphadenopathy on an infectious basis was diagnosed and amoxicillin / clavulanic acid was included in the treatment. Due to the lack of improvement after the treatment, the diagnostics of Bartonella henselae infection serology was extended and the treatment (ceftriaxone + amikacin) was modified. Symptoms subsided and on the 10th day the patient was discharged home. Serological tests confirmed the diagnosis of a cat scratch disease.

CONCLUSIONS: The picture of a cat scratch disease is often unspecific, which requires a wide panel of tests necessary to exclude other diseases that may occur with local lymphadenopathy. The literature describes cases of coexistence of other diseases in the course of cat scratch disease. In the case described, inflammation of the external auditory canal was found, which has not been described in the literature so far. The described case indicates the important role of properly conducted medical history, which allows accurate and quick initial diagnosis.
Title: Infectious tenosynovitis in a patient with rheumatoid arthritis and systemic lupus erythematosus

Authors: Jonaityte G. ¹

Tutor/Tutors: Irena Butrimiene

University: ¹ Faculty of medicine, Vilnius University, Lithuania

BACKGROUND: Tenosynovitis refers to inflammation of tendon and its synovial sheath. Aseptic tenosynovitis is common in rheumatoid arthritis, however infectious tenosynovitis’ identification can be masked by rheumatoid arthritis manifestation and associated immunosuppressive treatment.

CASE REPORT: A 67 year-old female patient with 20 years history of systemic lupus erythematosus, 15 years history of rheumatoid arthritis. The patient was treated with oral glucocorticoids (metylprednisolone) during this period. In January of 2019, she started to complain of left wrist pain, swelling, restricted movements. As soon as symptoms appeared, she approached to GP, the dose of metylprednisolone was increased. Five days later, due to persistent pain, she was admitted to Rheumatology department at Vilnius University Hospital Santaros Klinikos. Pathological laboratory tests revealed elevated levels of CRP and neutrophilic leukocytosis. Left wrist ultrasonography demonstrated increased hypoechoic fluid content within extensor tendon sheaths, thickening of the synovial sheaths, ultrasonography of left elbow revealed excessive fluid in the joint space. The diagnosis of extensor tenosynovitis and elbow synovial arthritis was made. Co-amoxiclav, a broad spectrum antibiotic, was administrated, however condition deteriorated. Ultrasound-guided arthrocentesis of the elbow joint was performed, however infectious agent was not clarified. Antibiotics were changed to piperacillin and after few days the swelling regressed.

CONCLUSIONS: Extensor tenosynovitis of the wrist can lead to rupture of the extensor tendons and other serious complications, therefore, early diagnosis and adequate treatment is important. In this case initially tenosynovitis was taken as a rheumatoid arthritis’ exacerbation phase, however glucocorticoids were ineffective, pathological laboratory tests showed infectious cause of tenosynovitis. Adequate antibiotic therapy helped to treat this infection.
Title: A retrospective look at a patient with multi-organ damage of a varied etiology.

Authors: Roshofa T.¹, Frīdvalde A.²

Tutor/Tutors: Assoc. Prof. Aldis Puķītis

University: ¹ Faculty of Medicine, Riga Stradiņš University, Latvia
² Paula Stradiņš Clinical University Hospital, University of Latvia, Latvia

BACKGROUND: Wilson disease (WD) is an autosomal-recessive disorder with changes in copper (Cu) metabolism, most commonly presenting with neurological, hepatic or ocular findings. Meanwhile, ulcerative colitis (UC) is a chronic, inflammatory bowel disease with mainly intestinal symptoms, but also extraintestinal manifestation. In addition, multiple adverse effects associated with testosterone injections have been described, including neurological, hepatic and cardiovascular damage.

CASE REPORT: A 34-year-old man, who had previously received treatment in Gastroenterology Centre in his twenties due to UC, was admitted to the hospital after years of remission and no follow ups with an exacerbation of the disease and an additional diagnosis—Wilson disease.

A retrospective research showed that patient was first examined in connection with hepatic cirrhosis as early as 2004 with liver biopsy showing chronic toxic hepatitis. In 2006 patient was diagnosed with UC and due to the exacerbation rate, was enrolled in a study with TNF alpha inhibitor, reaching a remission. During this time patient developed neurological symptoms with neurodegenerative findings in brain imaging tests, which at the time where interpreted as complications due to the treatment, leading to patient’s exclusion from the study. As additional imaging tests showed hepatic damage, a liver biopsy was recommended, which patient refused. Furthermore, patient, without consulting doctors, started intermittent testosterone injections with a subjective improvement. Finally, during ambulatory check-up Kayser–Fleischer rings were detected, leading to the diagnosis and treatment of Wilson disease in 2016.

At the time of hospitalisation in January 2019 there were findings consistent with multi-organ damage due to UC, WD and long-term testosterone injections with changes in gastrointestinal system, liver, central nervous system, kidneys and heart.

CONCLUSIONS: This case study shows the negative impact of delayed diagnosis of a rare disease, as well as problems associated with patient compliance and interrupted health care continuity, thus resulting in worse clinical outcomes with multiple organ damage and worse overall prognosis.
Title: Invasive meningococcal disease complicated by cutaneous necrosis

Authors: Kolomenskyte A. ¹

Tutor/Tutors: Assoc. Prof. Virginija Zilinskaite

University: ¹ Faculty of medicine, Vilnius University, Lithuania

BACKGROUND: Invasive meningococcal disease (IMD) describes infections caused by N. meningitidis, when this bacteria invades the bloodstream. The most common presentations of IMD are meningococcal septicemia and meningococcal meningitis. Hemorrhagic rash and fever are the earliest and most reliable clinical signs of IMD. Hemorrhagic rash is a result of the DIC syndrome, and usually fades away and heals by itself. There are some cases when large skin areas are affected and it causes one of the late IMD complications cutaneous necrosis.

CASE REPORT: A 2-year-old boy presented to hospital with fever up to 39 °C for one day and fast spreading hemorrhagic rash. On arrival, the patient was lethargic, had fever up to 39,5 °C and hemodynamic instability: weak peripheral pulse, pale, cool skin, blood pressure 106/54 mmHg, heart rate 170 BPM. There was no neck rigidity. Chest, cardiac and abdominal examination did not reveal any abnormality. He was admitted to paediatric intensive care unit for isolation and rapid investigation. Investigation showed neutrophilia, thrombocytopenia, elevated inflammatory markers and metabolic acidosis. Furthermore, by the time of arrival SPA was 19 % and aPTT was 63 sec. PGR showed N. meningitidis and the blood culture was negative. After clinical investigation meningococcal septicemia and septic shock were diagnosed. During the next 24 hours hemorrhagic rash was still spreading through all the body. In ICU treatment with crystalloids, antimicrobial and sympathomimetic drugs was administered. Septic shock and inflammatory markers were successfully controlled, but, despite effective treatment, in the end of the first hospitalization week, multiple necrotic skin lesions (26 lesions on both legs) on the lower limbs showed up with leading fever. Damaged areas were removed and covered with skin grafts. Wounds healed without any complications, just a few scars left. After 24 days of hospitalization the patient was discharged from the hospital.

CONCLUSIONS: Cutaneous necrosis usually occur after severe form of IMD. This complication is generally found when IMD presents as meningococcal septicemia with severe disseminated intravascular coagulation. When large skin areas are affected by necrosis, the best way to treat it is skin grafting.
Title: Acute kidney injury due to rhabdomyolysis in a marathon runner.

Authors: Kozłowska H.¹

Tutor/Tutors: Małgorzata Dębowska, PhD

University: ¹ Department of Nephrology, Dialysis and Internal Medicine, Medical University of Warsaw, Poland

BACKGROUND: Rhabdomyolysis is a clinical syndrome characterized by skeletal muscles damage and release of toxic intracellular contents into the circulation. Causes include excessive muscular activity, trauma, drugs, hyperthermia, infections, electrolyte abnormalities, genetic disorders. Severity of rhabdomyolysis can vary from subclinical rise of creatine kinase to acute kidney injury or DIC.

CASE REPORT: 36-year-old man was hospitalized in the emergency room after losing consciousness 100m before finishing a marathon. Due to patient’s agitation, substance abuse was suspected and toxicology was performed showing negative results. Patient confirmed use of anabolic steroids. Renal function was slightly decreased. Patient was discharged with recommendations to hydrate, rest and report to a GP. The following day he returned with abdominal pain and anuria. Physical examination revealed signs of severe dehydration, tender abdomen, moderate muscle guarding and positive Blumberg sign. Laboratory tests indicated acute kidney injury, possibly due to dehydration and rhabdomyolysis (CK 254060 U/L). Abdominal X-ray was performed and confirmed the diagnosis of intestinal obstruction, which was suspected to be a result of AKI. Yet, massively elevated D-dimers and angio-CT identified thrombosis of a small branch of mesenteric artery as the cause. Segmental bowel resection was performed and the patient was transferred to ICU and then Nephrology Department where he underwent a series of hemodialysis. The patient was discharged in a good condition and remains in an ambulatory care.

CONCLUSIONS: Subclinical myoglobinemia, myoglobinuria, and elevation in serum creatine kinase are common following physical exertion. AKI develops in 33% of patients with rhabdomyolysis and is the most serious complication in the initial stage. Contributing factors include hypovolemia, acidosis or aciduria, tubular obstruction and toxicity of myoglobin. Long term use of anabolic steroids has been reported to be linked to kidney damage. Various clinical factors are used to predict the risk of AKI but no single parameter has been established. Therefore, it is crucial to closely monitor renal function in patients with suspected rhabdomyolysis after excessive muscular activity.
Title: Neurofibromatosis type I - treatment of two types of respiratory failure by non-invasive ventilation.

Authors: Oraczewska A.¹, Gazda K.¹, Tobiczyk E.¹, Celban A.¹, Wawrzyniak K.¹

Tutor/Tutors: dr n. med. Szymon Skoczyński, prof. dr hab. n. med. Adam Barczyk

University: Department of Pneumonology, Department of Pneumonology, School of Medicine in Katowice, Medical University of Silesia, Katowice, Poland

BACKGROUND: Recklinghausen's disease (NF-1) is among the most frequent autosomal dominant genetic diseases. Typical NF-1 symptoms include skin tumors called neurofibromas and larger benign neoplasms of the nerves called plexiform neurofibroma, scoliosis, blurred vision, numerous au-lait coffee spots, epilepsy, but respiratory failure is not so commonly observed.

CASE REPORT: A 32-year-old patient with NF-1, severe kyphoscoliosis, and a history of paravertebral and vertebral canal tumor partial resection in 2001 treated with a use noninvasive mechanical ventilated (NIV) since December 2010 was admitted to pulmonary department in January 2019 with suspicion of respiratory failure decompensation. The NIV settings were as follow: spontaneous (S) mode with: inspiratory positive airway pressure (IPAP) 15 cmH2O, expiratory positive airway pressure (EPAP) 4 cmH2O, inspiration time 1 s, rise time 300 ms. Baseline arterial blood gases revealed sub-optimal PCO2 control: (pH 7.35; PCO2 58.4 mmHg; PO2 66.9 mmHg; HCO3 31.3 mmol/l, SAT O2 92.0 %). During hospitalisation acute on chronic respiratory failur was excluded. Ventilator settings were adjusted numerous times from S to S/T and finaly to IVAPS-AE mode, which waranted blood gases normalisation: (pH 7.45; PCO2 42.7 mmHg; PO2 73.8 mmHg; HCO3 28.8 mmol/l; HCO3 27.8 mmol/l) and good treatment tolerance. The final machine setting were IVAPS-AE, BPM 19/min, terget minute ventilation 5L/min, PS 14-18 cmH2O, EPAP 5-7 cmH2O, Tins 0,8-1,1 s, Rise time 100 ms, trigger sensitive administered thrugh nasal mask. Neurofibromatosis may be responsible for type two respiratory failure development. The work describes possible respiratory failure mechanisms and undertaken treatment approach.

CONCLUSIONS: It is very difficult to determine precise causes of respiratory failure development in NF-1, however NIV may be effectively used for chronic respiratory failure treatment.
Title: Severe hypercholesterolemia associated with primary biliary cirrhosis in a 48-year-old Lithuanian man

Authors: Masiulienė R.

Tutor/Tutors: doc. dr. Vilma Dženkevičiūtė

University: 1 Faculty of medicine, Vilnius University, Lithuania

BACKGROUND: Primary biliary cirrhosis (PBC) is an autoimmune, chronic, cholestatic liver disease that primarily affects women. The mechanism of hyperlipidemia in cholestatic disorders is different from that in other conditions and it is not associated with an increased risk of atherosclerosis in these patients.

CASE REPORT: A 47-year-old man was referred to our clinic due to hypercholesterolemia and present plane xanthomas around the eyelids, on the palms, forearm and knee areas. On March 2017 a diagnosis of PBC had been made on the basis of liver biopsy findings showing stage 4 PBC. At that time patient reported nausea, malaise, weight loss and new-onset jaundice. He did not drink or smoke. His height, body mass and body mass index (BMI) were 169 cm, 66 kg and 23,1 kg/m². His laboratory studies showed alkaline phosphatase 645 U/L, aspartate aminotransferase 109 U/L, alanine aminotransferase 143 U/L, total bilirubin 96,3 μmol/l, direct bilirubin 71,7 μmol/l, albumin 36,7 g/L, total cholesterol 27,7 mmol/L, triglycerides 2,51 mmol/L, HDL-C 0,65 mmol/L and calculated LDL-C 25,9 mmol/L. He was initially diagnosed with lipoprotein X as a consequence of his liver disease, but there was a suspicion that he also had an underlying genetic syndrome leading to his profound hypertriglyceridemia and hypercholesterolemia. Lipoprotein and lysosomal acid lipase levels were both found to be normal. The patient underwent treatment with low lipid profile diet, ursodeoxycholic acid 1000 mg/day, lipanthyl 400mg/day and several apheresis. At his six-month follow-up visit, an improvement in his lipid panel was noted (total cholesterol level- 22,72 mmol/l; triglycerides- 2,34 mmol/l; HDL-C- 0,44mmol/l; LDL-C- 21,3 mmol/l).

CONCLUSIONS: Total cholesterol is often elevated in PBC as in other cholestatic liver diseases; however, the severe hypercholesterolemia of this patient is extremely rare. Total cholesterol is extraordinarily variable in PBC and can be strikingly high, especially in the initial phases of the disease when the liver cholesterol synthesis is not impaired. During the PBC evolution, total cholesterol tends to decrease with advanced liver disease.
Title: Amiodarone induced QTc prolongation and polymorphic ventricular tachycardia: case report

Authors: Masiuliene R.¹

Tutor/Tutors: doc. dr. Jūratė Barysienė

University: ¹ Faculty of medicine, Vilnius University, Lithuania

BACKGROUND: The long QT syndrome (LQTS) is a form of channelopathy, a disorder of myocardial repolarization characterized by a prolonged corrected QT interval that can be either congenital or acquired. This syndrome is associated with an increased risk of polymorphic ventricular tachycardia and may occur with symptoms such as palpitations, syncope and sudden cardiac death. Anti-arrhythmic drugs like amiodarone can markedly prolong the QT interval, but amiodarone is rarely associated with TdP. The estimated frequency of TdP is less than 1 %.

CASE REPORT: A 44-year-old woman was transferred to ER due to recurrent syncope with brief loss of consciousness. She had a history of persistent atrial fibrillation (AF) which was diagnosed in 1997. The patient previously underwent 3 cardioversions (in 2011; 2013 and 2017-11). In November 2017 sinus rhythm wasn’t restored. A month prior onset of syncope, she was administered oral amiodarone (600mg/day) and elective DC version was scheduled. After a cumulative dose of 16 g of prescribed amiodarone, she experienced 3 syncope episodes and was admitted to the hospital where she developed several episodes of TdP and QT prolongation (QTc - 700 ms). Physical examination showed blood pressure of 170/110 mmHg, AF and heart rate - 110 beats per minute; serum K⁺ level was 3.5 mmol/l. Review of the patient’s medications did not reveal the presence of any other drug capable of prolonging QTc. Based on the prolonged QT interval and the history of TdP, congenital LQTS was suspected. Next-generation sequencing was performed and CACNA1C gene (NM_199460.2) c.5842G>A (p. (Glu1948Lys); rs200231105) variant was detected. Considering that Ic class antiarrhythmic drugs were not effective and III class drugs couldn’t be administered due to QTc prolongation, our patient underwent pulmonary vein isolation and was prescribed a daily dose of bisoprolol 5 mg.

CONCLUSIONS: 1. Although rarely, amiodarone can prolong QT interval and cause fatal medical conditions, especially in combination with other risk factors such as hypokalemia and genetic mutation. 2. In many cases, if long QT syndrome is caused by use of medication, it can be related to congenital reasons and those patients should be examined for possible genetic mutation.
**Title:** A novel taz gene mutation and maternal mosaicism in Polish family with Barth syndrome

**Authors:** Chmura O.¹

**Tutor/Tutors:** Barbara Zapała

**University:** ¹ Department of clinical Biochemistry, Jagiellonian University Medical College, Poland

**BACKGROUND:** Barth Syndrome (BTHS) is a recessive X-linked disease characterized by hypertrophic or dilated cardiomyopathy, skeletal myopathy, chronic/cyclic neutropenia as well as growth retardation, respiratory chain dysfunction and 3-methylglutaconic aciduria in male patients. Prevalence is estimated at 1/300 000–400 000 in the USA and 1/140 000 in England. It is caused by mutations in TAZ gene coding for the tafazzin protein, responsible for cardiolipin remodeling.

**CASE REPORT:** In this work we present new pathogenic mutation of TAZ gene in Polish family which occurs as a mosaicism in female members of the family. The proband suffered from various symptoms characteristic for Barth’s syndrome and finally died at the age of 6 months. We performed Sanger sequencing of DNA from peripheral blood and epithelial cells in nine members of his family. Here we report a novel exonic mutation c.83T>A (p.Val28Glu) of TAZ gene. The mutation was passed through four generation in the family and the proband inherited it from his mother. Interestingly the accurate molecular genetics examination revealed a mosaicism (or percentage mosaicism) of the mutation in almost all female family members.

**CONCLUSIONS:** This approach is very important for genetic counseling because most of the genetic diagnosis is based only on samples from peripheral blood. In our female Barth’s syndrome carriers the mutation was present only in the epithelial cells DNA. We concluded that genetic diagnosis of Barth’s syndrome should be performed in women at least on the two or more types of cells driven from the different germ layers. The results of our study also point that the phenotype differs depending on degree of mosaicism and probably other factors.
Title: Magnetic resonance imaging as a diagnostic tool for rare joint disease.

Authors: Gębska M., Grzegorczyk M., Sobczuk R., Woliński O., Dyzma P.

Tutor/Tutors: Dr n.med. Monika Miazga, Dr hab.n.med. Anna Drelich-Zbroja

University: Medical University of Lublin, Poland

BACKGROUND: Chondromatosis is a mild, uncommon disease, characterized by numerous metaplastic proliferating nodules located in the synovial membrane of the joints, bursa and tendon sheaths. Most often, the changes are placed in one joint, sporadically in a few. It is manifested by pain and edema, the joint is afflicted by joint tenderness, exudation to the joint cavity and restriction of movable property.

CASE REPORT: A 23-year-old patient came to an orthopedic clinic due to pain in the left knee. A joint x-ray was performed, which showed shadowy foci in the area of the joint cavity, which suggested the diagnosis of chondromatosis. The next study was MRI, which revealed extensive, merging foci of chondromatosis in the posterior compartment of the knee and exudation. On the basis of resonance, the patient was qualified for left knee arthroscopy, in which the synovectomy of the anterior joint compartment was performed, from which numerous cartilaginous bodies were removed.

CONCLUSIONS: Imaging studies on chondromatosis are extremely useful. On their basis we are able to assess the location, number and nature of changes. They also play a large role in differential diagnosis. The magnetic resonance technique allows to show the joint cavity, joint cartilage, ligaments and joint capsule and all additional elements of the joint such as meniscus and articular discs in each plane. Thanks to MR, the patient's knee was assessed, the diagnosis was made and treatment was started.
Title: Like a needle in a haystack: searching for the cause of AA amyloidosis. Case report.

Authors: Janicki P.¹

Tutor/Tutors: prof. dr hab. n. med. Stanisław Niemczyk

University: ¹ Klinika Chorób Wewnętrznych, Nefrologii i Dializoterapii, Wojskowy Instytut Medyczny, Medical University of Warsaw, Poland

BACKGROUND: AA Amyloidosis, a rare disease, is a consequence of chronic inflammation. As a result, acute phase proteins are produced. One of them, SAA, is synthesised in hepatocytes. A small part of it, called the AA protein, separates and deposits in various tissues and organs, most commonly the kidneys, with proteinuria as the first symptom. This process leads to a variety of clinical symptoms. Arguably the most important factor of its management is to determine the underlying illness.

CASE REPORT: A 68-year old male with a history of tuberculosis, hemoptysis, type B hepatitis, esophageal reconstruction surgery after a lye burn in 1969 and family history of neoplasms presented in December 2013 with proteinuria of 2,7g/24h, haematuria and splenomegaly with lymphocytosis. Suspecting a systemic connective tissue disease, a kidney biopsy was planned. The patient did not give consent. In February 2015 the patient returned, with proteinuria higher than 5g/24h. Between hospitalisations, a splenectomy was performed due to a splenic diffuse red pulp lymphoma. This time, a kidney biopsy revealed amyloid deposits in all of the glomeruli. Additionally, stromal lymphocyte infiltration and tubular atrophy were found. Thus, the patient was diagnosed with AA amyloidosis. In order to find the cause of his condition, differential diagnosis was introduced. The patient tested negative for an antibody panel. Various imaging techniques were used, to exclude neoplastic lesions, tuberculosis and rheumatoid arthritis to name a few. The splenic lymphoma was not proven to be associated with amyloidosis. Finally, an esophageal X-ray and PET-CT scan showed inflammation in the esophageal anastomosis. The patient received a Methyloprednisolone pulse treatment, and after 8 months additional Cyclosporin. A PEG tube was inserted regarding the patient’s poor nutritional state.

CONCLUSIONS: Amyloidosis is a disease which continues to pose a challenge. Until there is a universal treatment available, patients often have to undergo long diagnostic processes and long hospitalisations, which often are a hardship. It is worth noting that even after finding the primary disease there is little room for improvement. Further advancements are required to understand and treat this condition better.
Title: Aortic dissection during coronary angiography: case report

Authors: Daunaraite K.¹

Tutor/Tutors: Prof. A. Laucevicius, MD U. Gargalskaite

University: ¹ Faculty of medicine, Vilnius University, Lithuania

BACKGROUND: Aortic dissection, a rare complication of percutaneous coronary intervention, can be fatal when it is not recognized and treated promptly. Treatment varies from conservative management to invasive aortic repair and revascularization.

CASE REPORT: A 54-year-old woman was complaining of chest pain, fatigue, shortness of breath occurring after moderate physical exertion. Patient had several risk factors of coronary artery disease: dyslipidemia, family history of premature cardiovascular disease, physical inactivity, obesity, a history of arterial hypertension for more than 20 years and diabetes mellitus (type II) for more than 10 years. During cardiac ultrasound possible hypokinesis of anterior and lateral walls and diastolic dysfunction (pseudonormal type) with normal left ventricular ejection fraction were observed. Cardiac stress test veloergometry was interrupted due to hypertension reaction to physical activity (submaximum heart rate was not reached). Others imagining tests were not performed. The patient was directed to the University hospital for the coronary angiography procedure. The blood test results were in normal ranges and ECG showed no significant changes. During right coronary artery angiography, extensive right coronary artery dissection from the ostium to the ascending aorta occurred. Procedure was switched to the right coronary artery stenting to enclose the dissection gates and it was not successful. The urgent consultation of intensive care doctors, cardiosurgeons and interventional cardiologists decided to perform chest computed tomography angiography (aortography) and perform urgent surgery to treat dissection. During the surgery ascending aortic prosthetic reconstruction and aortocoronary bypass were performed forming distal vein junction to posterior interventricular right coronary artery branch.

CONCLUSIONS: Diagnostic coronary angiography is a frequent procedure with very low risk, especially when done in an optional situation (<1.3%). Moreover, diagnostic coronary angiography should only be performed with very strict and accurate indications, after proving non-invasive ischemia.
Case Report VII
Title: A rare case of genetic epilepsy and dysmorphic features: Wolf-Hirschhorn syndrome

Authors: Sasnauskaite I.¹

Tutor/Tutors: Rasa Traberg, MD, Clinical geneticist, Department of Genetics and Molecular Medicine, Hospital of Lithuanian University of Health Sciences, Kaunas, Lithuania

University: ¹ Lithuanian University of Health Sciences, Lithuania

BACKGROUND: Wolf-Hirschhorn syndrome (WHS) (ORPHA:280) is a rare genetic developmental disorder characterized by typical craniofacial features, prenatal and postnatal growth impairment, intellectual disability, severe delayed psychomotor development, seizures (up to 95%), and hypotonia. The prevalence of Wolf-Hirschhorn syndrome is estimated at approximately 1:50,000 births, with a 2:1 female/male ratio. WHS is caused by a deletion in the short arm of the 4th chromosome. About 55% of individuals with WHS have a de novo deletion of 4p16.3. About 45% of patients have an unbalanced translocation with both a deletion of 4p and a partial trisomy of a different chromosome arm.

CASE REPORT: We report a case of a 3 year old female patient who was born full term for healthy non-consanguineous parents. At birth she presented with prenatal growth retardation (birth weight 2200g under the 3rd percentile), microcephaly (head circumference of 30cm under the 3rd percentile), patent foramen ovale, Morning glory optic disc anomaly, bilateral hip displacement. Dysmorphic features included bilateral cleft lip and palate (plastic lip surgery performed at 3 months), hypertelorism, broad nasal bridge continuing to the forehead, short philtrum, micrognathia. Brain MRI scan showed atrophy of right hippocampus, incomplete white matter myelination. At 7 months first epileptic seizure occurred and valproic acid and topiramate were prescribed. Global developmenta l delay, growth retardation under the 3rd percentile have persisted until now.

CONCLUSIONS: Chromosomal analysis (G-band) revealed normal female karyotype. WHS was suspected due to phenotype and clinical examination findings. FISH molecular cytogenetic analysis detected subtelomeric deletion in the 4th chromosome 4p16.3 region which let us to confirm WHS for our patient. Patient karyotype refined: 46,XX, del(4)(p.16.3). WHS treatment is only symptomatic and requires multidisciplinary management. Confirmed genetic diagnosis facilitates genetic counselling and further follow-up care plan.
Title: Unusual case of the aortofemoral bypass thrombectomy

Authors: Gritenas V. ¹

Tutor/Tutors: Givi Lengvenis, MD

University: ¹ Faculty of medicine, Vilnius University, Lithuania

BACKGROUND: Leriche syndrome is a chronic obstruction of the aortic bifurcation, extending to both the infrarenal aorta and the common iliac arteries. One of the treatment options is an aortofemoral bypass, however thrombosis might occur later in life. In this case report I present an aortofemoral bypass thrombectomy followed by embolus to the superior mesenteric artery and again to the aortofemoral bypass during revascularisation of SMA.

CASE REPORT: A 75-year-old patient presented to the emergency department with ischemic leg pain, which continued for the second day in a row. Patient history revealed Leriche syndrome, with more than 25 year history of various interventions to both legs, one of which being amputation of the right leg. CTA scan showed thrombosis of the bypass graft, with only small collaterals filling up. Emergent open thrombectomy of the aortofemoral bypass was performed with the Fogarty catheter, recanalising the bypass. However during the procedure the patient developed hypotension and complained about abdominal pain, so the operation was stopped. Immediately after, the CTA was repeated revealing thrombus in the SMA. Then, endovascular approach was selected to complete SMA thrombectomy with ACE 68 reperfusion catheter, but during the procedure thrombus migration back to the bypass graft occurred, completely occluding it, even worse reperfusion with ACE 68 failed, thus finally, angioplasty and stent placement inside the bypass was done with the confirmed blood flow to the left leg.

CONCLUSIONS: Mechanical thrombectomy might result in complications such as artery perforation, vasospasm or somewhat paradoxical complication – embolism, which is why during the procedure a patient must be evaluated all the time, looking out not only for signs of bleeding but also for any signs of ischemia to the other parts of the body and must be treated accordingly.
BACKGROUND: Myocarditis is inflammation of cardiac muscle that can be produced by infectious and noninfectious causes. The most common etiological agent is a viral infection. Usually, the natural history of the disease is mild and most patients recover completely, but some of them may develop heart failure or serious arrhythmias. In our presentation, we show very rare and severe course of myocarditis. The aim of this study is to remind that even young and healthy people should not ignore symptoms like shortness of breath and nonspecific chest pain.

CASE REPORT: A 42-year-old man was admitted to the Cardiology Department due to effort dyspnoea. On admission, he had no chest pain. The patient did not suffer from any chronic diseases. Three weeks before, he had had an infection of upper respiratory tract that had been treated with antibiotic. After the physical examination and additional tests myocarditis was diagnosed. Echocardiography revealed an ejection fraction of 34%. After 7 days, the patient was discharged home in a good general condition. Within next 12 months, he was hospitalized 7 times and despite intensive treatment, he developed end-stage heart failure (an ejection fraction at the level of 19% and NYHA class IV). Now, the patient is qualified for a heart transplant, but if he has real chances for it?

CONCLUSIONS: Even a mild illness such as a viral infection of upper respiratory tract may have very serious consequences. The authors would like to highlight that symptoms like dyspnoea and chest pain should never be ignored.
BACKGROUND: Currently, we can observe increasing amount of patients suffering from heart failure. In Poland, it is estimated that there are about 600-700 thousands of them. One fifth of the world population will suffer from this particular cardiovascular disease. The prevalence of chronic heart failure greatly entails with increasing amount of myocardial infarction in elderly population. Potentially, medicine offers a lot of opportunities of the treatment including pharmacological and invasive, but the treatment of patients with multiple comorbidities is very difficult and related to many restrictions, depending mostly of patient’s condition.

CASE REPORT: A 61-year-old man was devolved from Department of Nephrology to Department of Cardiology, because of NSTEMI myocardial infarction, which occurred during hospitalisation in nephrology ward. The patient complained about dyspnea, general weakness with pain of muscles and joints. He did not report any chest pain, while he was admitting to Department of Cardiology. The examination revealed heart murmur in aortic region, multiple crackles at the base of lungs and massive ascites. The patient suffered from many comorbidities- including chronic heart failure with contractile dysfunction, aortic stenosis, disseminated atherosclerosis, deep veins thrombosis, hypertension, type 2 diabetes mellitus, which was complicated by end-stage renal disease. Laboratory tests revealed increased level of troponins, potassium, NT-proBNP and anaemia. The patient was treated by PCI of right coronary artery. Further tests demonstrated EF= 10% in ECHO examination. Patient had two incidents of cardiac arrests and acute ischaemia of the right lower limb, which required amputation during hospitalisation in cardiological ward.

CONCLUSIONS: Because of many comorbidities typical pharmacological treatment of chronic heart failure was restricted. Patient did not qualify for heart transplant either. This case shows difficult situation in which we cannot simply answer the questions about the best treatment for that patient. At summary, the best, but almost impossible treatment for this patient would be simultaneous heart and kidney transplantation.
Title: Sequential episodes of methanol intoxication in the same person

Authors: Pranskaitytė E.¹

Tutor/Tutors: Robertas Badaras

University: ¹ Faculty of medicine, Vilnius University, Lithuania

BACKGROUND: Methanol is a toxic compound found in various industrial and household agents. It can also be found in alcohol beverages due to distilling and fermenting errors. If not diagnosed promptly, methanol intoxication can be a life threatening condition causing risk of end-organ toxicity and significant mortality.

CASE REPORT: A 53 year old man presented with vomiting, nausea, headache and stomach ache. The patient’s speech was incoherent, his vision was blurry. The patient admitted drinking homemade wine and strong drinks from the store for the last 4 days. According to the patient’s previous medical history, he suffers from alcohol dependency, exactly 4 years ago he was hospitalised for methanol and ethanol intoxication. His arterial blood gases showed severe metabolic acidosis with pH 6,693 and negative base excess of -33,7 mmol/l, his blood test showed thrombocytopenia and leukocytosis. Methanol poisoning was highly suspected, treatment with ethanol, fomepizole, continuous venovenous hemodiafiltration (CVVH-DF) and blood transfusions was initiated. After initial treatment, the patient’s vision recovered. 5 days after hospitalisation, patient developed acute respiratory failure caused by pneumonia, the mechanical ventilation was started. During hospitalisation, patient developed toxic encephalopathy and sepsis complicated with acute kidney injury. Additional treatment with thiamine and amoxiclav was added. The patient’s state stabilised on 14th hospitalisation day, he was disconnected from a ventilator. After 29 days, he was discharged with a recommendation to consult with addiction treatment centre.

CONCLUSIONS: Methanol intoxication can be extremely dangerous if left untreated. It can cause severe complications, such as end-organ toxicity and even death. However, when prompt diagnosis and treatment occur, patients are able to recover without major permanent damage.
**Title:** Lupus tumidus – a rare, underrated subtype of ccle. Report of two cases.

**Authors:** Lewoc M., Nowowiejska J.

**Tutor/Tutors:** Assoc. Prof. Anna Baran, MD PhD

**University:**
- Department of Dermatology and Venereology, Medical University of Bialystok, Poland

**BACKGROUND:** Lupus tumidus is a rare type of chronic cutaneous lupus erythematosus characterized by non-scarring, erythematous-oedematous, succulent skin lesions, located on sun-exposed areas.

**CASE REPORT:** A 54-year-old woman was admitted to the Department of Dermatology due to erythematous-oedematous lesions, self-resolving, for diagnostics and treatment. She was previously hospitalized at the Department few times, as well as at the Department of Rheumatology where she underwent broad evaluation for connective tissue disorders with no relevant abnormalities. Basing on the histopathological examination of the skin on the thigh lupus tumidus was diagnosed and hydroxychloroquine was introduced. II: A 45-year-old woman presented to the Department of Dermatology in order to treat erythematous-oedematous lesions located on the face, shoulders and upper torso which appeared. She was treated in an ambulatory care with antihistamines and antibiotics with no improvement. The histopathological examination revealed lupus tumidus. Investigations for SLE and sarcoidosis with no abnormalities.

**CONCLUSIONS:** Diagnosis of LET is often delayed due to its uncharacteristic clinical and histopathological picture. There is a good response to antimalarial drugs in LET observed and they lead to quick improvement of skin lesions. Considering the influence of cigarettes on LET it is advised to stop smoking which affects the course of treatment.
Title: Does pregnancy provoke the recurrence of localised cutaneous scleroderma? - a case report and review

Authors: Ermisch V.1, Linnom M.1, Wieczorkiewicz N.1

Tutor/Tutors: Daiva Gorczyca, MD, PhD

University: 1 Department and Clinic of Paediatrics, Immunology and Rheumatology of Developmental Age, Paediatric Students Club, Wroclaw Medical University, Poland

BACKGROUND: Scleroderma disorders encompass a heterogeneous group of conditions of autoimmune origin characterised by hardening or thickening of the skin owing to abnormal dermal collagen. The predominant form in the paediatric population is localised cutaneous scleroderma, also known as morphoea. As oppose to systemic sclerosis, morphoea is confined to the skin, subcutaneous fascia, muscle and bone. A trigger of the disease is, among others, pregnancy.

CASE REPORT: A 15-year old female patient was admitted to the Department of Paediatric Rheumatology due to a suspected scleroderma-like syndrome, which required further diagnostics. Nine years prior, USG examination already revealed thickened muscle and subcutaneous tissue on the left thigh. A biopsy excluded an oncological suspicion. Between 2008-2015, the patient reported to be asymptomatic. In November 2015, two months after giving birth to her first child, the patient noticed thickened skin on the arms in addition to lesions situated, where previous skin changes were observed. Upon exposure to cold, she complained of blanching and reddening of the fingers. During hospitalisation in April 2016, a biopsy was taken from skin lesions of the left arm. At this time, the patient was pregnant with her second child and in an advanced stage of pregnancy. Due to that, preliminary systemic treatment with glucocorticoids was initiated and further examinations were scheduled for October 2016. These showed a negative ANA screening and did not reveal an active inflammatory process nor internal organ involvement, which, together with the results from the biopsy, is indicative for morphoea.

CONCLUSIONS: The diagnosis of morphoea is mainly established on clinical grounds and does not require a positive ANA screening. Although rare, pregnancy should be considered a possible trigger for both newly discovered and recurring sclerodermatous skin changes.
Title: Diagnostic approach to a teenage patient with jaundice

Authors: Twardowska K.¹, Bieńkowski C.²

Tutor/Tutors: Ewa Talarek, MD, PhD

University: ¹ Department of Children’s Infectious Diseases, Medical University of Warsaw, Student’s Scientific Group at Department of Children’s Infectious Diseases, Medical University of Warsaw, Poland² Department of Children’s Infectious Diseases, Medical University of Warsaw, Student’s Scientific Group at Department of Children’s Infectious Diseases, Medical University of Warsaw, Poland

BACKGROUND: Jaundice in teenagers is usually induced by hepatitis and hemolytic anemia. However, in some cases, findings might be quite surprising, while establishing the underlying cause of the symptom.

CASE REPORT: A 15-year-old girl was referred to the pediatric ward of the Hospital of Infectious Diseases in Warsaw with suspicion of viral hepatitis. A week before she was consulted by her family doctor because of abdominal pain. Gastritis was suspected and omeprazole was prescribed. A few days later the girl noticed a dark color of urine and jaundice of sclera and skin. Lab tests revealed elevated activity of liver enzymes (ALT 379 IU/L, AST 168 IU/L GGT 200 IU/L) and hyperbilirubinemia. (total bilirubin 118,4 μmol/L, direct bilirubin 99,3 μmol/L). On admission the patient was in good general condition, she denied nausea or vomiting. She reported sexual activity and oral contraception for six previous months and a stay in Greece a month before. She had been vaccinated according to Polish Immunization Programme. Physical examination revealed jaundice and mild hepatomegaly. Infections with HAV, HBV, HCV, HIV, EBV, and CMV were excluded. Abdominal ultrasound revealed dilatation of the common bile duct and a hypoechoic mass near the head of the pancreas. The patient was transferred to the Gastroenterology Department in the Children’s Memorial Health Institute in Warsaw, where the presence of the tumor was confirmed. She underwent surgery, on the base of histopathologic examination Burkitt lymphoma was diagnosed.

CONCLUSIONS: Elevated activity of liver enzymes is a non-specific symptom which appears in many diseases and conditions. This case highlights the importance of determining the actual cause in order to provide proper care. Burkitt lymphoma is a rare form of non-Hodgkin’s lymphoma. It is considered one of the fastest growing human tumors, leading to death quickly if left untreated. However, prompt diagnosis and proper treatment are associated with long-term survival rates of 60% to 90%.
Background: Preterm premature rupture of membranes (PPROM), defined as a rupture of membranes occurring before the 37th week of gestation upon the onset of labour, remains the main factor that lies behind preterm deliveries. The earlier week of gestation it concerns, the higher risk of neonatal mortality and as well as of short- and long-term morbidity it can result in. One of the consequences following PPROM might be fetal hypotrophy, which evinces in a form of a pathologic state called Intrauterine Growth Restriction (IUGR). IUGR refers to a condition that eliminates the possibility for fetus to fully use growth potential, adequate to its gestation age. Etiology of IUGR is multifactorial and among potential dangers there can be distinguished the following ones: genetic factors, congenital malformations or chorioamnionitis.

Case Report: In the presented case a 28 years old woman in the 28th week of gestation was sent to hospital with a diagnosis of PPROM. On account of endangering preterm labour, intravenous tocolytics, betamethasone and antibiotics were administered. Ultrasound examination did not indicate any abnormalities in vascular flow. Estimated fetal weight was below 3. percentile and AFI pointed to oligohydramnios. Due to beginning uterine contractions and fetus’ breech position, caesarean section was carried out in the 30th week of gestation. An alive daughter was delivered with a birth weight of 1060g, APGAR 5, 5, 7. Neonatal required hospitalisation in an intensive care unit (ICU), where, besides characteristic prematurity disorders, intraamniotic infection was identified. During neonatal stay in ICU an appropriate treatment was provided with the aim of achieving the stability of state.

Conclusions: Oligohydramnios and intraamniotic infection determine favourable base for IUGR development. The combination of complications above can adversely affect further course of pregnancy and later the quality of neonatal life. Therefore, a strict control of pregnant woman’s and fetus’ state is crucial to the medical procedure. The moment and method of labour should be chosen prudently, so that the risk of complications associated with prematurity could be smaller than the thread connected with PPROM and IUGR.
**Title:** Esophageal atresia with tracheoesophageal fistula

**Authors:** Rutenberge-Galumbauskiene J.¹

**Tutor/Tutors:** MD Audronė Arlauskienė

**University:** ¹Faculty of medicine, Vilnius University, Lithuania

**BACKGROUND:** Esophageal atresia (EA) is a congenital pathology characterized by damaged normal passage between the mouth and stomach. EA affects around 1:3500 to 1:5000 neonates. Almost 90% of them also have a tracheoesophageal fistula (TEF) in which saliva or stomach contents may flow directly into the lower respiratory tract. EA and TEF is a life-threatening condition and it is very important to share knowledge about the specificities of diagnostics and treatment of this pathology.

**CASE REPORT:** A male baby was delivered at 36 week gestation by vaginal delivery due to congenital oesophageal atresia with tracheoesophageal fistula and polyhydramnios which was diagnosed antenatally. The baby cried at birth and birth weight was 2500 g, height was 47 cm, the head circumference was 45 cm. Peculiarities of the phenotype such as dysplastic ears, asymetrical buccal cavity, small lower jaw have been identified. 28-years-old mother (gravid 1, para 1) was attending regular antenatal care and ultrasound detected congenital esophageal atresia with tracheoesophageal fistula and polyhydraminos. Therapeutic amniocentesis with amniotic fluid reduction was performed twice during pregnancy. Any trisomies were not detected by the amniotic water test. The mother was treated for cholestasis and anemia during pregnancy.

**CONCLUSIONS:** Early diagnosis of fetal EA and TEF and continuous improvement of neonatal surgery technique leads to increasing survival of newborns with EA and TEF. That is why esophageal atresia is now defined as an particularly correctable congenital pathology.
**Title:** Multistage orthopaedic correction of a multiaxial deformation of the lower extremity caused by extensive osteomyelitis as a consequence of sepsis.

**Authors:** Tatara K.¹, Świerszcz M.¹

**Tutor/Tutors:** Marcin Złotorowicz

**University:** ¹ Department of Orthopaedics, Pediatric Orthopaedics and Traumatology, Gruca Orthopaedic and Trauma Teaching Hospital, Poland

**BACKGROUND:** Osteomyelitis is a relatively rare complication of sepsis, most likely to occur in pediatric population. The treatment regimen consists of targeted antibiotic therapy combined with surgical debridement. One of the probable consequences of osteomyelitis is bone deformation, in treatment of which an inestimable role is played by reconstructive orthopaedic surgery. Taking under consideration the fact that it is long bones that are most commonly affected, this particular area of medicine can significantly contribute to improving patients quality of life.

**CASE REPORT:** The presented case report describes a 10 year old male patient with a major deformation of the lower extremity. At the age of 2, he was diagnosed with hematogenous osteomyelitis of the 1st metatarsal bone - as a complication of sepsis. He underwent surgical debridement, involving drainage of the abscessus and partial removal of the devitalized bone. Impaired structure resulted in medial foot drop, which led to distal and subsequent proximal tibial epiphysis deformations and both ankle and knee articular malfunctions. Over the years numerous surgical procedures were performed in order to bring back the proper function of the formentioned joints. Miniortofix and Taylor Spatial Frame sytems were used to support bone growth, restore the proper axis of lower extremity and remodel lateral malleolus. Process of recovery is still ongoing and is significantly complicated by the condition of the skin which still suffers the consequences of sepsis. Despite all of the mentioned adversities the hitherto effects are promising.

**CONCLUSIONS:** Although not commonly seen osteomyelitis is a crucial complication of sepsis as it may lead to long-term extensive skeletal deformations and articular malfunctions. The disease substantially impairs the quality of patient’s life and thus the role of reconstructive surgery as the only effective treatment method cannot be overstated.
Title: Clinical management of obesity hypoventilation syndrome

Authors: Kogan J.1

Tutor/Tutors: doctor pulmonologist Rasa Gauronskaite

University: 1 Faculty of medicine, Vilnius University, Lithuania

BACKGROUND: The obesity hypoventilation syndrome (OHS) is defined as combination of obesity, hypoxemia and hypercapnia coming from hypoventilation and usually resulting with cor pulmonale, pulmonary hypertension and early mortality. Since the syndrome has been discovered, research has led to a better understanding of the pathophysiologic mechanisms involved in this disease process and to the development of effective treatment options. However, recent data indicate the OHS is under-recognized and under-treated. As obesity has become a national epidemic this has led to an increase of diseases associated with obesity, accordingly it is critical that physicians are able to recognize and treat them.

CASE REPORT: A 54-year-old female with history of arterial hypertension, heart failure and diabetes was presented with shortness of breath, leg swelling and increasing abdominal volume. Primary examination revealed BMI>60kg/m2, saturation-71%. There was hypercapnia and hypoxia detected by blood test. Patient was hospitalized in department of intensive pulmonology and primarily was treated with non-invasive positive pressure lung ventilation (NIV BiPAP), however the condition of the patient deteriorated critically, which led to the loss of the consciousness. The patient was transferred to the resuscitation and intensive care unit where she was exposed to invasive lung ventilation. With the improvement of the patient’s condition, continued ventilation was still required, therefore a tracheostomy was performed. When patient’s condition became stable she was treated in the department of pulmonology. BMI was decreasing during following hospitalizations, which led to the decision to wean from the tracheostomy tube and return to NIV therapy. As BMI continued to decline, the parameters of NIV were also reduced. However, the benign outcome of the critical condition motivated the patient for short time and later her BMI increased. Treatment continues, however, if the BMI increase does not stop there is a risk of recurrence of the critical state.

CONCLUSIONS: All patients with OHS are treated with non-invasive lung ventilation, but the first line therapy for OHS is weight loss. However, in general and as the clinical case shows, this is a huge problem because obese patients are not motivated.
Title: Recognition and diagnosis of mucopolysaccharidosis ii (Hunter syndrome)

Authors: Pilecke D.¹

Tutor/Tutors: Grazina Kleinotiene

University: ¹ Faculty of medicine, Vilnius University, Lithuania

BACKGROUND: Mucopolysaccharidosis is a group of autosomal recessive metabolic disorders caused by the absence or malfunctioning of the lysosomal enzymes needed to break down molecules called glycosaminoglycans. These are long chains of sugar carbohydrates in each cell that help build bone, cartilage, tendons, corneas, skin, and connective tissues. Mucopolysaccharidosis type II, also known as Hunter syndrome, is a condition that affects many different parts of the body and occurs almost exclusively in males. It is a progressively debilitating disorder; however, the rate of progression varies among affected individuals. This condition is inherited in an X-linked recessive pattern. It is very rare that condition is due because of spontaneous mutation as in this case.

CASE REPORT: A male 2 year 2 month old child of healthy, unrelated parents presented with a delayed development of speech and language skills, fine and gross motor skills was transferred to neurology department. Medical history reported that at 3 months old he had both sided inguinal hernia repair surgery, at 7,5 months old diagnosed with heart murmur, chest wall deformity, kyphosis, scoliosis congenital and had frequent respiratory infections. Clinically, on physical examination the patient had rough facia l features, flat nasal bridge, thick lips, enlarged mouth, dysplasia, joint stiffness, umbilical hernia therefore was sent to genetic counseling. Mucopolysaccharidosis type 2 was confirmed after running genetic urine test and enzyme replacement therapy was prescribed.

CONCLUSIONS: Mucopolysaccharidosis is a rare inherited multisystem disorder which presents variety of clinical findings. It is possible to suspect it based on the clinical representation. Early detection of the disease is recommended because appropriate management through a multidisciplinary approach alleviates somatic symptoms and improves quality of life. Genetic counseling is recommended to proband’s mother because women are at risk of being a carrier and should undergo genetic testing as MPS2 is X-linked recessive. Approximately 10% patients like in this case can have mutation de novo so chance for siblings to have mucopolysaccharidosis reduce to less than 1%.
**Title:** Mitral valve chordae rupture after transcatheter aortic valve implantation (TAVI)

**Authors:** Abramikas Z.¹, Burneikaite G.², Petrauskiene B.²

**Tutor/Tutors:** Greta Burneikaitė MD, PhD, Vilnius University Santaros Clinics; Associate prof. Birutė Petrauskiene MD, PhD, Vilnius University Santaros Clinics

**University:** ¹ Faculty of medicine, Vilnius University, Lithuania² Department of Cardiology, Vilnius University Santaros Clinics, Lithuania

**BACKGROUND:** This case report describes a patient who underwent transcatheter aortic valve implantation (TAVI) after which paravalvular aortic regurgitation was observed. On following examinations, a mitral valve chordae rupture and mitral regurgitation was found.

**CASE REPORT:** An 80-year-old woman with previously diagnosed severe aortic stenosis (AS) was hospitalized due to dyspnea on minimal exertion that had worsened after a recent flu (NYHA class III). Transthoracic echocardiography confirmed severe AS diagnosis as well as 2nd degree aortic regurgitation, left ventricular hypertrophy and dilation, preserved left ventricular ejection fraction and mild mitral valve regurgitation. The patient had also had a history of coronary artery disease and dyslipidemia. The patient was evaluated and TAVI was proposed. The patient successfully underwent TAVI. Aortic valvuloplasty was performed using a 22x40 mm balloon. Retrograde approach with fluoroscopic and transthoracic echocardiogram guidance was used for implantation of self-expanding aortic valve bioprosthesis (27 mm). Post-dilatation was performed using a 25x40 balloon. Mild paravalvular aortic regurgitation was observed after the procedure, and a mitral valve chordae rupture was suspected, although it was later dismissed. The post-procedural outcome was favourable. On a 1-month follow-up the patient had moderate dyspnea, with BNP decreasing to 257.9 ng/l, compared to 1242.42 ng/l pre-op. Patient was hospitalized again 22 months after the surgery due to heart failure and worsened dyspnea. BNP had increased to 1324.6 ng/l. Transesophageal echocardiogram showed a mitral valve chordae rupture, 3rd degree mitral regurgitation, and 2nd degree aortic valve regurgitation. A multidisciplinary team evaluated the patient and concluded that transapical neochord implantation is impossible owing to the anatomy of the mitral valve, and due to progressing dilatation of left ventricle, closure of paravalvular fistula might be recommended in the future.

**CONCLUSIONS:** Mitral valve chordae rupture is a possible complication of TAVI and has to be evaluated during and after the procedure.
Title: Cushing’s syndrome during pregnancy – a diagnostic challenge.

Authors: Zozula J.1, Witkowska A.1, Żułnowska D.1

Tutor/Tutors: dr hab. n. med. Urszula Ambroziak

University: 1 Department of Endocrinology, Medical University of Warsaw, Poland

BACKGROUND: Cushing’s syndrome during pregnancy is extremely rarely diagnosed. Only a few cases was reported in literature. Overlapping symptoms of physiological pregnancy and Cushing’s syndrome may lead to diagnostic difficulties.

CASE REPORT: We report a case of 33-year-old primipara who was presenting typical features of hypercortisolism such as hypertension, swelling, muscle weakness, mood changes and stretch marks. In 14th week of pregnancy the patient was referred to the Gynecology and Obstetrics Department because of hypertension. The diagnosis was however postponed by next 12 weeks and established in 26th week of gestation MRI revealed the presence of 35 mm tumor on the left adrenal gland. At 26th week of gestation patient underwent a successful laparoscopic adrenalectomy with histopathology confirming adrenocortical carcinoma. The pregnancy was unfortunately terminated two weeks later due to the foetal death.

CONCLUSIONS: Cushing’s syndrome during pregnancy can lead to maternal complications and high foetal mortality. Signs of hypercortisolism during pregnancy require high clinical expertise due to overlapping presentation.
Title: Infliximab and chloroquine in the treatment of Melkersson-Rosenthal syndrome

Authors: Wnuk-Kłosińska A.1

Tutor/Tutors: Assoc. Prof. Dorota Jenerowicz, MD, PhD

University: 1 Chair and Department of Dermatology, Poznan University of Medical Science, Poland

BACKGROUND: Melkersson-Rosental syndrom (MRS) is a rare disease characterized by recurrent orofacial swelling, recurrent facial paralysis, and a fissured tongue. However, the cases in which the patient experiences all the symptoms are relatively rare (app. 25%). A significant phenomenon is cheilitis granulomatosa, which allows investigating the Melkersson-Rosenthal syndrome within the group of granulomatous diseases, such as sarcoidosis or Crohn’s disease.

CASE REPORT: The 55-year-old woman with a persistent edema of the upper lip was admitted to our Department. She showed no response to antihistamine therapy, glucocorticoid treatment and topical tacrolimus. The presence of a fissured tongue was also found in the physical examination. On the basis of the clinical picture as well as the histopathological examination, the Melkersson-Rosenthal syndrome was diagnosed. The patient has been suffering from ankylosing spondylitis for 23 years and she was treated with etanercept for a few months before the occurrence of edema. On the account of the possible side effects of etanercept treatment, the medicine was later replaced by infliximab. In time, chloroquine was included in the treatment which resulted in gradual, partial improvement of the patient’s clinical state.

CONCLUSIONS: Due to the rare occurrence of the disease and its unclear etiology, the satisfactory treatment of the MRS syndrome is difficult and really challenging for the clinicians.
**Title:** Inadequate ICD shocks in the course of thyrotoxicosis

**Authors:** Wiśniewski O., Dydowicz F.

**Tutor/Tutors:** Maciej Cymerys, M.D., Ph.D. - Department of Internal Medicine, Poznan University of Medical Sciences

**University:** Student’s Scientific Circle of Internal Medicine, Poznan University of Medical Sciences, Poland

**BACKGROUND:** Thyrotoxicosis is a symptomatic condition characterised with an increase in thyroid hormones concentrations in blood serum. It may originate from thyroid hormones overproduction, excessive release in case of thyroid follicles damage or L-thyroxine overdose. Since thyroid hormones act as pleiotropic agents, their surplus may lead to dysregulation of various biological systems, including the cardiovascular one, and contribute to life-threatening consequences.

**CASE REPORT:** A 69-year-old man presented to the hospital with a history of four electrical shocks delivered by implantable cardioverter defibrillator (ICD) in the morning. Past medical history included myocardial infarction in 2008 complicated with heart failure with reduced ejection fraction (NYHA III; EF=30-35%) and ICD implantation in 2011 as a part of primary prevention. On admission the patient reported increased sweating in the last few weeks, recent upper respiratory tract infection and anxiety associated with the moment of shock delivery. Physical examination as well as ECG unveiled sinus tachycardia, which progressed to atrial fibrillation (AF). Laboratory findings disclosed thyrotoxicosis (TSH<0,01 µU/ml, FT3=13,65 pmol/l, FT4=39,59 pmol/l) and thyroid ultrasound revealed toxic nodular goiter as the most possible cause. Therefore, immediate treatment with i.v. thiamazole has been applied with a good response. However, on the fourth day of hospitalisation a new series of multiple shocks took place. Repeated ICD check-ups disclosed inadequate shocks in the course of atrial fibrillation and atrial flutter (recognised by ICD as ventricular tachycardias; VT). Hence, VT detection threshold has been increased initially and temporarily deactivated after the new series of shocks. Eventually, ICD battery has gone flat and the patient was referred to another hospital to change the battery.

**CONCLUSIONS:** Infrequently ICD may misdiagnose atrial fibrillation with ventricular tachycardia, which could lead to grievous consequences and substantial decrease in quality of life. Many electrical shocks could contribute to shorter ICD battery life. Hazardous heart arrhythmias, especially AF, may result from thyrotoxicosis. In such cases causative treatment with anti-thyroid drugs seems to be crucial.
**Title:** Significant left ventricular ejection fraction full recovery after tavi: 40-month follow-up

**Authors:** Abramikas Z.¹, Burneikaite G.², Petrauskiene B.²

**Tutor/Tutors:** Greta Burneikaitė MD, PhD, Vilnius University Santaros Clinics; Associate prof. Birutė Petrauskiene MD, PhD, Vilnius University Santaros Clinics

**University:** ¹ Faculty of medicine, Vilnius University, Lithuania ² Department of Cardiology, Vilnius University Santaros Clinics, Lithuania

**BACKGROUND:** Limited published data is available on patients with severe aortic stenosis (AS) and left ventricular (LV) dysfunction undergoing transcatheter aortic valve implantation (TAVI) and possible predictors of LV recovery.

**CASE REPORT:** The patient was an 80-year-old female, with a known history of hypertension, left bundle branch block (LBBB), renal function impairment (GFR 36.6 ml/min) and dyspnea on mild exertion for 2 years. In May 2013, patient was hospitalised due to decompensated heart failure. Transthoracic echocardiography (TTE) demonstrated a tricuspid aortic valve with significant calcification, interventricular septum of 11 mm, and hemodynamics meeting the echocardiographic criteria for severe AS. The patient underwent diagnostic cardiac catheterization and simultaneous balloon aortic valvuloplasty (BAV) due to poor clinical condition. TTE performed 24 hours after BAV revealed that the criteria for severe AS remained (aortic valve area was increased by 0.1 cm², despite the clinical improvement from NYHA functional class IV to III. Due to the high surgical risk, estimated using EuroSCORE II (12.75%), we decided to perform transfemoral TAVI. The operation was performed in October 2013 without complications. TTE performed 48 hours after TAVI demonstrated improved LV systolic function and no signs of aortic valve prosthesis dysfunction. Baseline troponin level was 1.05 µg/l, changing to 2.88 and 1.97 µg/l, 24 and 48 hours after TAVI procedure, respectively. The patient was discharged in good general status and asymptomatic. At 5, 15, and 40 months follow-up patient was asymptomatic from a cardiovascular perspective with good tolerance to exertion (functional class II). Repeated TTE showed gradual recovery of LV function to normal, along with a decrease of pulmonary hypertension and BNP levels at 15 and 40 months follow-up. LBBB was still present on ECG at 40 months follow-up.

**CONCLUSIONS:** TAVI has potential for enabling full long-term clinical recovery and normalization of LV function in patients with severe AS and severe LV dysfunction.
BACKGROUND: Idiopathic pulmonary arterial hypertension (IPAH) is a rare disease characterized by elevated pulmonary artery pressure with no apparent cause. Pregnancy in women with IPAH is known to be associated with a high maternal mortality.

CASE REPORT: A 30-year-old woman diagnosed with idiopathic pulmonary arterial hypertension was admitted to the department of cardiology at 31 weeks of pregnancy due to deteriorated general condition, features of right ventricle failure, tachycardia, tachypnoea, an oxygen desaturation and a respiratory infection. The patient was treated with sildenafil, iloprost and oxygen therapy. No improvement was achieved. Emergency cesarean section was performed due to genital tract bleeding on hospitalisation day 6. At the postpartum period the patient developed hemodynamic destabilisation, low cardiac output syndrome and suprasystemic pulmonary artery pressure despite intensive treatment. Pulmonary artery pressure exceeding the systemic pressure and respiratory and circulatory failure was proceeding. The patient required to begin arteriovenous extracorporeal membrane oxygenation (AV ECMO) on postoperative day 6. ECMO therapy was maintained for 7 days, during this time bleeding occurred to the abdominal cavity, which was managed by laparotomy. Pharmacological treatment was influenced by thrombocytopenia and the threat of bleeding, as a result the desirable dose of epoprostenol was not given.

CONCLUSIONS: Pulmonary hypertension carries significant risk of mortality to mother and child during pregnancy, delivery and puerperium. The choice of therapy and the success of treatment is dictated by experience and cooperation of the team of specialists.
Title: Management of laryngotracheal cleft on a newborn

Authors: Cortón Ruiz J.¹, Luecke L.²

Tutor/Tutors: Dr. Ewa Matuszczak

University: ¹ Pediatric surgery, UMB, Poland ² UMB, Poland

BACKGROUND: Laryngotracheal cleft is a rare malformation involving trachea and esophagus. Diagnosis may be difficult due to lack of familiarity with the condition and its symptoms. Depending on its degree, quality of life after intervention may vary greatly. Surgical operation is the most common approach for degrees II-IV.

CASE REPORT: Uncomplicated delivery of newborn from healthy parents. Pregnancy was controlled by a physician and the mother has no toxic habits. Three hours after birth, the infant develops respiratory difficulty with intercostal retractions and is admitted to pediatric ICU. Oxygen therapy in an incubator is provided while heart rate and saturation are monitored. A nasogastric feeding tube is placed, as well as, a peripheral vein catheter. Routine neonatal examination is performed: the newborn presents good height, weight, colour and perfusion. Abundant nasal secretion is seen. Intercostal retractions and tachypnea are found and respiratory acidosis is present. However, no other concerns arise during exploration. Neonatal Respiratory Distress Syndrome is suspected. At 24h of life, respiratory failure type 2 appears. Intubation is problematic. Laryngotracheal cleft is diagnosed. Enteral feeding is halted and antibiotic therapy begins. Chest X-rays, ultrasound and fibrobroncospy are performed. Lack of fusion of neural arch S5 is found. Anatomical reconstruction with extracorporeal life support is practiced. The postoperative phase requires mechanical ventilation, drug induced relaxation and frequent bronchoscopy check-ups. Vocal cord motility, esophageal lumen and esophageal function are proper; but intense gastric reflux is found. No fistula or stenosis are present. Nissen fundoplication and gastrostomy become necessary. After several weeks the patient can be discharged. However, his case is followed closely by an interdisciplinary team with pediatric pulmonology, pediatric nutrition, pediatric surgery and rehabilitation involvement.

CONCLUSIONS: Early detection and treatment of laryngotracheal cleft avoids potentially deadly complications (aspiration, sepsis). Training on diagnosis should be provided for pediatricians. The interdisciplinary team should be aware of the low quality of life of some of the patients and aim to improve it.
Case Report VIII
**Title:** Premature ovarian insufficiency or rather a disorder of sexual differentiation – a diagnostic dilemma.

**Authors:** Kruszewska J.¹

**Tutor/Tutors:** Monika Grymowicz MD, PhD

**University:** ¹ Department of Gynecological Endocrinology, Medical University of Warsaw, Poland

**BACKGROUND:** Premature Ovarian Insufficiency (POI) is defined as a cessation of ovarian function before the age of 40. This condition may also be observed in adult cancer survivors, who had oncological treatment in the childhood. Such patients usually present with primary amenorrhea during adolescence. Presence of this symptom should prompt performing chromosomal analysis. Result of the karyotype, such as 46, XY in phenotypically female patients usually connotes a disorder of sexual differentiation.

**CASE REPORT:** A 24-year old woman was admitted to the Department of Gynaecological Endocrinology suspected of Primary Ovarian Insufficiency. Her past medical history revealed an episode of ALL, when she was 7, with a relapse at the age of 12. She had a chemotherapy and received a bone marrow transplant. Now she is reported to be free of the disease. During puberty the patient noticed lack of menstrual flow. She started supplementing oestrogens and progesterone, that induced her menarche at the age of 18. Her last menstrual period occurred about 6 months prior to consultation in the clinic. Laboratory tests during hospitalisation showed diminished concentration of oestradiols (<10pg/ml) and elevated FSH (73,62mIU/ml) and LH (35,37 mIU/ml). AMH was almost not detectable (<0,01 ng/ml). The rest of results was normal. Transvaginal ultrasonography visualised small uterus and ovaries. Examination of breast did not show any abnormalities. Her karyotype turned out to be 46, XY. This result suggested a disorder of sexual development as a possible cause of her condition. Another sample, this time containing epithelial cells from swab of the cheek (previous one comprised lymphocytes) was taken for the examination. Karyotype appeared to be 46, XX.

**CONCLUSIONS:** Final diagnosis in our patient appeared to be iatrogenic POI, caused by both chemotherapy and total body irradiation preceding the bone marrow transplantation. The 46,XY karyotype of the lymphocytes was resultant from the transfer of hematopoietic stem cells from a male donor, what redirected diagnosis incorrectly towards disorders of sexual differentiation. Similar misdiagnoses may be common in the light of higher efficacy of leukemia treatment and application of bone marrow transplant.
Title: Extremely calcified bicuspid aortic valve stenosis successfully treated with self-expanding bioprosthesis implantation.

Authors: Leszczyński P.¹, Wiszniewski K.¹

Tutor/Tutors: Bartosz Rymuza PhD

University: ¹ 1st Chair and Department of Cardiology, Medical University of Warsaw, Poland

BACKGROUND: Bicuspid aortic valve is the most common congenital valve abnormality. Existing research and meta-analyses are promising for considering TAVI procedure for these patients. Patients with bicuspid anatomy tend to have large aortic annulus diameter which in some cases may be above size range of available valve prosthesis. In these situations alternative sizing planes are taken into consideration.

CASE REPORT: An 82-year old male with a history of hypertension and congestive heart failure in NYHA III for 6 months prior admission was referred to hospital to consider aortic stenosis treatment. Past medical history also included a stroke in 2012, and a nephrectomy due to renal carcinoma in 2011. Transthoracic echo revealed bicuspid aortic stenosis with aortic valve area of 0.4 cm² and peak-to-mean transvalvular pressure gradient of 51/33 mm Hg. EF was 23%. Multi-slice computed tomography confirmed bicuspid aortic valve of type 0 of Seviers Classification and unveiled extreme valvular calcification. Although the EuroSCORE II was intermediate (7.2%), heart team decided to perform TAVI. During the preprocedural MSCT work-up the size of native aortic annulus was measured to be 99 mm, thus the neo-annulus and intracommisural distances were calculated to estimate the bioprosthesis size. In 3D CT rendering the appropriate valve size was chosen by simulating a virtual model of the valve within the calcified bicuspid valve. Ultimately the 26-mm CoreValve Evolut R was chosen and successfully implanted. A mild paravalvular leak was observed with satisfying hemodynamics. On follow MSCT the inner perimeter of the implanted valve was 65 mm. The patient was discharged home at 7th day after procedure in satisfying clinical condition.

CONCLUSIONS: Transcatheter aortic valve implantation is widely acclaimed medical procedure for treatment of severe aortic stenosis. First oriented and still recommended for inoperable high-risk patients it is found to be comparable to surgical replacement in low- to intermediate-risk candidates. In cases of bicuspid anatomy it is advised to use other than the native annulus evaluation models such as neo-annulus or intracommisural distance. Utilizing this model may be beneficial in terms of valve sizing and clinical outcome.
**Title:** Hematopoietic stem cell transplantation in systemic sclerosis

**Authors:** Sukackaitė K.¹, Rugienė R.²

**Tutor/Tutors:** Rita Rugienė

**University:** ¹ Faculty of medicine, Vilnius University, Lithuania ² Vilnius University Hospital Santaros Klinikos, Lithuania

**BACKGROUND:** Systemic sclerosis is a heterogenous autoimmune connective tissue disease that takes its effect on skin and vital organs but medicament treatment could not stop the progression of this disease. Autologous hematopoietic stem cell transplantation (AHSCT) is one of the newest treatments for systemic sclerosis and it is recommended for the patients with diffuse systemic sclerosis when the vital organs lesion is medium.

**CASE REPORT:** 51 years old male was admitted to the Vilnius University Hospital Santaros Klinikos because of progressive systemic sclerosis. In 2009 has started Raynaud’s phenomenon, skin gradually began to harden in limbs and slowly overtake all body. The skin on both hands became thicker and there were ulcers, pitting scars on the fingertips, flexure contractures on both elbows. There were face asymmetric, teleangiectasia, thinner lips, difficulties to open the mouth widely. Modified Rodnan skin score was 29/51. The spirometry showed 44% of diffusing capacity for carbon monoxide (DLCO). Lung computer tomography revealed emphysema, ground glass opacity and honeycomb view. The patient was treated by methotrexate, intravenous injections of vasaprostan, nifedipine, methylprednisolone but medicament treatment was inefficient. The disease was progressed very quickly and in 2012 AHSCT was accomplished. The stem cells were mobilized from patient’s bone marrow and collected. The immune system was maximally suppressed and CD34+ stem cells were transplanted. After this treatment ulcers on the fingertips became smaller and some of them recovered, Raynaud’s phenomenon has reduced. The skin become softer in all body, but in both hands there is induration and minimal contractures in palms. The patient can open mouth widely, there are wrinkles on the face. Modified Rodnan skin score is 25. The spirometry showed that DLCO is 63%. The patient’s wellbeing and functional status have improved more than 80%.

**CONCLUSIONS:** Systemic sclerosis was one of the first autoimmune diseases challenged with high-dose immunosuppressive treatment followed by AHSCT. This case shows a benefit in skin involvement, better functional status, stabilization of lung condition and regression of fibrosis in lung examination.
Title: A rare case of pulmonary langerhans cell histiocytosis

Authors: Gritėnas V.¹

Tutor/Tutors: Giedrė Cincilevičiūtė, MD

University: ¹ Faculty of medicine, Vilnius University, Lithuania

BACKGROUND: Langerhans cell histiocytosis (LCH) is a rare systemic disorder characterized by the accumulation of CD1a+/Langerin+ cells and wide-ranging organ involvement. One particular form of the disease is pulmonary LCH (PLCH), which occurs in approximately 10 percent of LCH cases and is mainly related to smokers. The majority of the patients with PLCH presents with non-specific symptoms like shortness of breath, cough, temperature or weight loss, sometimes pneumothorax. Asymptomatic patients are found incidentally on chest imaging. Although LCH is not fatal in all cases, delayed diagnosis or treatment can result in serious impairment of organ function and decreased quality of life.

CASE REPORT: A 50-year-old patient, current smoker, working overseas in Norway as a carpenter presented with symptoms of coughing, temperature and chest pain. Empirical antimicrobial therapy was started there, with the patient flying back to Lithuania. Here, chest X-ray revealed multi-focal infiltrations in the lungs, with high suspicion of tuberculosis (TB). However, sputum smear was negative. Further, the CT scan showed small infiltrative and cystic lesions in the lungs, most likely presenting metastatic disease. Yet, fibrobronchoscopy hasn’t shown any endobronchial lesions, and therefore the only next step left was a biopsy. The patient was sent over to the Santaros clinics for the lung cryobiopsy. Rigid bronchoscopy transbronchial and cryobiopsy were completed, after procedure pneumothorax was successfully drained. Transbronchial smear showed normal lung tissue, yet cryobiopsy immunostaining was positive for CD1a and S100, thus confirming the diagnosis of PLCH. Further investigation showed no other organ involvement.

CONCLUSIONS: PLCH is a rare interstitial lung disease, mostly presented with chronic upper respiratory tract symptoms, fever, weight loss, rarely pneumothorax. Young age, smoking history, CT scan findings might suggest of PLCH diagnosis, but in most cases biopsy is required to confirm diagnosis. Transbronchial lung cryobiopsy provides larger specimens and therefore is a valuable tool in the diagnosis of interstitial lung diseases, such as PLCH.
Title: TAVI-in-TAVI: treatment for upcoming group of patients

Authors: Jędrzejczyk S.¹

Tutor/Tutors: dr hab. Huczek Zenon

University: ¹ 1st Chair and Department of Cardiology, Medical University of Warsaw, Poland

BACKGROUND: Since the first procedure in 2002, Transcatheter aortic valve implantation (TAVI) has become safe and default treatment for inoperable or high surgical risk patients with severe symptomatic aortic stenosis, and established its position as option for moderate risk patients. However, despite proven excellent five year longevity of both balloon-expandable and self-expanding devices, bioprosthetic valve failure (BVF) is emerging clinical problem with transcatheter aortic valve implantation into previous transcatheter aortic valve implantation (TAVI-in-TAVI) as a possible solution.

CASE REPORT: We report two cases of patients: First, 75-year-old woman (with significant history of cardiovascular diseases) that presented clinical and echocardiographical symptoms of BVF (Edwards Sapien XT 23mm, implanted five years ago, in 2013). Transfemoral TAVI-in-TAVI using the self-expandable Portico 23mm transcatheter heart valve was performed, resulting in accurate implantation. Post-operative echocardiography showed an excellent result without any para-prosthetic leak, patient reported symptom improvement and after 7 days was discharged home. Second, 71-year-old man with clinical symptoms of heart failure (NYHA III, EF 27%) and echocardiographically confirmed severe aortic regurgitation caused by paravalvular leak (BVF of CoreValve 29mm, implanted into bicuspid valve five years ago, in 2013). The Heart Team decided to proceed with transfemoral TAVI-in-TAVI using the balloon-expandable Edwards Sapien 3 29mm bioprosthesis. Accurate implantation was achieved, post-operative echocardiography showed correct function of implanted bioprosthesis. The paravalvular leak disappeared and patient was discharged home after 6 days, with no post-operative complications and in good condition.

CONCLUSIONS: In the instance of BVF after TAVI, TAVI-in-TAVI deployment is an excellent option of treatment. Choice between using self-expandable and balloon-expandable devices in TAVI-in-TAVI depends on primarily used prosthesis and pathological cause of BVF. With positive outcomes of consecutive clinical trials, the group of patients undergoing TAVI is continuously expanding to younger and lower risk ones. Moreover, we must expect more and more BVFs along with development of TAVI-in-TAVI procedures.
**Title:** Large nontoxic goitre - case report

**Authors:** Buda M.¹, Dąbek J.¹

**Tutor/Tutors:** lek med Adam Bobkiewicz

**University:** ¹ General and Endocrine Surgery and Gastroenterological Oncology Department H Swiecicki Clinical Hospital, Poznan University of Medical Sciences, Poland

**BACKGROUND:** Non-toxic nodular goiter is a common thyroid pathology in developed countries. In the euthyroid state, the first symptom of the disease may be an increased circumference and asymmetry of the neck, and as a consequence, breathing problems may arise due to compression of the trachea.

**CASE REPORT:** A 53-year-old patient was admitted to the hospital due to the increasing symptoms of dyspnea. The diagnosis of nodular nontoxic goitre was made several years ago. Due to coexisting diseases - obesity (BMI - 62), sick sinus syndrome, atrioventricular block, arterial hypertension, type 2 diabetes, hypercholesterolemia - the patient was disqualified several times from the thyroidectomy. After performing the necessary tests, normalizing blood pressure, significant weight reduction, pacemaker implantation, lipid profile normalization, he was qualified for surgery. Thyroid function analysis showed euthyreosis. A pre-operative CT scan of the neck revealed a giant 120-mm goitre that critically restricted the tracheal light to 5 mm. After the necessary preparation and consultation of the internist and anesthesiologist, the patient underwent surgery to completely remove the thyroid gland. The postoperative course was uncomplicated. No disturbances were observed: phonation, wound healing or calcium-phosphate metabolism. He was discharged home on the third day after surgery.

**CONCLUSIONS:** In the European population, where iodine supplementation is routinely carried out, a goitre this size is a relatively rare thyroid pathology. Before the surgery, patients with a large goitre will require in-depth analysis, alignment of co-morbid disorders and pre-operative preparation. Due to the risk of perioperative complications, large goitre should be treated in the centre of third reference.
Title: Syncope with seizures – a case only for neurologist? - acute vasovagal syncopes in a 12 year old boy, case report

Authors: Pytlos J.¹, Szlagowska B.¹


University: ¹ SKN Kardiologii Dziecięcej przy IP-CZD, Warszawski Uniwersytet Medyczny, Poland

BACKGROUND: Vasovagal syncope is an incident of loss of consciousness due to an insufficient cerebral bloodflow, caused by an abnormality in blood pressure regulation. Stress or prolonged vertical position are considered to be the indirect causes of the onset, characterised by an abrupt hypotension frequently accompanied by bradycardia. Though usually only affecting the quality of life of the patient, acute syncopes may proceed with life-threatening asystole.

CASE REPORT: 12-year old boy was admitted to neurology department due to paroxysmal anomalies appearing with a loss of consciousness, tonic-clonic seizures and emesis. Abnormalities emerged in the circumstances such as stress or lasting vertical position, thus common for vasovagal syncopes. Medical history includes eight paroxysmal abnormalities occurring within time intervals of 1-2 years. Patient was previously hospitalised, yet no anti-epileptic treatment was introduced. Neurological examination showed no anomalies, but as Holter ECG revealed additional ventricular excitations and mid-ventricular conduction disturbances, extended cardiological diagnostics were recommended. Patient was admitted to cardiology department. Cardiac stress test on treadmill was attempted, resulting in the loss of consciousness preceding the starting point of the trial, followed by tonic-clonic seizures and emesis, presumably consequent on anxiety reaction. ECG record showed asystole ongoing for over a minute. In the course of the tilt-test patient presented the signs of pre-syncope as verticalization reached 60 degrees, showing rapid improvement on return to the supine position. Patient was diagnosed with acute vasovagal syncopes and qualified for the artificial cardiac stimulator implementation and observation regarding anxiety disorders.

CONCLUSIONS: Despite a seemingly benign nature, syncopes may lead to life-threatening condition, thus requiring adequate medical attention. Management of such a patient requires interdisciplinary approach, as the probability of underlying cardiological condition should be taken into consideration. It should also be noted that the emotional state of the patient may influence the results of diagnostic tests or even aggravate the undesirable symptoms, thus posing a threat to the life and well-being of the patient.
Background: Munchausen syndrome by proxy (MSBP) is a specific form of child abuse. Perpetrators of this syndrome can exaggerate, stimulate or even actively induce illness in children in order to convince medical professionals that medical attention is needed. There are certain typical signs such as persistent symptoms that occur only when perpetrator is with the victim, inconsistency of the treatment or calm perpetrator who accepts all painful medical tests for the child. MSBP was believed to be a rare form of abuse, but current studies conducted in interdisciplinary settings return highest estimates to be around 13%.

Case Report: 12 year old boy, diagnosed with diabetes mellitus type 1 eight years prior, was admitted to hospital because of hypoglycemic coma. He was found unconscious in the morning by his mother, blood glucose measured with glucometer was 35 mg/dl. Mother called the ambulance, but did not administer glucagon. She told paramedics that previous night measured glucose was 300 mg/dl and she had administered additional dose of insulin. Patient was diagnosed with hypoglycemic encephalitis and spent one and a half month hospitalised. During the stay he underwent multiple medical interventions, including percutaneous endoscopic gastrostomy. Mother was completely unconcerned with medical condition of the child. In the course of interviews, it was discovered that the day before the incident, the boy had episode of hypoglycemia (25mg/dl), the mother did not give him glucagon and did not reduce dose of basal insulin for the next night. During the stay in the hospital she was not paying attention to blood glucose levels and to hypoglycemic alarms on insulin pump. After multiple sessions with psychologists and with other family members, the patient was discharged from the hospital with a note to the pediatrician to continue intensive supervision of the mother.

Conclusions: Munchausen by proxy syndrome is a very serious form of child abuse and failure to diagnose it might result in the death of the child. It’s a challenging issue both in terms of diagnosis and further management. Belief that parents or caregivers do not harm the children deliberately makes the evaluation of MSBP difficult.
Title: MDCT- diagnostic study of choice in acute mesenteric ischemia

Authors: Komisarczuk M.¹, Kawalec J.¹, Kasprowicz J.¹, Machowiec P.¹, Niemirski D.¹, Leszczyk P.¹

Tutor/Tutors: dr hab. n. med. Elżbieta Czekajska-Chehab

University: ¹ I Department of Medical Radiology of Medical University of Lublin, Poland

BACKGROUND: Ischemic bowel disease is a life-threatening health condition and mortality in gangrenous type of ischemia reaches up to 90%. The disease is caused by insufficient blood supply to the intestinal tissues. Acute mesenteric ischemia is usually caused by vascular pathology like: mesenteric artery thrombembolism, mesenteric vein thrombosis. There are also nonocclusive mechanism like depressed cardiac output or renal, hepatic disease. Various pathomechanisms are responsible for this condition. Ischaemic bowel disease include non-specific symptoms such as: stomachache, diarrhoea, blood in stool. It mainly affects elderly people and those who chronically suffer from diabetes, cardiovascular and kidney diseases. This is an increasing clinical and social problem.

CASE REPORT: 56 year old woman diagnosed with cancer of right lung. Patient during her first line chemotherapy, after 3 day of treatment, complained about pain in abdomen. This symptom maintained and last for a couple of hours. CT imaging present suspicion of intestinal perforation. There were visible liquid levels, but fulfilled stomach did not confirm this diagnosis. The situation were not sure until CT Angio imaging, patient present fresh mesenteric ischemia features.

CONCLUSIONS: Considering the clinical problem and possible complications of ischemic bowel disease, it is important to always keep it in mind when patient present non-specific abdominal symptoms. Thanks to multidetector computed tomography we are enable to detect it. CT angiography is marked by high level of sensitivity and specificity in diagnosis of AMI. It is crucial to diagnose it in early stage because quick diagnosis is an important prognostic factor.
Title: Diagnostic difficulties related to abdominal pain.

Authors: Łomańska A.¹, Wojdyga M.¹

Tutor/Tutors: PhD Dariusz Kosson

University: ¹ I Department of Anaesthesiology and Intensive Care, Students’ Scientific Group affiliated to I Department of Anaesthesiology and Intensive Care, Medical University of Warsaw, Poland

BACKGROUND: Suddenly occurring severe somatic abdominal pain, the severity of which may increase within a few days, may suggest an acute disease requiring rapid medical management. The case below suggests an acute pancreatitis, but detailed analysis of the diagnostic examinations provide an unexpected diagnosis. This diagnosis has not been made in the current course of the study, perhaps because of the rarity of the cause-and-effect scheme. Abdominal pain is often associated with difficult and long-term diagnostic evaluation and suggests many diseases.

CASE REPORT: A 63-year-old man due to severe abdominal pain radiating to his back and fever was admitted to hospital for a further diagnosis. On the basis of abdominal ultrasound, followed by computed tomography of the abdominal cavity and pelvis, edematous acute pancreatitis was diagnosed and exploratory laparotomy was performed. After reassessment of the patient’s imaging examination, the pancreatic tumor 30 mm in diameter, focal change of the 4a segment of the liver and right subcostal region were evaluated. Histological examination of the right subcostal focal lesion showed infiltration of glandular carcinoma. The patient was referred to a pain treatment clinic and an oncological center. Only after about 7 months the patient was suspected of pancreatic cancer with numerous metastases. The assessment of the case so far shows a delay in making the final diagnosis, which in the case of the above mentioned disease is of key importance.

CONCLUSIONS: Acute pancreatitis precedes the diagnosis of pancreatic cancer in 13% of patients. Many of the symptoms in these patients coincide with this case. Examples include severe abdominal pain, gastrointestinal obstruction, elevated serum CA19-9, and only slightly elevated serum lipase and amylase. Recently it has been described that acute pancreatitis may be an early symptom of pancreatic cancer, but these are rare cases. Most patients may be misdiagnosed as acute pancreatitis and delayed in cancer diagnosis.
Title: Candida infective endocarditis in a patient with repaired tetralogy of Fallot.

Authors: Sniuksta J.¹

Tutor/Tutors: prof. dr. Virgilijus Tarutis

University: ¹ Faculty of medicine, Vilnius University, Lithuania

BACKGROUND: Infective endocarditis (IE) is a severe complication in patients with congenital heart disease. Candida IE accounts for only 1%-2% of all cases of IE, but it is often fatal. Recent hospital mortality rates remain very high (> 50%). The European Society of Cardiology guidelines for the management of IE recommend combined antifungal administration and surgical valve replacement. However, these guidelines do not describe clearly when surgical intervention to improve patients’ survival during the course of treatment should be performed.

CASE REPORT: A 6 year-old female patient was admitted to the Centre of Heart and Chest Surgery with suspicion of infective endocarditis. The main symptom was fever which had been lasting for 2 months fluctuating from subfebrile and peaking up to 39°C. Echocardiogram revealed vegetations attached to tricuspid valve’s septal leaflet and on pulmonary artery conduit. Blood culture grew Candida parapsilosis. Antifungal treatment with voriconazole and clemastine was initiated due to previously observed allergic reactions. On day 2 the patient underwent tricuspid valve plasty and pulmonary artery conduit replacement surgery. One month after intravenous antifungal treatment voriconazole was replaced with oral fluconazole. During treatment the patient’s condition was declining with onset of subfebrile fever and renal dysfunction. Repeat blood culture was positive for Staphylococcus aureus. Due to staphylococcal sepsis antibacterial treatment with oxacillin and trimethoprim/sulfamethoxazole was administred with a conversion of fluconazole to anidulofungin. Therapy resulted in clinical improvement and 3 weeks later the patient was discharged home in good and stable general condition.

CONCLUSIONS: For the treatment of IE, it is necessary to administer sufficient antifungal therapy while taking into account the condition of the patients and the optimal timing for surgical therapy. For the prevention of catheter-related infections a adequate maintenance of intravascular catheters should be ensured. Surgical therapy followed by sterilization with antifungal therapy successfully treated IE.
BACKGROUND: Kidney transplantation (KTx) remains the best treatment for end-stage renal disease (ESRD). Some of the most common complications after this procedure are Urinary Tract Infections (UTIs) (50-75%) and a urine fistula.

CASE REPORT: A 55-year-old man suffering from ESRD caused by primary glomerulopathy underwent Ktx from a deceased donor. Initially, a urinary anastomosis was made with McKinnon method (uretero-bladder junction with single sutures). Due to urine leakage two weeks after KTx, graft revision and anastomosis reconstruction was performed. Prolonged urine leakage led to second reoperation in following 14 days. Ureterocutaneostomy was made. Planned secondary Bricker’s-bladder procedure was not performed due to onset of patient’s acute epididymitis. After one-year history of recurrent UTIs along with stomy stenosis on the peritoneal level patient was admitted again to the transplantation center where ureterocutaneostomy revision was done. During next month the recurrent ureter stenosis was observed. Because of high risk of the graft loss uretero-pelvic anastomosis was conducted (the native ureter was transected and reconnected to the pelvis of the transplanted kidney with Pigtail catheter guidance). After this management, patient revealed systematic increase of creatinine level. Two weeks later patient was admitted to hospital due to next UTI episode and recurrence of the urine leakage. During the reoperation the leakage site was discovered in the stump of the native kidney ureter and was finally closed with sutures. After three weeks next UTI was found. Antybioticotherapy was used and Pigtail catheter was removed. Patient has recovered and was discharged. For next one-year follow-up no further infections or kidney problems were noted.

CONCLUSIONS: There are several techniques of management of insufficient ureteric anastomoses, but current literature lacks recommendations on the procedure choice. In the discussed case patient was at risk of losing his kidney and he finally underwent pyeloureterostomy procedure. Apart from that method there are other alternatives of the treatment like: ureterocalicostomy, ureteroneocystostomy, ureteroureterostomy or at least pyelovesicostomy. Nevertheless, the problem is uncommon and needs individual decisions.
**Title:** Renal abscess caused by extended-spectrum-beta-lactamases-producing *Escherichia coli* in gliflozin-treated patient

**Authors:** Niksińska A.¹

**Tutor/Tutors:** Dr n. med. Wojciech Gierlikowski

**University:** ¹ Department of Internal Medicine and Endocrinology, Medical University of Warsaw, Poland

**BACKGROUND:** Diabetes mellitus is one of the most common risk factors of urinary tract infections. The use of gliflozins may also predispose to this disease. In the present case, genitourinary infection led to rare complication manifesting as renal abscess.

**CASE REPORT:** A 42-year-old woman was admitted to the hospital with fever up to 39°C, nausea, vomiting and diarrhea. The patient was suffering from right flank pain and anorexia. During the preceding month, her weight decreased from 180 kg to 160 kg. She reported recurrent urinary tract infections. The patient had diabetes mellitus and mentioned taking, among others, canagliflozin. Due to her morbid obesity, physical and ultrasound examination of internal organs had limited diagnostic value. Laboratory studies revealed a high level of inflammatory markers and leukocytosis with neutrophilia. Urinalysis confirmed infection. The patient did not pass gas or stool following admission, which was indicative of bowel obstruction. In abdominal radiography, air-fluid-level was present in the mesogastrium. Contrast-enhanced computed tomography was performed and fluid collection with thick, contrast-enhancing wall was visualized near hepatic flexure. Right kidney’s upper pole was deformed by an abscess with concomitant infiltration involving duodenum, causing its obstruction. The renal abscess was drained under computed tomography guidance. Extended-spectrum-beta-lactamases-producing (ESBL) *Escherichia coli* were identified in urine and abscess pus culture. Blood cultures were negative. The patient’s condition improved after an abscess drainage and introduction of meropenem and amikacin. The patient has obtained dietary consultation and she was discharged.

**CONCLUSIONS:** Gram-negative bacilli are usually responsible for renal abscesses and *Escherichia coli* cause the majority of them. However, ESBL-producing *Escherichia coli* etiology is really unusual for abscesses. Extended-spectrum-beta-lactamases-producing Bacteriaceae are an increasing issue and infections caused by these bacteria are really challenging. Mortality and risk of failure of therapy is higher in infections caused by ESBL producing *E. coli* than in non-producing types. The most interesting about this case is that the patient had community acquired infection caused by alert pathogens.
Title: End-stage heart failure - when to resign the futile therapy?

Authors: Oleksiuk M., Mickiewicz K.

Tutor/Tutors: Anna Lisowska, DSc

University: Cardiology, Medical University of Białystok, Poland

BACKGROUND: In recent decades, the number of patients with heart failure has been doubled. Therefore it has become a social problem. This is related to the aging of the population, but also to more effective treatment of cardiovascular diseases and the ever-longer survival of patients. The incidence of heart failure increases with age, especially after the age of 75, when it reaches up to 20%. Despite the advancement of treatment methods, there is still high mortality in this group of patients.

CASE REPORT: A 78-year-old patient with chronic heart failure on ischemic etiology was admitted to the Clinic because of increasing dyspnoea (NYHA class IV) with associated peripheral edema and a decrease in diuresis. In the interview: myocardial infarction (1972), CABG (2009), ischemic stroke (2010), permanent atrial fibrillation, ICD implantation in primary prevention of the SCD (2018), finally diagnosed hypertrophic cardiomyopathy and cardiac amyloidosis (2016). At admission, the patient was in a severe condition, RR 90/55 mmHg, HR 60/min, auscultation congestive changes over the pulmonary fields, large edema extending to the hypogastrium and trophic changes in the shins. In laboratory tests: elevated NT-proBNP, GFR 24 ml/min, hypererobinemia and mild normocytic anemia. In ECHO impaired left ventricular systolic function (EF 20%), severe tricuspid and mild mitral regurgitation. Complex pharmacotherapy of heart failure and antibiotic due to features of pneumonia were applied. Patient developed the cardiogenic shock, treated with pressure amines. The patient's clinical condition still worsens. Therefore there was made a decision about resignation from futile therapy. Treatment was limited to painkillers, hydration and nutrition. There were big problems with putting in a stomach tube and feeding the patient. ICD defibrillation has been inactivated. Afterwards further deterioration of the patient’s condition leads to cardiac arrest (asystole). No CPR was taken, pronounce patient’s death.

CONCLUSIONS: Chronic heart failure is usually progressive, therefore it leads to deterioration of myocardial function despite the treatment. This creates a risk of futile therapy, so it is important to make the right decision about palliative treatment at the right time.
Title: A case of severe necrotizing pneumonia associated with influenza a infection in a 3-year-old girl.

Authors: Natkańska A.¹

Tutor/Tutors: Katarzyna Kunkiel MD, Izabela Pytlak MD

University: ¹ Department of Pediatric Respiratory Diseases and Allergy, Medical University of Warsaw, Poland

BACKGROUND: Necrotizing pneumonia (NP) is a rare but severe form of community-acquired pneumonia in children (median=4 years). In case of severe pneumonia, the co-infection with the bacterial factors and influenza virus should be considered because the clinical benefit is greater when antiviral treatment is administered early.

CASE REPORT: A 3-year-old girl presented to Pediatric Department with 6-day history of fever up to 39°C, dry cough and shortness of breath. On examination, she was in moderate respiratory distress with an oxygen saturation (SpO2) of 92% on room air and tachypnea. Physical examination revealed bilateral redness of the tympanic membrane and crackles, diminished vesicular breath sounds on the right lung. The blood test showed neutrophilic leukocytosis, elevated CRP and normocytic anemia. Chest X-ray (CXR) revealed right lung pneumonia with small effusion. She was started empirically on ceftriaxone. After 3 days CRP decreased but the girl's condition suddenly worsened. She had visible cyanosis, oedemas, increased dyspnoe (SpO2 88% during 6l/min oxygen therapy). Vesicular breath sounds were inaudible over the right upper lobe, bronchial breath sounds were heard on the right side, crackles on the left side. CXR showed right-sided pneumothorax, pleural effusion and left-sided pneumonia with necrosis. After urgent drainage of the right pleural cavity, the girl was transferred to the ICU where SIMV mode ventilation was used, she was intubated for 14 days. All blood cultures were negative but a rapid influenza diagnostic test (RIDT) was positive for influenza A. CT showed bilateral pneumonia along with extensive necrosis and multiple pseudocysts, probably due to influenza A infection. The drainage was continued for 8 days. At ICU child was treated initially with oseltamivir, ceftriaxone, vancomycin, biodacin, then linezolid and clindamycin. CXR repeated after 3 weeks showed regression of lung abnormalities and the girl was discharged.

CONCLUSIONS: 1. Co-infection with the influenza virus and bacterial factors is an uncommon and potentially associated with more severe disease. 2. Antiviral treatment initiated 48 hours after the onset can still be beneficial. 3. Children should be vaccinated every season for the best protection against influenza.
Title: Severe neurological complications of pneumococcal meningitis. an unvaccinated boy after chickenpox- a case report.

Authors: Nędź M.¹

Tutor/Tutors: Agnieszka Szczukocka – Zych, MD

University: ¹ Department Of Pediatric Respiratory Diseases And Allergy, Medical University of Warsaw, Poland

BACKGROUND: Streptoccocus pneumoniae is an invasive bacterium that causes a wide range of common diseases including pneumonia, otitis media, sinusitis. Pneumococcal meningitis is especially dangerous and can results in impaired hearing, convulsions, paresis and even death.

CASE REPORT: 11-month-old boy with a two-months prior history of chickenpox and bronchitis was urgently admitted to hospital with vomiting and fever up to 39°C. Interestingly, Family members reported diarrhoea, vomiting and abdominal pain in week before. Physical examination revealed wheezing and dry rales in lung fields, left acute otitis media, tachypnoe, SatO2=92/93% and features of dehydration. Laboratory tests showed increased CRP, WBC (NEUT%=86,3%) and procalcitonin. Patient received ampicilin i.v. but it did not improve his general condition. Culture of blood collected on admission was positive after 2 days of incubation for S. pneumoniae. Moreover, examination revealed focal neurological signs and impaired consciousness. Spinal fluid was turbid, cytosis-4266/µl, protein-173 mg/dl and DNA of S. pneumoniae was detected. 2 days after starting treatment (Vankomycin, Ceftriaxon, steroids, anti-oedema drugs and plasma) status epilepticus occured and were not responding to standard therapy. CT scan was used for appropriate diagnosis of acute causes of seizures but was not conclusive. Due to patient’s severe condition was decided about transfer to ICU where status epilepticus and anemia were treated. After returning on ward, EEG revealed abnormalities and therapy with valproic acid was recommended. On neurological examination, there was right arm paresis associated with meningitis. During the hospitalization the boy started getting better and rehabilitation was started. However, paresis was demonstrated upon leaving hospital. Neurological and audiological examination were recommended in order to assess possible complications.

CONCLUSIONS: Pneumococcal meningitis is a rare but serious disease which can have long-term consequences. The infection especially threatens the life of young children and people with weakened immune system. Vaccination is a safe and effective way to protect from invasive pneumococcal disease.
**Title:** Severe hyponatremia without hyperkalaemia as the first sign of Addison’s disease

**Authors:** Wiśniewski O., Matuszak P.

**Tutor/Tutors:** Prof. Katarzyna Łącka, M.D., Ph.D. - Chair and Department of Endocrinology, Metabolism and Internal Medicine, Poznan University of Medical Sciences

**University:** Student’s Scientific Circle of Endocrinology, Poznan University of Medical Sciences, Poland

**BACKGROUND:** Primary adrenal insufficiency (Addison’s disease; AD) is a rare endocrine disorder (4-11:100000), which affects the cortex of adrenal glands and leads to gradual depletion of glucocorticoids, mineralocorticoids as well as adrenal androgens production. When untreated, AD may trigger a life-threatening set of hypocortisolism symptoms, known as adrenal crisis. Hence, delayed diagnosis may result in grievous consequences.

**CASE REPORT:** A 78-year-old female suffering from two-day diarrhoea, emesis and severe neurological symptoms, including confusion, disorientation and somnolence, was transported by ambulance to the emergency department. On admission the patient reported general fatigue and increasing weakness for a month. Routine laboratory tests disclosed severe hyponatremia ([Na⁺]=108 mmol/l) and the patient was referred to the Internal Medicine ward. Despite active treatment with sodium infusions, patient’s neurological status remained unchanged after 5 days ([Na⁺]=127 mmol/l). Meanwhile, the patient developed recurring episodes of hypoglycaemia. In the sixth day of hospitalization patient’s condition deteriorated. The patient presented symptoms portending adrenal crisis (BP=105/58 mmHg, HR=96 bpm, two loose stools, severe whole-body muscle pain with augmented CK, CK-MB and LDH), which required immediate i.v. hydrocortisone treatment and prompted to check adrenal glands function. Based on declined blood cortisol, elevated ACTH concentration and atrophic morphology of adrenal glands in CT imaging, the final diagnosis of autoimmune AD has been established. Considering the past medical history of chronic autoimmune thyroiditis, concurrent diagnosis of autoimmune polyglandular syndrome type 2 (APS-2) has been made.

**CONCLUSIONS:** Although it is a casuistic condition, severe hyponatremia without hyperkalaemia should not be underestimated as the first sign of AD. Appropriate cause-specific treatment of hyponatremia may prevent from serious complications and therapeutic ineffectiveness. In addition, rhabdomyolysis in the course of AD is almost always associated with severe hyponatremia. Late onset of AD and APS-2 is extraordinary with regard to peak incidence among people aged 20-40.
Title: Serious implications of T. gondii infection during pregnancy.

Authors: Rozenek E. 1

Tutor/Tutors: Kacper Toczyłowski

University: 1 Pediatric Department of Infectious Diseases, Medical University of Bialystok, Poland

BACKGROUND: Toxoplasmosis is a parasitic disease caused by Toxoplasma gondii protozoan. Primary infection during pregnancy may result in transplacental pathogen transmission (which is dangerous for developing fetus), while manifestation in immunocompetent individuals is usually self-limiting and with mild course. Congenital toxoplasmosis (CT) may cause serious complications, typically involving eyes and Central Nervous System (CNS).

CASE REPORT: A 6-week-old infant was admitted to the Neurosurgery Department with bulging fontanelle and enlarged head circumference. Computer tomography revealed hydrocephalus (increased ventriculo-hemispheric ratio). As a treatment, the ventricoperitoneal shunt was implanted and symptoms diminished. About 2 months later the child developed signs of chorioretinitis and strabismus. Serological tests revealed significantly elevated titers of anti-T.gondii specific IgG antibodies (2840 IU/ml). CT was diagnosed and child received combined therapy: sulphadiazine-pyrimethamine with methylprednisolone. Despite treatment, the child developed epilepsy, which was drug-resistant. Polytherapy of valproic acid and pyrolidone was applied to control the attacks. The child manifested signs of a quadriplegia, pyramidal syndrome, and decreased pupil light response. Further investigation revealed that the mother was tested for toxoplasmosis once, in the first trimester. Test was negative and wasn’t repeated. Serological evaluation indicated that the mother was infected in the last months, most probably during pregnancy.

CONCLUSIONS: An unrecognized CT poses a high risk of severe neurological complications. Delayed diagnosis is associated with worse treatment results. Early recognition (serological screening) of primary infection during pregnancy alongside with immediate treatment may decrease the risk of serious CT complications.
Title: The management of cardiogenic shock - clinical case report

Authors: Kravcovaite K.¹

Tutor/Tutors: Pranas Serpytis

University: ¹ Medicine Faculty, Vilnius University, Lithuania

BACKGROUND: Cardiogenic shock (CS) is the most common cause of death in patients with acute myocardial infarction (MI). If CS is managed with rapid evaluation and prompt initiation of supportive measures and definitive therapy, outcomes can be improved.

CASE REPORT: 63 year old male had chest pain for 3 hours was transferred to Santaros Clinics emergency room. Physical examination and initial 12-lead electrocardiogram showed acute MI. A patient was immediate received percutaneous coronary intervention. He was hemodynamically unstable, tachycardic, arterial blood pressure was 60/40, SpO2 was critically low. The CS was diagnosed. During the intervention, asystole was observed, resuscitation, intubation, artificial ventilation were performed. Resuscitation was not succeeded. Due to worsening the situation, ECLS with VA-ECMO was established. Furthermore, therapeutic hypothermia was initiated. The treatment was complicated by pneumonia, multiple organ dysfunctionsyndrome (MODS), septic shock, encephalopathy. After 5 days, a hemorrhagic shock was diagnosed because the liver bleeding. The laparotomy surgery was indicated and bleeding was stopped. Due to worsening the situation, 3 weeks later CT scan was arranged. The ischemic zone and hemorrhagic transformation were found. The surgery was not possible because severe patient’s condition. In dynamic patient situation was worsening. After 32 days of treatment bradycardia and asystole episode repeated. Sinus rhythm was not restored after resuscitation and patient died.

CONCLUSIONS: This case report shows that management focuses on early revascularisation of the occluded coronary artery as well as on support of cardiac failure and improvement of impaired organ perfusion. Also of great importance is effective treatment of shock complications, especially acute respiratory failure and other forms of MODS.
Case Report IX
Title: Clinicopathological characteristics of apocrine carcinoma of the breast in five cases

Authors: Maksimiuk M., Sobiborowicz A., Budzik M.

Tutor/Tutors: dr hab. Anna M. Badowska-Kozakiewicz

University: 1 Department of Biophysics and Human Physiology, Cancer Cell Biology Student Research Group, Poland 2 Department of Biophysics and Human Physiology, Medical University of Warsaw, Poland

BACKGROUND: Apocrine carcinoma (AC) is a distinctive and rare type of malignancy, counted for 0.3-4% of all breast cancer cases. It does not have a particular clinical or radiological features, although it is characterized by the apocrine morphology, estrogen receptor-negative and androgen receptor-positive profile. It has limited treatment options with the only one known target being Her-2/neu protein, due to its frequent overexpression. The clinical presentation is similar to invasive ductal carcinoma of no special type (IDC-NST).

CASE REPORT: Presentation of 5 pathomorphological cases of apocrine breast carcinoma. Studied material came from biopsies, excisional biopsies and modified radical mastectomies. Histological and immunohistochemical studies were performed at the Department of Pathomorphology, Military Institute of Medicine in Warsaw. Examined samples were stained with standard methods including hematoxylin and eosin. To determine the immunohistochemical expression of ER, PR and HER2 receptors, appropriate antibodies were used. Among 1222 patients with breast cancer only 5 were diagnosed with apocrine carcinoma (0.4%). All of them were above 50yo (51-63, mean: 57). Tumor size varied from 1.4cm to 3.8cm with mean size 2.4cm, while mean size in all 1222 studied cases counted for 1.9cm. 2 tumors were classified as high-grade (G3), 1 as G2 and 1 as G2. 4 out of 5 tumors did not affect lymph nodes (N0 stage), whereas 1 sample was classified as N2 with 9/19 affected nodes. This observation was consistent with the whole studied group, in which N0 stage made up the largest percentage.

CONCLUSIONS: Presented results suggest that AC is less frequent in premenopausal patients. Despite being diagnosed in larger than group’s average size this subgroup tends to present as noninvasive without nodal involvement. This observation is consistent with other studies claiming AC’s biological behavior as less aggressive. Due to the fact that AC is definitely rare type of breast cancer, modern medicine has still limited options to offer for its treatment. Further research needs to be conducted in order to develop target therapies for this carcinoma.
Title: Hemophagocytic lymphohistiocytosis as the first manifestation of non-Hodgkin’s lymphoma

Authors: Brzezinska B.¹

Tutor/Tutors: Monika Joks, MD PhD

University: ¹ Department of Hematology and Bone Marrow Transplantation, Poznań University of Medical Sciences, Poland

BACKGROUND: Hemophagocytic lymphohistiocytosis (HLH) is a serious disease associated with a cytokine storm and inflammation. It may develop due to genetic abnormalities, infection, autoimmune disorders or malignancies. It can occur as the first manifestation of disease. Due to the non-specific symptoms, HLH is underdiagnosed.

CASE REPORT: A 37-year-old man was admitted to the hospital due to the fever, weakness, abdominal pain and peripheral oedema. USG, CT and blood count examination showed hepatosplenomegaly, ascites and pancytopenia. Due to the bad general condition, steroid therapy was included and the axillary lymph node was taken. Histopathological examination revealed changes after steroid therapy that caused the material was non-diagnostic. Laboratory test revealed elevated ferritin (14998ng/ml ref.=10-150) and transaminases, high CRP, hypertriglyceridemia and hypofibrinogenemia. CT scan showed fluid in pleural cavities, peritoneum cavity and hepatosplenomegaly. In the bone marrow examination hemophagocytosis and TCR-G rearrangement was detected. According to the Histiocyte Society guidelines, six of the eight diagnostic criteria was fulfilled for diagnosis HLH. Therapy based on the HLH-2004 protocol was introduced. It was decided to perform a splenectomy. In histopathology we found angioimmunoblastic lymphoma. The patient was qualified for chemotherapy in the CHOP protocol. Between the next series of CHOP, severity of symptoms HLH were observed: fever, oedema, hepatomegaly. After five cycles of CHOEP we confirmed refractory disease. The patient received the second line therapy: 2 x ESHAP. PET/CT scan revealed disease metabolic active lesions in bone marrow, liver, lymph nodes and omentum. After one course of IVE chemotherapy the patient died due to multiorgan failure.

CONCLUSIONS: HLH is mortal condition and may be undiagnosed due to non-specific clinical manifestation. Clinicians should be alert to patients presenting fever of unknown origin with pancytopenia, hyperferritinemia, hypertriglyceridemia who are not responding for antibiotics. When HLH is confirmed it should be performed diagnostics for infection, autoimmune disease and malignancy. The treatment of HLH is difficult and often leads to death, even if was carried out correctly.
Title: Splenectomy as a rescue for primary autoimmune thrombosis?

Authors: Konopko N.¹

Tutor/Tutors: dr n. med. Wojciech Choiński, dr n. med. Michał Puliński

University: ¹ Iekarski (Faculty of Medicine), Collegium Medicum, University of Warmia and Mazury in Olsztyn, Poland

BACKGROUND: Thrombocytopenia is a platelet count of <150,000/μl. Primary immune thrombocytopenia is diagnosed when the platelet count falls to <100,000/μl. It is an acquired immunological disease characterized by isolated thrombocytopenia without any known factors causing it and/or other additional disorders. The morbidity in the pediatric population is 10-125:1,000,000.

CASE REPORT: A 12-year-old girl diagnosed with immune thrombocytopenia has been scheduled for a pediatric surgery ward with severe clinical symptoms of haemorrhagic diathesis. So far she has been treated with many conservative methods (immunoglobulins i.v. (IVG), steroids i.v and p.o., Eltrombopag) without any lasting therapeutic effect. Due to the period of puberty and the occurrence of abundant menstruation, she was qualified for splenectomy. On the day of admission the platelet count was 1000/μl despite treatment with IVG at a dose of 2 g/kg 1 week before. The day before surgery the patient was transfused with 1 g/kg of immunoglobulins. Due to the absence of an increase in PLT, on the day of surgery, she received an additional intravenous infusion of Solumedrol 500 mg, followed by a transfusion of 2 units of platelet concentrate. The procedure was performed with the use of the laparoscopic method with the access from 4 trocars. BiCision was used for bipolar coagulation. Spleen vessels were clamped with clips. The spleen was put in the sack, divided into pieces and removed through a wound in the navel. A drain was left for one day in order to empty out the gas, blood and to control the bleeding after splenectomy. After the surgery the girl obtained the normalization of the platelet number. She was discharged from the hospital in good condition after five days.

CONCLUSIONS: When severe symptoms of haemorrhagic diathesis occur because of the immune thrombocytopenia and no treatment methods give the desired effects, splenectomy should be considered. In this patient’s case, only splenectomy resulted in the restoration of the correct number of platelets.
BACKGROUND: Granulosa cell tumors are sex-chord stromal tumors that mainly occur in ovaries and occasionally in testis. They are classified into juvenile and adult type. Juvenile type is more common and usually benign. Adult type is very rare and has malignant potential. So far, less than 50 cases have been reported. Metastases to retroperitoneal lymph nodes, liver, bones and lungs have been found in 12% of the patients. It has been noticed that features like: tumor size, lymphovascular invasion, tumor necrosis and haemorrhage may predict the higher malignant potential.

CASE REPORT: 1: 28-year-old patient admitted to Department of Urology due to palpable mass in the right testicle. Ultrasound examination confirmed recognition of 10x8x8cm tumor of the testis. AFP, beta-HCG and LDH levels were in normal range level. Excision of right testis was performed. 2: 20-year-old patient came to emergency unit due to painful right testis. LDH level was elevated – 250 U/L. Next day patient underwent right orchidectomy. 3: 57-year-old male was referred to the Department of Urology to perform orchidectomy of his left testis. Patient complained of acute testicular pain that occurred 4 months before. Scrotal ultrasound showed abnormal mass (10x11x7cm). While AFP and beta-HCG levels were within normal range, LDH level was elevated up to 265 U/L. The surgical excision of left testis was performed. Histopathological examination for all three patients revealed testicular adult granulosa cell tumor. Immunohistochemical stains were performed. The tumor was positive for inhibin A, calretinin and negative for EMA. Patients were transferred to the oncological outpatient clinic. No local and distal metastases were found. No further treatment was prescribed.

CONCLUSIONS: Among various cases of testicular sex chord tumors, adult granulosa cell tumor represents the rarest type. Taking evidence of every single case brings us closer to understanding clinical progression, finding optimal treatment and possible prognosis. It is also necessary to establish adjuvant therapy for metastatic disease. Therefore, testicular adult granulosa cell tumor should intensify medical watchfulness and cooperation of the Urologist, Pathologist and Oncologist.
Title: Angioimmunoblastic T-cell lymphoma in HIV-infected patient – a case report

Authors: Jurkyte R.¹

Tutor/Tutors: dr. Z. Butkiene

University: ¹ Faculty of medicine, Vilnius University, Lithuania

BACKGROUND: Angioimmunoblastic T-cell lymphoma (AITL) is an aggressive malignancy of mature T-cells that is characterized by lymphadenopathy, fever, weight loss and autoimmune phenomena. The pathogenesis of it is unclear, but it is associated with allergic reactions, infections or drug exposure. Studies show that HIV infection may play the role in the lymphocyte transformation process as well.

CASE REPORT: A 43-year-old man sustained an injury when his left hand was caught in a hay packing machine. He was transferred to Vilnius University Hospital Santaros Klinikos, where amputation was performed. 4 weeks later patient presented with fever and during evaluation ultrasound was performed to assess possible infection. Hepatosplenomegaly and generalized lymphadenopathy was found, thus initial lymph node biopsy was performed. It suggested T lymphoproliferative process (CD3/ CD5/ CD2/ CD7 positive). As CD4⁺/CD8⁺ ratio was high, HIV test was performed and results came positive. A bone marrow biopsy confirmed AITL associated with immunodeficiency. Therefore, six cycles of CHOEP chemotherapy, as well as antiretroviral therapy were administered. Despite chemotherapy, remission was only reached after an autologous stem-cell transplantation (ASCT) was performed.

CONCLUSIONS: Overall prognosis for AITL is poor, especially in HIV infected patients. Those two conditions may present as more aggressive clinical course. Even so, appropriate antiretroviral therapy, infection prophylaxis, chemotherapy and ASCT can lead to remission.
Title: Post radiation soft tissue sarcoma in a relapsed Hodgkin lymphoma treated with nivolumab

Authors: Šalaševičius L.¹

Tutor/Tutors: Jelena Rascon

University: ¹ Vilnus University, Faculty of Medicine, Lithuania

BACKGROUND: Secondary malignant neoplasms (SMN) are one of the most relevant long-term sequelae of pediatric Hodgkin lymphoma (HL) comprising 75-80% of late effects. Radiation induced sarcoma (RIS) has been reported as a late secondary malignancy following radiotherapy for various types of cancer with a median latency of 10 years. What is more, data on treatment of relapsed HL with Nivolumab in pediatric population is scarce. We aimed to describe an early RIS in patient being treated with Nivolumab in relapsed HL.

CASE REPORT: A 13 year old girl started to complain of persistent cough in December 2012. Imaging studies including positron emission tomography–computed tomography (PET-CT) with 18 fluorine labeled fluorodeoxyglucose (18F-FDG) revealed FDG avid, bulky mediastinal mass, enlarged periclavicular lymph nodes and focus in left femur that showed a moderate uptake of FDG. The biopsy taken from a periclavicular lymph node confirmed HL, nodular sclerosis subtype. Chemotherapy was initiated according to the EuroNet-PHL-C1 protocol as per stage IV. Control PET-CT scan performed after 6 cycles of chemotherapy showed complete metabolic response with persistent mediastinal mass. Radiotherapy of 30 Gy to the mediastinum was delivered. In September 2014, control magnetic resonance imaging (MRI) revealed a local mediastinal relapse with biopsy showing the same histologic subtype of HL (nodular sclerosis). In March 2015 PET-CT showed new metabolically active masses in the neck and below the diaphragm, progressive disease in the mediastinum, and bilaterally in lung hilum lymph nodes. Different salvage regimens, including Nivolumab, were initiated. Unfortunately, the patient died on April 2016, due to progressive airway obstruction from infiltrating masses in the mediastinum and neck. Post mortem examination revealed no signs of remaining lymphoma, but a poorly differentiated sarcoma.

CONCLUSIONS: Histological verification of all novel FDG avid lesions is necessary after systemic therapy was initiated, especially if new findings could modify disease stage or treatment plan.
Title: Rare case of atypical osteoblastoma

Authors: Rogowski M.¹, Lenartowicz I.¹

Tutor/Tutors: Joanna Reszeć MD, PhD; Piotr Bernaczyk MD, PhD

University: ¹ Department of Medical Pathomorphology, Medical University of Bialystok, Poland

BACKGROUND: Atypical osteoblastoma is a rare, benign type of osteoblastic tumor arising in first and second decade of life. Constitutes approximately 25% of patient with suspicion of typical osteoblastoma. Most commonly affects vertebrae and facial bones. Atypical osteoblastoma is characterized by large, hyperchromatic, epithelioid osteoblasts very often bringing together, forming so called bizarre cells. The treatment of choice is total resection.

CASE REPORT: A 16-year-old boy presented to Department of Pediatric Orthopedics and Traumatology of the Medical University of Bialystok with a metaphyseal tumor of the femoral bone. Physical examination revealed 50mm x 50mm painless mass at the level of right knee with increased cohesiveness, causing walking difficulties. The first biopsy was taken with initial diagnosis of highly malignant osteosarcoma. MRI check-up has been performed showing 26mm x 16mm x 15mm tumor, located peripherally affecting cortical layer with well visible periosteal reaction. During further histopathological examination atypical components were found, which supported the final diagnosis of atypical osteoblastoma.

CONCLUSIONS: Atypical osteoblastoma distinction from osteosarcoma is based on the presence of atypical mitotic figures and presence of the osteoid. Important in differential diagnosis is cellular pleomorphism and presence of neoplastic bone. This type of tumor is characterized by locally infiltrating growth without metastatic capability. Along histopathology, immunohistochemical detection of the p53 and Ki-67 proteins would also be helpful to distinguish between atypical osteoblastoma and osteosarcoma.
Title: Primary pulmonary yolk sac tumor.

Authors: Lenartowicz I.¹, Rogowski M.¹

Tutor/Tutors: Piotr Bernaczyk, MD, PhD

University: ¹ Department of Medical Pathomorphology, Medical University of Białystok, Poland

BACKGROUND: Yolk sac tumor is a rare primary, malignant neoplasm of germ cell origin. Most commonly arises in ovaries or testes and sacrococcygeal area in children under three. Pure yolk sac tumor of adults combined with extragonadal locations are remarkable. Higher risk of germ cell tumor is often associated with cryptorchidism, genetic syndromes and Familial Adenomatous Polyposis. Alpha fetoprotein is synthesized by the tumor cells, can be measured in blood and is highly characteristic, and considered as a tumor marker. A distinctive histological feature is the presence of Schiller-Duvall bodies and alfa protein droplets.

CASE REPORT: A 18-year-old patient was admitted to the Second Department of Lung Diseases and Tuberculosis in aims to diagnose right lung tumor. The symptoms started two months ago with the pain in right chest area and loss of appetite. In blood serum tests alpha fetoprotein (AFP) and serum lactate dehydrogenase isoenzyme-1 (LDH-1) were significantly increased. Bronchoscopy examination revealed occluded bronchi to the lower lobe of the lung by a mass. In specimens from transbronchial needle aspiration only necrotic masses and pus were present. Transthoracic fine needle biopsy was performed. Cellular aspirate was composed of non-differentiated cells. Initial diagnosis was pulmonary blastoma. After immunohistochemical stainings (alfa fetoprotein positive), final diagnosis was changed to primary pulmonary yolk sac tumor.

CONCLUSIONS: Yolk sac tumor does not occur only in gonads. Primary pulmonary yolk sac neoplasm represents very rare subtype of germ cell tumors. The origin is not well understood and prognosis is rather bad. Final diagnosis was based on correlation of serum blood tests, immunohistochemical stainings and immunohistochemistry.
Title: Multiple myeloma accompanied with cardiac amyloidosis

Authors: Naronowicz G.¹

Tutor/Tutors: Dr. Magdalena Rog-Makal

University: ¹ Department of Invasive Cardiology, USK, Poland

BACKGROUND: Multiple myeloma (MM) is a relatively unknown cancer, accounting for only 10% of hematological malignancies. It results from plasma cells growing out of control and becoming cancerous. Etiology of MM is not fully established but factors such as genetics, environmental and occupational causes, radiation and infection may play a role. Typical features of MM include anemia, thrombocytopenia, leukopenia and predisposition to infections. Myeloma cells produce antibodies that can harm the kidneys, while also stimulating osteoclastic proliferation, making the bones weak and easy to break. In contrast to MM, amyloidosis occurs due to a buildup of light chains produced by abnormal cells. Most common sites affected by amyloidosis include the heart, kidneys and nerves. Even though there is a marked difference between both diseases, they can commonly overlap and be diagnosed at once.

CASE REPORT: A 60 year old pt. was admitted to the OIOK due to suspected hypertrophic cardiomyopathy and symptomatic cardiac insufficiency. Upon admission pt. was classified as Class 4 NYHA, with symptoms of circulatory insufficiency (fluid in both pleural cavities, fluid around the heart, fluid in the abdominal cavity and peripheral edema), hypotonia and bruising around the eyes. During the hospitalization, echo revealed EF 20%, hypertrophy and impaired contractility of the ventricles, and fluid in the pericardium, up to 2cm. Labs showed hypoalbuminemia, NT-pro-BNP 24624 pg/mL and troponin 671.3 ng/L. After further stabilization, cardiac MRI was performed which showed an outbreak of the late gadolinium enhancement of the L ventricular sub-endocardium, which suggested amyloidosis. Further diagnostics showed an increase in the lambda light chains in the plasma and increased kappa light chains in the urine.

CONCLUSIONS: Based on the bone marrow biopsy which showed 20% of plasmocytes, compression fracture of T8, free chains above normal range and whole body scintigraphy, multiple myeloma was diagnosed. Treatment included Bortezomib, Thalidomide and Dexamethasone. Even though there are marked differences between MM and amyloidosis, they can commonly overlap and be diagnosed at once. Therefore, it’s very important to perform detailed diagnostics to detect the disease as early as possible.
Title: TEC (transient erythroblastopenia of childhood) - suppression of erythropoiesis with happy end – case report.

Authors: Wójtowicz J.¹, Andruszkiewicz M.¹, Lewandowska P.¹

Tutor/Tutors: Małgorzata Sawicka-Żukowska, PhD, Departament of Pediatric Oncology and Hematology, Medical University of Bialystok

University: ¹ Medicine, Medical University of Bialystok, Poland

BACKGROUND: TEC is rare, self-limited isolated red cell dysplasia. The red blood cells, reticulocytes count and hemoglobin concentration are low. Transient erythroblastopenia of childhood is most frequently observed during second year of life. All symptoms usually pass during 2 months. To confirm this diagnosis it is necessary to exclude all malignant neoplasms, parvovirus B19 infection and Diamond-Blackfan anemia. There is no casual treatment, although during the severe anemia the blood transfusion is inevitable. We present two cases of TEC in toddler boys.

CASE REPORT: Two patients: first 2-year-old-boy and second, 2,5-year-old-boy, were admitted to Departament of Pediatric Oncology and Hematology in Bialystok due to severe anemia – (1. Hg 7.2g /dl, 2. 5 g/dl). In both cases: the bone marrow biopsy and trepanobiopsy was performed. Histopathology and immunohistochemistry red –cell aplasia and inhomogeneous leucocyte population. Parvovirus infection was excluded. Performed tests excluded other causes of anemia. After transfusion of irradiated leukocyte-poor red blood cell concentrate patients’ condition has improved significantly. The first patient required 3 RBC transfusions - the following month, the boy was twice more directed to the department because of the Hgb low level. The other patient had only one RBC transfusion. Both of them now are healthy, under ambulatory observation.

CONCLUSIONS: In childhood hematology TEC is qualified as undefinited anemia. Although not much information about it can be found in literature, it is worth to remember TEC during differentiation diagnosis of red-blood cell aplasia. Despite the initial symptoms suggesting malignant neoplasms there is a good prognosis for young patients.
Title: Non-typical clinical-epidemiological background of classic Kaposi’s sarcoma - a case report.

Authors: Krawiel M.¹, Trebińska M.¹

Tutor/Tutors: Assoc. Prof. Anna Baran, MD PhD

University: ¹Department of Dermatology and Venereology, Medical University of Bialystok, Poland

BACKGROUND: Kaposi sarcoma (KS) is a rare malignant tumor, derived from lymphatic endothelial cells. The pathogenesis is not fully understood, however it is associated with human herpesvirus 8, environmental, genetic and immunological factors. There are major four types of KS that differ in epidemiology and prognosis. The classic type affects predominantly elderly men. It manifests with purple, brown or black patches, papules or nodules, with a tendency to bleeding and ulceration most commonly on the lower limbs.

CASE REPORT: A 86-year-old immunocompetent woman was admitted to the Department of Dermatology with a six months history of skin lesions on left lower limb. Dermatological examination revealed numerous purple and purple-violet, well demarcated nodules with increased cohesion on left calf and foot. Ductular edgings of both limbs were found. Dermoscopic examination of the nodule, which was the first symptom, showed a gray-red color, areas with a rainbow pattern and flaky surfaces. Peripheral lymphadenopathy wasn’t noted. Imaging diagnostics didn’t reveal any internal focal lesions. Laboratory tests showed only slightly elevated lactate dehydrogenase, fibrinogen, creatinine and D-dimers. Based on histopathological examination and positive immunohistochemical staining nodular form of KS was diagnosed. The patient was referred to the oncology center for further treatment.

CONCLUSIONS: Although classic KS affects mostly men, we present an unusual case of KS in elderly immunocompetent woman. Kaposi sarcoma manifests in various atypical forms thus it can pose difficulties to maintain a proper diagnosis. Classic KS has a known association with the development of a secondary malignancy therefore the patients require close monitoring.
Title: Right atrium mass: a primary heart angiosarcoma

Authors: Zborowska P.1, Soból S.1, Zwierzyńska K.1

Tutor/Tutors: Tomasz Stącel MD PhD

University: 1 Department of Cardiac, Vascular and Endovascular Surgery and Transplantology, Silesian Centre for Heart Diseases, Zabrze, Medical University of Silesia in Katowice, Poland

BACKGROUND: Sarcomas are considered to be the main primary malignant tumors of the heart. Angiosarcoma is the most frequent of them, as well as it demonstrates the worst prognosis. Heart tumors can be undiagnosed for a long time due to a oligosymptomatic or nontypical clinical course. Therefore, proper diagnostic process is required.

CASE REPORT: The case report describes a 46-year-old man admitted to our hospital with increasing dyspnoea and fatigue for 3 weeks. Computed Tomography and echocardiography revealed a large mass in the right atrium. Despite its unusual location, echocardiographic appearance suggested myxoma. The patient was qualified for immediate resection due to deep desaturation reaching 88% even during conversation. Intraoperatively, a tumor was found in the right atrium (7x8cm), with a wide base on the right atrium walls and partly on the anterior wall of Vena Cava Superior, with a dense structure and polymorphic surface. Suspicion of angiosarcoma was made. The tumor was partially wedged at the tricuspid valve orifice leading to its huge distention as well as causing its obstruction. Due to the significant growth of the tumor within the walls of the right atrium it also enlarged the intraatrial septum resulting in a secondary opening of foramen ovale. The decision was made to resect tumor radically with a large margin. With chemotherapy in postoperative course it was the only chance of completely curing the patient. Histopathology confirmed the diagnosis of angiosarcoma.

CONCLUSIONS: This case suggests inclusion of cardiac tumors in differential diagnosis of cardiovascular diseases, despite their rare occurrence in the population. Malignant ones also should be taken into consideration as they have serious prognosis. Earlier diagnosis would give a better chance of complete recovery.
**Title:** A report of three cases with an assessment of PET/MRI with 18-fdg (fluorodeoxyglucose) value in patients with non-small-cell lung carcinoma (NSCLC)

**Authors:** Zuzda K.¹, Kurzyna P.¹, Nesterowicz M.¹, Mitera B.¹, Chojnowski A.¹

**Tutor/Tutors:** Assoc. Prof. Mirosław Dariusz Kozłowski, MD, PhD

**University:** ¹ Department of Thoracic Surgery, Medical University of Białystok, Poland

**BACKGROUND:** Non-small-cell lung carcinoma is a highly aggressive and challenging neoplasm that now is a leading cause of cancer death worldwide with 5-year survival rate under 20%. Only 15-25% of patients with NSCLC are classified to receive surgical treatment. PET/MRI with 18-FDG is innovative and reliable imaging technique which help diagnose and follow-up lung cancer patient.

**CASE REPORT:** We report 3 cases of adult patients who were surgically treated in the Department of Thoracic Surgery due to diagnosed NSCLC in standard diagnostic imaging (CT scan, ultrasound, chest X-ray and tumour biopsy). Patient 1 was a 63-year-old man with a two-week history of hemoptysis which aggravated three days prior hospitalization. The hemoptysis was accompanied by dyspnea and cough. Patient 2 was a 61-year-old man with dry cough and hoarseness only. Patient 3 was a 66-year-old man with a history of upper respiratory tract infection treated with antibiotics two months prior to hospitalization. Patients received thoracotomy and respectively: upper right lobectomy, wedge resection of the right lung lower lobe and upper left lobectomy. The histopathological examinations reviled adenocarcinoma in all cases. All the patients underwent whole-body PET/MRI scan with 18F-FDG in two-time points – before surgical treatment and 6 months after. The treatment strategy in all three patients was changed as a result of PET/MRI findings before or after the treatment.

**CONCLUSIONS:** Despite surgical treatment, NSCLC patients require special care consisting of performing tests for qualification for treatment and after receiving surgery. PET/MRI with 18F-FDG has considerable clinical benefit to whole-body scan and additional findings, which can change the treatment strategy.
Case Report X
Title: The first case of malignant testicular mesothelioma in Lithuania

Authors: Drevinskaite M.1, Kevlicius L.1

Tutor/Tutors: Dr. Giedre Smailyte, Ausvydas Patasius, Ugnius Mickys

University: 1 Faculty of medicine, Vilnius University, Lithuania

BACKGROUND: Malignant mesothelioma of the tunica vaginalis is a rare tumor which originates from mesenchymal tissue and comprises less than 1% of all mesotheliomas.

CASE REPORT: We present the case of a 69-years old patient with painful hard mass and hydrocele in the right scrotum to whom a right hydrocelectomy von Bergman was performed in a regional hospital. Intraoperatively non-homogeneous tissues were visible. The patient was immediately referred to the National Cancer Institution after postoperative pathological examination revealed a malignant mesothelioma of the right tunica vaginalis and right inguinal orchidectomy was performed in our hospital. Whole body computed tomography (CT) after the surgery revealed infrarenal paraaortic up to 21x15 mm., paraaortic next to bifurcation lymphadenopathy up to 24mm. and left pararenal lesions 10.4 mm., likely to be metastatic. The patient denied any history of scrotal trauma or exposure to asbestos. 8 years ago he was diagnosed with prostate adenocarcinoma (Gleason 3+3=6) cT1cN0M0 stage II, the result of external beam radiotherapy treatment was radical. According to the intraoperative findings, histology and CT results, chemotherapeutic treatment with cisplatin and pemetrexed was indicated by multidisciplinary team. After 4 cycles of cisplatin and pemetrexed, whole body CT was performed and disease progression in retroperitoneum was seen: infrarenal paraaortic lymph nodes enlarged to 32x28 mm., next aortic bifurcation nodes enlarged to 31mm. and pararenal lesion enlarged to 26.6mm. Based on radiologic findings of disease progression, multidisciplinary team indicated second line treatment with gemcitabine.

CONCLUSIONS: Malignant mesothelioma of the tunica vaginalis is a rare but often fatal malignancy. Due to the rarity of this disease, it poses a diagnostic challenge can mimic common inguinal or scrotal diseases such as a hydrocele. Despite aggressive surgical procedures or adjuvant therapies, the prognosis remains poor.
**Title:** MRI examination of prostate cancer advancement. Case report.

**Authors:** Sobczuk R.¹, Grzegorczyk M.¹, Gębska M.¹, Dyzma P.¹

**Tutor/Tutors:** dr hab n. med. Anna Drelich – Zbroja, Dr n. med. Monika Miazga

**University:** ¹ Students Scientific Society at the Department of Interventional Radiology and Neuroradiology, Poland

**BACKGROUND:** Prostate cancer is one of the most common cancers among men. Usually it is asymptomatic but sometimes it may be accompanied by a variety of urinary symptoms, especially in the early stages. One of the most common test detecting prostate abnormalities is prostate-specific antigen (PSA) test however among many imaging methods the most sensitive one is MRI.

**CASE REPORT:** Patient aged 60, admitted to Department of Interventional Radiology and Neuroradiology of Independent Public Hospital No.4 in Lublin in order to perform MRI of prostate gland. Patient suffered from nocturia and difficulties with urination. Patient’s physical exam was normal, prostate-specific antigen (PSA) was at level of 11ng/mL, in digital rectal examination prostate gland was slightly enlarged, biopsy revealed a Gleason score 6 (3 + 3). At that time patient was classified T2bN0xMx. During MRI in the central part and around the apex of the right lobe a pathological oval area measuring 32 x 20 x 15mm, 5,3ml was found showing a decrease in signal in T2 images and restricted diffusion in DWI (diffusion weighted imaging) and lowering on ADC (Apparent diffusion coefficient) maps. The described abnormality adhere directly to the prostate capsule. Local lymphatic nodes and adjacent tissues were unchanged. The combined assessment of sequences indicates a very high probability of clinically significant cancer PI-RADS 5 (Prostate Imaging Reporting and Data System).

**CONCLUSIONS:** Diagnosis of prostate carcinoma is complicated process involving many different examination methods that complement each other and should be evaluated as a whole. At higher PSA level, patients have MRI performed more often than biopsy (less invasive). It also let us precisely determine localization and character of suspicious change and classify it into specific PI-RADS. It also allows to classify patient to proper treatment by determining if cancer is restricted to prostate gland or it invades adjacent tissues and organs.
Title: Unusual case of prostate cancer metastasis to penis.

Authors: Mironiuk P.¹, Cichocka N.¹

Tutor/Tutors: Grzegorz Młynarczyk

University: ¹ Department of Urology, Medical University of Bialystok, Poland

BACKGROUND: Taking into consideration frequency, prostate cancer is 2nd malignant tumor and 3rd oncological cause of death in men in Poland. Usually it gives metastasis to bones and rarely to liver, lungs and brain. Despite close location and rich blood supply, prostate cancer metastasis to penis is very rare.

CASE REPORT: A 78-year-old male patient with benign prostate hyperplasia (BPH) diagnosed in 1996 and treated with thermotherapy. After a few years of not having any medical consultation (neither with GP, nor specialist), underwent transurethral resection of prostate (TUR-P) in 2003 - due to poor outcomes of conservative treatment of dysuria. Histopathological examination confirmed BPH. During follow-up visit in 2007 PSA marked 8,8 ng/ml. Prostate biopsy was performed and revealed poorly-differentiated adenocarcinoma (Gleason’s Grade 7). Patient was treated with combination of radiotherapy and hormonotherapy. CT scan from 2007 showed prostate 51x41mm and 37x35mm in 2010. In 2012 PSA was undetectable. 2 years later patient noticed small lesion on glans penis. A sample was sent for histopathological examination, which revealed metastasis from adenocarcinoma of prostate. A month later partial penis amputation was performed. Histopathology of the amputated part of penis confirmed the presence of metastatic prostatic adenocarcinoma. Patient has to stay under control of urologist and oncologist.

CONCLUSIONS: There have been approximately 100 cases of prostate cancer metastasizing to penis described worldwide. Although the condition is rare, it can be found in clinical practice. Oncological patients demand thorough examination, watchfulness and individual approach.
Blastic plasmocytoid dendritic cell neoplasm manifesting as testicle tumor - description of the neoplasm based on two clinical cases

Authors: Cichocka N., Mironiuk P.

Tutor/Tutors: Grzegorz Młynarczyk

University: Urology, Medical University of Bialystok, Poland

BACKGROUND: Blastic plasmocytoid dendritic cell neoplasm (BPDCN) is a rare hematodermic myeloid malignancy, derived from plasmid dendritic cell precursors. Typical presentation includes cutaneous lesions - plaques, nodules or patches, that are purple in color. The neoplasm spreads rapidly to bone marrow. Expression of CD4, CD6 as well as CD123 is present. Most cases comprise elderly (around 60 yo) with high male predilation (3:1). Up to 2019 there have been around 350 cases reported.

CASE REPORT: Patient 1: 60-year old patient admitted to Department of Urology due to accidental recognition of small mass in the right testicle during ultrasound examination that revealed 2x2x1cm tumor of the testis. Alpha-fetoprotein, beta-HCG and lactate dehydrogenase levels were in normal range level. Additionally the objective examination revealed purple plaques on the skin of the left arm. Excision of right testis and tissue sample collection from the skin were performed. Patient 2: 74-year old male presented with abnormal mass (8x6x4,5cm) in right testis and erythematous skin rash spreading on entire body surface. Patient was complaining about pain in the testis lasting around 10 days. Lab tests showed elevated LDH level (up to 568 U/L), AFP and betaHCG levels within normal range. Surgical excisions performed and samples were sent to histopathology. Histopathological examination for both patients revealed CD56+/CD4+/MPO- blast cells infiltrating testis and skin. Both patients were sent to hematological out-patient clinic and treated with modified CHOP regimen. The first patient survived 14 and the second patient 10 months after the surgery.

CONCLUSIONS: Although BPDCN is a rare diagnosis, it should not be left unchecked. It remains a diagnostic challenge for pathologists as well as being problematic for treatment. Due to its rare occurrence standard treatment protocols have not been established. Majority of cases has good response to allo-HSCT. BPDCN persistently has bad prognosis.
Title: Pulmonary hamartoma mimics the mediastinal cyst

Authors: Rutenberge-Galumbauskienė J.¹

Tutor/Tutors: MD Žymantas Jagelavičius, Andrius Timpa

University: ¹ Faculty of medicine, Vilnius University, Lithuania

BACKGROUND: Pulmonary hamartoma (PH), also known as mesenchymoma, is a benign lung neoplasm. PH consists of mature, irregularly stretched epithelial and mesenchymal structures. Typically, asymptomatic PH in an adult is described as a well-circumscribed single solitary nodule. Computed tomography (CT) visualizes intranodular fat and popcorn-like calcifications which are pathognomonic symptoms of PH. The bronchus and lung parenchyma are the most common localizations of PH. Rarely, PH may occur in the other parts of the body. Mediastinal hamartoma is an extremely rare pathology which may simulate cystic lesion. It was previously described only in several case reports. The unusual appearance may lead to unnecessary interventions. We describe a case of atypical PH.

CASE REPORT: The asymptomatic 28-year-old female patient was diagnosed with smoothly marginated opacity in the mediastinum. The pathologic mass sized 33 x 23 mm was located at the level of 7th thoracic vertebrae. The CT scan showed a duplicating cyst in the right posterior mediastinum. The endobronchial ultrasound-guided transbronchial needle aspiration biopsy was performed. The biopsy was complicated with infection caused by Actinomyces odontolyticus. The antibacterial treatment was prescribed. The consulate decided to perform a video-assisted thoracoscopic surgery. Following the removal of the cyst, the patient’s condition improved. The microscopic examination of the removed tissue was performed. The pathologic diagnosis was lung hamartoma.

CONCLUSIONS: Low incidence of mediastinal hamartoma leads to individualized approach to the patient. It is essential to bring together a multidisciplinary team to properly diagnose and treat this condition. Furthermore, in order to achieve better understanding of these conditions the case reports are necessary.
Title: Kaposi sarcoma in a 6-year-old with primary immunodeficiency

Authors: Mironova J.¹, Muleviciene A.²

Tutor/Tutors: Audrone Muleviciene

University: ¹ Faculty of medicine, Vilnius University, Lithuania ² Oncology and hematology department, Children’s Hospital, Affiliate of Vilnius University Hospital Santaros Clinics, Lithuania

BACKGROUND: Kaposi sarcoma is a low-grade endothelial neoplasm mediated by the human herpesvirus-8. The epidemic and iatrogenic forms of childhood Kaposi sarcoma result from a profound and acquired T cell deficiency. Recent studies have shown that classic Kaposi sarcoma of childhood can result from rare single-gene inborn errors of immunity.

CASE REPORT: A 4-year-old patient started developing pustules and scarring on his hands and legs. 6 months later skin on his arms and legs became infiltrated, neck and groin lymph nodes enlarged. At the age of 5 he had pneumonia two times within a few months and was tested for tuberculosis, although, the Mantoux test was negative. He then developed generalized lymphadenopathy. The patient has been additionally tested for a cat-scratch disease (negative) and toxoplasmosis (positive). Because of the unusual presentation of suspected toxoplasmosis a lymph node biopsy has been performed and the boy has been diagnosed with Kaposi sarcoma. An HIV testing turned out to be negative. Further investigations showed an impaired cellular immunity of the patient: normal counts of lymphocytes (2600-3300/mm³), CD3+ (1500-2000/mm³) and high NK (900-1200/mm³), but very low CD4+ (311-383/mm³), CD19+ (130/mm³), CD3+CD4+CD45RA (0.8%), CD3+CD8+CD45RA (16-19/mm³). T cell receptor excision circles (TREC) were very low (0.001-0.004%). Full genome sequencing test revealed Coronin 1A deficiency. After evaluating clinical presentation and dissemination of the disease chemotherapy with peglated liposomal doxorubicin has been started. A good clinical response has been acquired after 5 cycles and the patient has been referred for the hematopoietic stem cell transplantation.

CONCLUSIONS: SCID patients are usually affected by severe recurrent bacterial, viral, or fungal infections early in life and often present with interstitial lung disease, chronic diarrhea, and failure to thrive. Although a malignant tumor can be the first manifestation of immune deficiency.
**Title:** Unknown faces of classic Hodgkin lymphoma

**Authors:** Rasmussen R., Wójciak A., Dushek C.

**Tutor/Tutors:** Małgorzata Sawicka-Zukowska, MD, PhD; Department of Pediatric Oncology and Hematology, Medical University of Białystok

**University:** Department of Pediatric Oncology and Hematology, Medical University of Białystok, Poland

**BACKGROUND:** Hodgkin lymphoma (HL) is a malignant lymphoma, which is highly curable neoplasm occurring typically in young adults and teenagers. In HL 5-year survival rate exceeding 98%. Most common symptoms of HL are, among others; cervical lymphadenopathy with typical enlargement of supraclavicular lymph nodes, persistent cough and dyspnea. Occasionally, some unspecific symptoms are observed.

**CASE REPORT:** We present three cases of patients with Hodgkin Lymphoma with unusual clinical symptoms. First case – 11-year-old male patient with prolonged fever, generalized infection with extremely high inflammatory parameters. Surgical biopsy of lymph node was performed because of cervical lymphadenopathy - histopathology of lymph nodes performed in two medical centers excluded HL, confirmed reactive lymph nodes. Worsening of general condition and not successful reaction for antibiotics was a reason to perform the second biopsy of cervical lymph nodes - Hodgkin Lymphoma disease was confirmed. Second case was 15-years-old girl, who suffered from neurological symptoms - right foot drop, weakness of muscles of left upper limb, as well as an enlarged left supraclavicular node. After confirmation of Hodgkin disease, treatment was chemotherapy in both cases. Third case, a 15y girl admitted to the clinic due to a tumor in soft tissues of left thigh, without any connection of lymph nodes. The girl was under neurological counseling for cerebral palsy.

**CONCLUSIONS:** Hodgkin Lymphoma can manifest with unspecific symptoms, which can delay diagnosis and treatment, unfortunately also increases the stage of the disease. Non-specific symptoms, especially persistent, often coexisting with inflammatory process, should be taken under consideration, because they may indicate Hodgkin Lymphoma.
Title: Right lung middle lobe small cell carcinoma CT3N0M1b stage IV with multiple metastases in brain. Use of complex therapy. Clinical case.

Authors: Puzanova A.¹, Raituma B.¹

Tutor/Tutors: Dr. Agate Zīverte

University: ¹ Medical, Rīga Stradiņš university, Latvia

BACKGROUND: Small cell lung carcinoma (SCLC) is a neuroendocrine carcinoma with aggressive behaviour, rapid growth, early spread to distant sites most commonly brain, liver, bones. Is characterised by exquisite sensitivity to chemotherapy and radiation. Extensive stage cancer is incurable. Systemic chemotherapy is used to improve quality of life and prolong survival. Predominant cause of SCLC is tobacco smoking. SCLC comprises about 10-15% of all lung cancers with most cases in individuals aged 60-80 years.

CASE REPORT: Patient (55) a smoker for 35 years was admitted to the hospital with headaches, decrease in critical abilities, changed thinking, disorientation. GCS 15. On MRI with contrast findings of multiple neoplasms: the largest in the left frontal lobe 5,2x4,8 cm, two in the right frontal lobe and one in the right temporal lobe with perifocal edema and compressed lateral ventricles. Suspected metastases. Thoracic CT with contrast showed pathologica vascular nodule 6x4cm with multiple calcinates in the right lung middle lobe paramediastinal region, nodule adherence to pleura, possible infiltration. Biopsy was performed. 11 days after admission craniotomy with extirpation of all of the nodules found on MRI was performed using neuronavigation. Histologically small cell carcinoma of the right lung middle lobe cT3N0M1b stage IV. Patient was discharged from the hospital 15 days after craniotomy with mild left leg paresis, and preserved frontality. Recommendations for palliative chemotherapy, radiation therapy and rehabilitation. After 5 months cranial MRI with no visual changes confirmed.

CONCLUSIONS: This clinical case shows the necessity of early diagnosis confirmation. Chemotherapy controlled the growth and spreading of SCLC which was shown on a control MRI after 5 months. Post-craniotomy status after 4 metastases nodule extirpation showed improvement in patients’ quality of life and relief of complaints in comparison to when admitted. Smoking might have been the main cause of SCLC. The patient was a smoker for 35 years and smoking is the leading factor for development of SCLC. It is important to control the development of cancer with visual studies and follow up on patient’s further health condition to prolong best possible quality of life.
Title: Plasmablastic lymphoma arising in treated plasma cell myeloma: a rare second malignancy

Authors: Jasik A.¹

Tutor/Tutors: Prof. Krzysztof Lewandowski, MD, PhD

University: ¹ Department of Hematology and Bone Marrow Transplantation, Poznan University of Medical Sciences, Poland

BACKGROUND: Plasma cell myeloma (PCM) is a disseminated plasma cell neoplasm affecting predominantly the bone marrow. It represents 1% of malignant and about 14% of hematologic neoplasms. PCM can be also presented as a single tumor- solitary plasmocytoma, that can be located in bone (less than 5%) or extramedullary (1-2%). Plasmablastic lymphoma (PBL) is a rare neoplasm with morphologic and immunophenotypic characteristics that overlap with aggressive large B-cell lymphomas and with plasma cell neoplasms. 612 cases of PBL were described (Castillo et al., 2015), but only 11 of them were a transformation from another haematological neoplasm.

CASE REPORT: 83-year-old man presented with bleeding from the upper gastrointestinal tract. He underwent gastroscopy and computed tomography examination, which revealed undermucosal tumor. The histopathological analysis suggested MALT-lymphoma with very high expression of CD138 in immunophenotype. Due to these circumstances, the trephine biopsy was done- showed no features of infiltration or fibrosis in the bone marrow. In urinalyses and blood test light kappa chains were detected. The totality of examinations suggested the extramedullary form of plasma cell myeloma, consequently the chemoterapy treatment was enforced. Few months after, during the physical examination, there was found rapidly enlarging mass in the right groin. Immunohistochemical analysis of material from the mass detected cells with the phenotype of plasmablastic lymphoma.

CONCLUSIONS: Extramedullary plasmocytoma is usually localized in head and neck region, the second most-common location is gastrointestinal tract (5%). The diagnosis of EP is difficult, because the manifestations are not specific and it often imitates another tumors (GISTs, MALT lymphomas, adenocarcinomas) and therefore the identification is mostly grounded in pathological analysis of biopsy material. The nature of disease is progressive, and it has been described to transform into high-grade lymphoma or, rarely, to plasmablastic lymphoma. This case is representative for a group of very rare disorders and furthermore demonstrates complicated and interesting history of diagnostics.
BACKGROUND: Clear cell papillary renal cell carcinoma (CCPRCC) is relatively rare kidney carcinoma, it covers about 4% of renal cell carcinomas. It is usually one side yellow carcinoma and is characterized by richly developed papillary and tubular component, visible boundary from regular renal parenchyma, unique IHC image, low nuclear grading, lack of characteristic changes in genetic material. It is usually diagnosed in pT1 stadium. No distant metastasis or local recurrence were reported.

CASE REPORT: 57 year-old female patient was admitted to the Department of Urology in the Medical University of Białystok Clinical Hospitals in order to undergo procedure of right kidney carcinoma. In physical examination no deviation was stated. In laboratory examination on the day of admission in general urine analysis haematuria could be observed. In imaging examination a presence of tumorous, rather well distinguished structure in kidney was indicated. In histopathological examination a carcinoma with tubulopapillary texture was recognized, it is grayish or beige in color, it consists of cells with light cytoplasm and low grading. Immunohistochemical markers indicated positive CK7 marker and negative AMACR and CD10 marker. A stage was rated as pT1a. During hospitalization right-sided nephrectomy was performed, without complications. Patient was discharged in generally good state.

CONCLUSIONS: Morphological features, immunohistochemical markers and clinical course described case of CCPRCC is characteristic for this carcinoma and confirm key significance of CK7 in differential diagnosis CCPRCC.
Title: Mixed tumor of the urinary bladder - case report

Authors: Klimek W., Kożuchowska A., Chudzicka A.

Tutor/Tutors: Elżbieta Czykier, MD, PhD, Assoc. Prof. Department of Histology and Embryology, Medical University in Białystok, Poland

University: 1 Department of Histology and Embryology at the Medical University of Białystok, Student Scientific Club "Interdyscyplinar" at the Department of Histology and Embryology, Poland

BACKGROUND: The most common location of small cell carcinoma (SCC) are lungs. Extrapulmonary occurrence of SCC accounts for 2-4% of all cases of small cell carcinoma, while arising in urinary bladder is extremely rare and accounts for 0.3-0.7% neoplasms of this organ. Small cell carcinoma of the urinary bladder (SCCB) can occur alone or coexist with other types of urinary bladder carcinomas.

CASE REPORT: 64-year-old patient was urgently admitted to the Department of Urology in the Medical University of Białystok Clinical Hospitals because of hematuria and bilateral hydronephrosis. Laboratory tests revealed increased levels of creatinine, urea, uric acid. Cystoscopy showed an extensive tumorous lesion on right wall and neck of the urinary bladder infiltrating trigone and a tumorous lesion on left wall of the urinary bladder. Histopathological examination of collected small cell component of the tumor specimen, based on histopathological staining (H+E) and positive immunohistochemical staining for synaptophysin and chromogranin A, and negative for p63 and PSA showed invasive urothelial carcinoma with extensive glandular differentiation and small cell carcinoma component (pT1). During hospitalization decompression of left kidney was performed by nephrostomy placement and TUR-BT performance. Normalization of creatinine level and hematuria relieve were achieved. Patient was discharged from the hospital in good general condition.

CONCLUSIONS: Small cell carcinoma of the urinary bladder is a very uncommon tumor of this organ, but its presence in tumor tissue determines poor prognosis and severe course of cancer.
Title: Atezolizumab - a false dawn or the awaited step forward? Case report

Authors: Jasik A.1

Tutor/Tutors: Katarzyna Stencel, MD PhD

University: 1 Department of Oncology, Poznan University of Medical Sciences, Poland

BACKGROUND: Every year 1.8 million people are diagnosed with lung cancer and 1.6 million people die because of that disease in the same time. This statistics enforces the oncologists to implement and search for new approaches of treatment. The precision medicine seems to be very promising, with the emphasis on targeted therapies.

CASE REPORT: 35-year old woman developed cough and fever. The X-ray examination revealed a tumor in the left lung. In June 2015 the patient was referred to the Thoracic Surgery Ward to perform broader diagnostics. There was done a thoracotomy in which a tumor (1.5 cm) in 4th segment of left upper lobe was detected. There was also found a malignant infiltration in the left lower lobe and on parietal and mediastinal pleura. A wedge resection was performed and the material was examined. It came out, that this was adenocarcinoma (T4N2M1a, EGFR negative). The patient was referred to the Oncological Ward to receive chemotherapy (cisplatine + vinorelbine). 4 cycles of chemotherapy were administered (July-November 2015). Almost two years after, in August 2017 the progression of the disease was observed. The patient was qualified for second-line chemotherapy with docetaxel and received 4 courses (August-October 2017). Two months after, in December there was found a metastatic tumor in the right lobe. Since that moment the patient had been trying to enforce the treatment on her own using alternative medicine - infusions of vitamin C. In February 2018 she received information about clinical trial with atezolizumab. She underwent genetic testing (NGS - Next Generation Sequencing) and was qualified to participate in the clinical trial. Since May 2018 the patient has been receiving atezolizumab every twenty days with extremely good result.

CONCLUSIONS: Atezolizumab is an Fc-engineered, humanized, non-glycosylated IgG1 kappa monoclonal antibody that binds to and blocks programmed death-ligand 1 (PD-L1). On the 1st of January 2019 atezolizumab was entered in the register of reimbursement medicines in Poland. This case shows the advantages of treatment with this drug.
Title: An insidious course of small cell carcinoma of the urinary bladder-case report

Authors: Kożuchowska A.¹, Klimek W.¹, Chudzicka A.¹

Tutor/Tutors: Elżbieta Czykier, MD, PhD, Assoc. Prof. Department of Histology and Embryology, Medical University in Białystok, Poland

University: ¹ the Department of Histology and Embryology at Medical University of Białystok, Student Scientific Club "Interdyscyplinary", Poland

BACKGROUND: Neuroendocrine tumors (NET) are epithelial neoplasm with prominent neuroendocrine differentiation. NET is frequent in the respiratory tract as well as gastrointestinal tract however it can arise from any organs. Extra-pulmonary localization of NET is the larynx, salivary glands, the uterus, the cervix uteri, the vagina, the prostate and the urinary bladder. Small cell carcinoma of the urinary bladder (SCCB) is a type of neuroendocrine tumor.

CASE REPORT: A 72-year-old female was admitted to the Department of Urology in the Medical University of Białystok Clinical Hospital in order to undergo cystectomy on account of diagnosed 2 months earlier small cell carcinoma of the urinary bladder (SCCB), which was a cause of hematuria. Based on histopathological examination as well as immunohistochemical staining the patient was diagnosed with small cell carcinoma of the urinary bladder with extensive necrosis and positive immunohistochemical staining for synaptophysin, CD56 as well as negative for chromogranin A and GATA 3. On admission the laboratory tests’ results revealed elevated levels of fibrinogen, CRP, D-dimer, urea, creatinine, uric acid and anemia (reduced red blood cell count, HGB, HCT). During the operation a mass of 10 cm in diameter with numerous lesions infiltrating true pelvis has been found. Due to significant topical tumor development and numerous infiltrating lesions the decision about withdraw from cystectomy has been made. Instead bilateral ureterocutaneostomy has been performed. The patient was discharged in a condition that enables improvement to Hospice in order to receive further palliative care. Two months after the discharge the patient has died.

CONCLUSIONS: SCCB is one of highly aggressive and rapidly progressing carcinomas, that usually do not have any symptoms, which hinder the process of diagnosis of tumour and initiation of targeted treatment.
Notes
ORAL PRESENTATIONS

PHD SESSIONS

CASE REPORTS SESSIONS

SOCIAL PROGRAM

WORKSHOPS

KEYNOTE LECTURE

BIMC.STN@UMB.EDU.PL

BIMCFYS

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