

RIGA STRADIŅŠ UNIVERSITY
INTERNATIONAL STUDENT CONFERENCE

HEALTH AND SOCIAL SCIENCES 2015

ABSTRACTS

Riga
March 25, 2015



RĪGAS STRADIŅA
UNIVERSITĀTE

 RSU SP

Rīga Stradiņš University International Student Conference
“Health and Social Sciences” 2015

Abstracts of Health Sciences

Rīga, 25.03.2015.

Authors are responsible for their Abstracts.

ISBN 978-9934-8516-0-5

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Dear participants!

It gives me a great pleasure to welcome you at Rīga Stradiņš University (RSU) Student Conference. This annual conference is a significant event for each RSU student and it brings together students and experts from different fields. This is the 64th RSU Student conference and we are proud to announce that this year it is an international event as the conference will gather participants from Latvia, Finland, Sweden, Norway, United Kingdom, the Czech Republic, Germany, France, Italy, Russia, Lithuania and other countries.

The RSU International Student Conference (ISC) will cover topics in health and social sciences and I am sure this conference will make an important contribution towards promoting high quality science among young researchers and the importance of science in the study process. I am delighted to see such widespread interest and meet enthusiastic participants with poster and oral presentations.

It is my great honour and privilege to welcome you in our university especially because year 2015 marks the 65th anniversary of the university, and also we have been enrolling international students for already 25 years.

I wish you a fruitful and successful conference and I hope this conference will open up great opportunities for all.

Professor Jānis Gardovskis
Rector of Rīga Stradiņš University

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SESSION I - INTERNAL MEDICINE

MANAGEMENT OF HYPERPHOSPHATEMIA IN PATIENTS WITH END STAGE RENAL DISEASE ON PERITONEAL DIALYSIS

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Key words. End stage renal disease, peritoneal dialysis, hyperphosphatemia, phosphate binders.

Introduction. Patients receiving peritoneal dialysis are susceptible to hyperphosphatemia, which can be corrected by using different medication. In Latvian Nephrological center of P.Stradins Clinical University Hospital the drug of choice is Calcium Acetate which is combined with Sevelamer if monotherapy is ineffective. Other drugs, such as Lanthanum carbonate are rarely used. To evaluate the efficacy of second-line treatment approach we observed changes in serum electrolytes, parathyroid hormone and urea in 47 end-stage renal disease patients on peritoneal dialysis over the course of 4 months after beginning of second-line treatment with Calcium Acetate and Sevelamer. Age of patients is 20 – 81 y., 28 men and 19 women. Calcium Acetate/Sevelamer group consists of 20 patients. The patients receiving Calcium Acetate monotherapy were taken as the control group.

Aim. To evaluate and compare the effect of monotherapy and combined therapy in managing hyperphosphatemia in patients with end stage renal disease receiving peritoneal dialysis.

Results. Sevelamer/Calcium acetate appears to be effective in treating patients with severe hyperphosphatemia when a single drug has failed to control phosphate levels. Before combined therapy mean phosphate level was 2.16 mmol/l and after 4 months was reduced to 1.88 mmol/l. The level of urea was also reduced after 4 months (20.85 mmol/l – 19.51 mmol/l). Reduced dose of calcium acetate (3 g – 1.5 g) resulted in lower serum calcium levels (2.6 mmol/l – 2.30 mmol/l). Higher mean levels of parathyroid hormone were observed after combined therapy (25.72 pmol/l – 26.95 pmol/l). Out of 20 patients in the combined therapy group, 9 had a worse response to treatment, 2 of them were diagnosed with Autosomal-Dominant Kidney Polycystic disease (0 out of 27 patients in the control group), 3 had nephrolithiasis (3 out of 27 patients in the control group). Comparing these results to control group, mean

phosphate level during Calcium Acetate therapy was 1,5 mmol/l, mean calcium 2,17mmol/l, mean urea 17,04 mmol/l, mean parathyroid hormone 17,04 pmol/l.

Conclusions. According to the results of this research, combined therapy is effective in lowering serum phosphate for patients with calcium acetate resistant hyperphosphatemia, but still fails to achieve desired results. Combined therapy results in decreased serum calcium levels.

THE RISK FACTORS FOR ARTERIOVENOUS FISTULA THROMBOSIS IN PATIENTS ON REGULAR HEMODIALYSIS

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Key words. Arteriovenous fistula, thrombosis, hemodialysis.

Introduction. A good functioning dialysis access is essential for optimal management of hemodialysis patient. Arteriovenous fistula (AVF) is one of the commonest hemodialysis access types. It is very useful in individuals on regular hemodialysis. Vascular access-related problems cause frequent hospitalizations in chronic hemodialysis patients. According to literature sources, AVF thrombosis is one of the most severe complications in the patients on regular hemodialysis. Other possible complications are infections, abscess, arterial steal syndrome, and pseudo aneurysm formation. When complication occurs, central venous catheter (CVK) must be used for hemodialysis. CVK also has some disadvantages. Most severe complication is infection, which can progress till the sepsis and result in death.

Aim. The aim of the study was to analyze the risk factors of AVF thrombosis in patients on regular hemodialysis. Also, we wanted to assess, what is the main cause of chronic renal disease and is there any association with the patient's age, gender and hemodialysis therapy time.

Results. From 49 hemodialysis patients 15 patients had AVF thrombosis during hemodialysis therapy. This study revealed that a significant risk factor for AVF thrombosis is total duration of hemodialysis ($p=0,025$). In the group of patients with AVF thrombosis hemodialysis time ranges from 29 till 140 months. 50% of the patients had AVF thrombosis during first 72 months of hemodialysis. High cholesterol level was also found to be a risk factor for AVF thrombosis ($p=0,13$). For these patients total cholesterol level range was 4,3 - 7,5 mmol/l. Mean level was 5,4 mmol/l comparing to 4,5 mmol/l in the

patients without AV thrombosis. Also, as a risk factor was found fibrinogen ($p=0,32$). In the patients with AVF thrombosis, mean levels of fibrinogen was higher comparing with control group (5,7 vs 4,8 g/L). Apart from AVF thrombosis risk factors, it was found that chronic glomerulonephritis is the most common cause of chronic renal disease - 20 of 49 patients. Dividing underlying disease into two groups (inflammatory and non-inflammatory), we found that the patients with inflammatory disease are younger and mean hemodialysis therapy duration is longer. Hepatitis infection frequency was 15 patients.

Conclusions. AVF thrombosis is a frequent complication in the patients on regular hemodialysis. Associated risk factors of AVF thrombosis are duration of the hemodialysis therapy, increased fibrinogen levels and hypercholesterolemia. Inflammatory origin renal disease is associated with earlier hemodialysis therapy. Hepatitis infection was found to be common between hemodialysis patients.

PATHOPHYSIOLOGY OF ANEMIA IN PATIENTS WITH END STAGE RENAL DISEASE

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Introduction: The prevalence of anemia in patients diagnosed with end stage renal disease (ESRD) varies between 50-90% in the population. Reduced renal erythropoietin (EPO) production is believed to be one of the main factors contributing to the origins of the anemia. However, anemia still persists despite treatment with EPO. Resistant anemia is usually attributed to iron deficiency hyperparathyroidism and inflammation.

Aim: Our goal was to determine the main cause of anemia in hemodialysis patients treated with EPO.

Methods and Results: A cross-sectional study was conducted including data of 39 patients receiving hemodialysis and treated with EPO. Anemic patients were defined as having hemoglobine values lower than 110 g/l and constituted half of the group (51,3% $n=20$). Using above mentioned cutoff value patients were divided into two groups. Factors such as ferritin, phosphorus, calcium concentrations, PTH hormone, inflammation markers

were evaluated between the groups using appropriate statistical methods. Statistically insignificant associations between ferritin ($p=0,379$), hyperparathyroidism ($p=0,277$) and CRP ($p=0,308$) were reported. However, disbalanced globuline and albumine ratio (GA_{RATIO}) expressed as a value of 0,7 was linked to anemia ($OR = 6,55$ CI95% 1,2-36,6 $p=0,032$). GA_{RATIO} persisted as an independent risk factor in multivariate analysis adjusted for latter anemia factors ($OR=7,21$ CI95% 1-52 $p=0,05$).

Conclusions: Every second patient diagnosed with ESRD has anemia despite the treatment with EPO. Conventional factors associated with anemia in ESRD did not correlate with factual anemia proposing a more complex nature of the pathophysiology of the process. However, the established link between anemia and disbalanced GA_{RATIO} showed its potency to predict anemia in ESRD patients. We note the limitations of our study being small and unrandomised and propose further research in clinical implementations of the results.

ANALYSIS OF T2 SEQUENCE AND LABORATORY PARAMETERS, EVALUATING TREATMENT WITH SOMATOSTATIN ANALOGS RESISTANCE FOR ACROMEGALY PATIENTS WITHIN A SINGLE CENTRE

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Key words. endocrinology, acromegaly, pituitary adenoma, somatostatin analogs, resistance

Introduction. Acromegaly is a chronic progressive disease caused by prolonged STH hypersecretion, followed by IGF-1 increased excretion, causing acromegaly a typical clinical picture, complications and increased mortality. The goal of treatment is to restore normal STH secretion, age and gender-specific IGF-1 levels. Medical treatment often is the primary form of treatment. First-line medications are somatostatin analogues (SA). According to the data of the world around 25% of acromegaly patients will experience resistance to SA. Resistance to SA therapy evaluate the differences in disease duration, treatment duration, body mass index, gender, patient's age and other characteristics.

Aim. Retrospectively analyze T2 sequence and laboratory indicators of resistance to SA of acromegaly patients for evaluation within one center.

Materials and methods. The research work includes data from outpatient cards in RAKUS "Gaijezers" with a diagnosis of acromegaly. The data collected retrospectively analyzed, processed with statistical processing program MS Excel.

Results. The study included 24 patients (15 women, 9 men) with a diagnosis of acromegaly, for whom the treatment with SA used. Among those – 4 patients after surgery, 2 patients after radiotherapy and 5 for whom the two treatments were used. The average age of patients is 54 ± 14 (mean \pm SD). The average disease duration is 8.4 years (1-26 years). The duration of treatment is 5 to 182 months (average 68 months). The efficacy of treatment was evaluated by three parameters: reduction of adenoma, STH and IGF-1 levels in control. Reduction of adenoma was observed in 33.3% (n=8, p=0.01), STH control 70.8% (n=17, p=0.03), IGF-1 control reached 45.8% (n=11, p=0.04). Positive dynamics by three parameters n=2, hormonology control n=8, isolated STH n=9, and IGF-1 n=2 control; patients for whom the dynamics wasn't observed n=5. Evaluating the data after lengths of the disease in groups: 1 to 5 years (n=7): adenoma n=2, STH control n=3, IGF control n=2; in a group of 6-10 years (n=10): adenoma n=3, n=8 STH, IGF-1 n=4; in a group above 10 years (n=7): adenoma n=3, STH control n=6, IGF-1 n=5. STH and IGF-1 correlation with disease duration $r = - 0.3$ and $r = - 0.1$. By somatostatin analog therapy length in a group of 5-25 months (n=8): 25.0% adenoma (n=2), STH control 50.0% (n=4), IGF-1 37.5% (n=3); in a group of 60 to 100 months (n=10): 40.0% adenoma (n=4), STH 80.0% (n=8), IGF-1 control 40.0% (n=4); from 110 to 182 months (n=6): adenoma 33.3% (n=2), STH control 83.3% (n=5), IGF-1 66.7% (n=4). Depending on the female gender: adenoma n=4, n=6 STH, IGF-1 n=6; male: adenoma n=4, n=9 STH, IGF-1 n=3. Patients with a body mass index of 18.5-25 (n=5): adenoma n=1, n=2 STH, IGF-1 n=2; BMI 25-30 (n=10): adenoma n=3, n=6 STH, IGF-1 n=4; BMI 30-35: adenoma n=3, n=5 STH, IGF-1 n=3; BMI 35-48: adenoma n=1, n=5 STH, IGF-1 n=3. The results of patients for whom only drug therapy was used n=13: adenoma n=5, n=9 STH, IGF-1 n=8; patients who have previously been treated surgically and radiotherapy n=11: adenoma n=3, n=9 STH, IGF-1 n=3. In patients with secondary diabetes (n=9): adenoma n=1, n=5 STH, IGF-1 n=3. Initial results of hormonology: STH mean 9.2 ng/ml (range 0.25-127) IGF-1 mean 318 ng/ml (range 102-863). Compared with the beginning of the treatment, STH has fallen by an average of 64.4% (n=19). IGF-1 has reduced 79% of patients

on average by 52.1% (n=19). For 18 patients STH and IGF-1 decrease of >20%.

Conclusions. The reduction of adenomas was observed in 33.3%, 70.8% STH control, IGF-1 control reached 45.8%. Compared with the beginning of the treatment, STH has fallen by an average of 64.4%, IGF-1 by 52.1%. Since the rate of reduction is more than 20% of the initial, we conclude that no resistance to somatostatin analogs was observed. IGF-1, STH and T2 sequences can be considered disease predictors, of which the latter should be examined further, since T2 signal intensity predicts biochemical outcome of first-line treatment SA. In our pilot study data no statistically significant correlation between the duration of illness, duration of treatment, body mass index, gender, secondary diabetes mellitus that are mentioned in the literature as the possible causes of resistance displayed.

CLINICAL RELEVANCE OF CARDIOVASCULAR RISK FACTORS IN SECONDARY PREVENTION IN LATVIA

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Key words. Coronary heart disease, Risk factor management, Secondary prevention

Introduction. In spite of advanced methods of diagnostics and treatment, mortality rate due to cardiovascular disease (CVD) still remains high, causing approximately 57% of all deaths every year, according to the calculations of the Centre of Disease Prevention and Control of Latvia. Secondary prevention of CVD is an important part of its management, which allows to reduce complication risks and mortality. This study was processed as a part of the epidemiological study „EUROASPIRE IV” by European Society of Cardiology.

Aim. To investigate the dynamics of cardiovascular risk factors in patients with coronary heart disease (CHD) and diabetes mellitus (DM) and evaluate the quality of secondary prevention and lifestyle changes in Latvia.

Results. 270 patients were included in “EUROASPIRE IV” after receiving treatment of a cardiovascular event (CE). 165 parameters were

defined for the database for each patient. The results were analyzed and processed by using descriptive statistics methods (SPSS statistics software). 1.03 (± 0.05204) years after CE patients were invited to a follow-up visit for interview and examination. 61.5% of them were male ($n = 166$), 38.5% – female ($n = 104$). The median age was 64.2 (± 0.749) and 67.7 (± 0.803) years for men and women respectively. During the analysis of case histories completed during the hospitalization due to cardiac event it was discovered that 76.5% of men and 87.5% of women had history of arterial hypertension, 66.3% of men and 69.2% of women – dyslipidemia, 12.7% of men and 17.3% of women – known DM, and the median Body mass index (BMI) was 28.0 (± 0.584) kg/m^2 and 29.8 (± 0.625) kg/m^2 for men and women respectively. 43.6% of men and 44.7% of women were overweight (BMI 25 – 29.9 kg/m^2), and 39.4% of men and 40.8% of women were obese (BMI ≥ 30 kg/m^2). 19.9% of men and 7.7% of women were smokers. As a result of the follow-up visit it was noted that 62.7% of men and 25.0% of women were current or former smokers. The median duration of smoking was 28.9 (± 1.481) and 25.8 (± 2.695) years among men and women respectively. 28.7% of men and 31.0% of women had impaired glucose tolerance, but 18.9% of men and 22.0% of women were diagnosed with DM. 65.7% of men and 65.4% of women revealed that their eating habits were unhealthy, and 41.0% of men and 46.0% of women were still overweight. However, only 13.9% of men and 14.4% of women admitted that they have tried to reduce their body weight.

Conclusions. Despite the therapy within 1 year the incidence of risk factors (BMI, body weight, glucose level, smoking) does not improve, revealing that secondary prevention has not been successful enough. It is essential to educate patients about CVD risks and complications.

RENAL REPLACEMENT THERAPY OUTCOME ANALYSIS OF INCIDENT PATIENTS IN LATVIA WITHIN A PERIOD OF ONE YEAR

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Key words. Renal replacement therapy, survival, end-stage renal disease

Introduction. Aging of society and increasing prevalence of diabetes and hypertension have resulted in an increased burden of end-stage renal disease (ESRD) that impacts the use of renal replacement therapy (RRT) worldwide. RRT variation between countries has been associated with demographic, economical and organizational differences and a connection has been established between macroeconomic factors and dialysis survival outcomes. Many studies have suggested that increased use of peritoneal dialysis (PD) may benefit incident ESRD patients and that PD has a potential early survival advantage in RRT population. At the moment there is no information about RRT outcomes in Latvia, therefore the main goal of this study was to investigate the patient survival on dialysis within one year.

Aim. The aim is to analyze RRT outcomes in Latvia in time period of one year and its possible relation to the applied RRT modality.

Results. 126 patients started RRT in Latvia in 2013. Mean age was $60,44 \pm 15,77$ (95% CI: 57,66 – 63,23), 59,5 % were men and 90,5% started hemodialysis (HD). Mean age of HD patients was $61,03 \pm 15,07$ (95% CI: 58,23 – 63,82) and peritoneal dialysis (PD) – $53,82 \pm 22,08$ (95% CI: 38,98 – 68,65). The most common causes of ESRD were diabetes (17%), glomerulonephritis and hypertension (both accounting for 14%). In one year after start of RRT, 23 patients (18,3%) died, of whom 20 HD, 2 PD patients and one patient after kidney transplantation. Patient 30 and 90 day survival on dialysis was 96,8% and 88,8% respectively. Early mortality is higher in hemodialysis than in peritoneal dialysis patients ($p=0,042$); 81% of HD and 86% of PD patients survived after one year on dialysis. The main causes of death were cardiovascular complications and infection, accounting for 33% and 17%. Only 2,4% of incident RRT patients received a kidney transplant in one year after starting dialysis.

Conclusions. RRT incidence rate in Latvia is among one of the lowest in Europe. 23 (18,3%) of incident RRT patients died within one year, of whom 20 HD, 2 PD patients and one patient after kidney transplantation. Only 2,4% of incident RRT patients received a kidney transplant in one year after starting dialysis. The highest patient mortality is in the first three months after starting dialysis and it is higher in hemodialysis than in peritoneal dialysis patients. Mortality rates gradually decrease over a period of the first year of dialysis. The main causes of death were cardiovascular complications and infection.

COMAPRISON OF STROKE RATE BETWEEN THE BALLOON EXPANDABLE EDWARDS SAPIEN VALVE AND THE SELF-EXPANDABLE COREVALVES FOR TRANSCATHETER AORTIC VALVE REPLACEMENT

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Background. Transcatheter aortic valve implantation (TAVI) has been used increasingly to treat inoperable or high surgical risk patients with severe symptomatic aortic stenosis. Although mortality rates are declining, stroke continues to be an issue.

Aim. The aim of our study was to compare thirty day and one year stroke rate between the balloon expandable Edward Sapien Valve (ESV) and the self-expandable Medtronic CorValve system (MCV).

Methods. 573 patients with severe aortic stenosis and high surgical risk underwent consecutively TAVI in local anesthesia between April 2010 and October 2014. Major and minor stroke was defined according to the VARC II criteria. 30 day and 1-year stroke rate and 30 day mortality were evaluated.

Results. 361 pts (age 80.6 ± 0.34 years) with severe aortic stenosis (pmean 43.1 ± 0.77 mmHg, AVA 0.68 ± 0.01 cm²) and high surgical risk (log Euroscore 22.0 ± 0.67 %) underwent successfully TAVI with the MCV and 212 pts (age 81.7 ± 0.41 years, log Euroscore 18.6 ± 0.82 %, pmean 44.2 ± 1.12 mmHg, AVA 0.68 ± 0.02 cm²) underwent TAVI with the ESV. In the total cohort occurred 12 strokes (2.1%) during the first 30 days. There was no significant difference between the 30 day stroke rate between the two valve types (MCV vs ESV= 1.7% vs 2.8%; $p=0.264$), but there were more major strokes in the ESV group (5 major stroke, 1 minor) compared to the MCV group (3 major stroke, 3 minor stroke). Atrial fibrillation (afib) was not significantly increased in pts with 30 day stroke (Pts without stroke versus pts with stroke: 47.7% versus 33.3%; $p=0.390$.) In the MCV group significantly more patients (50.7 %) showed afib compared to the ESV group (41.2%): 50.7% versus 41.2%; $p=0.02$).

Overall stroke rate during one year was 5.4 % (30/361), there was a trend of more strokes in the MCV group than the ESV group (MCV versus ESV: 6.4% versus 3.7%; $p=0.251$). 56.7% of these 1-year stroke pts demonstrated afib, whereas only 33.3 % of patients with a stroke within 30 days suffered from afib.

30-day mortality was significantly higher in patients with stroke compared to those without stroke (25% versus 3.9%; $p=0.013$)

30 day mortality in the MCV group (5.5%) compared to the ESV group (2.4 %) was higher, but this did not reach statistical significance ($p=0.052$).

Conclusion. TAVI was associated with a 30-day stroke rate of 2.1 % and a one year-stroke rate of 5.4%. There was no significant difference in 30-day and 1 year stroke rate between the two valve types, although there was a trend of a higher 1 year stroke rate in the MCV group. 30 day mortality was significantly higher in patients with stroke.

PRIMARY HEALTH CARE IN STATE SOCIAL CARE CENTER INHABITANTS WITH MENTAL DISORDERS

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Key words. State social care center, mental disorder, primary healthcare.

Introduction. There are many stereotypes and mainly negative opinions on the subject of the State social care center (hereinafter - SSCC) provided medical care. SSCC inhabitants with mental disorders are at risk for various diseases because of the use of psychotropic medications also due to their reduced ability to critically assess their state of health. These inhabitants are highly dependent of the care centers health care policy.

Aim. The aim of our study is to evaluate primary health care in State social care center inhabitants with mental disorders.

Results. The study included 122 SSCC inhabitants (females - 47, males - 75) with a mean age of 49,47 years. The average number of years spent in SSCC is 5,54 years. The average number of family physician visits there during the year is 10,86 times. SSCC inhabitants with severe mental retardation were visited by a family physician an average of 8,75 times per year, with moderate mental retardation – 8,70 times, but with mild mental retardation – 13,33 times and with schizophrenia 13,68 times ($p<0,05$). The most common comorbidities among SSCC inhabitants were primary arterial hypertension (22%), spondylosis (16%) and epilepsy (14%). 28 people (23%) had no comorbid conditions diagnosed, these people were also statistically significantly less common to be visited by a family physician during the year

compared to people with at least one comorbidity (8,00 vs. 11,71; $p=0,001$). Blood cholesterol level was measured at least once in 16% of SSCC inhabitants, of whom 73,7 % also had a diagnosis of schizophrenia. Blood cholesterol level was statistically significantly more often measured in people with schizophrenia, than in people with other diagnoses ($p=0,018$). The most common cause for hospitalization in general hospitals was respiratory diseases (32%). During their stay at SSCC 38% of inhabitants at least once were attended by a dermatologist, 36% by an ophthalmologist, 34% by a surgeon, but neurologists and oncologists (both 7%) visited patients the least. Also 96% of female inhabitants during their stay at SSCC at least once were visited by a gynaecologist.

Conclusions. The amount of family physician visits in SSCC is high; however, there is a statistically significant difference in the number of visits among different mental disorder diagnoses. The most common comorbidity is hypertension. Blood cholesterol levels were measured in only a small fraction of SSCC inhabitants, also it was mostly measured in people with schizophrenia diagnosis. The most often visited medical specialist was dermatologist, meanwhile the least visited were oncologists and neurologists. The study is ongoing.

THE INCIDENCE AND POTENTIAL RISK OF CARDIOVASCULAR EVENTS IN PATIENTS WITH DIFFERENT ORAL ANTICOAGULANT THERAPY

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Key words. Oral anticoagulant, cardiovascular event.

Introduction. Long-term use of anticoagulant therapy is applied for patients with various range of conditions such as atrial fibrillation (af), deep vein thrombosis (dvt), pulmonary embolism (pe), artificial heart valve, prevention of blood clots e.g. Genetic clotting disorders, stroke and heart attack. Currently treatment with vitamin k antagonists (vka) is being widely replaced with the new oral anticoagulants (noacs), such as dabigatran, a factor iia inhibitor, or the factor xa inhibitors rivaroxaban and apixaban due to noacs ability to cause less side effects and easier way of medication dosage for patients.

Aim. The aim is to determine the incidence and risk of cardiovascular events (cve) among patients with different long-term anticoagulant therapy. Compare the incidence of cve between patients with/without chronic kidney disease (ckd) stage 3-5 or current oncological pathology.

Results. During the study 1136 patient charts from riga stradins university hospital archive were analyzed and 40 patients were surveyed. Out of 104 patients included within the study, 65,4% received vka, 19,2% received rivaroxaban and 15,4% were treated with dabigatran. There were no patients treated with apixaban. The study shows that there is no clinically significant difference ($p < 0,001$) of cve incidence between patients treated with vka and noacs. Among the patients who were treated with vka 28,4% had a cve, however, in 30% patients treated with rivaroxaban and 31,3% with dabigatran a cve was detected during the time of treatment. Between patients with and without ckd stage 3-5 or current oncological pathology no clinically significant difference for cve incidence was seen.

Conclusions. The majority of patients are still treated with vka that binds to both - the costs and the gained trust in medical field due to its use in practice for many years. Unfortunately the survey revealed that most of the patients receiving vka do not control the international normalized ratio (inr) as frequently as they should. Meaning, that inr is not always kept in the range of 2.0 – 3.0 that could be a reason for higher cve incidence than among the patients receiving noacs. Not always before the initiation of the oac therapy the risk of bleeding is taken into consideration. Regarding the relatively small number of patients in high-risk groups (with ckd stage3-5 or current oncological pathology) that were included in the study, it is difficult to analyze the actual risk of cve. Conclusion of the study: the study should be continued in order to obtain more accurate data.

ATRIAL FIBRILLATION: CLINICAL EVENTS AND RISK OF RELAPSE AFTER THE ELECTRIC CARDIOVERSION

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Key words. Electrical cardioversion.

Introduction. Atrial fibrillation [AF] is a supraventricular tachyarrhythmia characterized by non-coordinating rapid rhythm. AF is dangerous mainly with its most frequent complications.

Aim. To evaluate the frequency of AF paroxysm relapses after electrical cardioversion. To evaluate the frequency of other clinical cardiac events after electrical cardioversion.

Results. Information on 132 patients from P. Stradiņš University Hospital archives was compiled, of whom 37.1% (49) were women and 62.9% (83) were men.

113 patients were surveyed, of which 69.02% (78) were male and 39.82% (45) women.

On the day of survey AF had 27.3% (36) of the patients, while 58.3% (77) patients had sinus rhythm. 50.9% (28) of patients who do not use anti-arrhythmics on the survey day had AF, but sinus rhythm had 49.1% (27), while 22.2% (2) of patients who used independently propafenone on the survey day had AF, but 77.8% (7) had sinus rhythm. 0% (0) patients taking ethacizine on the survey day had AF, 100% (9) patients had sinus rhythm. Patients taking amiodoron on the survey day - AF had 16.1% (5), sinus rhythm had 83.9% (26). Patients who had been taking any other medicine from anti-arrhythmic group on the survey day with AF was 0% (0) and with sinus rhythm was 100% (7) ($p = 0.000$). During the control AF paroxysm was found with 28% (37) of the patients, 15.2% (20) of the patients already had AF as an independent form, 42.4% (56) of the patients claimed that they have not detected AF paroxysm. Patients who do not use anti-arrhythmics - AF paroxysms are observed in 46.2% (18) and in 53.8% (21) AF paroxysms are not observed. Patients taking propafenone: AF paroxysm was observed in 77.8% (9) and was not observed with 22.2% (2). Patients taking ethacizine: AF paroxysm is in 22.2% (2) and 77.8% (7) AF paroxysms is not. Patients receiving amiodoron: AF paroxysm is in 14.8% (4) and 85.2% (23) is not.

During the control 2.7% (3) of the patients were hospitalized due to arterial hypertension (AH) crisis. 0.9% (1) of the patients were hospitalized due to pulmonary artery tumor embolism (PATE). 0.9% (1) of the patients were hospitalized due to infection. 1.8% (2) of the patients were hospitalized due to cerebral stroke. 23% (26) of the patients were hospitalized due to repeated AF paroxysm.

Conclusion. The majority of patients after electrical cardioversion maintained sinus rhythm. Regular use anti-arrhythmics increases the possibility of maintaining sinus rhythm and prevents the occurrence of AF

paroxysm. The most effective anti-arrhythmic for AF paroxysm prevention after electrical cardioversion is amiodoron.

The most common cause of re-hospitalization in patients after electrical cardioversion is the relapse of AF.

SLEEP QUALITY AND DEPRESSION IN PERITONEAL DIALYSIS PATIENTS

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Keywords. Sleep quality, Depression, Peritoneal Dialysis

Introduction. Sleep disturbances are frequent in peritoneal dialysis (PD) patients. This study examines interconnectedness between Sleep quality (SQ) and depression (D) severity in PD patients, and relationships of these measurements and certain laboratory and clinical findings.

Aim. To detect possible connection in SQ and D in PD patients, using Pittsburgh Sleep Quality Index (PSQI) and Depression Test Questionnaire (PHQ 9). To establish association between these showings and certain laboratory and clinical data, by using SPSS software for statistical analysis.

Results. 50 Patients (pts) from PD department of PSCUH were included in this study (50% of them were male). Mean age of subjects was 60,7 ±16,5 years, dialysis duration 29,9 ±30,2 month. Poor sleep quality was detected in 66% of cases (PSQI ≥5). Mean PSQI score 8,16 ±4,71. According to PHQ 22% of pts were diagnosed to have Major Depression (MD), 16% Depressive Disorder (DD) and 62% did not show depression. 100% of pts who were diagnosed with MD had poor sleep quality. 42% of pts are maintaining Continuous Ambulatory Peritoneal Dialysis (CAPD), 34% Automated Peritoneal Dialysis (APD) and 24% had had Peritoneal Dialysis Catheter Insertion (PC), but had not started dialysis yet. Pts maintaining CAPD tend to have poor sleep quality, compared to APD and PC (p=0,01). 12% of pts had diabetes mellitus, mean HbA1c was 8,06 % ±2,4%. A negative correlation between pts age and HbA1c was detected (r=-0,978, p= 0,001). Mean C-reactive protein (CRP) was 11,6 ±42,99 mg/L. Pts with DD shown higher CRP

measurements, than pts without DD ($p=0,022$). A correlation between pts age and CRP was noticed ($r =0,322$, $p =0,023$), as well as tendency of correlation between CRP and PSQI ($r = 0,262$, $p =0,066$).

Conclusion. Sleep disorders, MD and DD are common in pts with PD (66% and 22%, 16%, respectively). All our pts with MD had poor SQ. Patients with CAPD tend to have poor SQ compared to pts with APD and PC ($p=0,01$). Inflammation state statistically significant impacts on sleep disturbances and depression in PD pts. Monitoring of SQ and D in our PD patients and adequate treatment is important in order to improve quality of life in PD patients.

THE CORRELATION BETWEEN PULMONARY EMBOLISM EARLY MORTALITY RISK AND ATRIAL FIBRILLATION RISKS

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Key words. atrial fibrillation, pulmonary embolism, risk factors, early mortality risk.

Introduction. Pulmonary emboli usually arise from thrombi that originate in the deep venous system of the lower extremities, also the right heart chambers. Right intracardiac thrombosis is a potential cause of pulmonary embolism similar to that of stroke in left-sided intracardiac thrombosis. One of the main reasons for that is atrial fibrillation.

“2014 ESC Guidelines on the diagnosis and management of acute pulmonary embolism” aims that atrial arrhythmias, most frequently atrial fibrillation, may be associated with acute pulmonary embolism.

The incidental discovery of clinically unsuspected pulmonary embolism on computer tomography is an increasingly frequent problem, most often in patients with cancer, but also among those with atrial fibrillation.

Aim. To evaluate a correlation between early mortality risk of pulmonary embolism and atrial fibrillation risks using risk scores CHADVASC; HASBLED.

Results. In retrospective chart review in Pauls Stradiņš Clinical University Hospital, Latvia between January 1, 2014 and December 31, 2014, out of 97 patients (61.9% female and 38,1% male) with pulmonary embolism, atrial fibrillation was diagnosed in 26 cases (26,8%).

20 (20.6%) of them were permanent atrial fibrillation, 2 (2.1%) were persistent atrial fibrillation, 4 (4.1%) paroxysmal atrial fibrillation. 61.9% of them were women and 38.1% were men.

Out of 11 (11.3%) death cases in this period of time 6 (6.1%) patients were diagnosed with atrial fibrillation.

Conclusion. In this study at the time we can see correlation tendencies ($p=0,078$) between risk score for major bleeding HASBLED and early death risk in patients of 32nd ward (cardiological) in Riga Stradiņš University with diagnosed pulmonary embolism. Further investigation is needed. The rest of the results will follow in RSU International Student Conference in Health and Social Sciences 2015.

PHARMACOKINETICS OF METFORMIN IN 21 HEALTHY PARTICIPANTS AFTER 500 MG SINGLE ORAL DOSE ADMINISTRATION

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Key words: Metformin, Pharmacokinetics, LC-MS/MS

Introduction. Metformin is widely used drug to treat patients with type 2 diabetes mellitus (T2DM). To get the most beneficial results from therapy with metformin, it must have individualized prescription.

Aims. The aim of our study is to identify variability between individuals according to pharmacokinetic (PK) parameters of metformin in plasma, erythrocytes and urine, and use obtained data to individualize selection of antidiabetic therapy.

Methods. 21 healthy volunteers (6 men and 15 women, age range 22-49) were investigated after a single oral dose of 500mg of metformin (Metforal Berlin Chemie). For analysis of PK parameters venous blood and urine samples were taken in 7 time points up to 24 h after drug administration according to the study protocol (Ethical review Nr.201212-10L). All plasma,

urine and erythrocyte samples were stored at -20 C until determination of metformin by using liquid chromatography-tandem mass spectrometry (LC-MS/MS) assay.

Results. Especially for our study liquid chromatography-tandem mass spectrometry (LC-MS/MS) assay was developed and used to determine quantity of metformin in plasma, erythrocytes and urine. C_{\max} (maximum observed concentration) and t_{\max} (time point of observed C_{\max}) and AUC_{0-24} (area under curve) were both obtained directly from the measured data. $C_{\max/\text{plasma}}=395,55-1294,13$ ng/mL ($704,075\pm395,55$), $t_{\max/\text{plasma}}=1-3$ h ($2,15\pm0,91$), $AUC_{0-24/\text{plasma}}=2631,9-9396,8$ ng*h/mL ($5157,9\pm1478$). $C_{\max/\text{erytr.}}=84,32-290,70$ ng/mL ($158,5\pm61,2$), $t_{\max/\text{erytr.}}=6-10$ h ($9,6\pm1,2$). $C_{\max/\text{urine}}=66,42-1025,42$ µg/mL ($373,685\pm270,398$), $t_{\max/\text{urine}}=3-10$ h ($5,65\pm2,8$). Serum creatinine = $73,67\pm11,73$ µmol/L. $AUC_{0-\infty}$, (area under curve from time 0 extrapolated to infinite time), k (elimination rate constant), elimination half-life ($t_{1/2}$), V_d (volume of distribution), Cl (clearance), bioavailability (F) were calculated by using standard equations. Results show great diversity of obtained pharmacokinetic parameters.

Conclusions. As results show variability between individuals according to PK parameters of metformin, the next step will be to combine results with gene variants coding metformin transporters to identify novel markers of metformin individualized therapy.

CLINICAL OUTCOMES ONE YEAR AFTER CAROTID ARTERY STENTING

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Key words. angioplasty, carotid arteries, stenosis, stroke, revascularization

Introduction. Atherosclerotic lesions in coronary arteries are frequently accompanied by lesions in other vascular beds including carotid arteries. Although historically carotid endarterectomy was considered as the gold

standard for the treatment of carotid artery stenosis, the widely referenced Carotid Revascularization Endarterectomy vs. Stenting Trial (CREST) demonstrated that the clinical outcome rates after carotid artery stenting (CAS) and surgery are comparable.

Aim. The aim of this study was to analyse the 30 day and one year rates of stroke, cardiovascular (CV) death, myocardial infarction (MI) after CAS performed by interventional cardiologists in a real life clinical setting.

Methods and results. A total of 184 patients underwent CAS between January 2011 and December 2013 and were included in a single centre registry. The inclusion criteria were angiographically confirmed internal carotid artery diameter stenosis $\geq 50\%$ for symptomatic and $\geq 75\%$ for asymptomatic patients. The majority of the study patients were male (73.9%) and had no history of stroke or transitory ischemic attack (71.9%). Concomitant coronary artery disease (CAD) was observed in 91.7% of patients and 71.9% of the study population had multivessel and/or left main CAD. Most of the patients (86.4%) had at least one high surgical risk criteria. The procedural success rate was 98.4%. The 30 day and one year stroke rates in the study population was 4.1% and 4.5%, respectively. The frequency of stroke/CV death/MI was 5.8% within the 30 day and 10.9% within the year period. Factors that increased the risk of stroke/ CV death/ MI were age ≥ 80 years (OR 6.85; 95%CI 2.28-20.65; $P < 0.01$), previous MI (OR 2.83; 95% CI 1.01-7.89; $P = 0.049$), congestive heart failure (OR 2.31; 95% CI 1.15-23.80, $P = 0.03$) and structural valve disease (OR 7.40; 95%CI 2.66-20.58, $P < 0.01$).

Conclusions. The study demonstrated acceptable clinical outcome results in patients one year after CAS. Minimal adverse event rates could be achieved despite high medical comorbidities. However, a careful patient selection should be done in asymptomatic patients and octogenarians.

ANALYSIS OF VACCINATION RESULTS AGAINST HEPATITIS B IN PERITONEAL DIALYSIS PATIENT POPULATION

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Introduction: Vaccination against hepatitis B is recommended for all chronic kidney disease (CKD) patients as early as possible. In the later stages of the disease, especially in the dialysis stage, the primary response to the

vaccination with seroprotective anti-HBs levels (>10 mIU/mL) is significantly lower. The reported seroconversion rate with anti-HBs levels >10 mIU/mL in dialysis patients varies from 67%-86%. Whereas the protective seroconversion rates in a healthy population even after 3 vaccines are $>90\%$. The reported annual persistence of seroprotective anti-HBs in primary responders varies among studies from 75-82%.

Aim: The aim of this study was to analyse primary anti-HBs response rates in peritoneal dialysis patients vaccinated against hepatitis B, the persistence of seroprotective anti-HBs levels among primary responders during the year after vaccination and the possible clinical and demographical factors influencing these outcomes.

Results: From the 170 retrospectively analysed patient records 47 met the inclusion criteria. On average these patients received the 1st vaccine 1 month after the initiation of peritoneal dialysis (PD). The mean GFR at the beginning of vaccination was 9 ml/min. On the 1st month after receiving 4 vaccines according to the recommended schedule for dialysis patients, seroprotective levels of anti-HBs developed in 31 out of 47 patients (66%). The mean anti-HBs level on the 1st month after vaccination was 350,1 mIU/mL. On the 6th month after vaccination anti-HBs levels stayed seroprotective in 23 out of 26 primary responders (88%). The mean level of anti-HBs in these 26 patients was 135,1 mIU/mL. 15 out of 16 (94%) patients from those, who had seroprotective anti-HBs levels at the first 6 months after vaccination, retained seroprotective anti-HBs levels a year after the vaccination. The mean anti-HBs among these 16 patients was 123,5 mIU/mL. On the 1st month after vaccination higher anti-HBs levels were observed in women ($p=0,022$). A tendency of lower anti HBs levels was observed in patients, who received additional immunosuppressive medication ($p>0,05$). Diabetics and non-diabetics had a tendency for similar anti-HBs levels at the 1st month after vaccination ($p>0,05$). Primary responders had a tendency for lower mean age, BMI, ferritin, triglycerides, creatinine, PTH and also a tendency for higher serum albumin, urea ($p>0,05$). Haemoglobin, cholesterol, GFR, phosphate, calcium levels were similar among primary responders and non-responders ($p>0,05$).

Conclusion: In the PD patient population initial seroprotective response rates even after the recommended intensified vaccination schedule for dialysis patients are significantly lower, than in healthy patient populations. This is especially true for men and possibly for patients with larger BMI, ferritin, triglyceride, creatinine and PTH levels, but with lower levels of serum albumin, cholesterol, and urea. Additional immunosuppressive therapy could

also possibly lower the response rates to hepatitis b vaccine. Larger studies are needed to confirm these tendencies. Since some of the primary responders lost the seroprotective anti-HBs levels during the next year, these patients should be checked for anti-HBs rates every six months.

IGA NEPHROPATHY: FROM CLINICAL MANIFESTATION TO TREATMEN

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Key words. Nephrology, autoimmune disease, IgA.

Introduction. IgA nephropathy (IgAN) is the most common primary glomerulopathy (GP). IgAN can affect people in all ages but is more often diagnosed in the second and third decades of life. IgAN may cause asymptomatic haematuria, episodes of gross haematuria, rarely nephrotic syndrome, acute kidney injury and progressive renal failure.

Aim. To investigate clinical manifestations and outcomes of patients with IgAN in one centre. Whether they are as benign as food in scientific literature.

Results. The study includes 20 patients with IgA nephropathy, confirmed by renal puncture biopsy during the last two years (13.01.2013.-22.01.2015.). The mean age of all patients was 37 ± 12.7 years. Most of the patients were male (75%). 40% of all patients were overweight (BMI >25), but 25% had severe adiposity (BMI >30). At the moment of renal puncture biopsy all patients had haematuria and proteinuria. Mild proteinuria was noticed in 50% of all patients, but the other half had nephrotic proteinuria. Daily proteinuria was 1.5 -11.59 g, with median value of 3.5g. Arterial hypertension (AH) was diagnosed in 85% of all cases. The mean time till confirmation of diagnosis was 65.3 ± 47.8 months. The angiotensin converting enzyme inhibitors (ACE inhibitors) and angiotensin II receptor blockers (ARBII) was prescribed in 80%, glucocorticoids only in 15% or combined therapy (steroids and cyclophosphamide or azathioprine) in 15% of cases. Some patients have concomitant diseases such as primary focal segmental glomerulosclerosis (1 patient), light chain deposition disease (1 patient) and rapidly progressive glomerulonephritis (1 patient). 65% of all patients have developed chronic kidney disease (CKD, delayed 35%), and have secondary symptoms such as

arterial hypertension (38%), anemia (23%) and hyperparathyroidism (46%). At the moment 18 patients continue treatment in outpatient department, and two patients have started dialysis treatment.

Conclusions. Preliminary results provide evidence that IgAN is the most common cause of primary GP. The majority of patients in the present study have unusually severe manifestations of IgAN (nephrotic syndrome, AH and delayed CKD). Most of the patients are in their second or third decades of life. ACE inhibitors and ARBII were used in all studied patients with AH, but none in normotensive patients with proteinuria. Only corticosteroids or their combination with other immunosuppressive agents were used for 30% of analyzed patients. Most of the patients continue treatment in ambulance, but whether this therapy alienates renal replacement therapy could be shown in further research. In our study cohort of patients we found more severe clinical expressions and treatment options of IgAN than usually described. Whether it is sampling error due to performed biopsies only in more severely ill patients, remains to be investigated further.

ANALYSIS OF JUSTIFICATION TO TEST THE LEVEL OF VITAMIN B12 IN PATIENTS OF PAULS STRADIŅŠ CLINICAL UNIVERSITY HOSPITAL

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Key words. B12 deficiency, megaloblastic anemia, cobalamin deficiency.

Introduction. Vitamin B12 deficiency is a very common cause of macrocytic anemia, and its level should be determined in every patient with macrocytic anemia. And as low B12 levels are unlikely to be seldom seen without macrocytic anemia, its level should not be determined in the absence of macrocytosis.

Aim. The aim of this retrospective study was to investigate the patterns of vitamin B12 testing to see if they concur with accepted guidelines and therefore are cost effective.

Methods. We retrospectively reviewed every blood analysis request made in 2014 at Pauls Stradiņš Clinical university hospital Transplantology

Centre laboratory and identified those requesting the cobalamin level in blood. Results of identified B12 level tests made during November and December, 2014 were then compared with the patient's full blood count (if available) to check for signs of macrocytic anemia.

Separately we selected 3 different dates in each of the two months (November and December) and identified all full blood count tests, where erythrocyte level was above normal (100 fL), and compared the patient data with the previously acquired list of patients tested for B12 deficiency, to check how many patients with macrocytic anemia are being tested for vitamin B12 deficiency.

Results. In 2014 888 patients were tested for B12 deficiency, of those 132 were tested for macrocytic anemia within period between 1st November and 31st December, 2014 (77 females and 55 males were analyzed). Mean age of patients was 60 years. Of all the results, 13 patients had decreased cobalamin level, 94 had normal cobalamin level and 25 had increased cobalamin level. 29 had macrocytic anemia and 30 had other type of anemia, 53 patients of which one was a child born on 1999 did not have complete blood count despite the fact their cobalamin level was measured, 20 patients did not have anemia at all.

Not all people with macrocytic anemia had decreased vitamin B12 level (21 patients) and not all patients with decreased vitamin B12 level had macrocytic anemia (3 patients). Only 10 patients with macrocytic anemia had decreased cobalamin level.

1567 complete blood count tests were made on November, 2014 (3.11., 15.11., 27.11.) and December, 2014 (5.12, 17.12, 29.12.). 69 patients had macrocytic anemia but only 5 were tested for vitamin B12 deficiency.

Conclusions.

1. The results show that a decreased level of cobalamin in patients with macrocytic anemia is not a common finding, as there were twice as many patients with macrocytic anemia and normal or elevated cobalamin level as there were patients with macrocytic anemia and decreased level of cobalamin.

2. Despite the fact that the most likely cause of macrocytic anemia is B12 deficiency, in our small sample only 3,45% of patients with macrocytosis were tested for B12 deficiency (5 of 69 patients) which might suggest level of vitamin B12 is not tested according to guidelines.

INFLUENCE OF HISTOLOGICAL LESIONS ON FUNCTION AND SURVIVAL OF KIDNEY GRAFTS

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Keywords. Transplantation, graft function, graft survival.

Introduction. Renal transplantation has become the treatment of choice for most patients with end-stage chronic kidney disease. The renal graft survival rate has increased significantly with improvement in immunosuppressive medications. Several methods have been used to diagnose renal allograft dysfunction, including clinical evaluation and laboratory tests; however, core biopsy remains the “gold standard” for the diagnosis of renal graft dysfunction.

Aim. To estimate the association between severity of histological changes in renal graft biopsies and graft function (estimated by MDRD formula) and survival.

Results. The study included 57 patients, 33 (58%) women and 24 (42%) men, whom core biopsy of graft has been done from January 2013 till January 2014. The average age of the patients was 43 years, the oldest patient 71 and the youngest 12 years old. For 5 (9%) patients that was second kidney graft. Biopsies were taken approximately 4 years and 4 months after transplantation. 8 (14%) patients have lost their grafts in the period of one year after biopsy.

There was found glomerulitis in 20 (35%) biopsies, 9 (16%) biopsies with glomerulopathy, 14 (25%) mesangial matrix increase, 13 (23%) with tubular damage, 10 (18%) with interstitial inflammation, 7 (12%) with peritubular capillaritis, 24 (42%) with interstitial fibrosis and 30 (53%) with tubular atrophy, 3 (5%) with arteritis and 22 (39%) with chronic vascular changes, 25 (44%) with PAS-positive hyaline thickening and 35 (61%) with C4d deposits. For 17 (30%) patients was found less than 30% sclerosed glomeruli and for 6 (11%) patients was sclerosed more than 30% from all glomeruli.

For 15 (28%) patients was diagnosed acute humoral rejection, for 4 (7%) patients acute cellular rejection, 19 (33%) chronic humoral rejection, 11 (19%) chronic allograft nephropathy, for 8 (14%) patients was found borderline changes (Banff classification), in 5 (9%) biopsies was found vacuolization of proximal tubular epithelium, which may be histological features of calcineurin inhibitor toxicity.

Worse graft function (GFR <30ml/min) on biopsy day was associated with more severe interstitial fibrosis ($p<0,001$), tubular atrophy ($p=0,061$) and C4d deposition ($p= 0,022$). Worse graft function (GFR <30 ml/min) after a year was for patients with interstitial fibrosis ($p< 0,001$) and tubular atrophy ($p=0,005$) and with higher percentage of sclerosed glomeruli ($p=0,089$). The graft function deterioration after a year was statistically significant associated with any severity chronic glomerular lesion ($p=0,004$) and mesangial lesion ($p=0,019$), but not with chronic tubular or vascular lesions or C4d deposition.

There was association in the one-year graft survival with severity of peritubular capillaritis ($p<0,001$) and interstitial fibrosis ($p= 0,03$).

Conclusions. Histological lesions detected by kidney graft biopsy are significant determinants for graft function and survival. For this study population graft function was dependant of glomerular, but not of tubular or vascular lesions. Graft survival was determined by severity of peritubular capillaritis and interstitial fibrosis.

EVALUATION OF CARDIAC SYSTOLIC FUNCTION IN PATIENTS WITH A FIRST ACUTE MYOCARDIAL INFARCTION WITH ST SEGMENT ELEVATION AFTER PRIMARY PERCUTANEOUS CORONARY INTERVENTION

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Key words. Primary PCI, ECHO KG, reperfusion time, systolic function.

Introduction. Primary percutaneous coronary intervention (PCI) is one of the main methods of treatment in patients with coronary artery disease, acute coronary syndrome and effort angina. Primary PCI is better than intravenous thrombolysis for the immediate treatment of STEMI. Primary PCI is indicated for patients with STEMI in all centers where there is a possibility to perform this procedure. It is important to reduce the delay time of primary PCI, especially for the first 2 hours of the symptom onset. Notwithstanding the above, various studies on the effectiveness of primary PCI and reperfusion time effects on cardiac systolic function in patients with STEMI are contradictory. Analyzing ECHO KG data, we will be able to judge about the reperfusion time effects on cardiac systolic function and the effectiveness of PCI.

Aim. Evaluate the effectiveness of primary PCI in patients with STEMI first analyzing cardiac ischemia time and systolic function after PCI, interpreting ECHO KG data inpatient setting and analyze the impact of comorbidity on cardiac systolic function parameters after primary PCI in hospitals.

Materials and methods. Retrospective study, at Riga East Clinical University Hospital "Gaiļezers" archive, analyzing 104 medical records of patients with first acute STEMI at period from 01.01.2014 – 30.11.2014, who were successfully applied to a primary PCI within 12 hours of symptoms beginning. Inclusion criteria: acute first-time STEMI, successful primary PCI within 12 hours of symptom onset, systolic function assessment in a hospital with echocardiography method. Exclusion criteria: the failure of the primary PCI, NSTEMI, recurrent myocardial infarction, prior coronary artery bypass graft, cardiomyopathy (hypertrophic, dilated, the restrictive), heart valve abnormalities, arrhythmias (atrial fibrillation, flutter, AV block), renal failure, electrolyte imbalance, oncology. Data processing and interpretation of the results will be made in *Microsoft Office Excel 2007* and *IBM SPSS 20.0* program

Results. The study included 104 patients, 29,8% (n=31) of women and 70,2% (n=73) men, middle age of the patients was 62,9 years. Patients divided into four groups depending on the ischemic time from symptom onset to reperfusion: 1 group – to 120 minutes 6% (n=6), 2 group from 121 to 240 minutes 46% (n=48), 3 group from 241 to 480 minutes 33% (n=34), 4 group from 481 to 720 minutes 15% (n= 16). Occlusion of left circumflex artery was in 7,7% (n=8), left anterior descending artery 56,7% (n=59), right coronary artery 29,8% (n=31), left main coronary artery and left anterior descending artery 5,8% (n=6). There is a small negative correlation (coefficient value = - ,225) between the time from the onset of pain to treatment in primary percutaneous coronary intervention and the global left ventricular systolic function (p=0,022). There is a moderate evidence of a relationship between the occluded artery and the global left ventricular systolic function (Chi -square = 10,671 , df = 3 , p = 0,014). There is a moderate evidence of a relationship between the pulmonary hypertension (Chi -square = 9,161, df = 2, p = 0,010) and the global left ventricular systolic function. There is no evidence of a relationship between the mitral regurgitation, dyslipidemia, heart failure, smoking, alcohol abuse, primary arterial hypertension and the global left ventricular systolic function.

Conclusion. Longer intervals between the onset of symptoms and primary PCI time have a small correlation with poorer global systolic function in this study.

HEPATITIS C CAUSED LIVER CIRRHOSIS COMPLICATIONS CORRELATION WITH THE RISK OF EXITUS LETALIS

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Key words. Cirrhosis, chronic hepatitis C, complications.

Introduction. Hepatitis C is a liver disease caused by the bloodborne virus. The virus can cause acute and chronic hepatitis. According to World Health Organization, approximately 3% of the earth population is chronically infected, but many of them are unaware. Among them 10-15% will progress to cirrhosis over 20 years of infection. Cirrhosis is asymptomatic until the decompensation occurs and patient presents with life-threatening complications such as esophageal variceal bleeding, ascites, hepatic encephalopathy, hepatocellular carcinoma, hepatorenal syndrome, spontaneous bacterial peritonitis and portal vein thrombosis. Each year 350 000 to 500 000 people die from hepatitis C related liver cirrhosis complications.

Aim. The aim of the study was to retrospectively analyze potential correlation of liver cirrhosis with the risk of *exitus letalis*.

Results. Patients with liver cirrhosis due to chronic hepatitis C were retrospectively analyzed.

All the data was obtained from Riga East University Hospital from the time period of 2011 to 2014. 154 cirrhosis cases were analyzed. Most of the patients were male – 92 pts. (60%). Age was ranging from 25 to 83 years (mean 53±13), 20 (24,1%) patients with chronic hepatitis C were diagnosed for the first time, but 134 (75, 9%) – previously. From previously diagnosed, in 63 cases (47%) duration of infection was known. At the time of hospitalization most of the patients (145 or 94%) had liver cirrhosis complications. Most frequent complications were portal hypertension – 94%, which manifested with ascites – 72%, esophageal varices (71%), esophageal vein bleeding (40%), portal vein thrombosis (6%). Portal hypertension was followed by hepatic encephalopathy (25%), hepatocellular carcinoma (14%), hepatorenal

syndrome (12%) and spontaneous bacterial peritonitis (3%). During hospitalization 44 patients died from rapidly progressing severe liver complications. Statistically significant positive correlation was found between *exitus letalis* and: 1) hepatic encephalopathy ($p<0,001$), 2) spontaneous bacterial peritonitis ($p<0,001$) and 3) hepatorenal syndrome ($p<0,001$). Among other complications and *exitus letalis* significant correlation was not found.

Conclusions. Patients with complications such as hepatic encephalopathy, spontaneous bacterial peritonitis and hepatorenal syndrome, have higher *exitus letalis* risk.

PREDIALYSIS: HOW FAR TO RENAL REPLACEMENT THERAPY

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Key words. Predialysis, renal replacement therapy.

Introduction. Pre-dialysis nephrological care (PNC) definition was obtained from the Kidney Disease Outcomes Quality Initiative (KDOQI) definition and classification system of chronic kidney disease (CKD), preparation for renal replacement therapy (RRT) has been recommended in CKD stage 4, characterized by a reduction in the estimated glomerular filtration rate (GFR) of <30 ml/min. The predialysis period with patient education, vital parameters (blood pressure, hemoglobin (Hb) levels and Ca/P metabolism) more often control, timely access creation and timely start of RRT is very important for CKD patients to get the best results from treatment.

Aim. Our aim for this research is to assess population of PNC patients during the period from 2009 till 2014 and to find out the follow up duration of PNC and mean age and gender of the patients who started PNC.

Results. In this retrospective analysis we included 524 patients from Pauls Stradins Clinical University Hospital Outpatient Services of nephrology. After data processing the analysis concerns a total of 516 patients (215 male and 301 female), who initiated PNC during 6 year period (2009 – 2014). 306 patients continued PNC observation or initiated RRT. Other 210 patients were lost for follow-up. From medical records and patient surveys it is known that

92 patients have died, 90 patients are still alive, but there were no information on 28 patients. The mean age of the 306 patients at the start of PNC was $67,8 \pm 15$ years (range 22 - 98). The mean follow-up from patients who started RRT (99 patients) was $17,6 \pm 11,6$ months (range 1 - 47). 96 patients started dialysis and the duration of PNC was <12 months in 35 patients (36.5%), 12- 24 months in 38 patients (39.6%), >24 months in 23 patients (23.9%). 3 patients had preemptive kidney transplantation.

Conclusion. Preliminary analysis from our extensive amount of data provide that CKD in the pre-dialysis stage is associated with a high mortality (18%). Despite structured PNC programme, many patients were lost from care. All of the patients who started dialysis treatment had a prolonged pre-dialysis period, thereby presumably planned RRT, good clinical condition and eventually better long term prognosis. Further analysis of our study data is under way.

CUTANEOUS MANIFESTATIONS IN PATIENTS WITH METABOLIC SYNDROME

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Keywords. Metabolic syndrome, cutaneous manifestations, psoriasis.

Introduction. Metabolic syndrome (MetS) is a condition in which the patient has a central type of obesity (women > 80 cm, for men > 94 cm) and at least one of the following criteria - elevated triglyceride or glucose levels in the blood, low HDL levels and high blood pressure (according to IDF guidelines). Approximately one third of the adult population in developed countries are classified as MetS patients according to various criteria [Wong, 2007]. MetS is considered to be the main cause of today's type 2 diabetes mellitus (T2DM) and the heart and cardiovascular disease (CVD) epidemic [Esposito K., 2012]. MetS negatively affects the skin, weakening its basic functions [Akashic, 2011], the skin cells are accumulated by molecular aging characteristics and the amount of these cells can reach up to 15% of the total number of cells [Herbig et al., 2006]. Taking into account the polysymptomatic nature of the metabolic syndrome the quality of life is considerably affected.

Aim. To analyze the most common skin manifestations of the disease in patients with metabolic syndrome.

Materials and methods. The prospective study was done in Riga East Clinical University Hospital, P. Stradins Clinical University Hospital and in Clinic of Aesthetic Dermatology. In this study were interviewed and examined 39 patients, 34 of them fit the MetS criteria. Patients were defined by abdominal circumference, body length and body weight, BMI was calculated by the formula ($BMI = \text{weight [kg]} / \text{length [m]}^2$). There was measured blood pressure on both hands, there were evaluated cholesterol, lipid and glucose levels in the serum. Patient's clinical skin changes (dyspigmentation, lichenification, tumors) were visually analyzed. Patients completed the "Quality of life enjoyment and satisfaction questionnaire - an abbreviated form (Q-LES-Q-SF)" questionnaire. Statistical data processing was carried out in MS Excel.

Results. Among the 34 MetS patients there are 20 women and 14 men. The mean age among both sexes is 57 ± 6.14 years and the mean BMI is $30 \pm 3.23 \text{ kg/m}^2$. The mean waist circumference is $102 \pm 12.89 \text{ cm}$. The mean blood pressure is 140/85 mmHg. The mean results of laboratory data: total cholesterol $5.63 \pm 1.04 \text{ mmol/l}$, glucose $6.9 \pm 3.36 \text{ mmol/l}$, LDL $3.46 \pm 0.96 \text{ mmol/l}$ and HDL is $1.29 \pm 0.37 \text{ mmol/l}$. BMI of 18 patients is $25 - 29.9 \text{ kg/m}^2$, but 16 patients had obesity - $BMI \geq 30 \text{ kg/m}^2$. Clinically were identified the following skin, nail changes and diseases: psoriasis - 11 cases (95% CI 16.63 - 48.07), xerosis - 9 cases (95% CI 11.64 - 41.3), onychomycosis - 7 (95% CI 7 - 34.18), acrochordons - 6 (95% CI 4.84 - 30.46), xanthelasma - 5 (95% CI 0.93 - 22.59), acanthosis nigricans and telangiectasia - each of 3 cases (95% CI 0.71 - 18.35) parapsoriasis, androgenic alopecia, lichen sclerosis et atrophic, dermatitis lichenoides, verucae plana, melanoma (a history of resected) balanoposthitis, allergic dermatitis, acne rosacea and STI - each of 1 case (95% CI 2.74 - 8.62).

Conclusion. The most common clinical manifestation of the skin in patients with MetS is psoriasis. The identified clinical skin manifestations conform with the most common skin manifestations found in international researches.

There is no statistically significant proven correlation between the skin changes and laboratory data ($p > 0.05$) It is necessary to continue the prospective study by increasing the number of patients to be able to evaluate the metabolic syndrome correlated with clinical changes in the skin objectively.

THE EFFECTS OF ATORVASTATIN ON MITOCHONDRIAL FUNCTION IN CARDIAC AND MUSCLE TISSUES

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Key words. Atorvastatin, mitochondrial function, myotoxicity, cardiotoxicity.

Introduction. Statins, inhibitors of HMG-CoA reductase, are widely used drugs for lowering cholesterol levels and are an effective treatment for the prevention of cardiovascular diseases. The most common adverse effect induced by treatment with statins is myotoxicity, which can lead to rhabdomyolysis. However, the mechanisms underlying statin-associated myotoxicity are not well-known.

Aim. The aim of the study was to investigate the effects of atorvastatin treatment on mitochondrial function in cardiac and muscle tissues.

Methods. Wistar rats were treated daily with atorvastatin (*per os*; 150 mg/kg) for 7 days. Control animals received water. Permeabilized fibers were prepared from cardiac and muscle tissues and mitochondrial respiration measurements were performed using Clark-type oxygen sensor. LEAK respiration was measured using different substrates. PalmitoylCoA and palmitoyl-carnitine were used to determine fatty acid metabolism-dependent mitochondrial respiration. Pyruvate was used to determine glucose metabolism-dependent mitochondrial respiration. To determine oxidative phosphorylation (OXPHOS) capacity ADP-stimulated respiration was measured. In addition respiration control ratio (RCR), an index of the efficiency of oxidative phosphorylation, was calculated as OXPHOS/LEAK.

Results. In cardiac tissues atorvastatin treatment equally increased LEAK respiration with palmitoylCoA and palmitoyl-carnitine by 55%, while OXPHOS capacity was not affected. Taken together, RCR using palmitoylCoA and palmitoyl-carnitine as substrates was decreased by 42 % and 41%, respectively. The treatment with atorvastatin did not affect LEAK respiration with pyruvate, but induced a significant decrease in OXPHOS capacity by 54% and subsequent decrease in RCR by 53% compared to control group. In muscle tissues, atorvastatin treatment induced a significant decrease in LEAK respiration with palmitoylCoA by 35%, while OXPHOS capacity was not affected. RCR using palmitoylCoA as a substrate was increased by 40%. In contrast to respiration with palmitoylCoA, treatment with atorvastatin

did not affect mitochondrial respiration with palmitoyl-carnitine. The treatment with atorvastatin significantly decreased the OXPHOS capacity with pyruvate by 32% without affecting LEAK respiration and RCR.

Conclusions. The obtained results demonstrate that atorvastatin treatment-induced mitochondrial dysfunction is more pronounced in cardiac tissues than in muscle tissues. Overall, statin-induced adverse effects are related to the reduced efficiency of oxidative phosphorylation.

THE IMPACT OF WEATHER ON THE DEVELOPMENT OF ACUTE MYOCARDIAL INFARCTION IN RIGA, LATVIA

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Introduction. Cardiovascular disease is one of the leading causes of death in Latvia and the most prevalent cause of hospital admission. Studies around the world have shown that seasonality and meteorological variables may impact the occurrence of acute myocardial infarction (AMI). Signalling that there might be additional factors beyond the already known risk factors influencing the development of AMI. Previous studies have shown that there is an increased risk for AMI at lower temperatures. Although there is no consensus regarding the impact of weather and seasonality on the occurrence of AMI.

Up to now and to the authors' knowledge, the effects of weather variables on development of AMI has not been assessed in Latvia.

Aim. The aim of this study was to assess if a relationship exists between admission rates of acute myocardial infarctions (AMI) and weather conditions in Riga, Latvia.

Material and Method. Data on AMI was collected from the Riga East Clinical University Hospital archive of all patients diagnosed with acute myocardial infarctions, ICD I21 (I21,0 -I21,9) over three consecutive years, 2011-2013. Meteorological data of temperature, humidity, wind and atmospheric pressure was retrieved from the Monitoring Department of Latvian Environment, Geology and Meteorology Centre. The meteorological data was linked with monthly data of hospital admission rates of AMI. IBM SPSS, version 2,0 was used to assess correlation between admission rates and the meteorological variables.

Independent sample t test was used for data analysis.

Results. All values of $p < 0,05$ were considered significant. A statistical significant correlation was seen between temperature and AMI. Higher occurrence of AMI was seen in colder periods; November – March, ($p = 0,047$) and with lower temperatures ($\leq 5^{\circ} \text{C}$), ($p = 0,028$). No statistical significance occurred between humidity, wind and AMI ($p > 0,05$). A tendency of more cases of AMI was seen at higher levels of atmospheric pressure ($p = 0,208$), however the result was not statistically significant ($p > 0,05$).

Conclusion. Colder weather with low temperatures results in more cases of acute myocardial infarction. Wind, atmospheric pressure and humidity does not impact the occurrence of AMI in Riga, Latvia.

CELLS IN FIGHT AGAINST DIABETES MELLITUS

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Introduction. Diabetes mellitus is a silent epidemic of XXI century. As current treatment including oral antidiabetic drugs and insulin doesn't protect against chronic and devastating complications of the disease, there is a need to detect new and more effective medicines. Such promising drug may be a newly-detected hormone – betatrophin.

Aim. The aim of this paper was to present the newly discovered hormone – betatrophin, which acts as a potential inductor of pancreatic beta-cell proliferation.

Materials and methods. Available literature was analysed.

Results. This new hormone was detected on animal model (mice), in whom blockade of insulin receptors via S961 induced tissue insulin resistance and hyperglycaemia. This resulted in significant β -cell proliferation. Secondly, scientists discovered that factor responsible for pancreatic islets expansion is produced in the liver and white adipose tissue of mice but its action was limited only to the pancreas. The immunohistochemical and genetic analysis confirmed that observed changes were caused by a peptic hormone, which was

later named betatrophin. It was also detected in human serum and liver with the use of the RIA, EIA and Western blotting.

Conclusions. Betatrophin gives scientists a chance to create the regenerative therapy, in which systematic treatment will be replaced by causal one.

PHENOTYPE-DIRECTED PERSONALISATION OF THERAPY IN TYPE 2 DIABETES MELLITUS PATIENTS AND CRITERIA OF PRESCRIPTION

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Key words. Type 2 diabetes mellitus, T2DM, diabetes mellitus treatment.

Introduction. Type 2 diabetes mellitus (T2DM) is a chronic and progressive disease that is rapidly increasing in prevalence over the world. Despite a number of guidelines and advices for physicians on how to start treatment, not all patients achieve target glycaemia and glycated hemoglobin (HbA1c) level.

Aim. The aim of this study is to research personalisation of therapy of T2DM patients and criteria of prescription.

Results. For patients with obesity, treatment was started with insulin and metformin combination; chronic kidney disease group – with insulin monotherapy; in groups of old patients (>65 years) and early diabetes patients – with insulin monotherapy.

Insulin monotherapy was used for patients with c-peptide 0,1-0,5 ng/l ($p<0,05$) and with c-peptide 0,6-0,9 ng/l; for patients with c-peptide 1-2 ng/ml metformin combination with insulin was used, but patients with c-peptide more than 2 ng/ml were treated more often with DPP-4/metformin combination with insulin.

For patients with TG level from 1,7-5,6 mmol/l metformin together with insulin was used ($p<0,05$), with TG <1,7 mmol/l – only insulin, but with TG over 5,7 mmol/l – DPP-4/metformin combination with insulin ($p<0,05$).

For patients with HbA1c <7% and from 7% to 7,9% the main choice of treatment was insulin. However, patients with HbA1c 8% and more were treated with insulin more commonly ($p<0,05$), although insulin combination with metformin was used very often too.

I found some correlation between prescribed therapy and treating physicians: 3 of 5 physicians treated their patients more often with insulin. One treated patients mostly with combination of insulin and metformin, while the last – with combination of DPP-4/metformin and insulin.

Conclusions. T2DM is a special medical condition that requires an individualized approach to each patient to achieve adequate glycaemia and HbA1c levels, most likely future T2DM treatment guidelines will be based on metabolic characteristics of each patient, although currently most physicians tend to prescribe therapy based on their experience. In general, insulin as monotherapy and combination with metformin was used more often; such result can be explained by the fact, that a greater part of patients came to the hospital with decompensated state of existing diabetes mellitus and with appropriate therapy.

WARFARIN DOSING DIFFICULTIES AND DISADVANTAGES IN USE

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Key words. Warfarin, dosage, interaction, international normalized ratio.

Introduction. Warfarin is a drug which is used in conditions that include elements of thrombosis and thromboembolism as a result, because it reduces blood clotting. The main problem is that saturation of the drug reaches to maximum within five days, so effect of the drug cannot be evaluated immediately. Another problem is that desired effect does not include eliminating clotting at all – the opposite effect will be uncontrolled hemorrhages. Measure of international normalized ratio which is derived from prothrombin time measurement – is standard practice to control the effect of warfarin, the target ratio is from 2 to 3, it varies for patients with mechanical valves – from 2,5 to 3,5. Warfarin has extensive interaction with food and other drugs.

Aim and methods. Make a survey in Latvian Cardiology Center at Pauls Stradins Clinical University Hospital involving patients who use warfarin for different purposes – fix information about dose, using length and regularity, time to stabilize international normalized ratio for the first time,

weight, height, knowledge about dietary restriction; ask patients to appreciate how warfarin affects their lifestyle from 0 to 4 points (0 – do not affect at all, 1 – minimal changes that are not significant, 2 – significant changes that do not affect ordinary lifestyle, 3 – significant changes that affects ordinary lifestyle, 4 – the lifestyle is totally disturbed).

Results. 67 patients took part in survey – 39 female and 28 male, the average age was 64.9 years (67.4 for women and 61.6 for men). The average time to stabilize international normalized ratio was 23.43 days (\pm SE=2.3 days) with 2.15 times (\pm SE=0.15) dose changing averagely and average dose – 6.73 mg (\pm SE=0.29 mg), minimal – 2.5 mg, maximal – 12.5 mg. The dose correlation with Body Mass Index (BMI) was moderate ($R=0.452$, $p=0.0003$) and similarly with weight ($R=0.436$, $p=0.0003$). Divided into sexes – males did not have correlation at all ($R=0.18$, $p=0.36$ for BMI and $R=0.108$, $p=0.58$ for weight), in contrast, females had stronger correlation than overall ($R=0.51$, $p=0.001$ for BMI and $R=0.48$, $p=0.002$). Only 34.3% patients knew that warfarin has strong interaction with leaf vegetables, 22.4% changed their eating habits because of it – they had lower average stabilization time (14.64 days \pm SE=2.7 days, $p=0.044$); 26.9% of patients think that warfarin can be serious threat for their health. Appreciating influence on lifestyle – average amount of points was 2.3 from 4 possible, women lifestyle is more affected than men – 2.69 (\pm SE=0.17) vs. 1.75 (\pm SE=0.18) with significant difference ($p=0.0009$).

Conclusions. Warfarin dosage is individual, it depends on many factors. Dose cannot be prescribed based on patient's weight and BMI due to different sensitivity to the drug. Diet has important role in therapeutic effect of warfarin, doctors should spend more time to inform and remind patients about it. In patients opinion warfarin significantly affects their lifestyle, especially it disturbs woman's ordinary day

COMPARISON OF IMAGING TECHNIQUES FOR PULMONARY EMBOLISM

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Key words. Pulmonary embolism, computed tomography, echocardiography.

Introduction. To confirm the diagnosis of pulmonary embolism (PE) it is necessary to perform computerized tomographic pulmonary angiography (CTPA) and/or echocardiography. The informativeness of these methods varies: in CTPA direct changes of the pulmonary arteries are visible, but in echocardiography – only indirect effects like acute right heart failure are indicated.

Aim. To clarify the sensitivity of imaging techniques for diagnosing PE and to compare them informatively.

Results. From 190 patients 66.3% (126) were women and 33.7% (64) men. CTPA was performed in 93.7% (118) of women, with PE diagnosis confirmed in 99.2% (117), and 98.4% (63) of men, with PE confirmed in 96.8% (61). In the main pulmonary arteries filling defects were observed in 63.6% (75) of women vs. 55.6% (35) of men, in lobe arteries – 50.8% (60) vs. 31.7% (20), in segmental – 86.4% (102) vs. 84.1% (53), in subsegmental – 42.4% (50) vs. 54.0% (34). Bilateral PE was found in 82.9% (97) vs. 82.0% (50), but PE only on the right side – 12.8% (15) vs. 18% (11). Cardiac dilatation was not always indicated in the conclusion of CTPA, but in described cases the right heart dilatation was detected in 47.0% (31) vs. 43.3% (13).

Echocardiography was performed in 73.0% (92) of women and 81.0% (51) of men. Right atrial area (RAA) was above the norm – statistically significantly higher in men 21.7 (± 6.7) than in women 19.4 (± 5.4) cm² (p=0.029). Right ventricular systolic pressure (RVSP) was increased in 76.3% (103) for both genders – women 42.5 [35;55], men 40.0 [33;50] mmHg. Left atrial volume index (LAVI) was also increased – 29.0 [24;35] vs. 28.5 [23;39] ml/m². Ejection fraction (EF Simpson) in men was reduced 52.0 [45;60] with a statistically significant difference (p=0.009) compared to women 57.3 [52;60]. Tricuspid regurgitation (TR) occurred in 96.7% (89) vs. 100% (51) (mostly

grade 2), but mitral regurgitation (MR) – 83.7% (77) vs. 84.3% (43) (mostly grade 1).

There was a strong correlation (0.794) between RAA and RVD1 (basal right ventricular dimension) and moderate correlations between other data in echocardiography. There was a statistically significant ($p=0.011$) correlation between increased RAA (determined in echocardiography) and the right heart dilatation described in CTPA.

Conclusions. CTPA is the gold standard for diagnosing PE (sensitivity 98.3%), however, there are situations when it is contraindicated (hemodynamically unstable patient, severe renal failure, severe obesity). In those cases echocardiography can be performed (sensitivity 76%). Right atrial area (RAA), right ventricular systolic pressure (RVSP) and left atrial volume index (LAVI) are increased in both genders. There is a statistically significant correlation between increased RAA (determined in echocardiography) and the right heart dilatation described in CTPA. Most frequently in CTPA filling defects are observed bilaterally in segmental arteries.

FATAL EVENTS CAUSED BY HYPERTROPHIC CARDIOMYOPATHY AND CO-MORBIDITIES FROM 2012 TO 2014

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Key words. Hypertrophic cardiomyopathy, inherited cardiovascular disease, autopsy results, sudden death.

Introduction. Hypertrophic cardiomyopathy (HCM) is a genetic disorder that is typically inherited in an autosomal dominant fashion. Most patients with HCM are asymptomatic. Unfortunately, the first clinical manifestation of the disease in such cases may be sudden death. Patients also have a high likelihood of recurrent heart failure. HCM affects 1 in 500 people, and is frequently undiagnosed until a fatal event occurs.

Aim. Analyze autopsy reports from 2012 to 2014 with diagnosis of HCM and cardiomyopathy, select HCM cases and collect demographic data, co-morbidities and anatomical features of hearts.

Results. Because of difference in autopsy report structure and subject specification, results from centres were divided.

Analysis of the autopsy reports of the State Centre for Forensic Medical Examination from 2012 to 2014 revealed 27 cases of HCM. 77,8% were men and 22,2% women, 44,4% were of age 21-35, 29,6% of age 36-50, 22,2% of age 51-65, 3,7% older than 65, average age $40,78 \pm 13,05$ years. In 59,3% cases death occurred at home, in 40,7% in public places. Coronary heart diseases were observed in 7,4% cases, hepatic steatosis - in 37%, in 59,3% cases ethanol was found in blood. Average heart weight $428,15 \pm 58,44$ g, average left ventricle wall thickness $2,01 \pm 0,3$ cm. No statistically significant relationship was detected between the age and left ventricle wall thickness ($p \geq 0,05$), as well as between the age and heart weight ($p \geq 0,05$). Analysis of the autopsy reports of the Pathology Centre of "Riga East Clinical University Hospital" from 2012 and 2014 revealed 36 cases of HCM. In 63,9% cases death occurred in hospital, in 27,8% cases - at home, in 77,8% cases - from comorbidities like HIV complications (30,6%), not HIV-associated oncologic diseases (11,1%), sepsis (16,7%), aneurism rupture (5,6%). 77,8% were men and 22,2% women, 22,2% were of age 21-35, 38,9% of age 36-50, 36,1% of age 51-65, 2,8% older than 65, mean age $45,83 \pm 10,44$ years. Average heart weight $517,97 \pm 103,55$ g, average left ventricle weight $175,63 \pm 45,11$ g, average septum weight $131,3 \pm 45,57$ g, average left ventricle wall thickness $2,21 \pm 0,29$ cm. Positive relation was detected between the age and left ventricle weight (0,550), the age and septum weight (0,387), the age and heart weight (0,583), all statistically significant ($p \leq 0,05$).

Conclusions. Undiagnosed HCM is a relatively common finding in autopsies, especially for young and pre-middle age male population, as a cause of sudden death, more often at home or in public places or as co-morbidity in the cases, where deaths occurred in hospital. Average results of heart anatomical features are significantly higher than for average population and their positive relation with the age represents possible progressive myocardium thickening in HCM.

PATHOPHYSIOLOGY OF ELECTROLYTE DISBALANCE IN SEPTIC PATIENTS

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Key words. Sepsis, Acidosis, Electrolytes, SID.

Introduction. Metabolic acidosis is one of the most common problems among the patients admitted to hospital with diagnosis of sepsis. Although magnitude of acidosis is widely accepted as a prognostic factor of worse clinical outcome it is nonetheless important to investigate and treat origins of metabolic component.

Aim. We aim to prove that disbalance in strong ion composition and an increase in non-volatile weak acids concentration cause metabolic acidosis in septic patients.

Results and Methods. We conducted a retrospective study of laboratory data gathered upon the hospitalization of patients diagnosed with sepsis. Disbalance of strong ion concentrations was analysed using Stewart's electrochemical model and Standart Base Excess (SBE) model of acid-base analysis. We defined and simplified Strong Ion Difference (SID) as difference in sodium and chloride concentrations. Non volatile weak acid component of acidosis was expressed using SBE correcting it for SID.

We included data of 69 patients. Mean pH was 7,4 (SD=0,13) with mean SBE of -2,577 mEq/l (SD=4,329) indicating compensated metabolic acidosis. Mean SID was 35,44 mmol/l (SD=5,44) indicating electrolyte related acidosis. Measured SBE was only partly explained by change in SID ($p=0,282$). The remaining part of SBE was explained by non-volatile component ($p<0,001$). Non-volatile component of SBE was strongly linked with lactate ($p=0,03$) and phosphate concentrations ($p=0,027$), but did not associate with albumin level ($p=0,778$), suggesting us complementary origins of acidosis.

Conclusions. We conclude that acid base balance of septic patients is strongly affected by electrolyte concentrations in blood plasma expressed as simplified SID. Lactate and phosphate adding up to the main part of the weak acid concentration in septic patients are the second important constitute of acidosis. We note the limitations of our study being small and unrandomised

and propose further research linking latter components with mortality and clinical outcome in septic patients.

COMPARISON BETWEEN SHORT- AND LONG-ACTING ERYTHROPOIETIN THERAPIES IN HAEMODIALYSIS PATIENTS WITH NEPHROGENIC ANAEMIA: HAEMOGLOBIN AND RED BLOOD CELL COUNT DIFFERENCE

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Key words. erythropoietin, haemodialysis, anaemia, nephrology

Introduction. Changes in the List of Compensable Medications in 2008-2009 replaced short-acting erythropoietin therapy with long-acting erythropoietin therapy for haemodialysis patients with nephrogenic anaemia. This brings concerns if these changes would not have effect on laboratory results that indicate the stability of therapy, and if other simultaneous prescribed therapies would not have interaction with erythropoiesis stimulating agents.

Aim. The aim of research is to find out which of two therapies – short-acting or long-acting erythropoietin use – causes faster and long-lasting effect on target haemoglobin and red blood cell count levels in laboratory analysis results.

Results. Data of 4 patients were summarized (median age 49,25±12,76 years), 75% of those were women. The median therapeutic dose of short-acting erythropoietin (Epoetin beta) was 3818,18±1368,678 SV, median therapeutic dose of long-acting erythropoietin (Methoxypolyethyleneglycol-epoetin beta) was 172,41±87,286µg. Due to the change of therapy after use of long-acting erythropoietin there was a decrease of haemoglobin level by 0,61 g/dL observed, simultaneously red blood cell count increased by 0,14 x10⁶. Patients using nitrendipine showed statistically significant higher level of red blood cell count (4,07 x10⁶ versus 3,06 x10⁶; p=0,03), but due to change of therapy there was observed a decrease of red blood cell count level, although it did not show significant difference between both groups (2,82 x10⁶ versus 3,66 x10⁶; p=0,335). Presence of insulin therapy in both stages of erythropoietin therapies

was associated with lower level of red blood cells, during short-acting therapy - $2,44 \times 10^6$ versus $3,61 \times 10^6$; $p=0,14$, and during long-acting erythropoietin use- $2,83 \times 10^6$ versus $3,66 \times 10^6$; $p>0,05$. There was no significant effect difference on haemoglobin levels for patients using nitrendipine. Although during long-acting erythropoietin therapy there was a decrease of haemoglobin level observed in patients using nitrendipine (9,59g/dL versus 9,27g/dL; $p=0,099$), in comparison with short-acting erythropoietin use stage when levels of haemoglobin were higher (11,01g/dL versus 9,71g/dL; $p=0,326$). There was no effect of insulin therapy on haemoglobin levels in both stages of anaemia treatment. Use of other medications such as angiotensin converting enzyme inhibitors, proton pump inhibitors had no effect on haemoglobin and red blood cell levels.

Conclusion. Change of erythropoietin therapy from short-acting to long-acting erythropoiesis stimulating agents is associated with decrease of haemoglobin level and increase of red blood cell count level. There were no significant effect observed in patients using most of at the same time used medications.

COMPARISON OF CRONIC KIDNEY DISEASE STAGE IV AND V PATIENT GROUPS WITH C-REACTIVE PROTEIN ABOVE AND UNDER 10 MG/L

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Key words. CRP, chronic kidney disease, CKD

Introduction. Cardiovascular disease is one of the most common cause of morbidity and mortality (64%) in end-stage renal disease. Dialysis patients are often associated with high risk of infection due to reduced immune system activity. CRP is produced in hepatocytes as response to any inflammatory process; CRP shows us accurately ongoing inflammation as well as tissue damage. CRP is estimated to be a predictive marker in end-stage renal disease.

Aim. To compare chronic kidney disease patient groups in stage IV and V with $CRP \geq 10$ mg/l and $CRP < 10$ mg/l.

Results. There were used 252 patient records who were treated in Nephrology Centre of "Pauls Stradins Clinical University Hospital" in Riga, Latvia in 2012. Only those patient data with established CRP in stage IV and V CKD were analysed (N=190). The mean age of the patients was $61,84 \pm 17,91$ years. Sex ratio – 51% male, 49% female, without statistical significance between groups. In group I (CRP<10 mg/l) there were 74 patients (39%), in group II (CRP \geq 10mg/l) 116 patients (61%), $p<0,001$. There was a significant difference between group I and II comparing patients age, in group I mean age was $57,58 \pm 19,91$ years, in group II $64,43 \pm 16,02$ ($p<0,01$). Mean glomerular filtration rate (GFR, CKD-EPI) in group I was $9,85 \pm 6,19$ ml/min, in group II $9,56 \pm 6,31$ ml/min. Prevalence of diabetes mellitus in group I was 36%, group II 64% ($p<0,001$). There was no significant difference in proportion between males and females (group I M/F – 33/41, group II M/F – 61/55). Patients body mass in group I – $80,02 \pm 18,57$ kg, in group II – $74,51 \pm 20,57$ kg. There was no difference between prevalence of arterial hypertension between both groups, but there was a difference between patient proportion in both groups with systolic pressure lower than 140 mmHg ($p<0,047$). As well there is no difference between patient CRP mean level due to haemodialysis or peritoneal dialysis, in group I mean CRP for haemodialysis patients was 49,88 mg/l, peritoneal dialysis 44,03 mg/l, in group II haemodialysis - 4,27 mg/l and peritoneal dialysis - 4,78 mg/l.

Conclusions. 1. Patients with chronic kidney disease in stage IV and V who are older than 64 years are in greater risk to have CRP \geq 10 mg/l.

2. If patient with chronic kidney disease has diabetes mellitus, he has a higher risk to have CRP \geq 10 mg/l.

3. Diabetes mellitus and age above 64 years in chronic kidney disease stage IV and V are risk factors for patients to have CRP \geq 10 mg/l that shows an increased possibility to have a cardiovascular morbidity and mortality.

4. Further research should be conducted to estimate other factors that affect patient CRP level in CKD stage IV and V.

PREVALENCE OF DERMATOLOGICAL CHANGES IN DIABETIC PATIENTS AND THEIR ASSOCIATION WITH AGE, SEX, DISEASE DURATION, TREATMENT AND COMPENSATION LEVEL

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Key words. Diabetes mellitus, skin disorders, skin atrophy, hyperkeratosis

Introduction. Diabetes mellitus (DM) is a widespread chronic disease where poor metabolic compensation may promote severe and life threatening health conditions. Both, internal organs and skin can suffer during pathological processes. Awareness of possible skin changes characteristic for DM and their association with DM control indicators could help to diagnose DM earlier and, subsequently, prevent development of late complications.

Aim. To determine and evaluate the most common skin disorders in patients with DM, and to find out their association with age, sex, duration of disease, type of DM, treatment and metabolic compensation level in DM patients.

Material and methods. A retrospective cohort study was performed. Participants were randomly included from Internal Medicine clinic of Riga East Clinical University Hospital. Patient interviewing, observation and retrospective analysis of case files were performed for necessary data selection.

Results. One hundred patients were included in the study. There were 41 (41%) men and 59 (59%) women; the mean age was 60,07 years (SD 15,00 years). Patients were divided into 3 age groups – group I (≤ 45 years) 18%, group II (46-59 years) 29%, group III (≥ 60 years) 53%. All patients were also divided into groups by DM duration type and therapy – (0-5 years of DM) 24%, (6-10 years) 24%, (11-20 years) 37%, (>20 years) 14%; Type 1 DM 19%, Type 2 DM 77%, other (secondary) 4%; patients who had insulin therapy (57%) and patients who had peroral therapy or only diet (43%). 6 most frequent skin problems were identified – skin atrophy (71%), skin dryness (66%), onychomycosis (54%), necrobiosis lipoidica associated with DM (45,3%), hyperkeratosis (45%), lichenification (39%). Prevalence of skin atrophy was found statistically significant in patients with insulin therapy - 80,7 % ($p < 0,01$). Prevalence of skin dryness was not found statistically significant with any of independent values. Prevalence of onychomycosis was

found statistically significant in age group III - 64,2 % ($p < 0,05$). Prevalence of necrobiosis was found statistically significant in men - 53,7% ($p < 0,032$) and in patients with insulin therapy - 54,4% ($p < 0,002$). Prevalence of hyperkeratosis was found statistically significant in patients with insulin therapy - 54,4% ($p < 0,03$). Prevalence of lichenification was found statistically significant in age group II 51,7% ($p < 0,05$), but not in association with pruritus ($p = 0,4$). There was no statistical significance detected with type of DM, compensation level (HbA1c) and DM duration.

Conclusion. Most common dermatological changes in DM patients were skin atrophy, dryness, onychomycosis, necrobiosis lipoidica, hyperkeratosis, lichenification, they had strong associations with age, sex and insulin treatment. Other independent values were not statistically significant, but the reason may be relatively small amount of patients, insufficient data in some patients, recall bias. More extensive studies are required.

AGGRESSION AND HOSTILITY TRAIT DIFFERENCES IN PATIENTS WITH RHEUMATOID ARTHRITIS AND PRACTICALLY HEALTHY PEOPLE

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Key words. Aggression, hostility, rheumatoid arthritis.

Introduction. Over 2.9 million people in Europe have rheumatoid arthritis (*World Health organization*, 2014). Rheumatoid arthritis is a chronic inflammatory disorder that typically affects the small joints in your hands and feet. Most types of arthritis require people to cope with pain, stiffness, fatigue, and physical limitations. Pain, along with other symptoms from arthritis may compromise psychological and social well-being (Tsai, Tak, Moore, & Palencia, 2003; Tretharne, Lyons, Booth, Mason & Kita, 2004).

Aim. The aim was to study aggression and hostility trait differences between rheumatoid arthritis patients and practically healthy people. Determine whether there is a correlation between rheumatoid arthritis patients aggression and hostility traits and illness duration and determine whether there

are differences in rheumatoid arthritis patients employment status with aggression and hostility trait indicators.

The study used the Buss and Perry's „Aggression Questionnaire”. The questionnaire was adapted in Latvia by A. Gaitniece - Putane, 2008, Latvia University, ($\alpha = 0.77$ to 0.87). The study involved 210 participants: 105 patients with rheumatoid arthritis and 105 participants without chronic diseases. Study participants aged from 18 to 40 years.

Results. From the study, it was found that there are statistically significant differences in the overall level of aggression in all four "Aggression questionnaire" subscales. The overall level of aggression among rheumatoid arthritis patients in the study group ($M=101.00$, $SD=3.67$) and practically healthy participants study group ($M=76.41$; $SD=3.98$); $t(208) = 45.12$; $p = 0.00$). And „Aggression Questionnaire” subscale hostility, between rheumatoid arthritis patients indicators ($M=27.39$; $SD=1.79$) and practically healthy people indicators ($M=19.61$; $SD=1.89$); $t(208) = 30.51$; $p = 0.00$). From these results it can be concluded that rheumatoid arthritis patients have increased aggression, forms of aggression and hostility.

Rheumatoid arthritis patients hostility subscale indicators shows no statistically significant differences with employment status ($F(2,102) = 0.183$; $p = 0.83$), and the total level of aggression indicators ($F(2,102) = 0.481$; $p = 0.62$). Among patients with rheumatoid arthritis hostility subscale indicators and illness duration there is no statistically significant correlation ($p = -0.14$). But a statistically significant correlation is between illness and the total level of aggression ($p = -0.31^{**}$), which indicates that the smaller the duration of illness, the higher are common indicators of aggression.

Conclusions. The results provide a broader vision of patients with rheumatoid arthritis aggression and hostility traits and their expressions in various stages of illness. In the future, it is essential to establish a maximum effective ways to help patients with rheumatoid arthritis, which is to be developed from future psychological research. To better understand rheumatoid arthritis patient's beliefs, feelings, thoughts, behavior and health.

CORRELATION BETWEEN P WAVE WIDTH AND LEFT ATRIAL VOLUME INDEX AND THE FORM OF ATRIAL FIBRILLATION

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Key words. Atrial fibrillation, P wave, LAVI.

Introduction. Atrial fibrillation is the most common form of arrhythmia and the mortality rate between individuals with this disease is two times bigger than in individuals with sinus rhythm. Therefore, it is very important to discover the disease as soon as possible. In addition, it is important to know which form of atrial fibrillation the patient has and how to proceed with treatment plan.

Aim. The aim of this study is to discover if there is correlation between the paroxysmal or persistent form of atrial fibrillation and the P wave width in II lead and echocardiographic size of left atrium (LAVI – Left Atrial Volume Index).

Results. In this study were analyzed histories of 42 patients in age between 48 and 88 years. 57.1% (24 patients) of them were females and 42.9% (18 patients) of them were males. 54.7% (23 patients) were admitted with diagnosis of paroxysmal atrial fibrillation and 45.3% (19 patients) were admitted with diagnosis of persistent atrial fibrillation. The obtained data were analyzed and the width of P wave in patients with paroxysmal atrial fibrillation was in range from 0,08s to 0,16s; the average width of P wave in patients with paroxysmal atrial fibrillation was 0,128s. The range of the width of P wave in patients with persistent atrial fibrillation was from 0,08s to 0,2s; the average width of P wave in patients with persistent atrial fibrillation was 0,142s.

38% (16 patients) of patients of this study had an echocardiographic examination during the past year where LAVI was measured. 9 of them (56.2%) had paroxysmal atrial fibrillation and 7 of them (43.8%) were admitted with persistent atrial fibrillation. The interval of LAVI in patients with paroxysmal atrial fibrillation was from 31 ml/m² to 42 ml/m²; the average LAVI in patients with paroxysmal atrial fibrillation was 37 ml/m². The interval of LAVI in patients with persistent atrial fibrillation was from 31 ml/m² to 42 ml/m²; The average LAVI in patients with persistent atrial fibrillation was 36,5 ml/m².

Conclusions. According to the obtained data in the study, there is correlation between the width of the P wave and the form of atrial fibrillation. The average width of P wave in patients with paroxysmal atrial fibrillation was 0,128s. The average width of P wave in patients with persistent atrial fibrillation was 0,142s. Conclusion is that the wider the P wave is, the more prone the patient is to develop persistent atrial fibrillation and not paroxysmal atrial fibrillation.

Although the enlargement of left atrium is considered a serious risk factor for development of atrial fibrillation, there is no correlation between LAVI and specific form of atrial fibrillation in the results of this study.

PREGNANCY OUTCOMES IN WOMEN WITH THYROID DYSFUNCTION OR AUTOIMMUNITY

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Key words. Pregnancy outcomes · thyroid dysfunction · autoimmunity.

Introduction. The thyroid disorders are the second most common endocrinopathies during pregnancy (Menaka Ramprasad et al. 2012). There are the considerable changes in thyroid gland function that affect both mother and fetus during pregnancy and in the postpartum period. Pregnant women and children are at the considerably higher risk of iodine deficiency than others (De Benoist et al. 2004). Iodine is an essential component of the thyroid hormones that plays a significant role in brain development during fetal period and iodine deficiency can cause a mental retardation and brain damage (Andersson et al. 2007). Also the presence of thyroid antibodies associates with an increased risk of preterm delivery (Xiaoyan He et al. 2012; Tuija Männistö et al. 2009), miscarriage (Shakila Thangaratinam et al. 2011), pre-eclampsia, placental abruption and intrauterine growth restriction (Nor Azlin et al. 2010; Meenakshi Titoria Sahu et al. 2010). There was no data about the pregnancy outcome in women with thyroid dysfunction in Latvia before.

Aim. The aim of this study is to determinate the association between both thyroid dysfunction and autoimmunity and pregnancy outcomes in the women who took a part in nation-wide survey of iodine intake in Latvia.

Results. 234 medical records of pregnant women were reviewed in this study. The miscarriage was identified in 1,7% of women, preterm delivery - 2,56%, threatened miscarriage - 11,1%, gestational hypertension - 5,56%, intrauterine growth restriction – 0,85% and fetal distress - 4,7%, however there was not found the statistically significant correlations between these findings and both the thyroid dysfunction and iodine intake. There was found a correlation between normal and increased anti-tireoperoxidase antibodies (anti-TPO) and gestational hypertension (respectively 5% and 15,8%; $p=0,097$). The fetal distress was significantly more often observed in pregnant women with increased anti-TPO (3,1% and 15,8%; $p=0,041$). The received results did not show the statistically significant difference between the normal/decreased iodine intake as well as the normal/increased thyroid-stimulating hormone (TSH) serum levels and foregoing pregnancy outcomes.

Conclusions. Current study shows that there was no statistically significant association between both thyroid dysfunction and autoimmunity and pregnancy outcomes. The presence of maternal thyroid auto-antibodies is associated with gestational hypertension and fetal distress.

INFLAMMATORY MARKERS AND NO IN EXHALED AIR IN PATIENTS WITH PNEUMONIA

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Key words: inflammatory markers, NO, pneumonia

Introduction. Pneumonia is an acute inflammation in lungs. In case of inflammation there is stimulated iNOS in blood which should increase NO (nitrogen oxide) amount in exhaled air in patients with pneumonia. Possible that there is connection between inflammatory marker rates and NO amount in exhaled air.

Aims. To find out whether there is connection between inflammatory marker rates in blood and NO amount in exhaled air in patients with pneumonia.

Methods. This was a retrospective research. During the research 22 patient histories were used. Patients were hospitalised in the 14th Department

of Pauls Stradins Clinical University Hospital, from which there were 15 males and 7 females, mean age 57.23 ± 16.34 years. Data about inflammatory markers in blood and NO amount in exhaled air between 2nd-3rd and 6th-7th hospitalisation days was used. Obtained data was statistically analysed with statistic methods in Microsoft Excel.

Results. Patients who have been diagnosed with pneumonia and who were tested for inflammatory markers in blood have shown difference between the time of hospitalization between one to three days and after the time of therapy. Most frequently used antibacterial therapy is Amoxiclav, Ciprofloxacin, Augmentin (Amoxicillinum/ Acidum clavulanicum), Clarithromycin, Ceftriaxone, Amoxicillinum. After the initial trial WBC shows $9.75 \pm 4.37 \times 10^9/l$, where after therapy the results are $8.46 \pm 3.38 \times 10^9/l$. The scale of CRO shows that at the initial trial it is the highest of all showing the results of 104.73 ± 102.17 mg/l, yet, after therapy had begun, the results are as follows: 28.95 ± 29.48 mg/l. NO demonstrates the decrease in exhaled air from 18.68 ± 15.37 2nd-3rd to 14.1 ± 4.71 at 6th-7th day at the time of illness.

Conclusions. The results from initial trial represents that inflammatory markers in blood and NO amount in exhaled air have differences at the time of hospitalization and after the antibacterial therapy has started. Statistical correlation between those markers are hard to find because of small amount of patient histories that were analysed. To specify this question this research should be continued including more research objects.

POSSIBILITIES OF USING ANTICOAGULANTS FOR PATIENTS WITH ATRIAL FIBRILLATION BEFORE ELECTRICAL CARDIOVERSION

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Key words. K vitamin antagonists, new oral anticoagulants, atrial fibrillation, stroke, bleeding

Introduction. The purpose of using anticoagulant therapy for patients with atrial fibrillation before electrical cardioversion is to prevent stroke risk. K vitamin antagonists must be controlled by regular INR monitoring to prevent overdose and gain sufficient therapeutic effect maintaining INR in 2.0-3.0 range at least for 3 weeks before electrical cardioversion and 4 weeks after it.

But for new oral anticoagulants (dabigatran, rivaroxaban) control is not necessary.

Aim. Interview patients with atrial fibrillation who used anticoagulation therapy before electrical cardioversion in Riga Stradins Clinical University Hospital Department of Arrhythmology to inquire patients' experience using different anticoagulants, reasons of choice, compare complication rate, analyze acquired data in MS Excel and SPSS 22.0.

Results. Research involved 94 patients – 47.9% of patients were male and 52.1% female. The average score of CHA₂DS₂-VASc scale was 2.41 points. Orfarin (K vitamin antagonist) was used by 48.9% patients, new oral anticoagulants – 31.9% patients used Pradaxa (dabigatran etexilate mesylate), 19.2% were Xarelto (rivaroxaban) users. Total cost was the main reason for choosing Orfarin in 68.4% cases, 21.1% were not informed about alternatives. According to most frequent dose for reaching stable INR (7.5 mg – 37%), average duration (10.69 weeks, SE=0.43) of use and package Orfarin is 31.4 times cheaper than full Pradaxa course and 30.6 times than Xarelto course. In new oral anticoagulants group 27.1% patients relied on doctor's choice, refusing to make a choice independently, 54.2% consider that convenience is more important than cost, 18.8% were not against to change their anticoagulant to Orfarin. The average age of Orfarin users was 9.1 years older than new oral anticoagulant users (67.9 vs 58.8 years) with statistically significant difference (p=0.0031). Totally 23.4% patients reported about complications with the highest rate in Orfarin group – 39.1%, relatively less common using Pradaxa (6.7%) and Xarelto (5.6%). Severe bleeding with necessary hospitalization was developed by 10.9% Orfarin users. Minor bleeding such as epistaxis, purpura, gingival bleeding was developed by 32.6% Orfarin users and 6.7% Pradaxa users, there are no reports about other types of complications on Pradaxa. Diarrhea was the only complication developed in Xarelto group. In addition, Orfarin users developed dyspeptic complications in 4.3% cases, other complications – 6.5% cases. Patients who developed hemorrhagic complications had average 3.15 points HAS-BLED score, compared to patients without complications – 1.75, statistically significant difference by 1.4 point (p=0.0012). There is no statistically significant difference between CHA₂DS₂-VASc score to complication incidence (p=0.145).

Conclusions. New oral anticoagulants are safer than Orfarin due to lower complication rate, including reduced risk of bleeding. HAS-BLED score is significant in prognosis of hemorrhagic complication probability. Orfarin is widely used by patients above retirement age because of the low cost, whereas new oral anticoagulants are popular in younger patients group who are still

employed. Actual question for patients with atrial fibrillation is including new oral anticoagulants in list of drugs compensated by the government to let seniors afford them.

ARRHYTHMIA RELAPSES IN PATIENTS WITH ATRIAL FLUTTER AFTER RADIOFREQUENCY CATHETER ABLATION

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Key words. Atrial flutter, atrial flutter treatment, RFA

Introduction. Atrial flutter (AF) is a form of arrhythmia with typical electrophysiological and electrocardiographic signs. It clinically manifests as palpitations, shortness of breath, chest pain and low load tolerance. AF is dangerous because if untreated it can lead to serious complications, such as thromboembolic events and changes in cardiac anatomy. The most effective method for the treatment of AF is radiofrequency catheter ablation (RFA).

Aim of the study. The aim of the study is to find out the frequency of symptomatic arrhythmia relapses, hospitalizations due to arrhythmia after RFA and factors that could affect the above parameters as well as the patient's subjective feelings.

Results. 75% of patients feel better after RFA. The study evaluated the women more likely to have positive health changes (80%). 53 patients (58%) had symptomatic relapses of arrhythmia. 36 patients (39% of the total) or 68% of those who had repeated episodes of arrhythmia were hospitalized. Arterial hypertension was observed in only 21 patients hospitalized (58%) and in 45 patients that were not hospitalized (80%), the relationship is statistically significant ($p = 0.022$ or $p < 0.05$). Similar to patients with arterial hypertension, patients with proven heart failure (HF) had less number of repetitive hospitalizations (10 patients, or 28%), but in this case the difference is not statistically significant ($p = 0.126$). These results can be explained with that the study group is not large enough to show statistically significant changes. In both cases, the changes may be related to the treatment received by

the patients with HF and hypertension. Diabetes does not affect the arrhythmia recurrences after RFA, the percentage of both groups do not differ (11%). There are 7 patients with myocardial infarction (MI) in both groups, but the percentage rate tends to be higher in patients with MI (19% to 13%). The difference is not large and statistically significant ($p = 0.365$). 17 patients had thyroid disease (18.5 %), 11 of them had hyperthyroidism, and 7 had hypothyroidism. Of the 17 patients with thyroid disease, 9 had arrhythmia after RFA, the percentage rate shows that those patients tend to have an increased risk of recurrent arrhythmia (25 % to 14%), but the difference was not statistically significant ($p = 0.196$). Lifestyle, frequency or rhythm supportive therapy did not significantly affect the outcome after RFA, statistically reliable correlations were found.

Conclusions. In this study it was not possible to conclusively distinguish those risk factors that could affect the forecast for 2-3 years, because as it turned out the study group was too small to find statistically significant correlations, but there were distributed diseases and conditions, which tend to have a poorer prognosis. The study showed the more favorable prognosis is related to adequate antihypertensive therapy. Perhaps, if the number of patients would be bigger, the difference between the groups would be statistically significant. Further researches should choose a larger number of patients to investigate.

MYOCARDIAL INFARCTIONS AND ITS COMORBIDITIES

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Keywords. myocardial infarction, hypertension, kidney pathologies.

Introduction. Myocardial infarctions (MI), commonly known as heart attacks, are a leading cause of death, worldwide (K. Thygesan et al. 2013). Most MIs are transmural infarctions, typically due to atherosclerosis and the complete occlusion of the blood vessel. MIs can occur at any age; however there is a greater risk with increasing age, particularly in men (B. Jha et al. 2013), and those predisposed to atherosclerosis, hypertension, diabetes mellitus and cigarette smoking. Additionally, a high incident risk of MI exists with patients suffering from chronic kidney diseases (C. Meisinger, et al 2006).

Aim. To analyse lethal MI cases, amount, location and the most prevalent diseases associated with MI.

Results. Pathology records and clinical epicrisis of 50 cases by acute MI from Riga East Clinical university hospital were analysed. 82.97% of patients were male with an average age of 58 years and 17.02% female with an average age of 67 years. 51.06% of deaths occurred at home and 27.66% at hospital. The majority of cases showed that patients died of their 2nd MI.

There were 4 misdiagnoses; back pain with suspicion of sepsis, doubt of mesenterial thrombosis, COPD and myocarditis with cardiomyopathy. 31.91% of infarctions took place was the posterior and septal walls of the heart, with 17.02% occurring in the septal wall only. This is supplied by RCA and LAD. From the records, 42 patients had an oversized heart weight between 350 -1010g, indicating latent signs of hypertension. There was a low positive correlation between the weight of the heart and the percentage of occlusions in the coronary arteries.

The correlation between number of MIs that a patient had and the percentage of atherosclerosis was a very low positive. A moderate positive correlation was seen between the age and the percentage of atherosclerosis. 27.65% of the cases had atherosclerosis present in arteries other than aorta or coronary arteries. Alongside MI, all female patients had kidney changes. In the male patients 94.87% had kidney pathologies. The most prevalent kidney pathology in both male and females was nephrosclerosis with granularity. From concomitant diseases we must underline liver pathologies (48.93% - liver steatosis of various stages and liver cirrhosis of different origin). 55.32% of the cases had lung pathologies, mainly chronic emphysema. 8.5% patients had diabetes mellitus and 14.89% suffered from obesity. Over half the cases (53.19%) have general venous congestion of lungs, liver, spleen, kidneys.

Conclusion. This study shows that men have higher risk of MIs at an earlier age than women. Half the patients had no good contacts with family doctors and died at home without any medical aid. Almost all the patients presented heart hypertrophy which along with nephrosclerosis is presumed of hidden hypertension. Presence of general chronic venous congestion is an indicator of untreated heart failure and increases the presence of any cardiac risks.

DIAGNOSTIC DIFFICULTIES OF GASTROINTESTINAL TRACT DISEASES

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Key words. Misdiagnosis, gastrointestinal tract disease.

Introduction. In spite of the scientific and technological developments in the medical field, there is still a question of the clinician and the pathologist diagnosis discrepancy that requires an analytical approach for possible solutions. Today, the diagnosis does not match in 12-17% of the cases (SM Pastores et al., 2007). Divergence of reasons have commenced, tests and therapeutic process analysis can help in the development of treatment guidelines, as well as to investigate differential criteria and their application in different stages of the healthcare process. Nowadays, misdiagnoses are divided in three categories: 1) a false positive - non-existing diagnosis of the disease, 2) a false negative - existing disease was not diagnosed, and 3) the questionable results - inconclusive findings with an uncertain diagnosis (N.Scarborough, MD 2008). RAKUS Pathology center distinguishes such reasons for these phenomena: short-term stay in hospital, test data re-evaluation, objective diagnostic difficulties, improper diagnosis processing, incomplete patient investigation.

Aim. The aim of this research is to analyze causes of the mismatch in clinician and pathologist diagnoses, which affect the gastrointestinal and liver abnormalities, including those of localization of oncological diseases.

Results. Overall, 67 cases were analyzed. The age of patients ranged from 19 to 90 years, of which 44 were men and 23 were women. Ulcer disease, with or without perforation, was diagnosed in 8 cases. Liver cirrhosis was diagnosed in 9 cases. Pancreatitis was diagnosed in 8 cases. Oncological diagnostic difficulties were found in 22 cases. In other cases were left undiagnosed anorexia nervosa, acute ulcerative gastroenteritis, chronic pyelonephritis with exacerbation, diverticulosis of the colon with perforation, the abscess of the lower lobe of the left lung, acute gastroenterocolitis, generalized amyloidosis, acute toxic hepatitis, calculary phlegmon-gangrenouse cholecystitis with perforation to the liver. Incorrect formulation of the diagnose was in 6 cases. Gastroenterological disease was falsely diagnosed in 9 cases.

The causes of mismatch in oncological diseases were: the objective diagnostic difficulties 50%, short-term stay in hospital 45.6%, and re-evaluation of the data 4.4%. Of all oncological cases in 57.2% were not precisely defined localization of the primary tumor.

Conclusions. In most cases, the precise localization of primary malignant tumor was not diagnosed due to objective diagnostic difficulties and/or short hospitalisation period. Acute pancreatitis and decompensated hepatic cirrhosis was not diagnosed in 25,5% cases. Most of patients are admitted to hospital in a severe and acute condition, which suggests the need for society's education in health care issues, as well as promoting cooperation among general practitioners, patients and other health care institutions. We suggest developing a specific diagnostic protocol for patient management with GIT pathologies at the Emergency ward stage.

NON-STEROIDAL ANTI-INFLAMMATORY DRUG (NSAIDS) USE EVALUATION AMONG RĪGA STRADIŅŠ UNIVERSITY STUDENTS

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Key words. NSAIDs, students, drug usage risks.

Introduction. Non-steroidal anti-inflammatory drugs (NSAIDs) are one of the world's most widely used pharmaceutical drugs. Most of them can be bought in pharmacies without a doctor's prescription, which is one of the reasons of their excessive use. Uncontrolled use of NSAIDs is acting on the mucous of upper digestive tract both ways: locally - causing direct damage to the mucous cells, and systemic exposure - causing the collapse of the mucous protection mechanism. Its clinical manifestation could be like the upper gastrointestinal tract ulcers, which may be complicated by bleeding.

Aim. Clarify and compare habits of NSAIDs use among RSU students from the different faculties according to various criteria, including the awareness of the NSAIDs usage risks.

Results. During the scientific research 121 students were surveyed aged from 18 to 35. 46 of them were from Faculty of Medicine, 30 from other Medicine and Healthcare faculties, 45 from Social Sciences and Law faculties.

Ibuprofenum chosen as the main NSAID to prevent pain: 74%, 90%, 84% respectively. Around 45% surveyed students in each faculty mentioned acute headache as the main reason to use NSAIDs, following premenstrual syndrome and menstrual pain 57%, 43% and 36% respectively. Comparing Ibuprofenum dosage in mg per day for the duration of NSAIDs course for all surveyed students has found rising trend in all Medicine and Healthcare faculties, but falling trend in Social Sciences and Law faculties. 36% of students in Faculty of Medicine are not reading NSAIDs prescribing information and 44% of them are not doing that since they believe that they know better how to use them, but 91% of them are aware of the upper digestive tract ulcer risk. Students from other Medicine and Healthcare faculties (36%) and Social Sciences and Law faculties (38%) noted the main reason not to read prescribing information is opinion that NSAIDs can't damage their health, and only 43% and 27% of them respectively are aware of the ulcer risk.

Conclusions: Ibuprofen is the most popular painkiller among the students in all studied groups. Acute headache, PMS and menstrual pains are the main reasons for its use. In comparison to the students from non-medical faculties, the students from all Medicine and Healthcare faculties consume the NSAIDs according to the principle – the larger doses used for a longer period of time. Most of the surveyed students from Faculty of Medicine are aware of NSAIDs usage risks, but are not limiting themselves on its use, if they have indications for use. Most of the surveyed students from Social Sciences and Law faculties have limited awareness of the NSAIDs usage risks, but are using drugs in lower dosages per day, comparing to Faculty of Medicine students.

THE THERAPEUTIC EFFICIENCY OF WARFARIN AFTER AORTIC OR MITRAL HEART VALVE PROSTHESIS AND THE POTENTIAL RISK OF COMPLICATIONS

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Key words. anticoagulation, warfarin, vitamin K antagonist, heart valve prosthesis, acetylsalicylic acid.

Introduction. Patients, undergoing the heart operative management as aortic or mitral valve replacement, are affected by high risk of

thromboembolic complications. Fortunately, the impact can be prevented or minimized through careful medical management and follow-up after implantation of the prosthesis. One of the most commonly used anticoagulants is vitamin K antagonist - warfarin. However, for reaching the best results, evaluation of the potential complications and their consequences is required.

Aim. To analyze the therapeutic efficiency of warfarin therapy and the risk of early postoperative complications.

Results. In a prospective cohort study on primary data participated 23 men and 25 women (with the age from 35 to 85 years), who took warfarin after aortic or mitral valve prosthetic replacement in Pauls Stradins Clinical University Hospital between September 2014 and December 2014. Median INR level on discharge was 2.2 (IQR = 0.8). 85% of patients (11/13) with INR level ≥ 3 took < 5 mg warfarin orally per day, but 70% of patients (21/30) with INR level < 3 took ≥ 5 mg warfarin orally per day, $P < 0.001$. Median warfarin dosage for women was 4.25mg orally per day (IQR = 1) and for men 5mg orally per day (IQR = 2.25), $P < 0.05$. Comparing postoperative and pre-discharge blood analyses, the platelet count increased for 132 (95% CI = 108-156) $10^9/l$, $P < 0.001$. An acetylsalicylic acid (ASA) was more often used for patients, who stayed in Hospital longer than 2 weeks, $P < 0.05$. 70% of men (16/23) and 28% of women (7/25) took ASA, therefore the risk to start taking ASA is 2.5 times higher for men than for women (95% CI = 1.3-5.0), $P < 0.005$. The study is in progress and the results of the three-month follow-up after starting warfarin therapy will be evaluated.

Conclusions. The dosage of warfarin depends on INR results. The high level of platelet count in blood in early postoperative period increases the risk of thromboembolism. Warfarin with or without ASA remains the first-line medication for the patients with aortic or mitral heart valve replacement and its average dosage depends on gender. However, adverse effects of using warfarin therapy were noted in this study. Warfarin therapy has to be based on individual patient characteristics, predicting the potential risk of complications.

ACTUALITY OF OSTEOPOROSIS IN MEN IN LATVIA

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Key words. Osteoporosis, males, Latvia.

Introduction. Traditionally osteoporosis is regarded as old women disease. However, as diagnostic possibilities of osteoporosis in last few decades have rapidly increased and population longevity has increased, actuality of osteoporosis in men is started to be appreciated in the world, but not enough in Latvia. Osteoporosis is a significant risk factor for bone fractures, especially hip bone. One must take into consideration that rate of complications for men after hip fracture are three times higher as for women. Besides osteoporosis is a significant cause of morbidity, invalidity and mortality. Significant number of men are living with osteoporosis without knowing it, because osteoporosis in most cases is asymptomatic. Until today very few researches about osteoporosis in men in Latvia had been made.

Aim. Compare frequency of bone osteodensitometry in males and females. Analyse risk factors (age, height, body mass index) of osteoporosis for men. Analyse scientific literature.

Results. Bone osteodensitometry investigation was made fourteen times fewer for men as for women (224/3229) in “Veselibas centrs 4” Krisjana Barona street 117 in period of 6th of the November 2013 to 6th of the November 2014. Males with lower body mass index (BMI) had lower T-score ($r=0,429$; $p<0,001$, $N=133$). No correlation was found between age and T-score ($r=0,013$; $p=0,882$, $N=133$). Males with lower weight had lower T-score ($r=0,449$, $p<0,001$, $N=133$), weak correlation between height and T-score ($r=0,238$; $p=0,006$, $N=133$) was found. From scientific literature were identified other risk factors: smoking, excessive alcohol consumption, low calcium intake, inadequate physical exercise, certain diseases and medications.

Conclusion. Low body mass index and weight was identified as a risk factor for osteoporosis. No correlation between T-score and height was found. No correlation between T-score and age was found, although in literature age is mentioned as one of the risk factors. This may be explained partially by quite high secondary osteoporosis rate in males and also research design. Osteoporosis in men in Latvia is not enough appreciated and men are less often sent to bone osteodensitometry investigation. Patients with excessive

alcohol consumption, smoking and low BMI should be regarded as a risk group and considered for further investigations.

THE INFLUENCE OF CREATINE SUPPLEMENTATION ON THE COGNITIVE FUNCTION: DIFFERENCES BETWEEN MEAT-EATERS AND NON-MEAT EATERS

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Introduction. Creatine is a widely known supplementation for athletes. But it also has a significant effect on the CNS. Studies have shown that it can benefit in the treatment of muscular, neuromuscular and neurodegenerative diseases, and depression.

Half of the daily needed 2-3g intake of creatine is endogenously synthesized; the rest should be obtained by consumption of meat or fish. It is well known that vegetarians and vegans show a deficiency of creatine.

Aim. The aim of this study was to investigate the correlation between creatine consumption and measurable IQ results and to determine its significance. For this purpose, individuals who are more prone to creatine deficiency (vegetarians and vegans) have been compared with individuals who have an adequate supply of creatine due to their eating habits (omnivores).

Material and methods. The study consisted of 48 participants (aged 19-26, mean age women: 20.92, mean age men: 21.52). Four groups were formed by chance, of which the compositions were based on the participants' type of diet (non-meat eater vs. omnivores) and whether they were taking creatine monohydrate supplementation or not. All participants took the Raven's Progressive Matrices Test (RPMT) to obtain their IQ and the Backwards Digit Span Test (BDST) to determine their working and short-term memory. Two groups (a non-meat eater group and an omnivore group) received 5g creatine twice daily over the course of 7 days. (total of 70g, mean compliance: 94%) After this time, all 4 groups repeated the tests.

Results. There was no significant difference of IQ or working memory scores between the groups during the initial test. The results of the statistical analysis showed a significant increase ($p < 0,05$) of RPMT and BDST in the non-meat eater group taking creatine. Their average IQ score from the initial RPMT increased by 5,83 points (from 111.92 with $s=6,14$ to

117.75 with $s=8.15$) whereas the BDST average score increased by 1.42 numbers (from 3.25 with $s=1.13$ to 4.67 with $s=1.07$). No significance could be found in the other groups.

Conclusions. The results from this experimental study led to the conclusion that in case of a vegetarian/vegan lifestyle, a supplementation of creatine can cause an increase in working and short term memory. It can be advised to supplement creatine to meet the body's need, if it cannot be reached with the consumption of meat. Further investigations and European Medicines Agency (EMA) recommendations are needed to determine the exact amount and which type of creatine should be used for supplementation.

THE NECESSITY OF A BIOPSY DURING ENDOSCOPY IN THE DIAGNOSTICS OF GASTRIC ATROPHY AND GASTRIC INTESTINAL METAPLASIA

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Key words. Endoscopy, Biopsy, Atrophy, Intestinal metaplasia.

Introduction. Gastric atrophy is a result of prolonged chronic gastritis, in which the gastric mucosal glands become attenuated and eventually lose their ability to secrete gastric juices. Gastric intestinal metaplasia is the replacement of the surface, foveolar, and glandular epithelium in the oxyntic or antral mucosa by intestinal epithelium. Both are relatively frequent preneoplastic lesions which are diagnosed by doing an endoscopy and a biopsy. Even though a biopsy can be taken in every endoscopy, diagnosis is often based only on the endoscopic finding as the biopsy is twice as expensive as the endoscopy itself.

Aim. Evaluate the need of a biopsy during an endoscopy in the diagnostics of gastric atrophy and gastric intestinal metaplasia. In a retrospective case series study 660 patients (73% were women, 27% were men) of Centre „GASTRO” were included. Patients with standard biopsy schemes that had had their endoscopies done during the time period of the 1st of January till the 31st of December were selected.

Results. Out of 660 patients in age 65.3 ± 13.7 . In total 374 patients (56.7%) had gastric atrophy in their biopsies. The sensitivity of endoscopy was 34.5% (95% CI 29.9-39.4%), specificity - 90.5 % (95% CI 86.6- 93.4), positive predictive value was 82.7%, negative predictive value - 51.4%, in comparison to the biopsy results. 351 patients (53.2%) had gastric intestinal metaplasia and the sensitivity of endoscopy was 7.4% (95% CI 5.1- 10.6%), specificity was 99.7% (95% CI 98.2-99.9), PPV was 96.3%, NPV was 48.6%. 33 (6%) of the patients (age ≥ 50 years) had high risk gastric atrophy (OLGAIII, OLGAIV) which is considered high compared to 0% in the younger patients (age < 50 years, $n=113$). 53 (9.7 %) of the patients (age ≥ 50 years) had high risk gastric intestinal metaplasia (OLGIMIII, OLGIMIV), in comparison only 2 (1.8 %) of the patients (age < 50 years) were diagnosed with a high risk intestinal metaplasia.

Conclusions. Results show that endoscopy has a low sensitivity in diagnosing gastric atrophy and intestinal metaplasia, and biopsy should be done in order to diagnose these conditions. Especially in those patients of age ≥ 50 years, who have a much greater chance of high risk gastric atrophy and intestinal metaplasia. For those patients with established atrophic gastritis and established intestinal metaplasia, surveillance screening for dysplasia and gastric adenocarcinoma should be considered.

CLINICAL OUTCOMES ONE YEAR AFTER CAROTID ARTERY STENTING

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Key words. angioplasty, carotid arteries, stenosis, stroke, revascularization

Introduction. Atherosclerotic lesions in coronary arteries are frequently accompanied by lesions in other vascular beds including carotid arteries. Although historically carotid endarterectomy was considered as the gold standard for the treatment of carotid artery stenosis, the widely referenced

Carotid Revascularization Endarterectomy vs. Stenting Trial (CREST) demonstrated that the clinical outcome rates after carotid artery stenting (CAS) and surgery are comparable.

Aim. The aim of this study was to analyse the 30 day and one year rates of stroke, cardiovascular (CV) death, myocardial infarction (MI) after CAS performed by interventional cardiologists in a real life clinical setting.

Methods and results. A total of 184 patients underwent CAS between January 2011 and December 2013 and were included in a single centre registry. The inclusion criteria were angiographically confirmed internal carotid artery diameter stenosis $\geq 50\%$ for symptomatic and $\geq 75\%$ for asymptomatic patients. The majority of the study patients were male (73.9%) and had no history of stroke or transitory ischemic attack (71.9%). Concomitant coronary artery disease (CAD) was observed in 91.7% of patients and 71.9% of the study population had multivessel and/or left main CAD. Most of the patients (86.4%) had at least one high surgical risk criteria. The procedural success rate was 98.4%. The 30 day and one year stroke rates in the study population was 4.1% and 4.5%, respectively. The frequency of stroke/CV death/MI was 5.8% within the 30 day and 10.9% within the year period. Factors that increased the risk of stroke/ CV death/ MI were age ≥ 80 years (OR 6.85; 95%CI 2.28-20.65; $P < 0.01$), previous MI (OR 2.83; 95% CI 1.01-7.89; $P = 0.049$), congestive heart failure (OR 2.31; 95% CI 1.15-23.80, $P = 0.03$) and structural valve disease (OR 7.40; 95%CI 2.66-20.58, $P < 0.01$).

Conclusions. The study demonstrated acceptable clinical outcome results in patients one year after CAS. Minimal adverse event rates could be achieved despite high medical comorbidities. However, a careful patient selection should be done in asymptomatic patients and octogenarians.

LEUKOPENIA IN KIDNEY TRANSPLANT RECIPIENTS

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Keywords. Leukopenia, kidney transplantation, immunosuppression, G-CSF

Introduction. There are more than 30 kidney transplantations per million of inhabitants taking place each year in the Latvian Transplantation Centre. According to the data of the scientific literature, leukopenia develops

in 14-23% of the kidney transplant recipients, which is defined by the reduction of leukocyte cells below 3000 units per one millilitre of blood plasma. Previous research mostly studies the interdependence between leukopenia and immunosuppressive, antiviral and antibiotic therapy as well as infections (CMV, HHV-6). Untimely diagnosed and ill-treated leukopenia increases the risk of infection. Leukopenia therapy can be etiological (with reducing doses of toxic drugs and infection treatment) and pathogenetic (with receiving of G-CSF).

Aim. To assess the incidence, characteristics, risk factors and treatment of leukopenia in kidney transplant recipients.

Results. Leukopenia was observed in 30 patients (25%), on average, in 165 ± 149 days after transplantation. 53% of first episodes of leukopenia occurred in the time interval between 30 and 120 post transplantation days. Severe and extremely severe neutropenia was observed in 20.5% of patients with leukopenia. Leukocyte count was not correlated with the erythrocyte count ($p=0,085$), thrombocyte count ($p=0,472$) or haemoglobin level ($p=0,184$). We found that leukopenia developed in 39% of the patients who received rATG as induction immunosuppression. In contrast, leukopenia was found in only 20% of the patients who received basiliximab as induction therapy, although the difference was not statistically significant ($p=0,094$). Patients with lower leukocyte count before transplantation ($p=0,008$), females ($p=0,018$) and younger patients ($p=0,012$) displayed a higher frequency of leukopenia. The maximal incidence of leukopenia was observed in patients prescribed EC-MPS (enteric-coated mycophenolate sodium) with tacrolimus and prednisolone (66,7%). In contrast, a lower incidence was observed among patients receiving MMF (mycophenolate mofetil) with CsA (cyclosporin A) and prednisolone (18,1%; $p=0,001$) or MMF with tacrolimus and prednisolone (26,5%; $p=0,019$). We observed no association of leukopenia and tacrolimus use. We found that leukopenia was more common in patients on EC-MPS comparing to those on MMF ($p<0,01$). The most common treatment modification was only MMF (or EC-MPS) dose reduction by 16-66% in 56% of episodes of leukopenia. Other therapeutic modifications included withdrawal of valgancyclovir or bisepitol, administration of valgancyclovir and use of granulocyte colony-stimulating factor (G-CSF). G-CSF was administrated in 5 episodes of leukopenia with severe neutropenia. All episodes of leukopenia resolved with treatment modifications or spontaneously.

Conclusion. Patients after kidney transplantation should have intensive surveillance, because of the increased incidence of leukopenia with

associated risk factors, requiring changes in immunosuppressive therapy. Different treatment modifications are effective, but the most effective and safest are not assessed, so further studies are necessary. Practical guidelines for the management of leukopenia in kidney transplant recipients are required.

CHRONIC HEART FAILURE AND ATRIAL FIBRILLATION IN HEMODIALYSIS PATIENTS

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Keywords. Chronic heart failure, atrial fibrillation, hemodialysis.

Introduction. Chronic kidney disease affects nearly 8% of EU population, it can progress to end stage renal disease (ESRD) when kidney replacement therapy is necessary. Hemodialysis is one of the treatment options of ESRD. Cardiovascular disease is the most common cause of mortality in patients undergoing hemodialysis, accounting for almost 50 percent of deaths.

In hemodialysis patients chronic heart failure (CHF) etiology can be variable: elevated blood pressure, electrolyte disbalance and ischemia. There is also limited data about incidence of atrial fibrillation (AF) in hemodialysis patients, results vary from 9 to 14%. In our study we analyzed chronic heart failure and atrial fibrillation in chronic hemodialysis patients.

Aim. To assess incidence, characteristics and risk factors of chronic heart failure and atrial fibrillation, and to evaluate the risk of thromboembolism and bleeding in chronic hemodialysis patients.

Results. We analyzed 133 chronic hemodialysis (CHD) patients in hemodialysis centers in Daugavpils, Liepaja, Ventspils and Riga. 39,1% out of 133 CHD patients developed CHF, the most common NYHA stages were II and III (36,5% and 51,9% respectively). We found that advanced age ($p=0,002$) and severe stages of arterial hypertension ($p=0,05$) were significant factors in development of CHF. We found no correlation between the duration of hemodialysis and frequency of CHF ($p=0,081$) and NYHA stage of CHF ($p=0,214$). We observed an association between BMI and CHF. Average value of BMI in patients with CHF was $28,8 \pm 4,7$, and in those without CHF – $24,8 \pm 5,6$ ($p=0,016$). Mean value of creatinine in patients without CHF (810 ± 270) was higher than in those with CHF (664 ± 265 ; $p=0,004$). No correlation was

found between urea level and CHF ($p=0,072$). AF was found in 13,5% of CHD patients, 61% of those patients had paroxysmal form of AF and 38,9% - permanent form. AF was more common in patients with CHF ($p < 0,01$). Echocardiographically assessed left atrial volume index (LAVI) was higher in patients with AF ($50,6 \pm 20,7$), comparing to those without AF ($33 \pm 10,7$; $p=0,01$). We also found that cardiac output was lower in patients with AF ($52,5 \pm 11,5$) than in those without AF ($60,7 \pm 9$; $p=0,046$). Average score of CHA2DS2-VASc in patients with AF ($4,9 \pm 1,7$) was higher than in patients without AF ($2,7 \pm 1,7$; $p < 0,001$). The average HAS-BLED score was $4,1 \pm 1$ in patients with AF, and $3,6 \pm 1$ in those without AF, no statistically significant difference was displayed ($p = 0,062$).

Conclusions. CHD is a common finding in CHD patients. Arterial hypertension and elevated BMI are modifiable risk factors of CHF in CHD patients, so strict control of hypertension and weight control is mandatory. Patients with CHF and elevated left atrial volume index AF can be expected. CHD patients have an increased risk of both thromboembolism and bleeding, therefore intensive surveillance of the patient is necessary, even if the patient does not have AF.

NONINVASIVE PREDICTORS OF PRESENCE AND SIZE OF ESOPHAGEAL VARICES IN PATIENTS WITH HCV RELATED LIVER CIRRHOSIS

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Key words: Fibroscan, serum fibrosis scores, esophageal varices.

Introduction: Portal hypertension is related to liver fibrosis, therefore noninvasive liver fibrosis markers could predict esophageal varices. These predictors of varices could reduce the number of screening upper gastrointestinal endoscopies.

Aim: To compare different serum fibrosis scores and transient elastography in prediction of esophageal varices and to determine cut-off values for diagnosing large varices in patients with HCV related liver cirrhosis.

Results: Of 111 patients enrolled in the study, 42 (37.8%) had no esophageal varices (EV), 43 (38.7%) had small varices and 26 (23.4%) had large varices by endoscopy. Liver stiffness measured by fibroscan was significantly higher in patients with EV compared with patients without (30.28 kPa vs 20.41 kPa $p < 0.001$). The presence of EV was predicted with the cut-off value of liver stiffness higher than 32.4 kPa (sensitivity 44.9%, specificity 88.1%). The APRI score was the best among all the serum scores for diagnosing EV. The *area under receiver operating characteristic curve* (AUC) was 0.785, cut-off value >1.04 (sensitivity 56.5%, specificity 90.5%). For prediction of large EV liver stiffness value was determined higher than 36.3 kPa (sensitivity 53.7%, specificity 86.1%). The best AUC for diagnosing large varices was calculated of the FIB-4 score (0.823). For FIB-4 score higher than 5.98, the sensitivity was 88.5% and specificity 72.1%.

Conclusions: Transient elastography may be considered as non-endoscopic predictor for the diagnosis of esophageal varices and management of large varices with value higher than 32.4 kPa and 36.3 kPa, respectively. Serum fibrosis scores could also be used as good predictors, especially APRI and FIB-4 scores in cirrhotic patients.

CLINICAL EXPERIENCE WITH USAGE OF PERCUTANEOUS ENDOSCOPIC GASTROSTOMY METHOD IN PAULS STRADINS CLINICAL UNIVERSITY HOSPITAL

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Key words. Percutaneous endoscopic gastrostomy, gastrostomy, endoscopy, mortality.

Introduction. Percutaneous Endoscopic Gastrostomy (PEG) was made for the first time in 1980 at Cleveland University Hospital (USA), and from that time it became the method of choice for ensuring long-time enteral feeding as an alternative for surgical gastrostomy. It is minimally invasive, relatively fast method with low expenses.

First PEG at Pauls Stradins Clinical University Hospital was made in 1994. During last twenty years PEG usage has increased and it has become the

method of choice for enteral feeding for patients with dysphagia after neurological disorders, oncology and aspiration pneumonia.

Aim. The aim of the study was to assess the most common indications for PEG placement, comorbidities and influence on post-procedure mortality.

Medical data over period of 2001-2013 were collected in Pauls Stradins Clinical University Hospital Endoscopy Department and analysed using SPSS22.

Results. 89 patients (40 women, 49 men aged 20 – 94 years, mean age 63.5 years) were included in the study.

77 patients had indications for PEG placement. The most common indications were neurological disorders 41.6% (n=32), malignancy 41.6% (n=32), esophageal and pharyngeal fistulas 15.5% (n=12). Other indications were comparably rare – intensive care patients 10.4% (n=8), head and neck trauma 7.8% (n=6), peritoneal dialysis, cystic fibrosis and Crohn's disease 1.3% (n=1).

The most common comorbidities were respiratory system disorders (60.7%), neurological impairments (50.6%), oncology (47.2%), cardiovascular system illnesses (25.8%) and infectious diseases (19.1%). 91% of all patients had digestive complaints.

The mortality after procedure reached 16.9% (n=15). Mortality was associated with serious comorbidities. Statistically relevant differences regarding mortality rates between age groups were not obtained, though the highest mortality was in age group between 50 – 60 years, mortality of men being two times higher than women.

The highest mortality was in patients with infection (35.3% vs. 12.5%, $p=0.035$) and cardiovascular diseases (34.8% vs. 10.6%, $p=0.019$).

Conclusions. There is no statistically significant difference on mortality rate between different age groups, therefore age should not be considered as contraindication when opting for PEG placement.

Patients with serious cardiovascular illnesses and infectious diseases have statistically significantly higher mortality risk after procedure.

AUDIT OF USING UPDATED GUIDELINES FOR DIAGNOSING DEEP VEIN THROMBOSIS IN RAIGMORE HOSPITAL

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Key words. Deep vein thrombosis (DVT), Wells score.

Introduction. Diagnosing different conditions, including Deep Vein Thrombosis (DVT), has become easier by using guidelines what have been developed by group of experts over a period of time. Nevertheless, guidelines tend to change – the most important is to be updated about it and implement the changes in daily medicine. Usage of Wells score is a significant factor in the DVT diagnostics pathway.

Aim. By doing this audit I wanted to see how medical staff in Raigmore Hospital, Inverness follow guidelines to diagnose Deep Vein Thrombosis. 71 request forms for Doppler US scan were analysed that were received in Raigmore Hospital in June 2014. Emphasis was put on usage of D-dimer testing and exclusion of DVT by Doppler US when Wells score was ≥ 2 following National Institute for Health and Care Excellence (NICE) guidelines for diagnosing DVT by using Wells score.

Results. Mentioning Wells score on Doppler US scan request forms is an issue for hospital doctors – in only 20% request forms Wells score was mentioned in contrast to General Practitioners (GPs) in community – 95% what is an important factor for DVT diagnostics pathway. In only 7% cases with Wells score ≥ 2 and negative first Doppler US scan a repeated Doppler US scan was done to completely exclude DVT unless an alternative diagnosis was found.

Conclusion. Due to different already pre-made request forms for Doppler US scan GPs are better in calculating and mentioning Wells score. After changes of guidelines it takes time to inform medical staff about the updates and getting used to implement them so better patient care could be provided. The changes of the guidelines should be easily accessible and previous version taken away.

VENOUS THROMBOEMBOLISM RISK FACTORS

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Key words. Venous thromboembolism, Deep vein thrombosis, Pulmonary embolism

Introduction. Venous thromboembolism (VTE) is a major health problem. It combines two related conditions - pulmonary embolism (PE) and deep vein thrombosis (DVT). VTE is most common avoidable cause of death in hospitalized patients.

The average annual incidence in Europe of DVT is 160 per 100 000 person-years, while PE has reached 98 per 100 000 person-years.

Until recent decades VTE was viewed primarily as a complication of hospitalization for major surgery or associated with the late stage of terminal illness. However, recent trials in patients with a wide variety of medical illnesses have demonstrated a risk of VTE in medical patients comparable with that seen after major general surgery.

Independent risk factors for VTE include increasing patient age, surgery, trauma, active cancer with or without specific cancer therapy, hospital confinement, and prior vein thrombosis among others.

Aim. To identify those risk factors that contribute to development of VTE in patients hospitalized either with PE or DVT in Riga East University Hospital during the period from first of January 2014 until 31 of December 2014.

Results. In total we identified 217 confirmed cases of VTE (mean age of 70,6 years \pm 13,9). 91,7% (n=199) had PE and 38,7% (n=84) had DVT. Among those 57% (n=124) were men and 43% (n=93) were women. Mean hospitalization time was 13,8 days. Among all cases 7,4% (n=16) were hospital-acquired VTE and 14,3% (n=31) were hospital deaths.

Positive statistically significant correlation was observed between PE and DVT ($\chi^2=6,47$, $p=0,011$). DVT was more frequent in men than in women ($\chi^2=5,08$, $p=0,024$). Also strong statistically significant correlation was observed between age and DVT ($p<0,01$).

There was no statistically significant difference observed between in-hospital mortality and venous thromboembolism. Most of the in-hospital fatal cases were in patients with PE (87,1%, n=27).

Conclusion. Venous thromboembolism, especially deep vein thrombosis is more common in men than it is in women. Venous thromboembolism accounts for higher incidence rates with increasing age in both genders. Pulmonary embolism is strongly correlated with deep vein thrombosis.

**OCCURRENCE OF DEEP VEIN THROMBOSIS AND
PULMONARY
ARTERY THROMBOEMBOLISM IN ONCOLOGIC PATIENTS
IN RIGA EAST CLINICAL UNIVERSITY HOSPITAL „GAILEZERS”
AND „LATVIAN ONCOLOGY CENTER” FROM 2012 TO 2013**

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Key words. thrombosis, malignancy, risk factor

Introduction. The connection between deep vein thrombosis (DVT), pulmonary artery thromboembolism (PATE) and oncologic pathology is known since 1865 when it first described French physician Armand Trousseau. Scientific studies revealed factors, which increase occurrence of thrombosis in oncologic patients, such as localization of tumor and its morphological type, age, obesity, immobilization, history of previous thrombosis, use of central venous catheters. Chemotherapy also elevates the risk, so the assessment of risks should be done before starting the course and possibility of prophylaxis should be evaluated. Furthermore, symptoms of thrombosis may occur before the malignancy is diagnosed, so patients presenting with idiopathic thrombosis should be additionally investigated to exclude malignancy.

Aim. The aim of the study was to retrospectively analyze clinical features of oncologic patients presenting with DVT and PATE, evaluate epidemiological and investigational data and define risk factors of thrombosis of Latvian population.

Results. 100 cases were analyzed, most of the patients were female – 60% ($p < 0.05$). Median age was 67 ± 10 years. 7 patients had previous history of PATE and 7 of DVT. Tumor was primarily diagnosed in 34%, however, among patients with previous history of cancer average time of anamnesis was

27 months. Most common tumor localization was lungs - 17% ($p<0.05$) and most common histological type was adenocarcinoma – 44% ($p<0.05$). Most frequently thrombosis occurred in patients with metastatic tumor – 60% ($p<0.05$). 68% of patients had different risk factors of thrombosis, which mostly were chemotherapy and general anesthesia – both 32% ($p<0.05$). 65% had increased level of C-reactive protein – median level 65 mg/L. 49% had increased level of white blood cells – median level $69 \times 10^9/L$. In 56% of cases diagnosis at the discharge was PATE, 31% - DVT, 13% - PATE + DVT. *Exitus letalis* occurred in 22% of patients in hospital, where 45% death cause was PATE. **Conclusion.** In our study following risk factors: female sex, lung tumor, morphological pattern adenocarcinoma, metastases, chemotherapy, general anesthesia, high levels of C-reactive protein or leukocytosis were determined to have greater impact on DVT and PATE development in oncologic patients. These factors should be evaluated and possibility of prophylaxis of thrombosis should be assessed. Furthermore, before starting the course of chemotherapy or making a manipulation under general anesthesia, prophylaxis of thrombosis should be obtained. The scientific research should be continued and recommendations for prophylaxis of DVT and PATE in oncologic patients should be developed.

PKP2 GENETIC VARIATIONS IN LATVIAN ARRHYTHMOGENIC RIGHT VENTRICULAR DYSPLASIA/CARDIOMYOPATHY (ARVD) REGISTRY PATIENTS

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Key words. ARVD, PKP2, sudden cardiac death.

Introduction. ARVD is rare cardiomyopathy and is a leading cause of sudden cardiac death among young athletes. Heart muscle of the right ventricle is replaced by fat and/or fibrous tissue. It may develop due to genetic

mutations of genes that encode desmosome proteins. Most commonly affected gene is *PKP2*.

Aim. Aim is to find out if ARVD in Latvian patients is caused by mutations in the *PKP2* gene, to analyze discovered genetic variations frequency in European (EU) and Latvian (LV) populations and to evaluate how discovered genetic variations correlate with phenotype.

Methods. Direct sequencing was used to detect possible genetic variations in the *PKP2* gene (14 exons) for 14 patients from ARVD registry. All discovered genetic variations were checked in ARVD database [<http://www.arvcdatabase.info>] and compared by Fisher exact test or χ^2 test their minor allele frequency (MAF) with European population sample using data from the 1000 Genome project browser. Two exons were analyzed in 14 unaffected Latvian individuals.

Results. Genetic analyses were done for 14 patients- 9 female (64%), and 5 male (36%), mean age of 44.38 years (± 15.68). Six (43%) patients had a high risk for sudden cardiac death. We identified different genetic variations that were previously described as non-pathogenic in ARVD database: c.1097T>C (rs80325569), $MAF_{patients}=0.11$, $MAF_{EU}=0$ ($p=0$); c.2145+45G>A (rs10772008), $MAF_{patients}=0.18$, $MAF_{EU}=0.19$ ($p=1$); c.2145+72A>G (rs7967264), $MAF_{patients}=0.04$, $MAF_{EU}=0.067$ ($p=1$); c.2578-69G>A (rs7956824), $MAF_{patients}=0.32$, $MAF_{EU}=0.32$ ($p=1$); c.2489+14insC, $MAF_{patients}=0.12$, $MAF_{LV}=0.04$ ($p=0.61$); c.2300-21delG (rs57690055), $MAF_{patients}=0.12$, $MAF_{EU}=0.13$ ($p=1$). One genetic variation c.1592T>G (rs147240502) is with a possible pathogenicity. $MAF_{patients}=0.07$, $MAF_{LV}=0$, $MAF_{EU}=0.006$ ($p=0.018$, OR=12.82, CI 95% 1.7-75.57). We identified 2 novel, unregistered, possibly non-pathogenic genetic variations: c.2489+131G>A, $MAF_{patients}=0.14$, $MAF_{LV}=0.2$ ($p=0.73$); c.2489+72delA, $MAF_{patients}=0.25$, $MAF_{LV}=0.18$ ($p=0.056$).

Conclusions. The prevalence of the majority of non-pathological genetic variations is almost the same in Latvian ARVD patients and European population. The most common one is c.2145+45G>A. Two genetic variations (c.1097T>C, c.1592T>G) may possibly have an effect on phenotype, as compared to Latvian ARVD patients, they are rarely found in both European and Latvian unaffected individuals. One of these mutations (c.1592T>G) is possibly damaging, and could confirm ARVD diagnose genetically. Unregistered genetic variations should be applied for registration in ARVD database. Research will be continued and other ARVD associated genes should be sequenced to confirm ARVD diagnosis genetically and help to find out the risk for first-degree relatives.

EFFECT OF ACUTE SYSTEMIC HYPOXIA TO MEAN ARTERIAL PRESSURE VARIABILITY IN YOUNG ADULTS

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Keywords. Mean arterial pressure, spectral analysis, pressure regulation, RR interval, variability.

Introduction. Elevated blood pressure is a major risk factor for cardiovascular diseases and increased mortality. Blood pressure variability is one of methods how non-invasively evaluate different regulatory factors which influence arterial blood pressure, even more it increases proportionally to mean arterial blood pressure (MAP). Arterial blood pressure is not a constant value, it changes spontaneously and some pathophysiological factors like hypoxia can affect it. Studies show specific cardiovascular autonomic response to hypoxia, which consist and could be evaluated by high frequency (HF) and low frequency (LF) band fluctuations. There is even connection between excessive MAP fluctuations and development of organ damage.

Aim. Aim of research was to compare mean arterial pressure fluctuation change with heart rate variability in normoxic and hypoxic conditions and to detect specific cardiovascular autonomic response.

Results. Research subjects were 10 adults 25.5 ± 3.3 years old, height – 1.70 ± 0.07 m, weight – 63.9 ± 7.0 kg and BMI – 21.9 ± 2.4 kg/m². For each subject heart rate and mean arterial pressure were measured during 10 minutes resting normoxia (N1; pO₂=21%), 20 minutes of continuous acute systemic hypoxia (H; pO₂=12%), and 10 min of recovery normoxia (N2; pO₂=21%). To evaluate autonomic nervous systems regulatory response to heart were used RR interval data and the sympathetic regulation in systemic circulation was evaluated by MAP spectral analysis. Statistically significant difference between RR interval (N1 = 960.25 ± 174.48 vs. H = 864.65 ± 134.60 ms, P=0.001 and H = 864.65 ± 134.60 vs. N2 = 955.93 ± 152.91 ms, P<0.001) was observed. Although, there was no amplitude difference found in RR interval fluctuations in the high frequency band, but they were observed in low frequency band (N1 = 1596.14 ± 1991.02 vs N2 = 2338.93 ± 2696.07 ms², P = 0.032). Mean arterial pressure was unchanged in all experiment (N1 = 80.7 ± 8.3 vs. H = 81.3 ± 8.4 mmHg, P = 0.537; H = 81.3 ± 8.4 vs. N2 = 83.4 ± 9.1 mmHg, P = 0.087; N1 = 80.7 ± 8.3 vs. N2 = 83.4 ± 9.1 mmHg, P = 0.098).

Difference in MAP LF fluctuations were detected between resting period in normoxia and recovery period of normoxia after hypoxic conditions ($N1 = 0.94 \pm 0.58$ vs. $N2 = 1.99 \pm 1.43$ mmHg², $P = 0.020$).

Conclusions. Acute hypoxia causes changes in RR interval; it is decreasing during hypoxia and increased during normoxia. LF band increases after 20 minutes of hypoxia, which indicates the growing influence of regulatory activity of sympathetic nervous system. Acute hypoxia does not influence high frequency band, which indicate unchanged parasympathetic nervous system activity to heart.

THE EFFECT OF DONOR GENDER ON KIDNEY GRAFT FUNCTION AND LONG TERM GRAFT SURVIVAL

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Key words. Donor gender, graft survival, graft function.

Introduction. Kidney transplantation for people with end stage chronic kidney disease is an optional method of treatment. It allows to improve the patients quality of life. However graft survival is limited, therefore it is important to know the factors that can affect it.

Aim. To study whether the gender of the donor has an effect on kidney grafts function and five year survival rate.

Results. The study included 298 patients who received kidney grafts from 215 deceased donors in the time period between 01.01.2002 and 31.12.2007. 60 donors were female and 155 were male gender. The average age of the female donors was 42,43 years, meanwhile it was 41,67 years for male donors ($p=NS$). There were no statistically significant association between gender of donor and delayed graft function and acute rejection rate. The results showed that a 5 year graft survival rate is statistically significantly lower if the donor is a female, than when the donor was a male (64,60% vs. 75,90%, $p=0,05$). Serum creatinine level 1 year after transplantation was higher in recipients with female donor (0,16 mmol/l) compared to recipients with male donor graft (0,136 mmol/l) ($p=0,01$). 5-year graft survival rate if the female donor kidney is transplanted to a male recipient is 58,30%, meanwhile if the donor is a male, than it is - 77,55% ($p = 0.01$). If the kidney from female donor was transplanted into female recipient, graft survival was better

(76,90%) than if it was transplanted into male recipient (53,80%) from the same female donor, but statistical significance was not proved due to low patient number (n=13).

Conclusions. Recipients whose kidney graft donor was a female have a lower 5 year survival rate and a worse graft function especially if a recipient was a male. There is no statistically significant association among different gender donors and acute rejection or delayed graft function frequency.

PREDICTION OF OUTCOME IN ACUTE PANCREATITIS: A PROSPECTIVE STUDY ON SCORE AND SINGLE PARAMETERS

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Introduction. Early prognosis of acute pancreatitis (AP) is difficult and based on single predictors such as age, haematocrit (hct), CRP, glucose, leukocytes and BUN as well as on scores including Ranson, APACHE-II and BISAP. Since data on these predictors are contradictory, we performed an analysis in 327 patients screened for the EAGLE-study.

Methods. EAGLE is a multi-centric RCT on early-goal-directed therapy in severe acute pancreatitis. Screening logs of all patients and all subsequent data until death or discharge were prospectively analysed regarding prediction of ICU-transfer, length of hospital stay and death (primary endpoint).

Results. Among single parameters on admission calcium (AUC 0.143; p=0.001), BUN (0.854; p=0.001), CRP (0.773; p=0.010), creatinine (0.767; p=0.011) significantly predicted mortality. By contrast glucose (0.491; p=0.929), hct (0.406; p=0.371), leukocytes (0.492; p=0.936) and age (0.613; p=0.282) were not predictive. All scores provided excellent prediction of mortality: APACHE-II (0.963; p<0.001), BISAP (0.954; p<0.001), Ranson total score (0.945; p<0.001) and RANSON on admission (0.857; p<0.001). Among these parameters calcium (p=0.015), BISAP (p=0.016) and APACHE-II (p=0.018) were independently associated to mortality. A model based on these parameters provided an AUC of 0.990 (p<0.001) regarding mortality. "Requirement of ICU" was best predicted by the above-mentioned model (AUC 0.887; p<0.001), APACHE-II (0.865; p<0.001), Ranson-48h (0.861; p<0.001), calcium (0.213; p<0.001), BISAP (0.754; p<0.001) and CRP (0.726;

p<0.001). Furthermore Ranson-0h, BUN, leukocytes, creatinine and hct were significant predictors, whereas age (p=0.410) and glucose (p=0.257) were not predictive. Length of hospital stay was significantly associated to total Ranson, BISAP, APACHE-II, CRP, calcium, leukocytes, age and hct, but not to glucose.

Conclusions. APACHE-II, BISAP-score and Ranson are excellent predictors of mortality, requirement of ICU and length of stay in AP. Among single parameters low calcium and high BUN are the best predictors of poor outcome, whereas glucose was not predictive.

SESSION II

SURGERY, NEUROSURGERY, ONCOLOGY, MORPHOLOGY

BONE MARROW MORPHOLOGY AS PREDICTIVE FACTOR OF RENAL INSUFFICIENCY IN CASES OF MULTIPLE MYELOMA

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Key words. Multiple myeloma, bone marrow biopsy, renal insufficiency.

Introduction. Multiple myeloma (MM) is a bone marrow (BM) based, multifocal plasma cell neoplasm associated with an M-protein in serum and/or urine (*Swerdlow*, et al., 2008). Malignant plasma cells morphology and aberrant antigen expression play a role in the prognosis and survival (*Ngo*, et al., 2009). One of the most common complications of MM is renal insufficiency. Glomerular filtration rate (GFR) has a major role to determine renal functions. GFR has reciprocal relationship with the serum creatinine (SCr) level (*Lesley*, et al., 2006). Potassium level increases when GFR is decreased, as example, in cases of renal insufficiency (*Lejnies*, et al., 2010). Relatively small numbers of publications were found about BM morphology correlations with different kind of MM complications, especial with renal insufficiency.

Aim. To find a correlation between BM morphology, expression of some immunohistochemical markers and disturbances of renal function.

Results. We obtained 70 patients with primary diagnosed MM from 2011 to 2014 in Riga East Clinical University Hospital's Hematology center. Patients mean age was (Mean \pm SD) 63.61 ± 10.81 years.

To get information of renal functions we have analyzed such laboratory test as SCr, serum potassium, GFR. MM clinical stages according to the Salmon - Durie MM clinical staging system were: I a, b– 20% (n =14); II a, b– 43% (n =30), III a, b– 73% (n =26). Patients' GFR mean was 83.3 ± 53.17 mL / min, SCr levels mean was 83.3 ± 53.17 μ mol / L. Serum potassium level mean was 4.205 ± 0.9856 mmol / L.

All bone marrow biopsies were stained with haematoxylin-eosin, Gordon-Sweet's reticulin silver and immunostained with CD138, CD56, BCL2, kappa,

lambda antibodies. BM cellularity mean was 53.2 ± 19.53 %. Percentage of plasma cells (PC) count in BM was 45.94 ± 2.94 %. PC percentage with plasmablastic differentiation in BM was $7.786 \pm 14.71\%$. CD56 positive PC were detected in 54 cases (77%), positive expression of BCL2 was in 63 cases (90%). The kappa: lambda light chain ratio was 2,33: 1. Statistical analyses were performed using Graph Pad Prism 5 software. We have found statistically significant correlation between higher BM cellularity and lower GFR ($r_s = -0.2625$, $p = 0.0282$), also there is a correlation between CD56 expression and increased GFR ($r_s = +0.4674$, $p < 0.0001$) and decreased SCr level ($r_s = -0.4387$, $p = 0.0001$).

Our study has proved a coherence between percentage of PC with plasmablastic differentiation and increased potassium levels ($r = +0.5682$, $p < 0.0001$), decreased GFR ($r = -0.267$, $p = 0.0255$). We didn't find statistically significant difference between expression of BCL2, kappa, lambda and renal insufficiency tests.

Conclusions.

1. BM cellularity is a negative predictive factor of renal functions as GFR is lower in cases with more expressed cellularity.
2. Patients with high amount of plasma cells in BM biopsy, plasma cells with plasmablastic differentiation and lack of CD 56 expression statistically significantly correlated with increased SCr level and decreased GFR and have poorer prognosis of renal function outcome.

THE IMPACT OF COMORBIDITIES AND POSSIBLE RISK FACTORS ON LOWER EXTREMITY AMPUTATION LEVEL

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Key words. Lower extremity amputation, diabetes mellitus, coronary artery disease.

Introduction. The percentage of amputations has not changed since the last century. According to statistical dates, the rate of lower limb amputation has increased for the last five years in Latvian population. Unfortunately, peripheral arterial revascularization does not achieve success in individuals with severe vascular lesions and wide necrosis. In some cases amputation is the main operation to relieve patient's suffering. In developed countries a lot of lower limb amputations are performed due to vascular pathologies (also in Latvia).

Atherosclerosis is the main cause of peripheral arterial disease. However, etiology and risk factors may vary in different countries. Comorbidities, like diabetes mellitus, stroke and myocardial infarction are associated with earlier limb amputation and increase the level of amputation.

Aim. The aim of this study was to analyze impact of patients' comorbidities on lower extremity amputation level and detect, if preoperative anemia and coagulation changes influence the amputation level.

Results. In this study we have found that 12 of 76 patients underwent toe amputation, 5 of 76 - foot amputation, 21 of 76 amputations of the lower thigh level, 33 of 76 amputations at the mid thigh and 5 of 76 amputations of the high thigh level. Comparing toe amputations with three different levels of the thigh amputations, we have found that there is strong correlation with diabetes ($P = 0,008 - 0,025$). Amputations of the ankle showed less pronounced correlation ($P = 0,01-0,04$). Amputations of the thigh level, however, showed weak correlation with diabetes, but there were strong correlations with coronary artery disease. Mid thigh amputations also showed correlation with myocardial infarction ($P = 0,037$) and stroke ($P = 0,041$) and not statistically significant correlation with prothrombin index ($P = 0,081$). There was no significant difference between amputation level and hemoglobin level or erythrocyte count.

Conclusions. The study has showed that foot and toes amputations are associated with diabetes mellitus. Impact of diabetes becomes lower in the major amputations. So, we can say that patients with diabetes have higher risk of below the knee amputation. Nevertheless, persons with anamnesis of coronary artery disease and cerebrovascular pathologies often have above the knee amputation. Coronary artery disease, myocardial infarction and stroke are associated with peripheral artery occlusion development. Poor compensated diabetes mellitus can worsen patient's state significantly. Comparing to other studies where anemia correlated with the limb amputation risk, this study showed that anemia has no significant impact to the amputation level.

MORPHOLOGIC PREDICTORS ASSOCIATED WITH REGIONAL LYMPH NODE METASTASES OF COLORECTAL CANCER

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Key words. Colorectal cancer, adenocarcinoma, surgical treatment, regional metastases.

Introduction. Despite the remarkable progress in the diagnostics, treatment and scientific studies of colorectal cancer (CRC), it still represents one of the most frequent malignant tumours in Latvia and the whole Western world. Regarding the outcome and the selection of treatment, presence and number of regional lymph node (LN) metastases (MTS) are of utmost importance. The analysis of associations between regional LN status and other tumour characteristics can yield pathogenetic information and help in the elaboration of diagnostic protocols for preoperative assessment or in controversial cases.

Aim. The aim of this study was to identify the association between the presence and extent of regional LN MTS and both classical (cancer grade, invasion depth, histological type) and innovative characteristics (cancer volume, nuclear atypia, type of the invasive border, mitotic count).

Materials and methods. A retrospective study design was selected as appropriate. All consecutive patients who underwent colorectal cancer surgery with potentially curative intention were identified by archive search in a single clinical university hospital, 2011 – 2014. The following demographic and clinical data were studied: patients' age and sex, the histological cancer type by World Health organisation (WHO) classification (Bosman *et al.*, 2010) and spread characterised by pTNMGR parameters (Edge *et al.*, 2010), number of retrieved LN, presence and quantity of MTS in LN and in pericolic fat, volume and localisation of the tumour. By light microscopy, histological cancer specimens were analysed to evaluate the nuclear atypia in three-tiered scale, invasive border (rounded *versus* streaming dissection) and mitotic count within 10 high power (400x) fields of view (HPF). SPSS and CIA (Altman *et al.*, 2000) software was applied for descriptive and analytical statistics involving 95% confidence interval (CI) for proportions and means, interquartile range (IQR) and Pearson correlation. $p < 0.05$ was considered significant.

Results. The archive search yielded 429 cases including 53.4% women [95% CI: 48.7 – 58.1], and 46.6% men [41.9 – 51.3]. The median age of CRC diagnosis was 71.0 year (IQR: 14). Adenocarcinoma was the most frequent

histological type comprising 86.9% of cases [$p<0.001$]. The tumours predominantly affected sigmoid colon and rectum – 60.4% [54.0 – 66.8]. In 28.2% [22.4 – 34.1] of patients, the tumour was situated on the right side of colon. Direct relation was observed between pN and tumour volume ($p=0.02$), pT ($p<0.01$) and G ($p<0.01$). pT4 constituted 61.4% of pN2 [56.8 – 66.0], 40.0% pN1 [35.4 – 44.6] and 20.9% of pN0 cases [17.1 – 24.8]. G3 comprised 41.8% cases of pN2 [37.1 – 46.5], 23.6% of pN1 [19.6 – 27.7] and 34.5% of pN0 [30.0 – 39.0] CRC. The invasive border showed streaming dissection in 67.0% [57.2 – 76.8] pN2 CRC cases. In contrast, the border was rounded in 88.4% [85.4 – 91.4] pN0 tumours. The highest mean mitotic count was observed in pN2 CRC reaching 8.8 mitoses per 10 HPF [8.3 – 9.3]. There was significant association between LN MTS, high nuclear atypia ($p<0.01$) and mitotic count ($p<0.01$).

Conclusions.

1. Surgically treatable colorectal cancer in Latvian patients is diagnosed at the median age of 71 years. It is characterised by significant predominance of adenocarcinoma over other WHO-defined histological types and by predominant left-sided location.
2. Presence and extent of LN MTS is associated with higher tumour volume ($p=0.02$), locally advanced spread reflected by pT ($p<0.01$), high grade ($p<0.01$), high nuclear atypia ($p<0.01$) and mitotic count ($p<0.01$).
3. There is significant correlation between pN values and invasive border – pN0 cancers generally have rounded invasion border while high pN is associated with streaming dissection ($p<0.01$).

SURGICAL TREATMENT CHALLENGES AND OUTCOMES OF NATIVE VALVE ENDOCARDITIS.

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Key words. infective endocarditis, native valve, surgical treatment

Introduction. In the last three decades despite the evolution of preventive medicine programs the treatment for active infective endocarditis (IE) is still challenging with high mortality and morbidity and the incidence of native valve endocarditis (NVE) has not decreased.

Aim. The purpose of this study is to analyze preoperative patient characteristics, causing micro-organisms, infected sites and surgical procedures for NVE.

Results. From 1 August 2013 to 31 July 2014, twenty-nine patients at the Pauls Stradins Clinical University Hospital underwent surgery for active valve endocarditis were identified and data retrospectively collected from cardiac surgical database and medical records reviewed. Prosthetic valve endocarditis was found in 6 patients, however it was excluded from this study due to the different nature of the disease and clinical characteristics. In the population of 29 analyzed patients, 72.4% (n=21) are men, 27.6% (n=8) are women. The mean age is 49.5 y/o. Overall, 19 patients (65.5%) were classified as New York Heart Association class II, III and IV, most of them in class II, 12 patients (41.4%). Since echocardiography verification, surgery was performed within 72 hours of diagnosis of active endocarditis for 5 patients (17.2%). There were a total of 1 patient postoperative death (3.4%). In 11 cases (37.9%), the etiologic agent was not found. In 6 cases (20.7%) *Staphylococcus* was found, 4 of them for *Staphylococcus aureus* and 2 for coagulase-negative staphylococci, 5 – *Streptococcus* (17.2%), *Enterococcus* – 3 (10.3%), 4 other agents were found as well. 19 out of 20 infected aortic valves (95.0%) were replaced with prosthetic valves, 18.2% (2 of 11) of mitral valves and 66.7% (2 of 3) of tricuspid valves were repaired. Multivalve endocarditis was present in 17% of patients (5 of 29). Of these, 3 (10% of total cohort) had double valve endocarditis and 2 (7%) had triple valve endocarditis.

Conclusions. Results show that high density lipoproteins and C-reactive protein are very sensitive markers of IE. The most common etiologic agent of infective endocarditis in Pauls Stradins Clinical University Hospital is *Staphylococcus* strains. The aortic valve is damaged in most cases of IE, mitral valve involvement is common as well. In NVE surgical treatment valve replacements are most common than valve repair procedures.

THE USE OF ERCP AND CHOLEDOCHOSCOPY FOR THE CLEARANCE OF COMMON BILE DUCT BY PATIENTS WITH CHOLEDOCHOLITIASIS

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Key words. gallstone disease, choledocholitis, ERCP, choledochoscopy

Introduction. 10-18% of patients with signs of symptomatic gallstone disease have stones in common bile duct (CBD) or choledocholitis. Nowadays two different strategies have been developed for the clearance of CBD stones. Two stage strategy considering pre- or postoperative endoscopic retrograde cholangiopancreatography (ERCP) may be used, however, it is associated with considerable number of complications. Alternative approach (one stage strategy) has been developed and recommended for patients with CBD stones providing laparoscopic common bile duct exploration using choledochoscopy.

Aim. To compare two stage strategy using ERCP and one stage laparoscopic choledochoscopy in patients with CBD stones.

Results. Patients with proved CBD stones treated in Riga East Clinical University Hospital Gailezers were retrospectively included from 2011-2013. Patients were stratified in two groups, Group I – one stage strategy using laparoscopic choledochoscopy and Group II – two stage strategy considering preoperative ERCP.

68 patients with median age 63 (IQR=48-75) years were included in Group I and 96 patients with median age 74 (IQR=62-82) years in Group II. At the admission acute cholangitis was diagnosed in 42 (62%) Group I comparing to 67 (70%) Group II patients ERCP and choledochoscopy was performed median on the 5th (IQR=3-7) day after admission. Clearance of CBD using choledochoscopy was achieved in 65 (96%) patients leading to conversion to open procedure in 3 patients. During ERCP choledochography single stone in CBD was revealed in 31 and multiple calculi in 44 patients, in 13 – the CBD was clear and 8 procedures failed. Complete CBD clearance was achieved in 67 (70%) Group II patients. Bleeding after endoscopic papillotomy complicated clinical course in 3 Group II patients. ERCP was associated with 2.4 times (CI95%: 1.0-5.9) higher post-ERCP *de novo* pancreatitis than choledochoscopy 18 vs. 5 patients, respectively, $p=0.035$. In Group I patients 2 additional ERCPs, 1 percutaneous abscess drainage and 1 relaparotomy due to bleeding was needed comparing to 10 additional ERCPs, 13 laparotomies and 1 laparoscopic choledochoscopy to

achieve CBD clearance in Group II patients. Overall median hospital stay in Group I was 9 (IQR=7-14) days or statistically shorter comparing to 11 (IQR=8-14) days in Group II, $p=0.04$. The same ICU requirement and median stay – 3 days (IQR=2-4) – was found. There was no mortality in our series.

Conclusion. Choledochoscopy is safe and feasible procedure that is associated with low post procedure pancreatitis risk and significantly higher success rate considering CBD clearance comparing to ERCP.

COMPARISON OF DIFFERENT DEFINITIONS OF DELAYED RENAL ALLOGRAFT FUNCTION

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Key words. Renal transplantation, DGF definitions.

Introduction. Delayed graft function (DGF), traditionally defined as requirement for dialysis within the first week after transplantation, is one of the most frequent complications affecting early and late results after kidney transplantation. However there are many proposals for other approaches to define this complication.

Aim. The aim of this study was to analyse and compare different DGF definitions.

Materials and methods. This retrospective study included all consecutive cases of deceased donor renal transplantations performed in a single transplantation centre between January 01, 2006, and December 31, 2007, where recipients were available for 5-year follow-up (101 kidney transplantations in 101 recipients (55 males, 46 females, mean age $44,8 \pm 14,4$ years) from 66 deceased donors (45 males, 21 females, mean age $44,7, \pm 12,5$ years). We analysed incidence of DGF and compared donor, recipient and transplantation factors and post-transplantation results according to different DGF definitions: Definition 1 (D1): the time taken for the kidney to attain creatinine clearance ≥ 10 ml/min (Gault-Cockcroft) (Giral-Classe et al., 1998) D2: Serum creatinine (S-crea) level of >3 mg/dL on the fifth day after surgery. (Humar et al., 2000) D3: The need for dialysis within 72 h after transplantation. (Hetzel et al., 2002) D4: S-crea increases, remains unchanged, or decreases by less than 10% per day during three consecutive days during immediately after surgery. (Boom et al., 2000) D5: Rise in the S-crea level above that before surgery, or urine output of <300 mL within 6h after transplantation. (Gonwa et al., 2002) D6: Urine output

of <1 L in the first 24 h or a decrease in S-crea less than 30%. (Halloran et al., 2000) D7: Creatinine reduction ratio $\leq 30\%$ on day 2 post-transplant (S-crea day 1 minus S-crea day 2, multiplied by 100, and divided by S-crea on day 1) (Salahudeen et al., 2004)

Results. Recipient factors were associated with DGF development according to definitions D1-D3 and traditional definition, and the main factors were recipient weight (in all) and male gender in D1 and D2. Donor factors were associated with DGF in D2-D7 and traditional definition. The main donor factors were high BMI (in all) and hemodynamic disturbances in pre-explantation period (D2, D3, D7 and traditional definition). Sclerosis in donor kidneys revealed by „zero biopsies” reached significance only in D4. Analysis of post-transplant results showed higher rate of acute rejections was observed in all DGF definitions except D1, and increase in post-transplant hospital stay in D1-D5 and traditional definition. Worse graft function at the end of follow-up was relatively more frequent in D3 ($p=0.067$). Death-censored graft losses and patient deaths did not show association with any DGF definition.

Conclusion. Definitions D2-D7 showed results close to traditional definition used, with only D4 being associated with initially worse histological findings. D1 showed no association with donor factor, meaning that this definition is not suitable for proper diagnosis of DGF.

CLINICOPATHOLOGICAL STUDY OF 16 PATIENTS WITH ANAPLASTIC LARGE CELL LYMPHOMA

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Key words. Lymphoma, anaplastic large cell.

Introduction. Anaplastic Large Cell Lymphoma (ALCL) is an aggressive T-cell lymphoma. Tumor cells are strongly positive for antigen CD30, 60-70% cases express Anaplastic Lymphoma Kinase (ALK1) associated with t(2;5)(p23;q35.1) and better prognosis. WHO subdivides ALCL into systemic ALK+, systemic ALK- and primary cutaneous ALCL. Systemic ALK1+ ALCL has predilection for extranodal infiltrates, ALK1- - to nodal involvement, while primary cutaneous ALCL is isolated to skin. Systemic disease is usually widely disseminated with rapid progression. Extranodal sites include bone marrow, bone, soft tissues, lungs, liver, skin and GI tract. ALCL is rare, making up 2% of

all lymphomas and 12% of pediatric lymphomas; primary cutaneous ALCL is diagnosed in 9% of cutaneous lymphomas. Common, lymphohistiocytic, small cell, Hodgkin-like and composite histological variants are recognized.

Aim. The aim was to retrospectively analyze 16 ALCL cases diagnosed in 2003 – 2014 at Paul Stradins Clinical University Hospital, Riga East University Hospital and Children's Clinical University Hospital.

Results. Patients' age varied between 11 and 80 years (median = 33.5). 10 patients were male. All cases were systemic with wide dissemination. Extranodal sites were involved In 11 patients: bone marrow in 6 cases, skin in 5 cases, as well as bones, meninges, brain, adrenal gland, lungs, liver, spleen, gastric wall, orbit and muscles. Local changes included edema, paraparesis, atelectasis, fracture, reduced vision, damage to cranial nerves, ascitis. 3 patients were HIV+ with fulminant clinical course. Systemic symptoms were observed in 14 patients. Blood counts were abnormal in 10 cases, inflammation markers were elevated in 11 patients.

Lymph node biopsy was diagnostic in 10 cases (7 peripheral nodes, 2 abdominal and 1 mediastinal), trephine biopsy in 3, skin biopsy in 2 and bone (vertebral) biopsy in 1. Morphologically, 10 cases showed common pattern, 4 lymphohistiocytic, 1 small cell and 1 Hodgkin-like. All cases were strongly positive for CD 30. 14 cases were stained for ALK1, 6 of them were positive and 8 negative, including all HIV+ cases. Median age of ALK+ patients was 25 years (M:F = 2:1), median age of ALK- cases was 56 years (M:F = 3:1).

Conclusions.

The study revealed an uncommonly high incidence of ALK- systemic ALCL in Latvian population. On the other hand, no primary skin cases have been documented, that could indicate hypodiagnostics.

HIV+ ALCL is very rare worldwide, 3 cases in this small cohort are unusual.

Otherwise, clinical, histologic and phenotypic features of the studied patients were similar to described in literature, including frequent and bizarre extranodal spreading.

EVALUATION OF P53 AND KI-67 PROTEINS IN PRIMARY COLORECTAL ADENOCARCINOMAS

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Key words. Colorectal cancer, immunochemistry.

Introduction. Colorectal cancer (CRC) is one of the most common malignant tumors in the world. In Latvia in 2013 according to The Centre for Disease Prevention and Control data, a total amount of 1058 new cases of CRC were diagnosed. Immunohistochemical investigation of CRC helps to evaluate cancers proliferation activity and genetic abnormalities, and these features are widely studied to determine possible influence on life expectancy and disease progression. The expression of the Ki-67 protein in humans is associated with cell proliferation, and this is detected during the cell-cycle phases G1, S, G2 and mitosis, and absent in the G0 phase. Thus, Ki-67 is an excellent marker for proliferating cells. In humans, the p53 tumor suppressor gene main function is to mediate the cell response, when DNA is damaged, assisting in the maintenance of genomic stability. Mutation of the p53 gene promotes an accumulation of this protein in the cell nucleus and extends its half-life, making it detectable by immunohistochemistry [Walysson, 2012]

Aim. The aim of the study was to evaluate Ki-67 and p53 protein expression in colorectal adenocarcinomas, and to see if there was a correlation with clinical and pathologic findings.

Results. 30 cases of primary colorectal adenocarcinomas of moderate differentiation (Grade 2) were analyzed for Ki-67 and p53 protein expression. 15 patients were male and 15 female (M:F=1:1). Age of patients ranged from 52 to 90 years, mean age was 68,7 [95% confidence interval: 65,1 – 72,3] years, median age was 68 [63,8 – 71,1] years. Average expression of Ki-67 protein was 65,5% [58,5 – 72,4%], and of p53 it was 68,1% [57,0 – 79,3%]. Statistically no significant difference of Ki-67 expression among tumors with different T parameter was found. Mean Ki-67 expression in pT2 was 70,4% [54,8 – 68,8%], in pT3- 61% [51,3 – 70,7%] and in pT4 64,6% [50,7 – 78,4%]. A slight difference of p53 expression in tumors with different pT was observed. Positive p53 cell count in pT2 was 58,2% [43 – 93%]; in pT3 66,1% [48,4 – 83,4%] and in pT4 was 70,1% [47,1 – 93,1%]. No statistically significant correlation ($r=0,32$, $p>0,08$) between Ki-67 and p53 was observed. Metastases in lymph nodes (pN1 and pN2) were detected in 36,7% [21,9-54,5%] of patients, but 63,3% [45,5-

78,1%] of patients had no metastases in lymph nodes (pN0). Mean Ki-67 expression in patients with pN0 was 67,9% [57,6 – 78,2%], but with pN1 or pN2 mean Ki-67 expression was 61,2% [53.1 – 69.3%]. Mean p53 expression in patients with pN0 was 58,7% [42,6 – 74,7%], and p53 mean expression in patients with pN1 and pN2 was 84.5% [76,6 – 92,3%].

Conclusion.

1. In our study no correlation between Ki-67 and p53 protein expression in tumors with different pT was observed.
2. Mean age of the patients with colorectal carcinoma was 68 years, that is similar to World Health Organization data where mean age of CRC patients is above 60years.
3. Average expression of Ki-67 protein in tumors with no metastases in lymph nodes was observed to be greater than in those with metastases in lymph nodes. However, opposite relation was observed in p53 expression, where its expression was higher in tumors with lymph node metastases.

IMMUNOHISTOCHEMICAL CHARACTERIZATION OF MULTIPLE AND SOLITARY MENINGIOMAS

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Key-words. Multiple meningiomas, CD-56, progesterone, estrogen

Introduction: Meningiomas are common primary brain tumours deriving from arachnoidal cap cells. Most meningiomas are benign and correspond to World Health Organization (WHO) grade I (Louis et al., 2007). Their prognosis is equally good for both solitary and multiple tumours. (Gelabert-Gonzalez et al.,2003). Although it is well known, that meningiomas express sex-hormone receptors, there are few studies that focus on hormone receptor differences between solitary and multiple meningiomas. CD-56 (neural cell adhesion molecule or NCAM) is a cell surface glycoprotein molecule that exists in different isoforms and acts through different pathways, providing multiple functions (Hinsby et al., 2004). Some authors have described CD-56 impact on tumour progression and dissemination (Lantuejoul et al., 1998; Trouillas et al.,2007; Zecchini et al.,2011). Its expression has been found in solitary

meningiomas (Figarella-Branger D. et al,1997; Garin-Chesa P. et al.,1991), but expression in multiple meningiomas has not been studied before.

Aim: to compare the differences in estrogen (ER), progesterone receptor (PR), Ki-67 proliferation index and CD-56 expression in solitary and multiple meningiomas.

Results: samples from eleven multiple meningiomas, acquired from seven patients, and 20 randomly selected grade I solitary meningiomas as control group were analyzed. PR were expressed in all samples, with statistically significant lower mean expression in multiple meningiomas ($p=0.002$). Mean expression of PR in multiple meningiomas was 30.1% (95%CI=10.4-49.8), compared to 70.6% (95%CI=56.6-84.8) in solitary meningiomas. ER expression was negative in both groups. Expression of CD56 was higher in multiple meningiomas - 48.3% (95%CI=25.8-70.8) than that of the control group - 24.6 % (95%CI=13.2-36.0) ($p=0.049$). Solitary meningiomas expressed CD56 in 80% of cases. There is no significant difference in Ki-67 proliferation antigen expression between both groups.

Conclusions: Multiple and solitary meningiomas have different biological characteristics. Multiple meningiomas have weaker progesterone receptor expression that correlates with worse outcome. Higher CD-56 expression might have a role in arising of multiple meningioma nodes. As well CD-56 presence indicates to neuroendocrine differentiation of meningioma cells.

CLINICAL AND MORFOLOGICAL STUDY OF HUMAN CRANIOPHARYNGIOMAS. THE PROLIFIRATION MARKER KI-67 EXPRESION IN CASES OF CRANIOPHARYNGIOMAS

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Key words. craniopharyngioma, CPH, KI-67, MIB-1.

Introduction. Craniopharyngioma (CPH) is slowly growing, benign epithelial neoplasm of the sellar region of brain. CPH is classified as a grade I tumor according to World Health Organization (WHO) classification of central nervous system (CNS) tumours (*Louis et al., 2007*). Despite benign histological features, radical resection of CPH is associated with a high risk of relapse, reaching from 30% to 59% (*M.A Kutin et al. 2013,*). CPH comprises two histologically and

biologically distinct subtypes: adamantinomatous and papillary tumors (*Louis et al., 2007*).

Ki-67 is a nuclear antigen that is expressed in all cells undergoing active cellular proliferation. It is absent in resting cells that have entered G0 phase. The Ki-67 labeling index is used to assess rate of tumour growth, progression and aggressiveness. Thus it represent significant prognostic factor.

Aim. To investigate clinical and pathomorphological features of CPH and access Ki-67 proliferation index.

Results. Seven consecutive cases of craniopharyngiomas from six patients were found from 2009 to 2014. The immunohistochemical visualization (IHC) of Ki-67 was performed (clone MIB-1). Ki-67 *labeling* index was evaluated by quantitative estimation of 10 randomly selected microscopical fields in each sample.

During the study were proved 7 cases of adamantinomatous CHP. Histological analysis revealed typical adamantinomatous type with peripheral palisading, squamous epithelium, wet keratin with calcification and necrosis. There were 3 cases for male in average age 46 years and 4 cases for female in average age 49 year.

The highest expression of Ki-67 in all cases was found in peripheral palisades of tumor – 9.6% [95% CI= 5.64 - 13.48], but in stroma this rate was 8.1% [95% CI= 5.9 - 10.3]. In cases with relapses the mean expression of KI-67 in peripheral palisading – 6.7% [95% CI= 2.99 - 10.41] and in tumor stroma – 10.4% [95% CI=7.07 - 13.73]. The mean expression of KI-67 in peripheral palisading was 6.0% [95% CI= 3.77 - 8.23], and in tumor stroma – 3.6% [95% CI= 2.58 - 4.62]. - in remaining cases.

Conclusion. An accurate diagnosis of CPH can be confirmed morphologically finding the peripheral palisading, squamous epithelium, wet keratin areas with or without necrosis and calcifications.

CPH is benign tumour characterized by low cellular proliferation rate.

Mostly clinical manifestation of CP was associated with headache, endocrine dysfunction, and visual disturbances.

Increased Ki-67 proliferation index could be associated with tumour relapse thus it is useful prognostic marker.

CLINICAL PRESENTATION AND TREATMENT OPTIONS FOR CHOLANGIOCARCINOMA

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Keywords. Cholangiocarcinoma; Symptoms; Palliative care.

Introduction. Cholangiocarcinoma (CCA) is associated with the most rapidly rising incidence in Western industrial nations. For patients with unresectable disease, biliary stenting generally improves survival that is measured only in months (Goldman et al., 2012). Patients with early onset of CCA have no typical symptoms. During the course of the disease patients develop jaundice and other non-specific symptoms like weight loss, abdominal pain, night sweats, fatigue, emesis, vomiting, loss of appetite, pruritus and increase of cholestasis related lab parameters (ALT, AST, GGT, bilirubin) are recognized (Plents et al., 2015).

Aim. To describe the clinical and laboratory characteristics and treatment of cholangiocarcinoma among in-patients in Pauls Stradiņš Clinical University Hospital (PSKUS) during the period of last 5 years – 2010-2014.

Results. Since 2010 till 2014 there were 147 admission episodes and 88 different patients in the PSKUS with the diagnosis CCA. Females were 58% [95% confidence interval (CI) = **43-71%**] of 88 patients, and females were admitted to hospital in 70.1% [62.0-77.7%] of all cases. Acute admissions were 57.1% [49.3-66.9%] but 42.9% [33.1-50.7%] – arranged. Females were 1.9 times more accepted in the hospital in acute case and 3 times more in arranged. The mean age \pm standard deviation (SD) of diagnosing CCA was 67.1 \pm 11.5 [64.7-69.6] years. The following CCA were presented: perihilar CCA – 78.9% [68.7-89.1%], intrahepatic CCA – 17.6% [8.0-26.9%] and distal CCA – 3.5% [0-8.1%]. The ongoing jaundice in 60.5% [**52.6-68.4%**] of cases was one of reasons for hospital admission, 19.7% [**13.3-26.1%**] - the pain, but both of complaints had 13.6% [**8.1-19.1%**] of admitted patients. Management of biliary obstruction was reason for admission in 12.9% [**7.5-18.3%**]. Distal metastases were documented in 36.4% [26.4-46.5%] of cases. Other location tumour had 9% [**3.0-15.0%**].

The difference in ALT (mean value \pm SD: 132.5 \pm 170.0U/l [103.3-161.4U/l]), AST (176.5 \pm 319.3U/l [121.2-231.9U/l]), bilirubin (205.8 \pm 171.9 μ mol/l [174.2-237.4 μ mol/l]) and GGT (404.3 \pm 393.4U/l [298.9-509.6U/l]) values between acute and arranged admission to the hospital were -18.8U/l (p=0.13), -18.9U/l (p=0.14), 79 μ mol/l (p=0.11) and 201.8U/l (p=0.004), respectively. The mean C-

reactive protein value was 57.4 ± 70.5 mg/l [$44.1-70.7$ mg/l]. During the hospitalization died 7% [$2.9-11.1$] of patients and 10 or 90% of them were admitted acutely. The mean time of being hospitalized was 8 ± 9.6 [$6.6-9.7$] days.

All the patients received only palliative care. Percutaneous transhepatic cholangiography due to CCA was performed for 30.6% [$23.2-38.1\%$] admissions, endoscopic retrograde cholangiopancreatography - 30.6% [$23.2-38.1\%$]. The stent placement over other treatment was 51% vs 49%. The difference between chosen treatment and anatomical location of CCA was $\chi^2=7.116$, $p=0.068$.

Conclusions. CCA is more common among females than males, and females are almost 2.3 times more accepted in the ward. ALT, AST, bilirubin, GGT and CRP mean values are elevated in CCA patients. All the patients receive only palliative treatment due to late recognition of CCA.

PATHOMORPHOLOGICAL ANALYSIS OF TUMOURS OF THE TESTIS

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Key words. testicular neoplasms, morphology of tumours of testis, TNM

Introduction. Testicular cancer is the most common malignancy in men between the age of 15 and 35 years. Germ cell tumours constitute around 95% of testicular neoplasms (Guo, 2015). Tumour histology is of primary importance in determining the prognosis of testicular neoplasms and should be considered in risk-adapted management of testicular malignancies (Leman, 2010).

Aim. To determine the morphological spectrum of various testicular tumours.

Results. The study included 57 patients with testicular tumours operated in a single university hospital from January 2005 till December 2014.

The age of patients ranged from 18 to 84 years. The mean age \pm standard deviation (SD) was 37.1 ± 14.6 [95% confidence interval (CI) = $33.2-40.9$] years. Patients under 20 years were 1.8% [$0-6.3$] of all cases, predominant age was 20–30 years and included 35.1% [$23.3-48.1$] patients, 30–40 years – 28.1% [$16.4-39.8$], 40–50 years – 17.5% [$7.6-27.4$], 50–60 years – 10.5% [$2.5-18.5$] and >60 years – 7% [$0.4-13.6$] patients. Majority of patients were under 44

years – 75% [63.8–86.2] of the cases. The mean age of patients with seminoma was 34.4 ± 10.8 [30.1–38.6].

The following histologic types of tumours by World Health Organization classification were presented: seminoma 47.4% [32.5–56.1], embryonal carcinoma 12.3% [5.3–29.1], mixed form of germ cell tumour 7% [0.4–13.6], teratoma 7% [0.4–13.6], haematopoietic tumours 7% [0.4–13.6], mesenchymal tumours of the spermatic cord and testicular adnexa 5.3% [0–13.1], Leydig cell tumour 3.5% [0–8.3], tumours of more than one histological type 3.5% [0–8.3], secondary tumours of testis 1.8% [0–5.3], tumours of ovarian epithelial types 1.8% [0–5.3], benign mesothelioma 1.8% [0–5.3], adenomatoid tumour 1.8% [0–5.3].

The mean volume of testis was 246.5 cm^3 [92.6–400.5] and for the testicular malignancy it was 139.7 cm^3 [19.2–260.4].

Of all testicular tumours 69.8% [56.1–83.5] were revealed at stage T2. Seminoma in 16% [1.9–30.1] of the cases was diagnosed at stage T1, T2 – 73% [55.9–90.1], T3 – 11% [0–23.0]. N parameter was positive in one case – germ cell tumour.

The necrosis within a tumour was diagnosed in 43.8% [30.9–56.7] of the cases and 40% [27.3–52.7] of these tumours were seminomas. Morphological examination revealed invasion in blood vessels in 22.8% [11.9–33.7] and in lymphatic vessels in 21% [10.4–31.6] of the cases, but among seminomas – in 84.6% [64.9–100] and 66.7% [40.0–93.4] of the cases, respectively.

Patients age showed the difference among tumours histological types ($p=0.006$). There was no significant difference of testicular cancer volume in groups characterized by variable histological types, T parameter and absent or present vascular or lymphatic invasion ($p>0.05$).

Conclusions. 1. The second decade of life is the predominant period when testicular tumours are revealed. 2. The most common form of all malignant testicular neoplasms is seminoma followed by embryonal carcinoma. 3. Increased volume of testicular tumour is not characterized by frequent manifestation of tumour invasiveness.

**APPROACHES IN BASIC LAPAROSCOPIC SURGICAL
TRAINING FOR THE MEDICAL STUDENTS AT THE
DEPARTMENT OF OPERATIVE TECHNIQUES AND SURGICAL
RESEARCH, UNIVERSITY OF DEBRECEN**

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Key words. Laparoscopy, knotting, simulation

Introduction. The first accredited laparoscopic credit course started in September, 1995 for 4th years Hungarian and English Programs' medical students at the Department of Operative Techniques and Surgical Research. Performing laparoscopic surgery requires several special skills, different techniques are used comparing conventional open surgery. Young surgeons experience difficulties in learning and mastering these techniques.

Aim. Aim of this work was to introduce personal experiences during this course, when improving coordination and knotting technique, and to evaluate data of 28 participants, 12 first year postgraduate residents and 16 fifth year medical students, on sense of depth, traction power at the beginning and at the end of the course by joining to an on-going course and measuring the knotting time.

Results. All participants improved their abilities and the knotting time was decreased. Among students group average knotting time was decreased from 125 to 54 seconds. Among residents group average knotting time decreased from 160 to 40 seconds in the beginning and in the end of the course. Previous videogames experience, BMI and height of trainee were accepted as insignificant factors contributing to trainees laparoscopic abilities in both groups. Students with laparoscopic experience before need twice less time for laparoscopic knotting to compare with students who have no laparoscopic experience.

Conclusions. Various training methods and metrics have been developed to assess and improve trainees' operative abilities. Residents must train outside operation theatre before they apply their skills during laparoscopic operations. Simulation training is an important and invaluable tool which helps to improve depth perception, eye-hand coordination and traction power.

**THE QUALITY OF LIFE AND FREQUENCY OF
COMPLAINTS OF POSTOPERATIVE PATIENTS AFTER
HAEMORRHOIDECTOMY IN PAULS STRADIŅŠ CLINICAL
UNIVERSITY HOSPITAL AMBULATORY SURGICAL CENTER
DURING THE PERIOD FROM OCTOBER 2008 TO JANUARY 2012**

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Introduction. Swollen haemorrhoidal nodes are the most common proctologic disease. Up to 50% of all European Union citizens are faced with problems of discomfort in the area of anus. In praxis, both the young and the very old patients suffer from haemorrhoidal disease, but most patients are of working age (45 to 65 years old).

Aim. The aim is to find out what are the patient long-term complaints after haemorrhoidectomy and how the diseases development is affected by patient's age, type of occupation, and how long ago the haemorrhoid surgery took place. Another goal is to ascertain whether patients are satisfied with the results of surgery.

Materials and methods. Pauls Stradiņš Clinical University Hospital Ambulatory Surgical Centre and Outpatient Surgical Centre provided a certain group of patients who have undergone haemorrhoidal surgery during the period from October 2008 to January 2012. Patients were asked to complete telephone questionnaire. The questionnaire was developed, characterizing the symptoms of haemorrhoidal disease.

Results. The most frequent complaints, that are preserved or re-developed after the surgery are discomfort (20%) and itchiness around anus (16%), problems in anal area after prolonged sitting (15%), and urinary problems (14%). Women more often complain about faecal incontinence ($p<0,05$) and pain in the area of anus ($p<0,05$). Patients who are doing heavy physical work more often develop incontinence of watery stools ($p<0,05$). Patients, who are doing moderate physical work, develop bleeding from anal canal more often than those who perform intellectual work ($p<0,05$). Patients who are doing heavy physical work after surgery more often revisit proctologist ($p<0,05$). 7% of patients had 3 and more consultations with proctologist after surgery. 99% of patients were satisfied or partially satisfied with the results of surgery.

Conclusion. The most common complaints that have been preserved or re-developed after surgery are discomfort and itchiness in anal area, problems in the

anal area after prolonged sitting and also urinary problems. The incidence of complaints can be linked with patient's type of occupation and sex. 99% of patients were satisfied or partially satisfied with the results of surgery.

CONGENITAL HEART DISEASES: IMMUNOHISTOCHEMICAL EVALUATION OF DIFFERENT MORPHOPATHOGENETIC EVENTS

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Key words. Heart disease. Immunohistochemistry. Morphology.

Introduction. Aetiology and morphological myocardial changes of congenital heart diseases are still being researched. One of the most important pathological changes is apoptosis which has been associated with ischemia (Ruetten et al., 2001). *Vascular endothelial growth factor* (VEGF) is a high specificity factor that induces the proliferation of endotheliocytes, promotes vasculogenesis and inhibits apoptosis (Neufeld et al., 1999). Despite *endothelin* (ET) being as effective as *endotheliocyte promoting factor*, the increment is associated with ischemia (Laryz-Brysz et al., 2012). Myocardial innervation can be evaluated using *protein gene product 9.5* (PGP 9.5) (Jackson et al., 1983) and a reduction in this is associated with congenital heart diseases (Chow et al., 1993). *Atrial natriuretic peptide* (ANP) and *chromogranin* (CHR) are indicators of homeostasis in the myocardium and their elevation is associated with ischemia in the heart, too.

Aim. The aim of the study was to evaluate different morphopathogenetic events in tissue level by detection of apoptosis, endothelial factors, innervation and homeostasis factors in left atrium auricle of patients with congenital heart disease.

Material and methods. The material was selected from Riga Stradiņš University Anatomy and Anthropology Institute collection from 2 children with cyanotic congenital heart disease and 3 children with acyanotic congenital heart disease. In all children, surgery was performed between the ages of 16 days to 14 months. The histological sections were stained with haematoxylin and eosin and were labeled immunohistochemically with antibodies against *VEGF*, *ET*, *PGP 9.5*, *ANP*, *CHR*. Data were evaluated semiquantitatively (0 – none positive structure, + - few, ++ - moderate, +++ - numerous, ++++ - abundant number of

positive structures) (Pilmane et al., 1999). TUNEL was used for detection of apoptosis.

Results. Cardiomyocytes demonstrated different size with vacuoles and sometimes picnotic nuclei. In one case we detected fibrin deposition and ingrowth of connective tissue fibres among the muscle tissue. Three of five cases showed VEGF in numerous to abundant cells, but two demonstrated few to moderate number of cells. ET expression was seen in few to moderate endotheliocytes or was not detected at all. In all cases numerous to abundant PGP 9.5-containing nerve fibres were observed in the heart tissue. There were variable – few to numerous number of ANP immunoreactive cardiomyocytes, while numerous cells contained CHR in all cases. TUNEL showed apoptotic cells from 124 ± 9.5 to 229 ± 39.5 with an average value 186 ± 44.4 .

Conclusions. Insisting presence of VEGF and decrease of ET suggest about ischemia in all types of congenital heart disease. Variable number of ANP positive and numerous of CHR positive cells give evidence about partially disturbed, but still compensated homeostasis in cells that mainly turn on programmed cell death mechanism. Rich neuropeptide-containing innervation of cardiomyocytes might be indicator of compensatory reaction of tissue on ischemia and apoptosis in case of congenital heart disease.

AGE-RELATED DYNAMICS OF INFLAMMATORY BIOMARKERS IN SECONDARY PERITONITIS AND SEPSIS

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Key words. Peritonitis, sepsis, C-reactive protein, procalcitonin, elderly patients.

Introduction. Secondary peritonitis is a serious surgical condition requiring immediate intervention. Development of peritonitis-related sepsis worsens the patient's condition and carries high morbidity and mortality. Early recognition and treatment of underlying intra-abdominal pathology can improve survival (Holzheimer and Gathof, 2003). Advanced age is an independent predictor of organ failure and death due to sepsis (Hynninen *et al.*, 2008; Anaya and Nathens, 2003). Considering the increased risk in elderly patients, optimal diagnostics is mandatory to ensure timely treatment. Assessment of inflammatory biomarkers, including C-reactive protein (CRP) and procalcitonin (PCT) is an accepted

strategy to monitor septic complications. The ability to interpret these values is essential, especially regarding high risk patients.

Aim. The aim of our study was to clarify the role of the serum inflammatory biomarkers as diagnostic and follow-up tools in different age groups in the setting of severe intra-abdominal infection. Additionally, our aim was to investigate the validity of a frequently accounted clinical assumption that elderly patients have blunted inflammatory response.

Results. Retrospective archive search was performed in a single university hospital to identify consecutive patients presenting with diffuse secondary peritonitis and sepsis (2011 – 2012). A total of 73 female and 79 male cases were enrolled. CRP and PRC levels were retrieved from patient histories. Four parameters were assessed for each biomarker: 1) serum level at admission (DAY 1); 2) the highest serum level during the whole in-patient treatment (MAX); 3) the highest increase of level comparing the samples of 2 consecutive days (INC); 4) maximal decrease of level comparing the samples of 2 consecutive days (DEC). Patients were grouped by the age of 70 years (≥ 70 years *versus* 70 years). The resulting groups comprised 66 and 86 patients with mean age of 79.1 [95% confidence interval: 77.7 – 80.5] and 50.9 [48.2 – 53.2] years, respectively. Descriptive statistics was carried out by IBM SPSS 21. Data lacking normal distribution were compared using Mann-Whitney U-test. The results are shown in Table 1. No statistically significant difference between both groups was detected ($p > 0.05$).

Table 1. The age-related dynamics of inflammatory biomarkers in secondary peritonitis and sepsis.

Age, years	Biomarker	Mean [95% confidence interval]			
		DAY 1	MAX	INC	DEC
≥ 70	CRP (mg L ⁻¹)	166.3 [130.4 – 202.3]	260.7 [233.5 – 287.9]	145.5 [118.9 – 172.1]	100.2 [72.3 – 128.0]
<70		190.2 [150.8 – 229.7]	287.9 [256.2 – 319.7]	164.9 [133.1 – 196.6]	147.0 [104.2 – 189.6]
≥ 70	PCT (ng mL ⁻¹)	34.9 [12.5 – 57.3]	40.4 [25.6 – 55.2]	18.1 [9.2 – 26.9]	18.9 [11.2 – 26.6]
<70		22.2 [9.8 – 34.6]	38.8 [24.1 – 53.4]	27.0 [1.0 – 53.0]	14.8 [8.0 – 21.5]

Conclusions.

There is no evidence of significant age-related differences regarding inflammatory response with secondary peritonitis and sepsis. Data do not justify the assumption that the biochemical response to inflammation of elderly people is blunted or limited to smaller values.

PRIMARY AND METASTATIC NEOPLASTIC VERTEBRAL LESIONS IN NEUROSURGERY CLINIC, 2009 – 2014

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Key words. vertebral lesions, neurosurgery, multiple myeloma, metastasis, breast cancer

Indroduction. A significant fraction of neoplastic spinal lesions involve vertebrae, either as primary tumours or as metastases. These vertebral lesions can cause ominous symptoms including compression fractures, spinal stenosis and lower paraparesis.

Aim. The aim of our study was to identify the most common primary and metastatic tumours in vertebrae necessitating neurosurgical treatment. To accomplish the aim, a retrospective study was carried out, enrolling 177 consecutive patients admitted to a neurosurgery unit of a single university hospital within time period from 2009 to 2014. The patients were identified by searching the database of Pathology institute, followed by the analysis of the computed tomography, magnetic resonance and radiography imaging, cancer immunohistochemistry and histology findings. The inclusion criteria comprised the availability of reliable histological diagnosis in a neurosurgical material, revealing presence of any metastasis or primary tumour in this tissue material. We established the tumour histogenesis by World Health organisation classification, as well as tumour location in the vertebral column, and the presence of complications, namely, fractures, spinal stenosis and paraparesis. Patients' demographic characteristics were also analysed. Descriptive statistics including confidence interval (CI) analysis was applied.

Results. Multiple myeloma was the most common primary malignant tumour representing 37.3% [95% CI = 24.9 – 49.6] of primary cases. Metastatic tumours were statistically significantly more frequent than the primary neoplasms: 65.5% [58.3 – 72.2] *versus* 34.5% [27.9 – 41.7]. Among metastatic lesions, breast, prostate and renal carcinomas were dominating, as 24.1% [14.9 – 33.3] of

metastases originated from breast carcinoma, 21.7% [12.8 – 30.6%] from prostate, and 16.9% [8.8 – 25.0] of metastases were of renal origin. There were 37.3% [30.2 – 44.4] symptomatic patients of which 54.5% [42.4 – 66.4] had pathologic fractures, 24.2% [13.9 – 34.5] lower paraparesis, 16.7% [7.7 – 25.7] spinal stenosis, 3.0% [0 – 7.1] radiculopathy and 1.5% [0 – 4.4] intercostal myalgia. Most of symptomatic patients were affected by multiple myeloma: 16.3% [5.96-26.64]. Among metastatic tumours, prostate cancer caused most pathological fractures, namely, 19.2% [4.06-34.34]. Thoracic and lumbar vertebrae were affected most frequently- 55.1% [48.85-61.35] and 33.7% [27.76-39.64] while cervical lesions were very rare- 3.3% [1.055-5.55].

Conclusions. Among neoplastic vertebral lesions, metastatic tumours are significantly more frequent than the primary neoplasms therefore metastatic spread must be suspected in such patients resulting in detailed oncologic anamnesis and investigation. Breast, prostate and renal carcinoma are the most frequent sources of vertebral metastasis. Multiple myeloma is the most frequent primary tumour. The histological scope of malignant tumours affecting the vertebrae indicates both the necessity and availability of additional treatment, including chemoradiotherapy, hormonal and targeted biological treatment.

NEGATIVE PRESSURE THERAPY IN THE MANAGEMENT OF COMPLICATED INTRA-ABDOMINAL INFECTION AND ABDOMINAL COMPARTMENT SYNDROME

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Key words. complicated intra-abdominal infection, abdominal compartment syndrome, septic shock

Introduction. Despite advances in diagnostics, surgery, antibacterial therapy, mortality rates associated with complicated intra-abdominal infection remain high. Also current life style tendencies lead to more cases of severe acute pancreatitis and abdominal trauma that both result in abdominal compartment syndrome. Negative pressure therapy (NPT) has proved to be a lifesaving management in critically ill patients requiring repeated operations to achieve source control.

Aim. To assess the efficiency of negative pressure therapy in patients with complicated intra-abdominal infection (CIAI) and abdominal compartment syndrome (ACS).

Methods. Patients treated with open abdomen using abdominal NPT were prospectively included from December 2010 till December 2014. Only KCI® ABThera™ NPT systems were used. Acute Physiology and Chronic Health Evaluation II (APACHE II) score on admission, daily sequential organ failure assessment (SOFA) score and Mannheim peritonitis index (MPI) were calculated for severity definition. The frequency of the NPT system changes, daily amount of aspirated fluid effluent and the time of abdominal closure were assessed. The overall hospital and ICU stay, complication rate and outcomes were analysed.

Results. In total 54 patients were included. Negative pressure therapy were applied in the treatment of 45 (83.3%) patients with CIAI, in 7 (12.9%) patients with severe acute pancreatitis and in 2 (3.8%) polytrauma patients who developed ACS as a damage control procedure. The median age of the patients was 60.5 years (range, 26 to 89), median APACHE II score was 15.5 points (range, 7 to 40) and median MPI was 27.5 points (range, 15 to 40). Sepsis developed in all patients, in 39 it was severe and 11 suffered septic shock. Median of 2 NPT system changes were needed and abdominal closure was feasible median on eight postoperative day without necessity for repeated laparotomy. Median daily aspirated fluid effluent was 512.5 ml (range, 183 to 1820). Median plasma C-reactive protein levels and SOFA points before application of NPT were 246 mg/L and 6.7 points, dropped to 73 mg/L and 3 points after abdominal closure, respectively. Bleeding from the retroperitoneal space during the NPT was observed in 4 patients, intestinal fistulas developed in 4, which were successfully managed conservatively with NPT. Wound infection after abdominal closure complicated clinical course in 7 patients.

The overall ICU and hospital stay were 14 (range, 5 to 70) days and 23.5 (range, 9 to 101) days, respectively. 11 patients died, contributing to the overall mortality of 20.3%. In 9 (81.8%) patients death was associated with the development of septic shock.

Conclusions. Abdominal NPT could be a highly promising method in the management of patients with increased IAP and CIAI that is associated with severe sepsis and septic shock.

EVALUATION OF TRANSFUSION PRACTICE IN SEVERELY POLYTRAUMATISED PATIENTS POTENTIALLY REQUIRING MASSIVE TRANSFUSION PROTOCOL IMPLEMENTATION

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Key Words. Polytrauma, massive transfusion, transfusion triggers.

Introduction. Polytrauma is a significant cause of death due to severe haemorrhage in 30-40% of all civilian trauma associated deaths. Amongst bleeding trauma patients approximately 3-5% will receive massive transfusion (MT), defined as ≥ 10 units of red blood cells (RBC) in 24 hours. Identification and definition of exact triggers for MT remains a controversial challenge.

Aim. To evaluate the need for MTP implementation in tertiary trauma center and determine transfusion triggers associated with highest probability to predict RBC transfusion (RBCT).

Results. 101 polytraumatized patients (Injury Severity score [ISS] ≥ 16) treated in Rĭga East Clinical University Hospital were included in retrospective study between January and December 2013. The mean age of patients was 45.5 ± 14.7 years with a mean ISS of 25 ± 8.2 . The potential triggers for activation of MT protocol were chosen systolic blood pressure (SBP) < 90 mmHg, hemoglobin (Hgb) < 11 g/dL, pulse > 120 beats per minute, International normalized ratio (INR) > 1.5 , free fluid in Focused Assessment of Sonography for Trauma (FAST). Trauma Associated Severe Haemorrhage (TASH) score was calculated to indicate for historical need of MTP activation. Considering the need for RBCT patients were stratified into three groups: Group I no RBCT, Group II RBCT within and Group III RBCT after 24 h from admission. RBCT volumes were evaluated and positive predictive values for each transfusion trigger were calculated. The overall ICU, hospital stay and outcomes were analyzed comparing all groups.

In total 54 patients were included in Group I, 34 in Group II and 13 in Group III. The median level of Hgb was lower in Group II comparing to Group I, 12.1 (IQR=10.4-12.9) vs. 14.3 (IQR=13.1-15.0), $p < 0.001$. The median number of RBC units transfused in Group II were 5.0 (IQR=3.8-6.0) vs. 2.0 (IQR=2.0-3.0) in Group III, $p < 0.001$. Four patients regarding the TASH score ≥ 18 and mean ISS 50 ± 15.0 were retrospectively identified for MTP activation. All patients were urgently operated using damage control principles, however

MTP was not activated. TASH score of ≥ 6.5 was identified to be 87% sensitive and 85% specific for identifying RBCT within 24 h. SBP < 90 mm Hg (odds ratio [OR], 7.0; 95% confidence interval [CI], 1.3-36.7) and Hgb < 11 g/dL (OR, 5.9; 95% CI, 2.1-6.7) were identified as triggers that significantly predict RBCT within 24 h from admission. The overall ICU and hospital stay was longer in Group II comparing to Group I, 9.5 (IQR=4-22.5) vs. 1.5 (IQR=0-4) and 26 (IQR=22-47) vs. 12 (IQR=7.8-20) days, $p < 0.001$. Overall mortality was 2.97% ($n=3$). Only one patient (25%) potentially requiring MTP (TASH > 18) died due to severe bleeding.

Conclusions. Only small subset of trauma patients will need MTP activation, however TASH score > 18 is reliable predictor for MTP. SBP and Hgb are sensitive predictors of need for early RBC transfusions.

FACTORS OF THE DONOR, THAT INFLUENCE DELAYED GRAFT FUNCTION DEVELOPMENT FREQUENCY AFTER RENAL ALLOTRANSPLANTATION

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Keywords. renal transplantation, delayed graft function, risk factors

Introduction. Delayed graft function (DGF) is common complication in early postoperative period. DGF is defined as need for at least one hemodialysis during the first week after transplantation and is associated with increased risk of other post-transplant complications as also worse post-transplant results.

The aim of this study was to assess risk factors, connected with donation and leading to the development of DGF.

Materials and methods. This retrospective study included all consecutive deceased donor kidney transplantations performed in a single transplantation center during the period from 01.2011. till 12.2012. Exclusion criteria: patients with more than 2 renal allotransplantations, PRA titer $> 10\%$, patients, who developed hyperacute or acute rejection during the first week after transplantation and pediatric recipients (age < 18 years old). After selection procedure study enrolled 80 cases of the renal allotransplantation

in 80 recipients (male/female= 35 (44%)/45 (56%)), mean age= 47.3 ± 13.9 years) from 58 deceased donors (male/female= 36 (62%), 22 (38%)), mean age = 49 ± 11.65 years). All cases were divided into two groups: patients with DGF (n=18; male/female=12(67%)/6(33%)), mean age 49.78 ± 12.2 years), and patients with primary graft function (PGF, control group) (n=62; male/female= 23(37%)/39(63%)), mean age 46.6 ± 14.3 years).

Groups were compared for the following donor factors: gender, age, weight, height, BMI, kind of death ascertaining (brain or circulatory death), use of catecholamines in pre-explantation period, HGB, HCT and serum creatinine levels, GFR.

Results. DGF was observed in 18 cases (22.5%). Analysis of donor factors revealed statistically significant association of DGF with donor's male gender (72% male vs. 28% female), HGB ($13.2 \text{ g/dL} \pm 1.9 \text{ g/dL}$ in DGF vs. $11.3 \text{ g/dL} \pm 2.8 \text{ g/dL}$ in PGF), HCT ($42.1\% \pm 7.14\%$ in DGF vs. $33.8\% \pm 8.4\%$ in PGF), serum creatinine ($0.15 \text{ mmol/L} \pm 0.07 \text{ mmol/L}$ in DGF vs. $0.11 \text{ mmol/L} \pm 0.04 \text{ mmol/L}$ in PGF), GFR ($66 \text{ ml/min} \pm 21 \text{ ml/min}$ in DGF vs. $86 \text{ ml/min} \pm 37 \text{ ml/min}$ in PGF) ($p < 0.05$ in all cases).

Tendency towards statistical significance was observed in cases of elderly donors (53 ± 8.2 years of age in DGF vs. 47.8 ± 12.3 years in PGF, $p = 0.09$), higher weight ($87 \pm 14.3 \text{ kg}$ in DGF vs. $79.4 \pm 15.4 \text{ kg}$ in PGF, $p = 0.069$) and higher BMI (27.9 ± 3.6 in DGF vs. 25.9 ± 4.17 in PGF).

Other factors were not associated with the development of DGF.

Conclusions. Donor factors, such as gender, high HGB, HCT and high serum creatinine levels, low GFR, as well as use of elderly and obese donors, are associated with higher frequency of DGF in post-transplant period. Use of such donors, especially in cases of combination of different factors, may be associated with higher risk of development of DGF and should be done with maximum attention.

DEVELOPMENT OF ACUTE RENAL ALLOGRAFT REJECTION AFTER FULL RESTAURATION OF GRAFT FUNCTION IN EARLY POSTTRANSPLANT PERIOD

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Key words. Rejection, risk factors, renal transplantation.

Introduction. Acute rejection (AR) is frequent post-transplant complication associated with impairment of graft function and worse early and late outcomes.

Aim. The aim of this study was to asses risk factors, associated with development of AR in early post-transplant period after restoration of graft function.

Materials and methods. This retrospective study included all consecutive deceased donor kidney transplantations performed in a single transplantation center during the period from 01.2011. till 12.2012. Exclusion criteria: patients with more than 2 renal allotransplantations, PRA titer > 10%, patients, development of AR during the first week after transplantation (irrespective of the presence of delayed graft function), pediatric recipients. Finally study enrolled 80 cases of the renal allotratransplantation (male/female= 35(44%)/45 (56%), mean age= 47.3± 13.9 years) from 58 deceased donors (male/female= 36 (62%), 22 (38%) mean age= 49 ± 11.65 years).

All cases were divided into two groups: patients with AR (n=32; male/female= 34%/66%); mean age 45.78±12.9 years), and patients without AR (control) (n=48; male/female= 50%/50%; mean age 48.4±14.5 years)).

All rejections were ascertained by renal biopsy with following histological examination; all rejections were classified by Banff classification 2007.

Groups were compared for the following factors: gender, age, weight, height, BMI, delayed graft function (DGF) and primary graft function (PGF) presence, immunosuppressive therapy.

Results. AR was observed in 32(40%) cases. Cellular rejection was observed in 28(87.5%) (male/female= 36%/64%, mean age 46.3 ± 12.9 years), IA stage in 13 cases (46%) (male/female= 31%/69%, mean age 52.3±11.1 years); IB stage in 7 cases (25%) (male/female= 43%/57%, mean age 45±9.1

years); IIA stage in 7 cases (25%) (male/female= 29%/71%, mean age 39.8±14.3 years); III stage in 1 case (4%) (male, 23 years). Humoral rejection were observed in 4 cases (12.5%) (male/female= 25%/75%, mean age 41.5±13.6 years), I type in 2 cases (50%) (females= 100% (2), mean age 52±4.2 years); III type in 2 cases (50%) (male/female= 50%/50%, mean age 31±9.8 years).

Analysis of recipient factors revealed statistically significant association of AR with delayed graft function (11(61%) in DGF vs. 21(34%) in PGF, RR = 3.006 (CI95% = 1.038-9.069, p<0.05). Tendency towards statistical significance to AR development was observed in female gender (31% for male, 46% for female; RR = 1.485 (CI95%= 0.831-2.653, p=0.125)).

Other factors showed no influence on the development of AR.

Conclusions. Recipient factors such as DGF presence, gender (females) are associated with a higher risk of AR in post-transplant period. Patients with such risk factors must be observed with maximum attention in post-transplant period.

IATROGENIC BILIO-VASCULAR INJURIES DURING LAPAROSCOPIC CHOLECYSTECTOMY

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Key words: Laparoscopic cholecystectomy, bilio-vascular, iatrogenic injury.

Introduction. Laparoscopic cholecystectomy is one of the most common surgical procedures worldwide and has become the gold standard for the management of symptomatic gallstone disease. Incidence of iatrogenic bile duct and vascular injuries has risen from 0.3% to 0.6% and 0.1 - 0.4%, respectively.

Aim and methods. The aim of the study was to analyze the incidence of bilio-vascular injuries during laparoscopic cholecystectomy in Riga East Clinical University hospital "Gaiļezers". Retrospective archive analysis to identify iatrogenic bilio-vascular injuries in period from 2010 – 2014 was done. Two classification systems were used Strasberg classification for bile duct and Hanover classification for vascular injuries.

Results. In total 2242 laparoscopic cholecystectomies were performed and 2075 patient medical reports were obtained for analysis. From all 1499 (72.24%) patients were females and 576 (27.76%) were males with average age of 55.06 (95%; CI = 55.02 - 55.10) years. Urgent surgery was performed in 1500 (72.29%) patients and planned surgery in 575 (27.71%) patients. Overall 27 (1.30%; 95% CI = 0.81 - 1.79%) patients with iatrogenic injuries were identified. Only bile duct injuries were revealed in 13 (48.15%), vascular injuries in 4 (14.81%) patients. Other injuries were bleeding from the gallbladder bed 8 (29.63%), liver 1 (3.70%) and bowel injury 1 (3.70%) patient. The most common biliary injury was type A by Strasberg classification and it was revealed in 10 patients (76.92%). Hannover Dc lesion was most frequent vascular injury diagnosed in 2 patients (50%). There were no major bilio-vascular injuries detected. Most of the injuries 74.07% were associated with urgent surgery. 25.93% of injuries were recognized intraoperatively and 74.07% of injuries were detected postoperatively. Surgical repair was needed in 55.56%, however 44.44% of injuries were managed only conservatively. Average overall hospital stay in patients with iatrogenic injuries comparing to no injury group was 13.1 (95% CI=12.92 - 13.28) days, $p = 0.0001$. There was no mortality in patients with bilio-vascular injuries.

Conclusion. Iatrogenic bilio-vascular injury rate is low and comparable to worldwide results. Most of the injuries are associated with urgent surgery. Minor injuries can be successfully treated conservatively.

APPLICATION OF DIFFERENT SCORING SYSTEMS IN THE ASSESSMENT OF TRAUMA SEVERITY DEPENDING ON SPECIFIC TRAUMA MECHANISM

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Key words. Polytrauma, injury severity, trauma mechanism.

Introduction. Trauma is the leading cause of death amongst young people and third in population altogether in Europe. According to statistics more than 60% of all deaths among young people in Latvia are due to motor vehicle crashes, serious falls from height and interpersonal violence.

Aim. The aim of the study is to analyze injury severity depending on specific trauma mechanism.

Results. Retrospective analysis of patient medical reports admitted with signs of trauma during period from January till December 2014 was done. Only polytraumatized patients with Injury Severity Score (ISS) ≥ 16 were included in further data analysis. In total 714 patients with trauma were admitted, but only 468 medical reports were available and 189 patients met the inclusion criteria. Road traffic accidents were the most common trauma mechanism (40.74%) followed by falls from height (35.98%), interpersonal violence (12.17%), unknown trauma mechanism (7.94%), and compression injuries (3.17%). Sampalis classification was used to subdivide patients regarding the polytrauma severity: ISS 16-24 – survivable, ISS 25-49 – probably survivable, ISS 50-75 – probably unsurvivable. The odds ratio for potentially lethal outcome was calculated in ISS subgroups. Subgroup of ISS 25-49 represented significantly higher possibility to die comparing to group of ISS 16-24 (odds ratio OR=0.08, $p=0.008$). Road traffic accidents were the most common trauma mechanism in ISS 25-49 group (42.9%) and are characterized by highest median (mean) ISS score values, however most deaths were associated with falls from height 40.9% from all deaths (OR=0.835, $p=0.7415$). There was no differences found regarding the need for surgical intervention comparing road traffic accidents 36.6% and falls from height 36.8%, $p=0.132$. The same tendency was observed regarding the need for ICU admission 40.7% vs. 39.6%, $p=0.011$. Falls from height are characterized with longer hospital stay comparing to road traffic accidents and all study population. The distribution of lethal outcomes in ISS subgroups were 20% (ISS 16-24), 73.33% (ISS 25-49) and 11.1% (ISS 50-75), but overall mortality in each group was 6.1%, 25%, 50%, $p<0.001$, which implies that the evaluation of ISS can be crucial to patient prognosis.

Conclusions. Falls from height are associated with highest mortality rates regardless the ISS values comparing to other trauma mechanisms. The evaluation of ISS and specific trauma mechanism is crucial for patient prognosis.

RESULTS OF FACIAL TRAUMATIC WOUND TREATMENT

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Key words. Facial traumatic wound, wound treatment.

Introduction. Intentional and unintentional injuries are considered as one of the world's major health problems. Nowadays, facial aesthetics are becoming more and more important in everyday life, also in terms of job opportunities and interpersonal communication. The face is the most vulnerable part of the body. Since the injury is not confined to one part of society, but it can happen to anyone, it's important that all physicians have one common method for wound treatment. It is believed that improperly treated wound can lead to severe scarring, which can be seen as a distortion of the face and disability that will affect the patient's psychological and social situation.

Aim. Establish guidelines for primary wound treatment and care in P.Stradins CUH Dental and facial surgery department (DFSD) in order to form scar tissue as little as possible. Analyse the data from patients who had been treated in DFSD from August 11 till August 24, 2014, with the diagnosis - traumatic soft tissue wound in facial area. Observe the current physicians and physician assistant tactics for primary surgical wound treatment and care.

Results. In total 56 patients received primary surgical wound treatment at this time period, from those 43 were male and 13 female patients. The most wounds (48%) were caused by falls and domestic injuries, 30% resulted from physical aggression and assaults; whereas others were acquired from sport injuries and car or bicycle accidents. Most common location of traumatic wound was eye area-20%, upper lip-18% and lower lip 15%. What is more, 23% of patients admitted alcohol use in the moment of trauma or shortly before.

For wound rinsing and yielding physicians used 0.05% chlorhexidine, whereas for stitching absorbable and non-absorbable sutures. For dressing *Mesoft* gauze and tape were used. For contaminated and inflamed wounds rare stitches and rubber drain is used or iodoform gauze is inserted in the wound, allowing the wound to heal secondarily.

Conclusions. Physicians and their assistants don't have one common tactics in primary surgical wound treatment in DFSD. Guidelines for clean, fresh, uncontaminated wound: local anesthesia- Lidocaine 1% with adrenalin; wound rinsing with 0,9% NaCl; excision of excess tissue to collapse evenly

wound edges; suturing-inner with poliglactine 4/0 or 5/0; external poliamyde or silk 5/0 or 6/0; dressing- Mesoft with bandage or Granuflex Border as dressing of choice. For dirty, infected wound the guidelines are similar, although the wound should be rinsed and cleaned with 0.02% chlorhexidine and excision of necrotic tissue as well as wound curettage should be done. Rare sutures for collapsing wound edges and antibacterial dressing should be used.

PERCUTANEOUS TRANSLUMINAL ANGIOPLASTY OF THE POPLITEAL AND CRURAL ARTERIES IN LEGS WITH CRITICAL LIMB ISCHEMIA: LONG – TERM RESULTS

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Key words. popliteal artery, crural arteries, critical limb ischemia, percutaneous transluminal angioplasty

Introduction. Critical limb ischemia (CLI) is the most severe manifestation of the peripheral arterial disease associated with high risk of major leg amputation.

Moreover, the coronary and carotid artery atherosclerosis strongly increases the risk of mortality and morbidity.

CLI is a common condition in people with poor compensated diabetes mellitus.

Revascularization's methods are femorodistal bypass surgery (usually with venous autograft), percutaneous transluminal angioplasty (PTA).

PTA is the minimally invasive treatment option with low postoperative complications' rate and high therapeutic efficiency. This manipulation can be used in patients with significant comorbidities.

Aim. The aim of the study was to examine long – term results of the popliteal and crural arteries' PTA in legs with critical limb ischemia.

Results. Study group consisted of 46 patients who underwent PTA of the popliteal and crural arteries. There are 16 women and 30 men. During the research nine patients have not examined – we did not find contact information or they did not want to participate in our investigation.

In this study 27 individuals with CLI have excellent clinical results. Unfortunately, 10 of the 37 persons without any improvements. They have claudication, ischemic rest pain and trophic ulcers. Insulin – independent diabetes mellitus was in three patients. Only one person had major leg amputation - two weeks after PTA. *Thromboangiitis obliterans* was in two patients. They did not have any improvements. In addition, we have used stents to achieve appropriate circulation. We have implanted one stent into *a. poplitea* with significant residual stenosis in 72 – years – old woman. The device's diameter was five millimeters, length – 40 millimeters. Two stents were implanted into *a. poplitea* bifurcation zone in 63 – years – old man. We have detected residual stenosis in this place with control DSA. Stents sizes: diameter is 4 millimeters and length – 18 millimeters. Unfortunately, three individuals died. Death's cause do not associated with procedure outcome. There are 68 - years – old man with gastric ulcer perforation after seven month from PTA, 69 - years – old man with sepsis – nine month after manipulation and 72 – years – old woman with ischemic stroke - two month from procedure. The two of them had diabetes mellitus. We do not have any patients with complications after manipulation: false aneurysm, blood vessel rupture, arterial dissection.

Conclusions. Early diagnostics and treatment of the chronic limb ischemia can significantly minimize disability. PTA, compared with conventional revascularization, reconstructs blood flow in ischemic regions without serious complications and in a short period of time.

SUBJECTIVE AND OBJECTIVE ASSESSMENT BEFORE AND AFTER CABG AND AVR PROCEDURES

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Introduction. Quality of life (QoL) is one of the major aspects evaluating success of any medical procedure. Coronary artery bypass grafting (CABG) and aortic valve replacement (AVR) are one of the most commonly performed cardiac surgeries that are associated with major surgical trauma and general anaesthesia.

The aim of this study is to assess CABG and AVR patient physical condition and quality of life before and after surgery. To investigate the correlation between patient physical condition and quality of life.

Materials and methods. 80 patients participated in this study. We included patients who were undergoing elective AVR or elective CABG procedures. Surgeries were performed with cardiopulmonary bypass. Patient physical condition and QoL was assessed using six minute walk test (6MWT) and Minnesota Living with Heart Failure Questionnaire (MLHFQ). These tests were done twice- before surgery and three months after surgery, and the results were compared.

Results. The preoperative results in AVR group were following: mean 6MWT distance of 391.5 meters and mean MLHFQ points were 33.6; in CABG group- mean 6MWT distance was 379 meters and mean MLHFQ points were 33.5. In comparison- postoperative results after 3 months in AVR group were following: mean 6MWT distance 453.2 meters and mean MLHFQ points were 22.3; in CABG group- mean 6MWT distance was 443.7 meters and mean MLHFQ points were 26.6. Both methods showed significant correlation with NYHA: MLHFQ ($r=0.563$, $p<0.001$), 6MWT ($r= -0.577$, $p<0.001$). Correlation between methods was moderate ($r= -0.422$, $p<0.001$).

Conclusion. Despite the surgical trauma, in three month follow-up visit, patient physical condition and QoL were improved.

ANALYSIS OF HEART DISEASE SPECTRUM IN PATIENTS WITH ACUTE MESENTERIC ISCHEMIA AND SURVIVAL RATES DURING THE LAST DECADE

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Keywords. Mesenteric ischemia, heart diseases, distribution, mortality.

Introduction. Acute mesenteric ischemia (AMI) is a life threatening abdominal disease with high mortality rate, which has particular difficulties in its diagnosis and management. It develops as a result of impaired blood supply to mesenteric vessels, therefore conditions for ischemia of small and/or large intestines occur. Despite advantages of modern surgery and intensive therapy

there is still high mortality rate – 60-90%. Patients with AMI are often elderly people with chronic heart diseases.

Aim. To detect the spectrum of heart diseases in patients with AMI and analyze the survival rates of the last 10 years in Latvia.

Methods. 120 case reports of acute mesenteric ischemia were analyzed during 2003 to 2013 in Clinical University Hospital. In total 64 female and 56 male patients with average age of 79.1 ± 1.7 ; 95% CI (77.4 - 80.8), ($p=0.001$). Patient data of cardiac co-morbid conditions was used for analysis and compilation. According to collected data the importance of coronary heart disease, arterial hypertension, atrial fibrillation, congestive heart failure and myocardial infarct in anamnesis was evaluated.

Results. 93 (77.5%) out of 120 analysed cases were fatal (mostly at the age of 80.5), only 27 (22.5%) patients in average aged 72.7 recovered: 15 men and 12 women. 74 (61.7%) patients had coronary heart disease in average aged 80.7 ± 2.1 ; 95% CI (78.6-82.8), ($p=0.023$), 61 (82.4%) of them died of AMI. Arterial hypertension was diagnosed in 72 (60%) patients in average aged 80.3 ± 2.3 ; 95% CI (78.0-82.6), ($p=0.092$), and 56 (77.8%) of them did not recover. 8 patients were diagnosed with stage 1 hypertension, 40 with stage 2 hypertension and 24 with stage 3 hypertension. The lowest survival rate was detected in stage 3 hypertension, there was only 1 case of recovery among 24 patients. 62 (51.7%) patients at average age of $81.6 \text{ years} \pm 2.1$; 95% CI (79.5-83.7) had atrial fibrillation ($p=0.003$) and only 13(21%) persons with this diagnosis got over the illness. Congestive heart failure was diagnosed in 57 (47.5%) cases, mostly at the age of $81.3 \text{ years} \pm 2.2$; 95% CI (79.1-83.5), ($p=0.008$), 9 patients (15.8%) survived. The diagnosis of myocardial infarction in anamnesis had 28 (23.3%) patients, in average aged $83.6 \text{ years} \pm 3.3$; 95% CI (80.3-86.9), ($p=0.005$), 5 (17.5%) of them got over AMI.

Conclusions. 1. Coronary heart disease and arterial hypertension are predominant risk factors and therefore it is crucial to undertake primary prevention methods to reduce AMI development possibility. The most insignificant co-morbid condition of analyzed ones was myocardial infarction in patients' anamnesis. 2. AMI recovery cases are more common among men and younger people.

ANALYSIS OF LONG-TERM RESULTS AFTER POPULAR INGUINAL HERNIA REPAIR METHODS

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Key words. inguinal hernia repair

Introduction. Hernias are among the oldest recorded afflictions of mankind, because of the big incidence. However, definitive treatment of all inguinal hernias, regardless of their origin or type, is surgical. For that reason, repair of inguinal hernia is one the most commonly performed operation worldwide. There are many methods to do hernia repair, but which one is the best, which gives the best long – term results.

Aim. To find popular inguinal hernia repair method that gives best long – term results.

Results. After analyzing 119 patients three to five years old medical history data from hospital "Bikernieki" and "Juras medicinas centrs" and calling these patients afterwards, we found that there are four most popular hernia repair methods in Latvia – Bassini's repair method, Lichtenstein's tension – free hernioplasty, transabdominal preperitoneal repair and Jirair – Spasokukocki method with modifications. From these four methods most frequent long term complication (after three to five years) was pain in groin area, we found 25 such cases, pain was common in all methods – Bassini's repair (20,6%), Lichtenstein's tension – free hernioplasty – (36,4%), transabdominal preperitoneal repair (21,4%) and Jirair – Spasokukocki method (30,0%). Surprisingly, but almost in all cases this pain was characterized as mild (1-2 points from 10), only in Jirair – Spasokukocki method 66,0% of pain was 3-4 from 10 points. To find out, if hernia is recurrent we asked these 25 patients with pain in groin area to come for a visit. As a result, we found out that only three patients had recurrent hernia. From these patients one was operated with Lichtenstein's tension – free hernioplasty and two patients were operated with Bassini's repair. In our research, there were no recurrent hernias for transabdominal preperitoneal repair and Jirair – Spasokukocki method. Mesh repair methods had its common complication – sense of a foreign body, we found 3 such cases in Lichtenstein tension – free hernioplasty (13,6%) and 4 cases in transabdominal preperitoneal repair (14,2%). Common complication

was groin insensibility after operation, we found 10 such cases – four cases in Lichtenstein's tension – free hernioplasty (18,1%) and six cases in Bassini's repair method (15,3%).

Conclusions. All four popular hernia repair methods had their long-term complications. But best results was in transabdominal preperitoneal repair group, because there was no recurrent hernia three to five years after operation, no groin insensibility, mild pain was common only in 21,4% and sense of foreign body in 14,2%.

RETROSPECTIVE ANALYSIS OF RENAL COLIC EPIDEMIOLOGY, DIFERENTIAL DIAGNOSIS AND TREATMENT IN EMERGENCY DEPARTMENT

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Key words. Renal colic, emergency department, ureteral calculi, hematuria.

Introduction. Patients with flank pain are a common presentation in the emergency department and a very frequent cause is urolithiasis. Renal colic accounts for about 1% of all hospital admissions. Patients complain about severe pain. Nausea, vomiting and hematuria may be present. To confirm urolithiasis clinical evaluation, laboratory tests, ultrasonography and computed tomography are essential. Pain management is the first step in renal colic therapy, however, if it is not effective and ureteral obstruction is significant then operative interventions must be considered.

Aim. The aim of our study was to determine the incidence of renal colic and alternative diagnoses in emergency department of Riga East University Hospital and to evaluate the workup process and applied treatment.

Results. Altogether 784 patients admitted to the emergency department with flank pain from January 1, 2014 till June 30, 2014 were retrospectively analyzed. The renal colic was diagnosed in 573 (73,1%) cases, with male predominance. 211 (26,9%) were alternative diagnoses. The mean age of patients with confirmed renal colic was $50 \pm 1,14$ (SE) years for males and $55,6 \pm 1,36$ (SE) years for females. From all patients 540 (68,9%) were transported with ambulance, 174 (22,2%) arrived themselves, 52 (6,6%) referred by general practitioner and 18 (2,3%) – by urologist. The majority

were admitted to the hospital within 6 hours from the beginning of flank pain. 17% of renal colic patients were not administrated to urologist initially. Nausea was in 125 (21,8%) and fever in 40 (6,98%) cases. CT was performed in 576 (73,5%) cases and ultrasonography – in 325 (41,5%). In all renal colic patients microhematuria was present in 367 (64%) cases. Diclophenac was effective for pain relief, in 33 cases fentanyl, promedol or tramadol was used, 70% within these cases required extra analgesia. The mean time spent in emergency department for outpatients with renal colic was 2,5 hours, for pateints with renal colic which where administrated from other specialists– 3,6 hours. 226 (39,4%) were hospitalized in Department of Urology. Renal colic was treated conservatively in 420 cases, lithuresis appeared in 26 patients, but surgical treatment was used in 127 cases. Calucili of the distal part of the ureter appeared in 65,2%, proximal part – 20,2% and medial – 14,6%.

Conclusion. Patients with renal colic commonly present in emergency department. The goal is to reffer such patients as fast as possible to an urologist. Microhematuria is a common symptom, but not always appear, nausea and vomiting are frequent. Diferential diagnosis is very wide and involves not only urologists, but surgeons, ginecologists and therapists. Using CT initially, decreases hospitalisation time and costs. The first step in treatment is analgesia with NSAID such as Diclophenac 75mg i/m or opiates as alternative. If conservative therapy was not effective, ureteral stenting, nephrostomy or active stone removal was done.

BIOMECHANICAL CHANGES IN RECTAL WALL FOR PATIENTS WITH OBSTRUCTED DEFECTION SYNDROME

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Key words. Obstructed defecation syndrome, biomechanics of rectum, rectocele.

Introduction. One of the symptoms of obstructed defecation syndrome (ODS) is chronic constipation. It affects up to 25% of Europeans, most commonly women over 70 years of age. Most common causes of ODS are rectocele and anorectal intussusception. Therefore pathphysiological mechanism of ODS is still not known. There's no data about biomechanical research (examination) of rectal wall and ground of surgical procedure to

correct the specific anatomic abnormalities presumed to be causing ODS in international publications.

Aim. To compare biomechanical qualities of anterior and posterior part of rectal wall for patients with ODS and for control group.

Results. All patients (n=13) were female (mean age $46,8 \pm 16,1$ years) with ODS and rectocele in dephēcography. The control group specimens (n=5, mean age $52,6 \pm 9,6$ years) were from cadaver who don't had any signs of obstipation.

Mean destructive strain in anterior/posterior part of rectal wall for ODC group was $\sigma = 0,201/0,300$ MPa ($p < 0,05$). Mean destructive strain in anterior/posterior part of rectal wall for control group was $\sigma = 0,216/0,260$ MPa ($p > 0,05$).

Mean ultimate deformation in anterior/posterior part of rectal wall for ODC group was $\epsilon = 110,418/146,856$ % ($p < 0,05$). Mean ultimate deformation in anterior/posterior part of rectal wall for control group was $\epsilon = 92,314/109,420$ % ($p < 0,05$).

Mean elasticity modulus in anterior/posterior part of rectal wall for ODC group was $E = 0,381/0,398$ MPa ($p > 0,05$). Mean elasticity modulus in anterior/posterior part of rectal wall for control group was $E = 0,556/0,570$ MPa ($p > 0,05$).

Conclusion. The destructive strain is not statistically significant between anterior and posterior part of rectal wall for control group - resistance in both walls are similar. But ultimate deformation is statistically significant between anterior and posterior part of rectum. It means anterior part of rectum is more elastic than posterior wall.

For ODS group both the resistance and the elasticity are statistically significant between anterior and posterior part of rectal wall. Anterior part is less elastic and more fragile than posterior part. It can be explained with loss of elastic fibres or other changes in rectal wall. That's why study is ongoing to explore morphological qualities of rectal wall.

ANALYSIS OF MEDIASTINAL TUMOURS BY HISTOLOGICAL TYPE AND PATIENTS AGE

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Key words. Mediastinum, tumour, morphology, age.

Introduction. Mediastinal tumours are uncommon abnormalities found in clinical practice [Nasit, 2013], although in both adult and pediatric series mediastinal masses are malignant in approximately 35 – 50% of patients [Cameron, 2014]. Patient's age is an important diagnostic criterion for morphological differentiation of mediastinal tumours, evaluation of tumour markers and biopsy results too refine the differential diagnosis and patient's prognosis [Cameron, 2014].

Aim. To collect and analyse the data of morphological distribution of mediastinal tumours among patients in Latvia.

Results. In a retrospective study 133 cases of mediastinal tumours were sequentially selected in the time frame between January of 2004 and December 2014. Of the included cases 90 were of primary mediastinal tumours. The patients' average age with primary mediastinal tumours was 49.6 years (95% confidence interval (CI) 45.91-53.3) and median age was 53 years. This group included 53 (58.9%) women (95%CI=48.7-69.1) and 37 (41.1%) men ($p<0.00001$, 30.4-51.8). Types of primary tumours were: thymus tumours 32.2% (22.6-41.9), haematopoietic tumours 28.9% (19.5-38.3), germ cell tumours 4.4% (0.2-8.7), undifferentiated malignant tumours 11.1% (4.6-17.6%), neurogenic tumours 11.1% (4.6-17.6), soft tissue tumours 3.3% (0-7.0), neuroendocrine tumours 3.3% (0-7.0) and others 5.6% (0.8-10.3%).

The operation material of 36 cases was rated according to TNM classification and showed following results: T1 - 38.9% (23.0-54.8), T2 - 55% (39.3-71.8), T4 and Tx one case each – 2.8% (0-8.2), Nx was 61.1% (45.2-77.0), N0 - 38.9% (23.0-54.8).

The assessment of patients' age groups division with primary mediastinal tumours showed that haematopoietic neoplasia was the most common malignancy in the age group of 16-26 years and included 50% of cases (8.2-91.8), 27-37 years group had 56.5% (35.1-78.0) and 38-48 years 50% (14.2-85.8) of haematopoietic tumours, while thymus tumours were most often found in patients aged 49-59 years with 56,2% (29.8-82.7) of cases, 60-70

years with 47.4% (23.3-71.4) of thymus tumours and 71-82 years – 35.7% (7.8-63.6%).

Conclusions.

1. Patients' average age with primary mediastinal tumour is 49.6 years, median age is 53 years, tumours are more often found in females.
2. The largest amount of mediastinal tumours are thymus neoplasia (32.2%), followed by haematopoietic tumours (28.9%).
3. Most often the patients with mediastinal tumour undergo surgical treatment when neoplasia corresponds to stage T2, while mediastinal lymph nodes in third part of the cases are without metastases.
4. The younger patients are most often diagnosed with haematopoietic tumours, while the older patients more commonly develop thymus tumours.

COX-2 AND CK19 IMMUNOHISTOCHEMICAL EXPRESSION IN HEREDITARY AND SPORADIC BREAST CANCER

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Key words. hereditary breast cancer, immunohistochemistry

Introduction. Breast cancer is most common malignancy among Latvian women. About 5% of all breast cancers are familial and 65% of those are caused by mutations in BRCA1 and BRCA2 genes. Diagnosis for hereditary breast cancer so far is limited to genetic analysis. Immunohistochemistry is a method used for therapy and prognostic factor's determination, and so far has not been proven to play a role in genetic diagnostic process. Data about prognostic immunohistochemical markers besides estrogen (ER), progesterone (PR) and HER2 are very limited and contradictory.

Aim. Purpose of this study was to determine histological type and ER, PR, HER2, COX-2 and CK19 receptor expression, in hereditary and sporadic breast cancer (BC).

Results. In hereditary BC group, included 107 cases, most popular histological type was ductal carcinoma – 70.9% [95% CI=61.4%-78.7%], medullar cancer – 16.4% [10.5%-24.8%] lobular carcinoma – 8.7% [4.6%-15.7%], papillary cancer – 4% [1.5%-9.5%], ER were positive in 47.5%

[38.1%-57.1%], PR in 50.4% [40.9%-59.9%], HER2 in 15.8% [10.1%-23.9%] of cases, COX-2 in 11.2 % [6.5%-18.5%] and CK19 in 90% [76%-89.8%] of cases.

In sporadic group, included 104 cases, most popular histological type was ductal carcinoma – 86.2% [95% CI=77.4%-91.9%], lobular carcinoma – 11.4% [63.6%-

19.8 %], medullar cancer – 2.4% [0.6%-8%]. ER were positive in 80.7% [72.2%-87.2%], PR in 73% [63.8%-80.6%], HER2 in 19.2% [12.8%-27.8%] of cases, COX-2

in 1.9% [0.5%-6.7%] and CK19 in 15.4% [9.7%-23.5%] of cases.

Conclusions.

1. 4% of hereditary breast cancers are papillary carcinoma, where there is none in sporadic cancer group. Medullar cancer was found by 14% more in hereditary cancer group. Ductal carcinoma was most common in sporadic cancer group.

2. ER, PR and HER2 are more expressed in sporadic cancer group than hereditary cancer group.

3. Both COX-2 and CK19 expression is more common in hereditary cancer group comparing to sporadic cancer group.

MELANOMA PATIENT RELAPSE FREE SURVIVALS ANALYZE DEPENDING ON ADJUVANT THERAPY CHOICE

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Key words. Cutaneous malignant melanoma, relapse free survival, adjuvant therapy

Introduction. Malignant melanoma is a cancer that could demonstrate rapid progression after surgery and atypical clinical features with a poor prognosis. The incidence of cutaneous melanoma in Latvia has been increasing in last decades and most of newly diagnosed cases are in stage I and II. The course of melanoma is hard to predict, treatment is difficult, because the choice of adjuvant therapy is limited and there are no clear cut guidelines and convincing predictive markers that would allow to successfully choosing

the most appropriate therapy for patient. Latvian patients have three options after primary melanoma resection. One is interferon, which is confirmed treatment of choice in many countries, second is virus containing medicine *Rigvir* and last choice is dynamic observation. In the case of early stage melanoma the aim of therapy is to prevent disease recurrence and metastases.

Aim. To perform retrospective analysis of relapse free survival of newly diagnosed melanoma patients at Latvian Oncology center in year 2009 depending on the choice of adjuvant therapy.

Method. The medical records of 67 stage IB and II melanoma patients, diagnosed in year 2009 at Latvian Oncology center were analyzed. Relapse free survival in three groups of patients according to the therapy was calculated using the Kaplan-Meier method. Factor differences between groups were tested with log rank test.

Results. In our study, with the follow-up period of 5 years, the median relapse free survival for all cases was 48,7 months. Median relapse free survival in dynamic observation group was 38,1 months, in group treated with interferon was 50,2 months and in group treated with *Rigvir* median relapse free survival was 58,2 months ($p=0,05$).

Conclusions. More prolonged relapse free survivals are in the patients groups treated with interferon or *Rigvir* in comparison to those who underwent only dynamic observation. Adjuvant treatment in stage IB and II melanoma patients seems to be helpful for prediction of recurrence. There is still need for predictive markers in order to select individual therapy for each early stage melanoma patient.

SPECTRUM OF GERM CELL TUMORS IN CHILDREN'S CLINICAL UNIVERSITY HOSPITAL OF LATVIA FROM 2010 TO 2014

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Key words. Oncology, peadiatrics, germ cell tumors.

Introduction. Germ cell tumors are considered to be the main gonadal pathology among children. They account for 4 % of pediatric tumors worldwide. In addition, more than 70% of all ovarian malignancies among girls under age of 15 are associated with germ cell tumors.[*Cecchetto, 2014*]

However, 80% of germ cell tumors in paediatric practice are benign and most of them (60%) are localized outside of gonads-in sacrococcygeal region, cranium, neck and mediastinum. Only 40 % can be found in gonads- ovaries and testis[*T.Harrison et al.,2010*] Depending on involved cell types, their clinical behavior and therapeutic management distinguish various types of germ cell tumors.

Aim. To investigate and describe the spectrum and localization of germ cell tumors in patients of Children's Clinical University Hospital of Latvia from 2010 to 2014.

Materials and methods. The study included retrospective analysis of patient's biopsy material conclusions and medical documentation during the period of time from January 1st 2010 to December 31st 2014. Collected data analysed with program MS Excel using descriptive statistical methods.

Results. During the research 28 cases of germ cell tumors were observed. 19 of all the cases (67.86%) were found among girls but 9- among boys (32.14%). Germ cell tumors among patients of Children's Clinical University Hospital can be found in two age groups- in young children under age of 5 (57.14%) and in teenagers from 9 to 18 (42.86%). Completely 6 various histopathologic subtypes of germ cell tumors were identified: mature teratoma (39.3%), immature teratoma (17.9%), yolk sac tumor (10.7%), ovarian dysgerminoma (10.7%), seminoma (7.10%) and mixed germ cell tumor (14.3%). It was concluded that 57.14% of all tumors were benign, on the contrary, 42.86% were malignant. Among girls the most frequent tumor was mature teratoma (53%) but among boys- mixed germ cell tumor (34%). In most cases tumors were primary located in gonads- ovaries (36%) and testis (25%), in contrast, 39% of germ cell tumors were found in extragonadal regions- sacrococcygeal region (28%) and mediastinum (11%). Furthermore, 11 patients (39.28%) had metastasis in regional lymph nodes and 1 patient (3.57%) with diagnosed seminoma in mediastinum had metastasis in collarbone. In 3 cases (10.71%) patients with mature teratoma surgical intervention was followed by repeated relapses.

Conclusions. 1.Among oncological patients of Children's Clinical University Hospital of Latvia the most frequent morphological forms of germ cell tumors are mature teratoma, immature teratoma and mixed germ cell tumor. 2.Benign germ cell tumors (57.14%) dominate over malignant forms (42.86%). 3.Among girls the most common germ cell tumor is mature teratoma (53%) but among boys- malignant mixed germ cell tumor (34%). 4. 61% of germ cell tumors primary were localized in gonads in contrast 39%

were found in extragonadal regions. 5. The most common sites of spread for germ cell tumors are the lymph nodes (39.28%).

RETROSPECTIVE ANALYSIS OF PARANEOPLASTIC SYNDROMES IN PATIENTS WITH CONFIRMED DIAGNOSIS OF CANCER

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Key words. Paraneoplastic syndrome; oncology; cancer.

Introduction. Paraneoplastic syndromes are symptom complexes that appear in patients with cancer and cannot be explained by the local or distal spread of the tumor. According to different data these syndromes occur in 2-20% of cancer patients. The most commonly associated malignancies include small-cell lung cancer, breast cancer, gynecological tumours, and hematologic malignancies. These conditions can affect the presentation, clinical course, and treatment of cancer. It may precede diagnosis of malignancy, but may also occur later in the course of disease or show up as the first symptom of recurrence. The metabolic or toxic effects of the syndrome may be far more life-threatening than the underlying malignancy. The ability to recognize and treat paraneoplastic syndromes may have a substantial effect on clinical outcomes.

Aim. The aim of our study was to determine possible incidence of paraneoplastic syndromes based on patients complaints and symptoms 3-6 months prior to cancer diagnosis confirmation and to establish the main factors that complicates paraneoplastic syndrome evaluation and diagnosis.

Results. Altogether 138 patients with different cancers were evaluated at the Oncology Centre of Latvia from December 2014 until February 2015. Statistical analysis was performed with *Microsoft Excel* and *IBM SPSS Statistics 22.0*. The study included altogether 55 urological, 43 breast, 20 gastrointestinal, 19 gynecological and 1 lung cancer cases; 49 patients (35,5%) were males and 89 (64,5%) - females. The mean age of the patients was $64,91 \pm 10,453$ (SD). Sixteen patients (11,59%) had other oncological disease in their anamnesis. There were 15 cases (10,87%) of cancer recurrence and 10 cases (7,25%) of cancer progression despite applied treatment. In 60 cases (43,48%) two or more miscellaneous (general/systemic) symptoms

were observed, 45 patients (32,6%) had anaemia and 50 (36,23%) - weight loss. Acanthosis nigricans was found in 3 patients (2,17%), however, all of them had diabetes mellitus. Ichthyosis-like cutaneous lesions were observed in 5 patients (3,62%). In 4 cases clinical and laboratory findings (decreased sodium concentration) may suggest syndrome of inappropriate antidiuretic hormone secretion. Hypercalcaemia was observed in 6 patients (4,35%) and 25 had clinical features with normal calcium concentration. However, in 60 cases serum sodium and calcium concentration was not tested. Although, 8 patients had symptoms associated with Lambert-Eaton myasthenic syndrome, most likely clinical presentation was due to severe non-malignant morbidities. There was no statistically significant correlation between paraneoplastic syndrome and stage of the disease.

Conclusion. Although, many diagnostic tests that can confirm paraneoplastic syndromes have been described in literature, they still are not available in Latvia. In some instances the identical symptom complex may be induced by entirely different mechanisms, for example, uncontrolled or untreated non-malignant disease. Because paraneoplastic syndromes often cause considerable morbidity, effective treatment can improve patient quality of life and prolong survival.

EFFECTS OF DAILY ASPIRIN USAGE ON LONG-TERM CANCER PREVENTION: DATA REVIEW OF META ANALYSIS OF RANDOMIZED TRIALS AND OBSERVATIONAL STUDIES

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Key words. Aspirin, Oncology, Metastasis, Cardiovascular system, Antiaggregants

Introduction. Cancer is the second most common cause of death in Latvia, and more than one third of all cases have been discovered in stages 3rd or 4th according to TNM classification. In year 2013 out of each 100000 residents 300.1 died from cancer, which is 6046 deaths in total. During last years the growing evidence suggest that aspirin has a potential to prevent cancer and inhibit metastasis thus reducing morbidity. This begs a question –

does aspirin only affect thrombocytes or are there more mechanisms involved in prevention of cancer.

Aim. Aim of our research is to analyze results of randomised trials and observational studies in order to evaluate the role of aspirin in cancer prevention. Another aspect of our study is to reach a better understanding of the mechanisms of action when aspirin is viewed as a prophylactic anti-cancer agent.

Results. We analyzed 40 scientific reports and meta-analysis as well as used data from „Eurostat” European Union statistical office database and statistical data from The Centre of Disease Prevention and Control (CDPC) of Latvia. Several case studies suggest that the usage of aspirin reduce the risk of cancer. For colon cancer the relative risk decrease varies between 52% and 59% (*Sansbury et al, 2005*); according to a case study *Sharpe et al* published in year 2000 the relative risk for having large breast tumors (>5cm) and distant metastases in women after 35 years of age decrease by 24%. The relative risk of prostate cancer in males above 65 years of age with a cardiovascular-related illnesses or arthritis who use aspirin daily decreases by 12% (*Leitzmann et al, 2002*). Meta-analysis published by *Peter M Rothwell et al* suggests that low daily aspirin reduces cancer mortality risk by 28% ($p=0,02$) and by 51% ($p=0,004$) when cancer is diagnosed and no metastasis is present. Randomized trial in carriers of hereditary colorectal cancer showed lower cancer incidence after long-term aspirin treatment (*Burn et al., 2011*). Another randomized trial demonstrated that the development of adenocarcinomas is reduced by 10% in aspirin group compared to placebo (*Sandler et al, 2003*). Aspirins cancer-preventing effects are explained by 2 main groups of mechanisms of action - those dependent on cyclooxygenase and those that are cyclooxygenase independent. Cyclooxygenase independent mechanisms include the reduction of activity of the mTOR, the activation of AMPK, the reduction of EGFR and the acetylation of the protein p53.

Conclusion. Aspirin reduces cancer incidence and can prevent development of metastasis. These effects vary depending on the type of cancer, dose and duration of aspirin therapy. Consistent reductions are in risk of adenocarcinoma and colorectal cancer. Further research is needed to better understand the role of aspirin in cancer prophylaxis.

DIAGNOSTIC VALUE OF HISTOLOGY AND CYTOLOGY FOR PEDIATRIC BONE MARROW: COMPARISON OF 153 SAMPLES

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Key words: bone marrow, diagnosis, histology, cytology

Introduction. Assessment of hemopoiesis in bone marrow is the principal diagnostic tool for tumors and unclear damage of hemopoetic system. Traditionally, histological samples (trephine biopsies) and cytological material (needle aspirates) have been used for examination. Both methods have advantages: cytology is fast and is easily combined with non-morphological methods, like automatic cell counting, flow cytometry and molecular genetics; while histology provides information on bone marrow structure, non-hematological elements and is considered to be less prone to sampling artefacts.

Aim. The aim was to retrospectively analyze simultaneously performed bone marrow histology and cytology of pediatric patients. Results were available from the Children's Clinical University Hospital database since June, 2013. 172 patients were included; histological slides were microscopically re-evaluated for the study. MS Excel database was designed; statistical analysis was performed by IBM SPSS v.21. (Spearman for correlations, Wilcoxon for differences).

Results. Histology was uninformative in 10 cases (insufficient or crushed sample) and cytology in 9 (hemodilution, clotting, excessive cell lysis). 153 specimens were analyzed (70 hematologic and 36 non-hematologic tumors, 16 aplastic anemias and 31 benign conditions); automatic leukocyte counts (WBC) obtained by hematological analyzer Advia 2120i were available in 133 cases. Diagnosis disagreement was found on 22 occasions (14.4%), including 5 hematologic tumors (7.1%), 11 solid tumors (68.8%), 2 aplastic anemias (12.5%) and 4 reactive conditions (12.9%). Histology was more sensitive in all cases of discrepancy; lower cytology sensitivity for solid tumors was statistically significant ($Z = -2.61$, $p = 0.009$).

Correlation was observed between bone marrow cellularity (BMC) assessed by the two methods ($\rho = 0.459$, $p = 2.3E-9$), though the results were

statistically different ($Z = -3.36$, $p = 0.001$). Marked discrepancy of reported cellularity was observed in 33 cases (21.6%); cytological cellularity was much higher on 22 and histological on 11 occasions. WBC significantly correlated with cytologically ($\rho = 0.837$, $p = 4.4\text{E-}36$) and histologically ($\rho = 0.411$, $p = 8.9\text{E-}7$) defined BMC. As expected, BMC in aplastic anemia was significantly decreased (cytology: $Z = -4.245$, $p = 2.2\text{E-}5$, histology: $Z = -4.806$, $p = 1.5\text{E-}6$, WBC: $Z = -3.668$, $p = 0.0002$).

Unexpectedly, statistical analysis revealed significant negative correlation between cellularity and diagnostic discrepancy (cytology: $\rho = -0.166$, $p = 0.041$; histology: $\rho = -0.205$, $p = 0.011$; WBC: $\rho = -0.390$, $p = 3.6\text{E-}6$).

Conclusions. The study revealed a good diagnostic concordance of bone marrow cytology and histology in the studied group, with the marked exception of solid tumors. 93% agreement in hematologic malignancies was particularly impressive. Diagnostic value of histology in paired tests was unquestionably higher. The study results indicate that diagnostic divergence is more frequent in hypocellular marrow samples and decreases with higher BMC.

DIGITAL PATHOLOGY IMAGE ANALYSIS APPROACH TO MEASURE THE EXTENT OF KIDNEY FIBROSIS: COMPARISON OF MASSON TRICHROME AND PICO SIRIUS STAININGS

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Key words. Kidney fibrosis pathology

Introduction. The extent of kidney fibrosis is widely used as a measure of chronic disease in both native and transplanted kidney biopsies. Semi-quantitative visual evaluation of fibrosis area stained by Masson Trichrome (MS) is widely accepted method. However, MS may underestimate the fibrosis levels, since MS and Picro Sirius (PS) stain different types of collagen. Both staining methods can be in general compared by visual evaluation of pathologist, but more precise comparison may be enabled by digital image analysis(DIA).

Aim. We aimed to compare MS and PS stainings for kidney fibrosis evaluation by DIA.

Methods. Consecutive sections of 59 renal(native and allograft) biopsies were stained by MS and PS, scanned by Aperio XT. Colocalization algorithms were set up to detect fibrous tissue stained by PS and MS. Aperio Genie tool was trained to automatically outline biopsy sections. The Genie tool was connected with each version of Colocalization algorithm. The renal cortex and medulla were analyzed separately based on manual annotations.

No attempt was made to exclude glomeruli or arteries from the analysis for the sake of simplicity and based on an observation that normal and even sclerosed structures do not reveal significant amount of fibrous tissue detected by the DIA tool. Therefore, we measured total cortical fibrosis, rather than pure interstitial fibrosis.

The versions of Colocalization algorithms detected not only fibrosis, but also other structural parts of kidney biopsy: nuclei, glass (liquid), cytoplasm, and basal membranes. The following variables were analysed:patologist_VE, fibrosis_MS, fibrosis_PS, Cytoplasm_PS, cytoplasm_MS, nuclei_MS, nuclei_PS, basal_membrane_MS, basal_membrane_PS, glass_PS, glass_MS. The results of cortex were only used. Factor analysis was performed to explore potential intrinsic factors of the variability in the data set.

Results. Evaluation of normality led to natural log transformation of results. Principal component analysis was conducted utilizing a varimax rotation. The initial analysis retained 3 factors (Eigenvalue >1, factor1=3,03; factor2=1.86; factor3=1.42;). Kaiser's measure of sampling adequacy was equal to 0,55(>0,5). The glass_MS and glass_PS were excluded because of low correlation with other variables(<0,3). The first component included items with both negative(cytoplasm_PS=-0,92) and positive(fibrosis_PS=0,78;fibrosis_VE=0,78) loadings. Second component included items with both negative(cytoplasm_MS=-0,81) and positive(nuclei_MS=0,90,nuclei_PS=0,50) loadings. Third component included items with negative (fibrosis_MS=-0,77) and positive (basal_membrane_MS=0,87) loadings.

Conclusions. Our DIA approach was designed to compare the fibrotic tissue estimates by MS and PS stainings. The factor 1 was characterised by positive loadings of Pathologist's VE and extent of fibrosis by PS but not MS stain. It can be interpreted that in biopsy diagnosis, the pathologist tended to evaluate irreversible changes in kidney biopsy and relied

more on interstitial expansion reflected better by PS rather than MS stain. The fibrosis extent by MS had different loads in 2 and 3 factors, potentially reflecting technical instability and/or biological variation of fibrosis containing different collagen types by MS staining.

MORPHOLOGIC AND IMMUNOPHENOTYPIC ANALYSIS OF HIGH-GRADE GASTRIC CANCER WITH METASTASES

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Key words. gastric cancer, metastases, immunohistochemistry.

Introduction. *Gastric cancer* remains one of the deadly diseases with *poor prognosis*. Aggressiveness of gastric cancer is associated with alterations in the adhesive properties and increased proliferation activity of tumor cells. According to GLOBOCAN2012, gastric cancer is the 4th most common cancer and the 2nd leading cause of cancer-related death worldwide.

Aims, materials and methods. The aim of the study is to 1) evaluate the correlation between immunophenotypic properties of primary gastric cancer and it's metastases in lymph nodes; 2) explore the pathomorphologic pattern and staging of high-grade gastric cancer.

Consecutive retrospective cases of radically operated gastric cancer were identified by archive search in a single university hospital. The inclusion criteria included the confirmed diagnosis of high-grade stomach cancer, synchronous metastatic tumor expansion at least on one regional lymph node and the volume of the primary neoplasm and secondary neoplasm tissue sufficient for the research ($\geq 1 \text{ cm}^3$). 30 neoplasms were selected; its' standardized protocols and microslides were evaluated. Neoplasms were characterized by determining their histogenesis and histological type according to the WHO classification (*Hamilton et Aaltonen*, 2000). All the tissues were fixed in formalin, processed in the vacuum tissue processor and embedded into paraplast. 4-micrometer sections have been cut from the created blocks for visualization using H&E staining method. E-cadherin and Ki-67 immunohistochemical visualization was performed on primary neoplasm and lymphogenic metastasis; staining was evaluated quantitatively using a light microscope. Statistical analysis was performed using IBM SPSS Statistics 20.0 program.

Results. The identified study group represented 18 cases of signet ring cell carcinoma (SRCC), 7 undifferentiated carcinomas and 5 poorly differentiated adenocarcinomas. Group comprised 53,3% of male (n=16) and 46,6% female (n=14) patients. Average age was 60,2 years (95%CI = 55,6 - 64,8). Significant mean volumetric prevalence of non-SRC in comparison with SRCC was found. (117,6 cm³ vs. 51,1 cm³, P=0,015). Correlation between volume and proliferation activity was not approved ($r_s=0,372$, P=0,056). A significant correlation was found both between E-cadherin and Ki67 expressions in primary and metastatic lesions, assessed using Spearman rank correlation coefficient: E-cadherin $r_s=0,889$, Ki67 $r_s=0,962$ (P<0,001). Partial loss of E-cadherin was discovered both in primary tumors and metastases (40,4%, 95%CI = 32,9 – 47,8 vs. 44,3%, 95%CI = 35,0 – 53,6; P<0,001; mean difference 4%). Proliferation activity was heterogeneous: 7,8 – 82,4%; in 16 cases < 45%, in 14 cases ≥ 45%. Mean Ki-67 was 40,3%, 95%CI = 31,8 – 48,7 vs. 38,8%, 95% CI = 38,8 – 47,3; P<0,001; mean difference 1%. Lower activity was found in SRC group (22,9%, 95%CI = 15,8–30,1 vs. 19,9%, 95% CI = 12,8–27,1).

Conclusion. 1. There is significant correlation both of E-cadherin and Ki67 expressions in primary neoplasms and metastases.

2. Lower proliferative activity of SRCC was discovered.

3. SRCC showed faster dissemination by lower volume.

4. There was no correlation between tumor volume and immunophenotypic parameters.

IMMUNOHISTOCHEMICAL EXPRESSION OF CLAUDIN-1 IN HASHIMOTO'S THYROIDITIS

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Key words. Hashimoto's thyroiditis, autoimmune disease, immunohistochemistry, claudin-1

Introduction. Hashimoto's thyroiditis (HT) is a complex autoimmune disease that develops as a result of interactions between genetic, epigenetic, and environmental factors which lead to destruction of thyroid gland and

promotion of autoimmune reaction. Tight junction (TJ) proteins, such as claudin-1, play a central role in the regulation of cell-to-cell adhesion, cell polarity and paracellular transport of ions, water and other molecules. Alterations of TJ between thyroid follicular cells are major actors causing development and perpetuation of autoimmune disease. Epidemiological and histological studies revealed that HT was frequently associated with thyroid carcinoma, particularly with papillary thyroid carcinoma (Ma et al. 2014). Several authors reported on overexpression of claudin-1 in different tumor cells, including thyroid cancer (TC), and suggested that dysregulation of claudin-1 expression may play a pathogenic role in tumorigenesis.

Aim. To evaluate immunohistochemical expression of claudin-1 in the thyroid tissues of patients with Hashimoto's thyroiditis expressing results in a semiquantitative manner with respect to the percentage of positive cells: 1, staining in <5%; 2, in 5–25%; 3, in 26–50%; 4, in >50% of the cells, respectively.

Results. We used 28 thyroid tissue blocks from adult patients undergoing thyroidectomy. These 28 blocks included 17 cases of HT and 11 cases of colloidal goiter with normal thyroid function. Claudin-1 showed a circumferential membranous staining pattern in thyroid follicle epithelial cells of all samples. Cytoplasmic staining was also noted. Claudin-1 expression was observed in 20 out of 28 cases (71.43%). SPSS program was used for analysis of data obtained, P value <0.05 was considered as significant and data presented as medians with interquartile range (IQR (25%; 75%)). A significant difference was not observed in the percentage of positive cells between HT cases and a group of colloidal goiter, but we found that claudin-1 expression in thyroid gland follicles had significantly higher frequency ($p=0,03$) in HT cases ($Md = 2,0$ (1,0; 4,0)) than colloidal goiter ($Md = 2,0$ (1,0; 3,0)).

Conclusions. These results demonstrate that claudin-1 expression in HT group follicles is occurring more frequently than in colloidal goiter. Overexpression of claudin-1 means that epithelial barrier function is modified and it can play a role in the development of autoimmune thyroid disease. Since claudin-1 is overexpressed in some TC, then claudin-1 up-regulation in HT may reflect one of the key events in the architectural disorganization characteristic of neoplastic transformation in TC.

MORPHOLOGICAL COMPARATIVE ANALYSIS OF FIBROADENOMAS AND PHYLLODES TUMORS OF THE BREAST

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Key words. Phyllodes; fibroadenoma; breast; surgical excisions; morphology.

Introduction. Breast fibroadenomas (FA) and phyllodes tumors (PT) are fibroepithelial lesions with frequently overlapping morphology but different prognosis and clinical management. FA behave in typically benign fashion but PT can have different biological potential and significantly higher recurrence rate, therefore correct diagnosis is essential. Distinguishing between these tumors is often a complicated task, especially on limited amount of tissue present in core needle biopsy, which is a widely used diagnostic procedure. Analysis of surgical excision materials remains golden standard for differential diagnosis.

Aim. The objective of this study was to analyse and compare morphology of FA and PT on surgical excision materials with emphasis on comparing features recommended in literature for differential diagnosis.

Results. Histologic slides of surgical excisions of 94 FA and 30 PT were analysed. Mean age of patients was 36.1 years (standard deviation (SD) - 13.5, range 16 to 67) and 35.7 years (SD - 15.8, range 16 to 60) respectively. Statistically most significant ($p < 0.0001$) features for suggesting PT were stromal expansion both on 10x10 and 4x10 magnification fields and infiltrative growth into surrounding tissue. Stromal heterogeneity, stromal mitotic count per 10 high-power fields, stromal fragmentation, stromal nuclear pleomorphism and fat in stroma were also statistically significant (with p-value within range from 0.0001 to 0.05). Stromal heterogeneity was only partially usable feature for suggesting PT. Overall stromal cellularity was statistically significant with lowest p-value ($p < 0.0001$) for high cellularity. Additionally hyalinosis and myxoid stromal pattern were analysed in both tumors with no statistical significance for suggesting PT. Relation to older age was expectedly observed for diffuse hyalinosis in FA, but it was not observed for focal hyalinosis. Epithelial changes (epithelial proliferation and epithelial component compression) were also analysed and epithelial component compression appeared to be statistically significant for suggesting PT.

Conclusions. Most of the features used for suggesting PT were statistically significant, with stromal heterogeneity being significant only in cases when heterogeneous tumor stroma contains areas of high cellularity. When comparing stromal cellularity – high cellularity was most significant feature for suggesting PT, while significance of average cellularity is questionable. Stromal expansion was significant ($p < 0.0001$) for suggesting PT on both 10x10 and 4x10 magnification fields. It was also observed that epithelial component compression can also be useful feature for suggesting PT.

ACTIVATION OF VALVULAR INTERSTITIAL CELLS AND EXTRACELLULAR MATRIX REMODELING IN CALCIFIC AORTIC VALVE STENOSIS

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Key words. Aortic stenosis, interstitial cells, immunohistochemistry.

Introduction. Calcific aortic stenosis is the most common cause of aortic valve replacement in developed countries, and this condition increases in prevalence with advancing age, afflicting 2-3% of the population by the age of 65 years. The primary cell types in the aortic valve are valvular endothelial and interstitial cells (VIC). Recently, five distinct phenotypes of the VIC have been described. These cells possess essential functions in normal valve physiology and in pathological processes. Abnormal aortic valve function likely results from extracellular matrix (ECM) remodeling associated with the disequilibrium between the synthesis of ECM components and their degradation.

Aim. The aim of this study was to analyze the evidence of extracellular matrix remodeling and phenotypical changes occurring in the VIC of the different histological layers of aortic valves, and to describe its contribution to the pathogenesis of aortic valve stenosis. Immunohistochemical performance on 17 stenotic aortic valves and 11 control valves was studied by semiquantitative counting of alpha smooth muscle actin (α -SMA), CD34 and MMP-9 expression and non-parametric tests.

Results. According to our results, expression of α -SMA by activated VIC was more prominent in stenotic valves compared with control valves ($p <$

0.001). Furthermore, increased expression of α -SMA was observed in *ventricularis* layer both in stenotic ($p = 0.015$) and control ($p < 0.001$) valves. We found CD34+ interstitial cells mainly in *fibrosa* and *spongiosa* layers. The expression of MMP-9 was more marked in stenotic valves compared with control valves ($p < 0.001$). In addition, MMP-9 expression was more prominent in *ventricularis* ($p = 0.030$) layer of calcific valves. We found that the source of the MMP-9 is activated VIC and mononuclear leukocytes. Weak positive correlations between α -SMA and MMP-9 expression ($\rho = 0.102$; $p = 0.048$), and between MMP-9 and number of CD34-stained blood vessels ($\rho = 0.197$; $p < 0.001$) were discovered.

Conclusions. For the first time we analyzed the expression of MMP-9 and phenotypical changes of the VIC of the different histological layers of aortic valve. Activated VIC express α -SMA and significantly increase in number as respond to valve injury. Furthermore, in the *ventricularis* layer the VIC possess the greatest capacity to differentiate into myofibroblasts. The expression of MMP-9 by activated VIC and mononuclear leukocytes was increased in stenotic valves, was more prominent in *ventricularis* layer, and weakly correlated with α -SMA expression and angiogenesis, suggesting the contribution of extracellular matrix remodeling in the pathogenesis of aortic valve stenosis.

SESSION III

INFECTOLOGY, DERMATOVENEROLOGY, IMMUNOLOGY, GENETICS, PHYSIOLOGY, PHARMACOLOGY

ACCURACY OF THE XPERT MTB/RIF ASSAY FOR THE DIAGNOSIS OF EXTRAPULMONARY TUBERCULOSIS IN LATVIA

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Key words: extrapulmonary tuberculosis; Xpert MTB/RIF assay; sensitivity; specificity

Introduction. Tuberculosis (TB) ranks as the second most common infectious cause of death worldwide. In 2013 there was reported 776 new cases of TB in Latvia, 85 of them was Extrapulmonary Tuberculosis (EPTB) cases. It is often difficult to establish a diagnosis of EPTB because the number of bacteria in extrapulmonary specimens is often lower than in the pulmonary specimens. In 2010 World Health Organization (WHO) endorsed Xpert MTB/RIF assay for the detection of pulmonary TB and since 2013 for EPTB. The Xpert MTB/RIF assay is an automated single-cartridge-based diagnostic test that can identify *Mycobacterium tuberculosis* (MTB) DNA and resistance to rifampicin (RIF) by nucleic acid amplification technique (NAAT).

Aim. The aim of study was to determine the accuracy of the Xpert MTB/RIF assay in the diagnosis of EPTB in Latvia.

Results. Out of 236 EPTB patients 52 patient samples underwent Xpert testing as well as AFB staining and mycobacterial culture. Of the 52 patients, 5 provided more than one sample. The median age of the patients was 40,25 years (range 8 - 89); 31 (59,6%) were male, 21 (40,4%) were female; 4 patients had history of HIV infection.

The most common types of specimens were pleural fluid ($n=37$, 71,2%), followed by bone tissue ($n=6$ 11,5%) and lymph node tissue ($n=3$, 5,8%). Using culture positivity as the „gold standart” for EPTB diagnosis, the overall

sensitivity and specificity of the Xpert MTB/RIF assay were 52,94% (95% CI 27,86% - 76,96%) and 91,43% (95% CI 76,92% - 98,10%).

Conclusion. The Xpert MTB/RIF assay showed acceptable results in overall sensitivity and specificity in diagnosing EPTB.

THE IMPACT OF MDR1 GENE POLYMORPHISMS RS2032582 AND RS1045642 AND THEIR INTERACTION WITH GILBERT'S SYNDROME ON THE RISK OF DEVELOPING CHRONIC VIRUS HEPATITIS C

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Introduction. Chronic virus hepatitis C (chc) is caused by hepatitis C virus (HCV) infection. About 80% of the infected persons will develop chc. About 39,000 patient in Latvia are chronically infected with HCV. If left untreated, 25% of chc patients in 15–20 years will develop liver cirrhosis.

The MDR1 gene encodes P-glycoprotein (P-gp). P-gp is a transmembrane efflux pump that plays a crucial role in protecting cells from toxic xenobiotics. SNP's rs2032582 and rs1045642 in MDR1 gene were shown to result in altered expression and function of P-gp, therefore influencing cell (e.g. lymphocyte and hepatocyte) metabolism, possibly increasing susceptibility to CHC.

UGT1A1 gene encodes UGT-1A protein which is involved in xenobiotic and endobiotic metabolism (e.g. bilirubin conjugation). Mutation in the UGT1A1 gene promoter region results in reduced UGT-A1 activity in heterozygous state and causes Gilbert's syndrome (GS) in homozygous state. Decreased UGT-A1 activity protects cell against oxidative stress in inflammation processes because of bilirubin antioxidant properties.

Aim. To investigate the impact of the mdr1 gene polymorphisms and their interaction with gilbert's syndrome on the risk of developing chc.

Materials and methods. 274 patients dna with diagnosed chc, 201 controls dna from general population of latvia were genotyped for two snps in the mdr1 gene. For chc patients previously ugt1a1 promoter mutation status was detected.

DNA was extracted from peripheral blood samples using standart phenol-chloroform method. SNP genotyping was performed using polymerase chain reaction and proceeded by restriction fragment-length polymorphism (PCR-RFLP) assay. Statistical analysis was performed using the PLINK and R softwares.

Results. In case-control study *mdr1* gene snp's rs2032582 and rs1045642 was not associated with chc ($p>0.05$) as well as their haplotypes ($p>0.05$). Chc patients were divided in groups depending of the presence of *ugt1a1* mutation and then chc status were analysed with *mdr1* snps. Comparing chc patients without gs and controls rs2032582 at genotype was statistically significant associated with chc patient without gs group ($p=0.04$).analysing different subgroups of patients there were found that tt genotype of rs2032582 and tt-cc haplotype (rs2032582/rs1045642) is statistically significant associated with chc patients without any mutation in *ugt1a1* promoter comparing to chc patients with *ugt1a1* mutation in heterozygous and homozygous state ($p=0.02$).

Conclusions.

1. *Mdr1* gene polymorphisms were not associated with risk of developing chc in this study.

2. SNP rs2032582 TT genotype and TT-CC haplotype (rs2032582/rs1045642) could be possible risk genotype and haplotype for developing CHC in individuals without UGT1A1 promoter mutation.

3. SNP rs2032582 AT genotype could be possible risk genotype for developing CHC in individuals without GS.

4. MDR1 polymorphism could increase the risk of developing CHC, but UGT1A1 promoter mutations could have protective effect against decreased Pgp activity.

5. Xenobiotic metabolism involved enzymes coding genes have an important impact on the risk of developing CHC.

INFLUENCE OF PHARMACO-ECONOMIC FACTORS ON PATIENT COMPLIANCE

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Key words. Pharmaco-economic factors, compliance, patients.

Introduction. Therapy cost is a crucial issue in patient's compliance especially for patients with chronic disease as the treatment period could be life-long. Cost and income are two interrelated factors. Healthcare expenses could be a large portion of living expenses for patients suffering from chronic disease, which is why healthcare specialists should be aware of patient's economic situation and help them use medication more cost-effectively in order to ensure their compliance.

Aim. The aim of this study was to identify age-related differences associated with recommended medications to compare the average treatment costs that influence compliance of the patients, depending on the prescribed type of medication and therapy.

Materials and methods. From November 2014 to January 2015, we collected information from prescriptions of 373 patients with various therapies in pharmacies located in Riga, Latvia. We divided the patients into two groups according to age: 61 years of age and older, n = 279, and younger than 61 years of age, n = 73. Data on original, generic medication, mono or combined medication therapies, and therapy costs were analyzed. Additionally, we asked patients to provide reasons for their possible incompliance.

Results. Among study population the biggest part of patients were 61 years of age and older (74.8%), more women than men (70.7% vs. 29.3%). Group of older patients received more original medication therapy than generic medication therapy (88.0% vs. 82.2%) at average cost of 6.78 EUR, while younger patients than 61 years of age received more generic medication therapy than original medication therapy (17.8% vs. 12.0%) at average cost of 2.50 EUR. Mono therapies were prescribed more than combined (79.5% vs. 20.5%), from which 61 years of age and older patients received more mono than combined therapy (84.6% vs. 83.8%) at average cost of 5.99 EUR, while younger patients than 61 years of age received more combined than mono therapy (16.2% vs. 15.4%) at average cost of 1.72 EUR.

Conclusion. Older patients used more medication than younger patients, because of possible difference in number of simultaneous diseases. Older patients payed more for prescribed medication in comparison to younger patients, which in turn might reduce their compliance to prescribed therapy.

REQUIREMENTS AND PROCEDURES OF MEDICINAL PRODUCTS REGISTRATION IN EUROPE, CIS COUNTRIES AND ASIAN REGION

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Key words. medicinal products; marketing authorisation; registration documentation.

Introduction. In latvia, medicinal products for human use can be placed on the market and distributed, mostly, after obtaining marketing authorisation (ma) issued by the competent authority: latvian or european. To obtain ma it is necessary implement the defined procedure (registration). A similar situation also exists in other countries around the world in order to provide users with high-quality medicinal products.

Aim. To study processes and requirements of necessary documentation for generic medicinal products registration in different countries, determine the similarities and distinctions in order to facilitate pharmaceutical companies to develop registration documentation and strategy to introduce to the various markets by this way improving access to medicines and health care. Work based on the analysis of national registration rules, literature, and on work experience.

Results. Registration rules of 12 countries were analysed: armenia, azerbaijan, belarus, kyrgyzstan, kazakhstan, tajikistan, uzbekistan, georgia, turkmenistan, ukraine, mongolia, and latvia.

Rules and requirements are public available, but not always in English or Russian. Registration process according to basic procedure lasts from 2 to 9 months; time when the applicant answers questions is not included in this period. To prepare and submit a response it is given up to 1 month (Latvia), 3 months (Kyrgyzstan, Turkmenistan, Ukraine) or 6 months (Armenia). Simplified registration procedures that last for a few days (Georgia), one (Armenia) or 2 months (Kyrgyzstan) also exist, the rules are specific, but

different in each country. The essence of these procedures, but not performance, can be compared to mutual recognition procedure in the European Union (EU). Registration documents must be submitted as 2 hard copies, electronic submission is possible, but e-submission alone cannot be realized. Registration documentation's requirements vary in scope and content, they are set out in detail (Ukraine, Kazakhstan) or in general (Turkmenistan, Armenia, Georgia). Requirements for foreign companies usually differ from those for local manufacturers. Specific documents as Certificate of Pharmaceutical Product, Export Declaration are necessary. Mongolia and Uzbekistan ask for previous registration of the medicinal product in 3 other countries. Since Ukraine, Belarus, and Kazakhstan have their own pharmacopoeia, quality control documents must comply with their requirements. Other countries recognize requirements of European pharmacopoeia.

Conclusions. Mostly departments of Ministries of Healthcare provide medicinal products registration service, processes are similar, but duration and fees are quite different. Always consider using accelerated and/or simplified registration procedures. The registration documents must be designed and worked out carefully, because it affects the registration process rate and course. Generic medicinal products registration requirements in Ukraine, Kazakhstan, and Mongolia are the closest to the requirements in the EU countries, the common technical document format for the documentation can be used. The registration process requires the company's local representative in the country.

ANALYSIS OF SKIN LESION CAUSING MYCROFLORA AND ANTIBIOTIC SENSITIVITY IN 2013-2014

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Key words. Skin microbiome, antibiotic resistance.

Introduction. Skin is colonized by a complex and diverse population of organisms that includes many bacteria, both commensals and pathogenic. The development and evolution of bacterial skin infection involve 3 major factors:

the portal of entry and skin barrier function, the host defence and inflammatory response to microbial invasion, and the pathogenic properties of the organism. The prevalence of “non-pathogenic” members of the cutaneous microbiome to produce disease are increasing due to many different factors and also bacteria themselves have become more difficult to treat via the acquisition of virulence factors and antibiotic resistance.

Aim. Gather outpatient data from Riga 1st hospital "Skin and STD clinical center" laboratory archive about microorganism identification and antibiotic sensitivity in 2 years period 2013 – 2014. Analyze: sex and age distribution; the most common localization of skin lesions; from lesion area taken microflora samples and antibiotic sensitivity, including sensitivity depending on the patient age.

Results. A total of 661 patients during the period of 2013-2014 were included in the study. The study group 59.2% was female, 40.7 % was male. The age range was between 6 months and 89 years. The mean age was 39.11 ± 20.65 years. Samples were taken from different body localizations: head (including neck) 33.9%, torso 30.6%, upper extremities 10.3%, lower extremities 10.1%, and also combined localization (sample taken from more than 1 localization) 6.5%. Microorganism isolates: Coagulase negative *Staphylococcus* spp. 40.2% (n=266), Coagulase positive *Staphylococcus aureus* 32.1% (n=212), combined flora (more than one isolate) 17.2% (n=116), other microorganisms (n=15) 2.3 %, in 7.9 % (n=52) flora did not grow. As the majority of isolates were CoNSS and CoPSA following analysis of microflora concerns only these 2 microorganisms. In CoNSS/CoPSA cases 50% of patients were present in the 22 - 49 ($p < 0.041$)/ 22 - 60 ($p < 0.041$) years of age group and the mode of age was 30 ($p < 0.041$)/ 37 ($p < 0.041$) years. CoNSS/CoPSA lesion localization: head (including neck) 48.4% ($p < 0.001$)/ 26.7% ($p < 0.001$); torso 26.2% ($p < 0.001$)/ 34.7% ($p < 0.001$); upper extremities 9.7% ($p < 0.001$)/ 15.3% ($p < 0.001$); lower extremities 6.9% ($p < 0.001$)/ 15.8% ($p < 0.001$). Microflora sensitivity was tested at least one time for 28 antibiotics. The most frequently tested antibiotics: oxacillin 98.7%, doxycycline 93.3%, ampicillin sulbactam 93.3%, erythromycin 84.7%. Among CoNSS/CoPSA isolates the most frequent resistance cases were for oxacillin 67.9% ($p < 0.001$)/ 29% ($p < 0.001$), the most frequent sensitive cases were for ampicillin sulbactam 94.4% ($p < 0.237$)/ 94.9% ($p < 0.237$), the most frequent medium sensitive cases were for erythromycin 32.5% ($p < 0.001$)/ 59.1% ($p < 0.001$). There is a correlation: CoNSS/CoPSA antibiotic resistance increases with increasing age ($p < 0.05$).

Conclusions. Skin lesions causing flora mainly are Gr+ microorganisms: CoNSS, CoPSA. For both microorganisms during years better sensitivity is for ampicillin sulbactam, but significant resistance has developed CoNSS for oxacillin. Antibiotic resistance increases with increasing age.

EXPLORING FUNCTIONS OF BORRELIA PROTEINS BY PROTEIN-PROTEIN INTERACTION APPROACH

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Key words. *B.burgdorferi*, outer surface proteins.

Introduction. *Borrelia burgdorferi* sensu lato (*B. burgdorferi* s.l.) is the causative agent of Lyme disease. It is the most common tick transmitted disease in northern hemisphere; approximately 65,500 patients are recorded annually in Europe. In Latvia, 454 cases were diagnosed in 2013 (incidence 22.4 per 100 000). Erythema migrans is the most common manifestation of Lyme disease, however, a peripheral and central nervous system, joints and heart could be affected. After disease's treatment with antibiotics about 10-20 % of patients develop post treatment Lyme disease syndrome.

B. burgdorferi is a motile gram negative spirochete of a family Spirochaetaceae. Its outer surface membrane proteins play critical roles in *B. burgdorferi* persistence through the vector-host infection cycle, such as spread between a diverse array of host microenvironments and to avoid the immune reactions, and many of these proteins don't have homologues in other bacteria groups. There is currently very little information available on the tissue-specific host-pathogen interactions and the identities of many protein complexes remain unknown.

Aim. The aim of this study was to explore possible protein-protein interactions by proteomic strategies to better understand functions of outer surface proteins of *B.burgdorferi*.

Results. In this study, two different proteomic approaches, i.e. Pull-down and Co-immunoprecipitation with subsequent protein analysis by MALDI-TOF Mass Spectrometry were successfully designed and applied to study possible functions of two *B. burgdorferi* outer membrane proteins, BB0689 and BBA73. The obtained results indicate that chosen protein-protein interaction approaches are suitable in the research aimed to evaluate the role of components of the borrelia's outer membrane during mammalian infection,

especially those proteins with unknown functions.

Conclusions. The proteomic strategy is a powerful tool to explore the pathogenesis mechanisms of infectious diseases. The obtained results indicate that additional research is needed to gain more understanding about *B.burgdorferi* proteins.

Acknowledgements.

This work was supported by a grant of the Riga Stradiņš University, Nr. RSU ZP 02/2013

WHAT IMPLICATIONS DOES FACE-TO-FACE SOCIAL NETWORKING HAVE ON EPIDEMIOLOGICAL ESTIMATIONS AND SOCIAL ASPECTS OF THE CURRENT AND FUTURE OUTBREAKS OF THE ZAIRE-EBOLAVIRUS?

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Keywords. Social networking, Ebola, Epidemiological monitoring, Face-to-face networking

Introduction. The current Ebola outbreak in West Africa displayed the need of developing and possibly creating new methodologies for epidemic surveillance and identification. Modern epidemiologic approaches include face-to-face social networking. By this manner a rather small number of individuals that are centrally located within a social network or community and thus more prone to obtaining infection, are monitored to predict epidemic outbreaks.

Aim. This literature based study aims at integrating the model suggested by Nicholas Christakis and James Fowler into the current and future Ebola epidemics to display its possible use and how it could have influenced the current outbreak and what influence it may have on future outbreaks.

Results. The broad applicability of this model in many vastly important aspects of the Ebola epidemic was observed. The easy implication into society by various methods including the friendship paradox (“your friends have more friends than you do”) in combination with the sticker-method or a combination with syndromic surveillance allow integration into developing, as well as developed countries.

The network methodology has a major advantage of faster recognition of threatening epidemics, which was especially applicable in these West African countries that were unprepared. Additionally the model may contribute to changes in behavior and attitude that have proven to be vastly important in the current outbreak in regards to burial traditions, for instance. Implications in easing contact tracing were also found to be present. It is important to create subgroupings within this model, such as immune-compromised individuals that naturally may become infected at an earlier stage. Similarly “anti-vaccination” movements will have an effect on predictive outcomes.

New developments of treatment and diagnostics in the Ebola epidemic are probable to come. The model is highly dependent on type of pathogen and mode of transmission. Additionally factors such as specific treatment and quick-test diagnostics affect the model allowing even faster recognition of an impending epidemic and more efficient forecasting.

Another major implication, especially for future outbreaks in developing countries, is the herd-immunity effect. This model allows a high level of community immunization with very low numbers of individuals having to become vaccinated.

Conclusion. Epidemiological networking displays a new methodology that facilitates the positive consequences of fast recognition and efficient prevention of an epidemic. Especially in Ebola epidemics, the capabilities of this model, extending well beyond earlier detection, are favorable. Vast economical factors, as well as preservation of healthcare in epidemically struck regions are the consequence, that arise not only from earlier detection, but also from highly cost efficient vaccination programs, hindering future epidemics. Behavioral influences of this model may enable cooperative teamwork fighting severe epidemics together counteracting aggression formed by distrust.

IL15 GENE POLYMORPHISMS MODIFY SUSCEPTIBILITY TO ACUTE LYMPHOBLASTIC LEUKEMIA IN CHILDREN

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Introduction. Acute lymphoblastic leukemia (ALL) is the most common pediatric cancer. It is generally considered that the development of ALL is a

comprehensive result of environmental and genetic risk factors, and gene-environment interactions.

IL-15 is a pleiotropic proinflammatory cytokine. IL-15 influences proliferation and differentiation of normal B-lymphocytes and increases pre-B ALL cell growth in vitro.

Previous studies have shown that single nucleotide polymorphisms (SNP) rs10519612, rs10519613 and rs17007695 in *IL-15* gene that we observed is associated with risk of the developing adult ALL (Lin et al., 2010).

Materials and Methods. In the study were included 77 children DNA with pre-B cell ALL in complete remission as well as in 50 cases DNA of both biological parents were available. Control group consisted of 122 unaffected, age and sex matched subject DNA.

DNA was extracted from peripheral blood using standart phenol-chloroform method. For SNP's genotyping polymerase chain reaction - restriction fragment-length polymorphism (PCR-RFLP) assay were used.

Statistical analyses were carried out using the *PLINK* and R software.

Aim. To evaluate the impact of the *IL-15* gene polymorphisms on the susceptibility of developing childhood pre-B ALL.

Results. Combining case – control and case parent trio data with hybrid analysis method there were no statistical significant association between risk of the developing childhood ALL and individual contribution of SNPs rs10519612, rs10519613 and rs17007695. As well no statistically significant association was found analyzing separately case-parent trios.

Analyzing possible SNP haplotypes in cases-controls and trios no significant association were found. But haplotype analysis with hybrid analysis method with sliding window two: rs10519613/rs17007695 a-c in heterozygous state is statistically significant associated with increased risk of ALL ($p=0.04$; $RR=5.28$; 95%CI 1.06-26). At the same time haplotype C-T in heterozygous and homozygous state found to be protective ($p=0.02$; $RR=0.21$; 95%CI 0.06-0.81 and $p=0.03$; $RR=0.22$; 95%CI 0.06-0.88, respectively). Rs10519612/rs17007695 haplotype A-T also is protective in heterozygous and homozygous state ($p=0.02$; $RR=0.23$; 95%CI 0.06-0.83 and $p=0.02$; $RR=0.21$; 95%CI 0.06-0.83, respectively). SNPs rs10519612 and rs10519613 are in linkage disequilibrium ($D=1$, $r^2=0.95$). Haplotype analysis with sliding window three: rs10519612/ rs10519613/rs17007695 - AA-CC-TT has protective role in risk of developing ALL ($p=0.0046$; $RR=0.13$; 95%CI 0.03-0.52).

Conclusions.

1. A-c haplotype (rs10519613 and rs17007659) in heterozygous state

could be probable risk haplotype for childhood pre-B cell ALL.

2. C-T (rs10519613 and rs17007659), A-T (rs10519612 and rs17007659) haplotypes in heterozygous and homozygous state and AA-CC-TT (rs10519612/rs10519613/rs17007659) haplotype could have protective effect for developing childhood ALL.

3. Haplin software for hybrid analysis is very important to use in small populations/rare diseases, because it is more powerful than family-based and case-control studies.

4. Single SNP might have a small effect on the risk of developing ALL, several SNPs interaction is needed to increase susceptibility to childhood ALL.

CLINICAL CHARACTERISTICS OF NEWLY DIAGNOSED HIV/AIDS PATIENTS

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Key words. HIV, AIDS, testing, newly diagnosed.

Introduction. Latvia has one of the highest *HIV incidence rates among EU countries*, the proportion of HIV cases diagnosed late is over 50%. *The clinical characteristics of newly diagnosed HIV/AIDS patients would help to identify the most common clinical manifestations of HIV infection in order to improve the recognition of disease, to decrease the transmission risk.*

Aim. To determine the clinical characteristics of HIV infected patients in Latvia, to explore the main reasons of testing for HIV infection.

Results. 221 newly HIV-diagnosed patients were involved in a retrospective study, 56% were men. Data collected from medical documentation in Infectology Center of Latvia; during the period from 1 January 2013 to 31 December 2013. The average age at diagnosis was 35 years (min-18, max- 67). 58% of patients had high school education, 17% had finished the university. 52% had a job. 74% of patients in AIDS stage had high school or university education. The most common HIV transmission routes were sexual transmission (64%), via intravenous drug use (36%). The average CD4 count was 379 cells/mm³. The most frequent clinical stages were AII - 39%, AI - 26%, AIII - 14% and CIII - 13%. The main reasons of testing for HIV in 48% were patient clinical conditions, in 25% patient initiative for

testing (100% of them in stage A), in 13% pregnant women (100% stage A), in 12% prisoners (74% stage A) and in 2% blood donors (100% stage A). 2 or more risk factors for HIV infection (intravenous drug user, sexual risk behavior, another STDs, bisexuals and homosexuals) were detected in 37% of patients in whom the doctor offered HIV testing. In 75% the main clinical symptoms were associated with HIV infection (44% with acute retroviral syndrome, 44% with AIDS indicator diseases), 9% with other STDs, 4% with acute viral hepatitis, 3% with influenza A, 9% with other clinical symptoms (73% with dermatological problems). The most common diseases in B and C clinical stage were 33% oral candidiasis, 27% tuberculosis, 24% esophageal candidiasis, 13% Pneumocystis pneumonia, 13% unexplained severe wasting, 13% unexplained persistent fever 11% unexplained persistent diarrhea. 20% of B and C clinical stages were associated with pancytopenia; in 33% HIV infection was associated with chronic hepatitis C.

Conclusions. More than a half of newly diagnosed HIV patients had no clinical manifestations, whether they were related to other disease, which indicates that doctors should offer HIV testing more widely. Only a quarter of HIV-infected patients underwent HIV testing on their own initiative, although one third of patients, in whom the doctor offered HIV testing, had two or more risk factors, this may indicate a lack of awareness of possible HIV transmission routes. The most common B-stage clinical manifestation was oral candidiasis, for C stage it was tuberculosis.

SAFETY AND EFFICACY OF THE COMBINATION OF PEGYLATED INTERFERON, RIBAVIRIN AND TELAPREVIR IN TREATMENT-NAÏVE AND TREATMENT-FAILURE GENOTYPE 1 CHRONIC HEPATITIS C PATIENTS WITH ADVANCED HEPATIC FIBROSIS OR COMPENSATED LIVER CIRRHOSIS

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Key words. Chronic hepatitis C, pegylated interferon, ribavirin, telaprevir, sustained virologic response.

Introduction. Telaprevir is a member of new class of drugs being developed for chronic hepatitis C (CHC): Direct Acting Antiviral (DAA) agents. Unlike pegylated interferon and ribavirin, DAA agents act directly on

hepatitis C virus replication cycle. Telaprevir is a specific inhibitor of the hepatitis C virus (HCV) NS3A serine protease, which is essential for viral replication. Clinical studies in treatment-naïve and treatment-failure subjects have demonstrated a statistically significant benefit (higher rate of sustained virological response (SVR)) by adding Telaprevir to the pegylated interferon and ribavirin standard regimen for the treatment of subjects chronically infected with genotype 1. Patients with advanced hepatic fibrosis or cirrhosis have a lower likelihood of SVR and also have the greatest risk of liver failure, hepatocellular carcinoma and death. Making Telaprevir available to this difficult-to-treat population may reduce the risk of long-term complications associated with HCV infection.

Aim. To examine the safety and virologic response of treatment with telaprevir in combination with pegylated interferon and ribavirin in genotype 1 CHC treatment-naïve and treatment-failure patients with bridging fibrosis or liver cirrhosis.

Results. 54(17 treatment-naïve/37 treatment-failure) genotype 1 CHC patients with average age 45.17 ± 10.55 years, BMI 28.15 ± 5.53 were included in to the retrospective cohort study. F3/F4 stage of fibrosis (METAVIR) was found in 37(68.5%)/17(31.5%) subjects, respectively. 39(72.2%) patients had hepatosteatorosis. High baseline viral load (HCV-RNA $\geq 600,000$ IU/ml) was found in 46(85.2%) patients. Out of 37 treatment-failure subjects: 15(40.5%) were previously non-responders, 10(27.0%) achieved a partial response and 12(32.4%) were relapsers. SVR was achieved in 12(70.6%) treatment-naïve patients and in 24(64.9%) treatment-failures. 4(26.7%) previous non-responders, 9(90.0%) partial responders and 11(91.7%) previous relapsers achieved SVR, respectively. For 1(1.9%) patient treatment was discontinued due to drug induced severe skin rash, 3(5.6%) patients discontinued treatment by themselves. The lowest average hemoglobin ($117\text{g/l} \pm 15.1$) and platelet count ($152 \times 10^9/\text{l} \pm 60.3$) was observed at week 12, neutrophil count ($1.6 \times 10^9/\text{l} \pm 0.65$) – at week 24. Due to drug-induced anemia at week 4, 12 and 24 ribavirin dose was reduced in 9, 9 and 2 patients, respectively. Pegylated interferon dose was adjusted in 3 and 2 patients at week 12 and 24, respectively.

Conclusions. Significantly improved SVR (70.6%) with triple therapy was achieved in treatment-naïve patients as compared with historical SVR results (44%) in dual therapy (ADVANCE study). In treatment-failure group statistically significant benefit in achievement of SVR was demonstrated in previous relapsers ($p=0.001$) and partial responders ($p=0.004$) in compare to previous non-responders. Most common adverse effects (anemia, rash,

pruritus, thrombocytopenia, neutropenia) gradually resolved after the treatment completion. Monitoring of blood count at regular intervals and ribavirin and/or pegylated interferon dose reduction is valuable for management of drug induced hematological side effects.

CHRONIC ENTEROBIASIS AS A CO-HELMINTHIASIS TO UNDERLYING HOOKWORM INFESTATION

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Key words. enterobiasis, chronic parasitosis, ancylostomiasis

Introduction. Intestinal parasites is one of the most common health problems in the world. A great number of people is suffering from the hookworm infestation, that is chronic and mostly asymptomatic. Diagnostics are mainly based on the detection of parasite ova, but unfortunately there are high rates of false negative results.

Case report description. A 25 year old woman consulted her family doctor after returning home from long term stay in Morocco and Portugal because of suspicion of a long-lasting enterobiasis. As known from the previous anamnesis, the patient had been experiencing crawling, itching sensations inside her anal canal, initially more during the night and eventually prevailing during the day time. Constitutional symptoms included unexplained headache, dizziness and nausea. A couple of times she had seen white, around 10 mm long and motile worms in her stool. She was referred to stool and adhesive tape tests in order to detect parasite ova of suspected enterobiasis, ascariasis and diphyllbotriasis. None of the tests had detected any parasitosis, but the symptoms hadn't subsided. Meanwhile multiple attempts of treatment with Mebendazole 600 mg and Albendazole 400 mg were done, but the symptoms still remained the same, so a more complicated tropical parasitosis was suspected due to the previous history of travelling. A couple of days later the stool was referred to a specific laboratory where a very thin, greyish-white and 13 mm long worm was found under the light microscope. The nematode found in the stool example by its morphology corresponded to *Ancylostoma* and *Necator* species. At this point there was Albendazole 400 mg twice a day 3-week-course initiated. Treatment appeared to be successful.

Conclusions. Long-term intestinal parasitosis decreases the immunity and it's more likely to develop other types of parasitosis as seen in this case. If a parasitosis is suspected, the differential diagnosis should be done very carefully, especially taking into account the possible travel-acquired intestinal parasites. Routine diagnostic methods combined with unexperienced approach may lead to many under-diagnosed and under-treated cases.

Summary. A 25 year old woman consulted her family doctor due to a suspicion of chronic enterobiasis. Her previous history included long-term stay in Morocco and Portugal, during which the symptoms started. The symptoms included crawling, itchy feeling in her anus, dizziness, headache and nausea. Routine laboratory tests didn't confirm suspected enterobiasis nor other typical helminthiasis. A more rigorous laboratory examination due to a suspicion of travel-related tropical parasitosis revealed a nematode that by its appearance corresponds to *Ancylostoma* and *Necator* species. A 3-week Albendazole treatment was done.

PROBLEMS AND RISKS IN THE COURSE OF METHADONE AND BUPRENORPHINE REPLACEMENT THERAPY

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Key words. Methadone, buprenorphine, opioid dependence, treatment.

Introduction. Methadone and buprenorphine replacement therapy programm (MRTP and BRTP) holds an important role in the palliative treatment of patients with opioid dependence. Due to lipophilic nature methadone and buprenorphine accumulates in the liver and other tissues and prolong excretion. Despite low concentrations in blood, chronic users have positive urine tests for methadone and metabolites for 3-5 days, and 1-3 days for buprenorphine and metabolites. Therefore there is a possibility that urine tests does not fully reflect patients adherence to MRTP and BRTP.

Aim. To analyze correlations of methadone and buprenorphine levels in biological fluids with narcologists prescribed drugs and the levels of prohibited drugs during the course of therapy.

Methods and materials. Prospective single centre study included MRTTP and BRTTP participants (N=20). Material was collected for 10 weeks, with an average of 6.5 urine samples, blood samples were taken only from MRTTP participants ($N_{\text{avg.}} = 6$). Levels of methadone and buprenorphine in participant's urine and blood serum were determined by means of Enzymatic immunoassay technique (analyzer V-TWIN, Siemens). In addition, levels of the most common drugs and effects of prescribed drugs on the levels of methadone in blood samples were studied. Results were obtained using SPSS data processing program.

Results. Data were collected on 13 MRTTP and 7 BRTTP participants (average age of 33.2 ± 5.6 years), 80% were men. 20% of participants were HIV infected (co-infected with hepatitis C) and 80% of participants were hepatitis C or B positive. Average intake of methadone was 110.85 ± 49.16 mg. In addition to methadone and buprenorphine levels, levels of prohibited drugs were determined, absence of which indicated successful therapy. Only 3 samples from all (N=129) were opiate positive. A wide use of other unprescribed drugs was observed: ecstasy (MDMA) – 15.2%, buprenorphine – 8.7%, tramadol – 6.3%, amphetamines – 3.9%, barbiturates – 3.1%, cannabinoids – 3.1%, ethanol – 18.8%. 65% of tests were positive for benzodiazepines (BZD). Patients with additional BZD therapy received higher daily doses of methadone, 124.37 mg in comparison with regular therapy patients 79.01 mg ($p = 0.141$). Use of BZD was associated with a higher level of methadone in blood samples, 330.79 ng/ml in comparison with 150.28 ng/ml in absence of BZD ($p < 0.01$). With the average methadone level in blood reaching 249.24 ± 0.86 ng/ml the lowest level of simultaneous use of non-prescription drugs was observed. Methadone levels in all urine samples exceed 500.0 ng/ml, whereas methadone level in blood samples varied from 35.0 ng/ml to 500.0 ng/ml.

Conclusions.

1. MRTTP and BRTTP are effective for opiate and opioid dependence treatment.
2. BZD helps to stabilize patients with high methadone dosages. To exclude illegal use of BZD during therapy it is necessary to control BZD levels in blood and urine samples.
3. Blood serum levels allow to calculate optimal levels of methadone for patient based on laboratory data, instead of subjective feelings of patients.
4. Findings suggest considering out of turn analysis for MRTTP and BRTTP participants with screening for more psychotropic substances.

M.QUADRICEPS FEMORIS STRETCH REFLEX RESPONSES TO ACUTE ISCHEMIA IN YOUNG HEALTHY SUBJECTS

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Key words. Stretch reflex; ischemia; muscle fatigue.

Introduction. Generalized muscle fatigue due to hypoxia can be a limiting factor for people working in hypoxic conditions: divers and individuals who spend a lot of time above sea level. Various diseases such as peripheral vascular disease and heart failure can result in ischemic hypoxia. Local muscle fatigue is a problem for workers who spend prolonged periods of time sitting in the same position. Therefore, it is important to understand etiology of muscle fatigue and mechanisms that occur when a muscle is ischemized.

Aim. Our goal was to investigate effect of acute ischemia on *m.quadriceps femoris* stretch reflex responses in young healthy adults.

Results. The study included 13 subjects age of 21.23 ± 3.06 and total of 65 measurements were recorded. A cuff (200 mmHg; 1.5 min) was applied to the lower extremities to produce ischemia. Data are presented as mean value \pm SD or median and interquartile (25th to 75th) range. To compare data paired Student t-test or Wilcoxon rank-sum test were used (for parametric or nonparametric data, respectively). Spearman rank correlation was used to find associations between study parameters. Amplitude of stretch reflex (measured by goniometer) during ischemia decreased (before ischemia $17.83 \pm 13.78^\circ$ but during ischemia $6.10 \pm 6.07^\circ$; $p < 0.001$). After ischemia amplitude of stretch reflex increased to $14.42 \pm 9.60^\circ$ (during ischemia vs. after ischemia $p < 0.001$; before ischemia vs. after ischemia $p < 0.01$). Integrated EMG (iEMG) of *m.quadriceps femoris* (measured by using EMG electrodes, *PowerLab*) decreased during ischemia (before ischemia 0.045 (0.02 to 0.06) mV·s but during ischemia: 0.025 (0.02 to 0.03) mV·s; $p < 0.001$). After ischemia iEMG increased to 0.035 (0.025 to 0.05) mV·s (during ischemia vs. after ischemia $p < 0.001$; before ischemia vs. after ischemia $p < 0.01$). We found correlations between amplitude of stretch reflex and iEMG during all conditions: before ischemia, during ischemia and after ischemia ($r = 0.7$, $r = 0.8$ and $r = 0.7$, respectively; $p < 0.01$). Time of stretch reflex onset did not change significantly ($p > 0.05$): before ischemia 0.11 (0.08 to 0.14) s, during ischemia decreased to 0.09 (0.04 to 0.13) s and stayed unchanged after ischemia 0.09 (0.06 to 0.14) s. Interesting that only during ischemia there were strong

positive correlations between time of stretch reflex onset and amplitude ($r = 0.6$, $p < 0.01$) as well as iEMG ($r = 0.6$, $p < 0.01$).

Conclusions. Acute ischemia significantly reduced stretch reflex of *m.quadriceps femoris* due to reduced reflex amplitude and muscle electrical activity. The phenomenon that only during ischemia there were positive correlations between time of stretch reflex onset and *m.quadriceps femoris* electrical activity could indicate that stretch reflex during ischemia is mediated by group II and possibly group Ib afferents while Ia fibres are inhibited.

TRENDS OF OUTPATIENT ANTIBIOTIC USE AND ANALYSIS OF RESISTANCE IMPACTING FACTORS

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Keywords. Antibiotics, antimicrobial resistance, ambulatory care.

Introduction. Antimicrobial resistance is known as a worldwide threat for health care systems associated with antibiotic use. In 2013, Latvia ranged as a country with one of the largest hospital antibiotic consumptions in European Union (2,3 DDD per 1000 inhabitants), furthermore there have been observed notable differences in the antibiotic use between hospitals. Analysis of outpatient antibiotic consumption may be the first step for effective implementation of infection control.

Aim. To determine most used antibiotics and related indications in the community in the period of winter, which is known as a period of year with increased number of patients who suffer from viral and bacterial infections.

Data about consecutive patients with at least one antibiotic prescription were collected from ambulatory care centers. Information on age, gender, weight, prescribed antibiotics, daily dose, therapeutic regimen, duration of therapy and indications were extracted from the databases. Data were collected between 1 December 2014 and 18 February 2015. IBM SPSS software was used to calculate results.

Results. A total of 112 patients were registered during the research period. 11 prescriptions were compiled for children (average age: $4,9 \pm 3,3$ years), 101 prescriptions were compiled for adults (aged 21-91 years; average

age: 51,3±19,1). Of the registered patients 58,3% were women. Collected data included information about the use of 15 different antibiotics, most commonly were used amoxicillin (n=48; 40,0%) and amoxicillin/clavulanic acid (n=25; 20,8%). Other antibiotics were used significantly less, e.g. ceftriaxone (n=8; 6,7%), ciprofloxacin (n=8; 6,7%) ($p<0,001$). In selection of children, amoxicillin (81,8%) and amoxicillin/clavulanic acid (18,2%) were prescribed. For adults, most often was used amoxicillin (n=39; 38,6%). Most often antibiotics were prescribed in an oral dosage form (n=102; 91,1%), significantly less were used intravenous injection form (n=7; 6,2%) and intramuscular injection form (n=3; 2,7%). Oral drug therapy most often lasted 7 days (n=37; 36,3%) or 5 days (n=26; 25,5%). Intravenous drug therapy most often prescribed for 10 days (n=6; 85,7%), the same duration of therapy was also for intramuscular drugs (66,7%) ($p=0,159$). Most common daily dose for antibiotics was 500mg (44,6%) with an intake twice a day (36%). Acute bronchitis was the most common indication (n=27; 24,1%). Less frequent antibiotics were used for treatment of pneumonia (n=12; 10,7%), acute laryngitis or tracheitis (n=11; 9,8%), acute tonsillitis (n=11; 9,8%). For 89,3% of patients, it was the first course of antibiotics with therapy duration for 7 days (35%), compared with the second therapeutic course, which length of the therapy was longer – 10 days (33%) ($p=0,098$).

Conclusions.

1. Amoxicillin monotherapy in an oral drug form was most common type of realised ambulatory therapy of antibiotics for all study population.
2. Most common indications were related to upper respiratory diseases.
3. Factors as use of intravenous and intramuscular antibiotics and the second therapeutic course were related with longer duration of therapy.

PEGYLATED INTERFERON, RIBAVIRIN AND BOCEPREVIR IN GENOTYPE 1 TREATMENT EXPERIENCED HEPATITIS C PATIENTS WITH BRIDGING FIBROSIS OR CIRRHOSIS: SAFETY AND VIROLOGIC RESPONSE

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Key words. Chronic hepatitis C, pegylated interferon, ribavirin, boceprevir, sustained virologic response.

Introduction. Chronic hepatitis C (CHC) can progress to cirrhosis, hepatocellular carcinoma and liver failure. The rate of sustained virologic response (SVR) with peginterferon (PEG-IFN) and ribavirin (RBV) in genotype 1 CHC patients is below 50%. Boceprevir is a potent oral hepatitis C virus (HCV) serine protease inhibitor active against genotype 1 infection. Addition of Boceprevir to standard therapy could improve the rates of SVR in patients who previously failed therapy and have advanced hepatic fibrosis or cirrhosis.

Aim. To examine the safety and virologic response of boceprevir-based triple antiviral therapy in experienced genotype 1 chronic hepatitis C patients, with bridging fibrosis or liver cirrhosis.

Results. Study group consisted of 21 men and 13 women with genotype 1 HCV infection, with average age of 49.29 ± 10.68 years, BMI 28.46 ± 6.0 . F3 stage of fibrosis was found in 21 (61.8%), F4 in 13 (38.2%) patients. 25 (73.5%) patients had hepatic steatosis. High baseline viral load (HCV-RNA $\geq 600,000$ IU/ml) was found in 25 (73.5%) patients. Out of the 34 subjects: 12 (35.3%) were previous non-responders, 10 (29.4%) achieved a partial response, 12 (35.4%) were relapsers. Full and partial Early viral response (EVR) was reached in 18 (52.9%) and 7 (20.6%) patients, respectively. At week 24 and 48 undetectable HCV-RNA was encountered in 23 (67.6%) and 20 (58.8%) patients, respectively. Sustained viral response (SVR) reached in 16 (47.1%) patients, 10 (29.4%) were non-responders, 5 (14.7%) - relapsers, for 1 (2.9%) patient treatment was discontinued due to drug induced neutropenia, 2 (5.9%) patients treatment discontinued by themselves. The lowest average hemoglobin ($105.75 \text{ g/l} \pm 12.57$) and platelets count ($112.25 \times 10^9/\text{l} \pm 37.3$) level were observed at treatment week 48, and neutrophil ($1.09 \times 10^9/\text{l} \pm 0.47$) count – at treatment week 24. Because of drug-induced anemia at treatment week 12 and 24 ribavirin dose was reduced in 13 and 16 patients, respectively. Pegylated interferon dose was reduced in 5 patients at treatment week 24. The most common non hematological side effects were weakness, various skin reactions and mood disorders, observed in 25 (73.5%), 14 (41.2%) and 11 (32.4%) patients. Due to serious drug induced side effect antiviral treatment was discontinued only in one patient.

Conclusion. In 47.1% of genotype 1 CHC patients with bridging fibrosis or cirrhosis who previously failed treatment, after retreatment with pegylated interferon, ribavirin and boceprevir combination was reached SVR. Statistically significant benefit in achievement of SVR was demonstrated in previous relapsers ($p=0.001$) and partial responders ($p=0.033$) in compare to previous non-responders. Most common side effects (anemia,

thrombocytopenia, neutropenia, skin reactions and mood disorders) gradually resolved after the treatment completion. Monitoring of blood count at regular intervals and ribavirin and/or pegylated interferon dose reduction is valuable for management of drug induced hematological side effects.

REASONS FOR LATE PRESENTATION OF HIV INFECTION

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Key words. HIV, AIDS, Late presentation

Introduction. In year 2013 The Centre for Disease Prevention and Control (SPKC) of Latvia reported 340 new cases of human immunodeficiency virus (HIV) infection and 107 new cases of Acquired Immune Deficiency Syndrome (AIDS). Across Europe, almost third of HIV infected individuals do not enter health care until late in the course of their infection. Late presentation of HIV infection is associated with higher risk for rapid progression of clinical signs, decreased immune response and increased toxicity from antiretroviral therapy (ART). In 2010 British HIV Association presented two definitions for late presentation. Late presentation: persons presenting for care with CD4 count below 350 cells/mL or presenting with an AIDS-defining event, regardless of the CD4 count. Presentation with advanced HIV disease: persons presenting for care with a CD4 count below 200 cells/mL or presenting with AIDS-defining event, regardless of the CD4 cell count.

Aim. To analyze available data regarding new cases of HIV infection in Latvia in year 2013, to identify risk factors for late presentation of HIV infection, and to determine prevalence of late presentation and presentation with advanced AIDS disease.

Results. In year 2013 out of 258 new cases of reported HIV infection 143 (55.4%) fit the definition of late presentation and 99 (38.4%) fit the definition of presentation with advanced AIDS disease. Out of all new cases that were identified as late presentation 69.2% fit the definition of presentation with advanced AIDS disease. Out of total 143 late presenters 86 (60.1%) were male and 57 (39.9%) were female; 126 (88.1%) were heterosexual. Only 28 (19.6%) late presenters had previously experienced any symptoms. Most common of previous symptoms were unexplained febrile temperature – 19

patients (13.3%) and cough – 11 patients (7.7%). Out of 57 female late presenters 11 (19.3%) were pregnant at the time of the diagnosis. Distribution of transmission routes among late presenters: random sexual contact – 56 (39.2%), intravenous drug use – 46 (32.2%), sexual contact with a known HIV-positive partner – 31 (21.7%). Out of total 143 late presenters 26 (18.2%) deceased in the same year when applied for health care. Out of those who deceased in the same year 25 (96.2%, $p=0.001$) fit the definition of presentation with advanced AIDS disease.

Conclusions. In 2013 more than half of the new cases fit the definition for late presentation. Most of them did not experience any previous symptoms, which increases the risk of delayed diagnosis. Premature death, following the detection of HIV is most likely among patients presenting with advanced AIDS disease. Risk factors for late presentation include heterosexual orientation, infection through random sexual contact and intravenous drug use. It leads to the conclusion that main reasons for late presentation is lifestyle choice and ignorance. HIV testing and counselling is the essential first step to reveal infection timely.

THE INCIDENCE OF OPPORTUNISTIC INFECTIONS AMONG HIV-INFECTED PATIENTS IN LATVIA

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Introduction. The theme of this paper is „The incidence of opportunistic infections among HIV-infected patients in Latvia”, which is an urgent problem nowadays. It is essential to properly evaluate the anamnesis of a disease in order to timely diagnose HIV. This in turn will allow to control the progress of HIV infection and if required appoint preventive maintenance that could stop or reduce the incidence of opportunistic infections.

The study consists of two parts. The first chapter includes the review of the literature on HIV / AIDS detection history, epidemiology, classification, etiology and pathogenesis, as well as the clinical picture of the disease, diagnostic steps, possible opportunistic infections, treatment and prevention options. The second chapter includes the analysis of the retrospective study results.

The research was conducted by examining and analyzing HIV / AIDS patients' medical records and ambulatory cards in the period from 2010 to 2013. In total, 1021 patient's data were examined and 759 were used in the research, what fully corresponded to the purpose of the study.

Aim. The purpose of the study is to clarify the most frequent opportunistic infections among HIV-infected patients in Latvia during the period from 2010 to 2013. In addition, authors collected information on the phase at which patients were registered at LIC, with what number of CD4+ cells, what was their age and risk factors.

Results. According to the research results and gathered information it was possible to conclude that the most common opportunistic disease among HIV-infected patients in Latvia is pulmonary tuberculosis, while the least likely ones are toxoplasmosis and Kaposi's sarcoma. The majority of HIV-infected patients were registred at LIC during phase A in the age of 20 – 40 years.

Conclusions. By the end of the above work several conclusions were made about the fact that number of newfound HIV-infected patients does not reduce, it increases. Due to this aspect the problem is rather acute, and it is important to resolve this issue. Since tuberculosis prevails as an opportunistic disease among HIV-infected patients, it would be worthwhile to take active detection measures with patients suffering from tuberculosis, purposefully examining risk groups. It is also a necessary to remember about preventive options that could reduce the risk of HIV infection, as well as to educate patients and the general population about HIV infection, the spread of disease and possible complications.

GENERAL PRACTITIONERS' TACTICS IN THE TOPICAL TREATMENT OF ATOPIC DERMATITIS FOR CHILDREN AND ADULTS IN LATVIA

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Key words. Atopic dermatitis, calcineurin inhibitors, pimecrolimus, general practitioner.

Introduction: Atopic dermatitis is a chronic relapsing inflammatory skin disease. Estimates suggest that atopic dermatitis affects about 25 % of children and 2-10 % of adults with the increasing prevalence of disease in industrialized countries in recent years and affects the patients' quality of life. There are available for US and Europe developed atopic dermatitis treatment guidelines where without first choice therapy with corticosteroids as second choice treatment in local therapy are referred calcineurin inhibitors. In Latvia calcineurin inhibitor pimecrolimus for children till 18 years can be received with 100% state refund, if dermatologist, allergologist or general practitioner with the specialists' mentioned above recommendation to prescribe it. Because of a large number of patients who come for help directly to the family doctor, it is important to find out what local therapy tactics are used by family medicine specialists.

Aim. To analyze the tactics of atopic dermatitis topical treatment in GP practice in Latvia and to find out how often in therapy are used calcineurin inhibitors.

Results. During the study, from October 2014 until February 2015, 140 questionnaires were given to respondents at the conferences of Latvian Rural General Practitioners Association. Electronic form was also sent to the available GPs e-mails taken from the National Health Service website. Respondents are general practitioners from all Latvian regions and with work experience up to 40 years. Correctly filled out was 90 questionnaires of which the first part of the questionnaire have been filled out from all 90 respondents, 76 respondents filled out the second part too. 84.44% (n=76) knows what

calcineurin inhibitor pimecrolimus is; 68.89% (n=62) knows about conditions of this medication compensation. But more than a half, 55.56% (n=50) have not received recommendation from dermatologist to prescribe pimecrolimus. There is relevance between doctors, who know what is calcineurin inhibitors and the fact that from January 1st, 2014, they have been included in the list of chargeable medication ($r = 0.622$). There is some relevance among those physicians who have received recommendations from a dermatologist to prescribe pimecrolimus and those who know the conditions of medication compensation ($r = 0.377$). In tactics of maintenance therapy for adults was found some link between calcineurin inhibitors and corticosteroids ($r = 0.581$). In the tactics of first choice treatment for children the link between corticosteroids and calcineurin inhibitors ($r=0.550$) is almost the same.

Conclusions. The positive correlation is observed between the specialists who know calcineurin inhibitor pimecrolimus and have received recommendations from dermatologist to prescribe it for children, or knows about compensation conditions for pimecrolimus, indicating a positive informative link between family doctors and dermatologists. There was found a positive correlation between the tactics of general practitioners', choosing emollients, corticosteroids, calcineurin inhibitors, antibiotics, according to the situations described in the second part of the questionnaire.

A COMPARATIVE STUDY OF KERATINOCYTE APOPTOSIS IN LICHEN RUBER PLANUS AND LICHEN PLANOPILARIS

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Introduction. Lichen planus (LP) is an inflammatory dermatosis affecting mucocutaneous surfaces presented with a variety of clinical manifestations and morphological forms. There are 2 forms of LP used in this study. LRP (lichen ruber planus) is a classic form of lichen planus, which affects the epidermis. The other form is LPP (lichen planopilaris), which affects hair follicles of body and scalp. However, all types of LP have similar histology revealing band-like lymphohistiocytic infiltrate at the

dermoepidermal junction and degeneration of the basal layer of epidermis. The major role in triggering the disease plays immune cell-mediated keratinocyte's death or apoptosis. The exact mechanism used by activated cytotoxic T cells to trigger apoptosis is not completely understood.

The objective and study design. The aim of this study was to study and compare apoptosis of epidermal keratinocytes in case of LRP and LPP. This is a retrospective study of patient's medical records and archived punch biopsies. Inclusion criteria were: (1) "follicular LP", "classic LP"; (2) "off treatment before the biopsy". The TUNEL assay (TdT-mediated dUTP-biotin nick end labelling) was used to detect apoptotic cells. Tissue sections were analysed using light microscopy. The apoptotic index (AI) (TUNEL-positive cell count/total number of cells visual field x100) was estimated. The SPSS 21.0 software was used for statistical analysis.

Results. Nineteen patients (5 - man and 14 - woman) were used in this study. The age range was 24 - 77 years (mean age=47). From them, five patients were retrospectively diagnosed as having LPP of corpus, whereas, seven patients - classic LPP of scalp, and seven - LRP. AI in classic LPP is 63 ± 14 in the basal layer, 66 ± 21 - spinous layer, and 75 ± 21 - granular layer. AI in LPP of scalp was 81 ± 11 in the basal layer, 88 ± 11 - spinous layer and 88 ± 11 - granular layer. AI in LRP is 27 ± 10 in the basal layer, 57 ± 11 - spinous layer, and 70 ± 14 - granular layer.

Conclusion. The AI in basal layer of LPP is higher than in LRP, and it increases in the superficial layers of the epidermis. Estimation of AI can be used as prognostic indicator of the inflammatory dermatosis.

FREQUENCY OF HIGH RISK HUMAN PAPILLOMAVIRUS INFECTION IN LATVIAN WOMEN AFTER RENAL TRANSPLANTATION

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Key words. papillomavirus, renal transplantation, immunosuppression

Introduction. After renal transplantation immunosuppressive therapy plays an important role in protecting transplanted organ but it is also causing high risk chronic infections and malignant tumours. According to the literature, the renal transplantation recipients in particular are at high risk of developing skin and urogenital cancers. Virtually almost all cervical cancer cases are caused by high risk human papillomavirus (HR-HPV). Most common human papillomavirus (HPV) types found in cervical dysplastic lesions are type 16 and 18.

In this research were enrolled 14 patients after renal transplantation in dynamics (2 weeks, 6 months and 12 months after renal transplantation). Genomic DNA was extracted from cervical swabs and urine samples.

Polymerase chain reaction (PCR) with consensus primers were used for initial detection of high range HPV types. HR-HPV qPCR was used for quantitative detection of 12 types of HR-HPV (16, 18, 31, 33, 35, 39, 45, 51, 52, 56, 58, 59). To detect HR-HPV16 and 18 type specific PCR was used.

Aim. To investigate frequency of HR- HPV in female patients after renal transplantation.

Results. HPV DNA was detected in all 14 recipients (100%) and 5 of them (36%) were positive on HR-HPV infection. Initially (two weeks after surgery), 9/14 patients (64%) already had HPV DNA in cervical samples and 3 of them (33%) were positive on HR-HPV infection. However, sufficient viral load was detected only in one recipient (152 405,3 copies/10⁵ cells). Six month after renal transplantation 10/14 (71 %) patients had HPV infection and two

recipients showed the highest viral load of HR-HPV (363078,1 copies/10⁵ cells and 4655860,9/10⁵ cells, respectively). Two patients showed small HR-HPV load one year after renal transplantation. From five patients with HR-HPV infection - one was positive on HPV16 and another one on HPV18.

Conclusions. At this point, the study is showing high presence of HR-HPV in female recipients which means that they could be under the high risk of cervical dysplasia development. Increased HR-HPV load 6 months after transplantation could be considered as important indicator to start monitoring for possible cervical neoplasia development, however, to draw final conclusions on HR-HPV distribution, activity and oncogenic potential in renal transplant patients further research should be carried out.

CHARACTERISTICS OF ONYCHOMYCOSES IN LATVIAN POPULATION

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Keywords. Onychomycosis, dermatophytes, nails.

Introduction. Onychomycosis is the most common nail disease in adults and is caused by dermatophytes, yeasts or nondermatophyte molds. Adults are 30 times more likely to have onychomycosis than children. Onychomycosis is a fungal infection of the toenails or fingernails that may affect any component of the nail unit matrix, bed, or plate. Toenails are much more likely to be infected than fingernails. Onychomycosis can cause pain, discomfort, and disfigurement and may cause serious physical and occupational limitations, as well as reducing quality of life.

Aim. To determine the characteristics of onychomycoses in Latvian population.

Results. Together 9353 cultures were included. Results obtained from two laboratories. Patient age ranged from one month to 89 years. The mean age was 43 ± 17 years. 67 % of patients were female and 33 % were male. Negative culture was obtained in 38% of cases, furthermore, the incidence decreased with the age of the patients. Dermatophytes were isolated in 33 % cases, dermatophytes with nondermatophytes in 7 % of cases, but nondermatophytes in 22 % of cases. Dermatophytes showed more growth in

specimens taken from male subjects, but non-dermatophytes showed more growth in specimens taken from women subjects ($p < 0,001$; Pearson Chi-Square). The most frequently detected dermatophytes species were *Tr. rubrum* (41%), *Tr. tonsurans* (14%), *Tr. mentagrophytes* var. *interdigitale* (13%) and *Tr. mentagrophytes* var. *mentagrophytes* (13%). There was a difference between dermatophytes *Tr. violaceum* (LIC- 0,3 %, VC4-18%), *Tr. mentagrophytes* var. *interdigitale* (LIC- 1,4%, VC4- 20%) and *Tr. mentagrophytes* var. *mentagrophytes* (LIC- 25%, VC4- 6%) frequency among laboratories. Among yeasts, *Candida* spp. (43%) was the most common, followed by *C. albicans* (23%), *C. parapsilosis* (10%) and *C. rugosa* (9%). *Chaetomium* spp. and *Penicillium* spp were the most common saprophytic molds.

Conclusions.

1. In more than one third of cases, when there is a clinically suspected fungal nail infection, it does not result in microbiological confirmation and the incidence decreases with patient age.
2. The most common dermatophytes are *Tr. rubrum*, *Tr. tonsurans*, *Tr. mentagrophytes* var. *interdigitale* and *Tr. mentagrophytes* var. *mentagrophytes*.
3. Dermatophytes are more common for men, but nondermatophytes more common for woman.
4. There are significant differences between dermatophytes *Tr. violaceum*, *Tr. mentagrophytes* var. *interdigitale* and *Tr. mentagrophytes* var. *mentagrophytes* frequency among laboratories.
5. Lack of awareness about onychomycosis diseases among men.

EFFECT OF SMOKING ON TUBERCULOSIS TREATMENT OUTCOME

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Introduction. Nowadays tuberculosis (TB) is highly topical disease. 9 million people in the world develop TB disease in 2013. Latvia is one of EU country in which TB incidence rates are high (new cases and relapses) – 50 cases per 100 000 population. In 2014 first 11 months (from January till

November) 557 new TB cases were registered. It is known that smoking is risk factor, which raises the risk 2.5 times for development of TB. Most part of TB patients is smokers. There is still no convincing proof about smoking influence on TB treatment process and result.

Aim. To explore treatment process and results between smoking and non-smoking TB patients.

Results. It is retrospective case control study that included patients who had been treated in “Centre of Tuberculosis and Lung Diseases” in the period from January 2011 to December 2012. 92 histories of lung tuberculosis patients were analysed. Cases - 50 smokers, controls- 42 non-smokers. Average age of patients was 44.7 years. In non-smokers group was 28 (66.67%) women and 14 (33.33%) men, but in smokers group was 13 (26%) women and 37 (74%) men. Average time for culture conversion in sputum smear in smokers group was 9.15 weeks, but in non-smokers group – 6.25 weeks. Comparing conversion time in sputum smear for smokers and non-smokers there is significant statistical difference ($p<0.05$). Average time for sputum culture conversion to MT negative for smokers group was 10.27 weeks, but for non-smokers – 8.64 weeks. Statistical difference significant is not proven ($p>0.05$) that smokers had taken longer time for culture conversion in sputum plating than non-smokers group. Complaints in smokers group disappear later than in non-smokers group ($p<0.05$), but decrease of complains between two groups is not statistically credible ($p>0.05$). There is not significant statistical difference ($p>0.05$), that smokers comparing with non-smokers have worse results of X-ray pictures during treatment for first three months. Average smoked pack year quantity is 18.54. There is not significant statistical difference ($p>0.05$) that if smoked pack year quantity increases for smokers it will increase time for sputum smear culture conversion, but for sputum culture conversion this correlation is credible ($p<0.05$). Smokers had worse final treatment outcomes –only 46 (92%) smokers cured, 1 (2%) stopped treatment, 1 (2%) exited country, 2 (4%) died. 40 (95.2%) non-smokers cured, 1 (2.4%) had relapse, 1 (2.4%) died.

Conclusion. Smoking has negative influence on tuberculosis treatment. Smokers who have tuberculosis are infectious for longer time and during treatment all complains decreases later despite adequate anti-tuberculosis therapy.

CHARACTERISTICS OF HERPES VIRUS INFECTED PATIENTS IN FAMILY MEDICINE

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Key words. herpes viruses, family medicine

Introduction. There are several DNA viruses that belong to herpesviridae. Most widespread among population are seven types of herpesviridae: Herpes simplex virus (HSV-1), Human herpes virus 2 (HHV-2), Varicella zoster virus (VZV), Epstein-Barr virus (EBV), Cytomegalovirus (CMV), Human herpes virus 6 and 7 (HHV-6/HHV-7). More than 90% of adults are infected with one or more types with higher incidence in immunosuppressed people. Virus usually exists in latent form for years. I analyze incidence and structure of herpes virus infected patients in family medicine.

Aim. To examine incidence of herpes virus types in family doctor's practice and to analyze connection between clinical signs, diagnosis, therapy and number of visits due to herpes infection.

Results. 1008 patient cases of Riga city family doctor's practice 'X' were analyzed. At least 18 year old patients who have had at least one visit due to herpes infection in last 7 years were included (n=50;4.96% of all cases). Females (34;68%) with mean age 33±14.2 years were more (p<0.001) than males (16;32%) with mean age 34±16.4 years. Due to herpes infection 37 (74%) patients had one visit to family doctor, but 13 (26%) patients had two or more visits. Diagnosis set only from clinical symptoms in 23 (46%) cases. In 27 (54%) cases clinical symptoms and serologic studies were used. Most frequently HSV-1/HHV-2 were diagnosed (p=0.047) in 21 (39.6%) cases; mean age 31; 11 (52%) patients had immunosuppressing disease (hepatitis B, seronegative spondylopathy, bronchial asthma, rheumatic polyneuralgia, atopic dermatitis) or condition (smoking >20 cigarettes a day, increased physical load, missed abortion, pregnancy). VZV in 13 (24.5%) patients; mean age 42. Immunosuppressing disease in 5 (38.5%) cases (bronchial asthma, systemic lupus erythematosus, chronic urticarial, hepatitis B). EBV diagnosed for 11

(20.8%) patients; mean age 27 years. Immunosuppressing disease for 3 (27.3%) patients (autoimmune thyroiditis, rheumatic polyneuralgia). CMV in 6 (11.3%) patients; mean age 41 years. Immunosuppressing disease in 5 (83.3%) cases (psoriasis, seronegative spondylopathy, bronchial asthma, rheumatic polyneuralgia). HHV-6/HHV-7 only in 2 (3.8%) patients; mean age 49 years. Immunosuppressing disease in 1 case – type 2 diabetes mellitus. Combination of more than one herpes type in 3 (6%) patients; all have immunosuppressing conditions. Specific antiviral treatment (local or systemic) was prescribed to 9 (18%) patients. Only symptomatic relief treatment for 19 (38%) patients. Both specific and symptomatic in 17 (31%) cases. 5 (10%) cases without treatment prescription.

Conclusions. In family medicine doctors practice from 1008 patient cases during 7 years 50 (4.96%) had one or more episodes of documented herpes infections. Most frequent herpesviridae type is HSV-1/HHV-2 in 39.6%. Females (68%) have more frequent herpes infections than males. 57.1% of all diagnosed cases have immune compromising diseases or conditions. But more information would be needed from patient cases to make more precise conclusions.

EPIDEMIOLOGICAL AND CLINICAL CHARACTERISTICS OF MEASLES OUTBREAK IN LATVIA IN 2014: A RETROSPECTIVE DESCRIPTIVE STUDY OF PATIENTS WITH MEASLES IN RIGA EAST UNIVERSITY HOSPITAL STACIONARY “INFECTOLOGY CENTER OF LATVIA”

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Key words. Measles, measles outbreak in Latvia.

Introduction. Measles is an acute viral disease characterized by fever, cough, coryza, conjunctivitis, an erythematous maculopapular rash, and a pathognomic enanthema - Koplik spots. In the prevaccine era, measles was common disease all over the world. Nowadays, thanks to widespread use of measles vaccine, it has led to a greater than 99% reduction in measles cases. In the recent years, many measles outbreaks

in different countries have been reported. During the past 10 years, Latvia reported only 16 cases of measles, but in 2014, an outbreak of measles virus occurred in Latvia. In total, 35 cases of measles were laboratory confirmed. Fifteen cases were hospitalized in Riga East university hospital Stationary “Infectology Center of Latvia”.

Aim. Retrospective analysis of medical history data of patients, who were laboratory confirmed with measles virus and hospitalized in Riga East university hospital Stationary “Infectology Center of Latvia” in 2014. Finding the ratio of average illness duration, hospitalization length, vaccination status, course of the disease and diagnostic methods based on the information in medical histories.

Results. All cases of measles hospitalized in “Infectology Center of Latvia” in 2014 occurred during the time period from March till June. The peak of incidence was in April, when total number of reported cases was 11 (73%), other cases occurred in March – 2 (13%), May – 1 (7%), June – 1 (7%). Among all patients 9 (60%) were female, 6 (40%) - male. The mean age of all patients – 36,6 years ($SD \pm 13,5$), youngest patient was 18, the oldest – 56. The average duration of illness – 9,1 days ($SD \pm 2,2$), mean hospitalization length – 4,7 days ($SD \pm 2,1$). In 2 (13,3%) cases complications were observed – in both of these cases pneumonia was diagnosed clinically and radiologically. Almost all cases – 13 (86,7%) had a typical course of the disease, respectively 2 (13,3%) cases were atypical and thereby were difficult to diagnose. Three different diagnostic methods were used for diagnosis confirmation. Serologic testing for measles was used for all patients. Detection of measles virus RNA in urine and nasopharyngeal smear was done and was positive in all cases – 15 (100%). Isolation and identification of measles virus in cell culture was used and was positive for 6 (40%) patients. Both diagnostic methods were also used for 6 (40%) patients.

Conclusions. According to data from medical histories of all patients, the problem of lack of information about immunization status against measles occurs. Only 3 (20%) patients were certain about their vaccination against measles. Respectively 12 (80%) patients weren't aware of their vaccination status. Epidemiological anamnesis was known in 7 (46,7%) cases, from which nosocomial transmission occurred and affected 6 (40%) healthcare workers.

BRANDED DRUGS AND GENERIC DRUGS: UNDERSTANDING THE BASICS

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Keywords. Brand, generics, drugs, differences, safety, quality.

Introduction. Every year number of generics increase, ranges of drugs become wider and it is more complicated for health care professionals to choose the right medicine for patient. From 2008 to 2013, more than 3,000 drugs had been registered in Latvia, and most of them were new generic drugs. Therefore, health care professionals could feel unsecure in the choice of medicine, because not everything new is common to knowledge.

Aim. To clarify view of practicing family physicians and pharmacists (also pharmacist assistants and students) on generics and brand drug similarity in practise and to identify respondents' knowledge about the main differences of drugs.

Results. During November 2014 and January 2015 84 family doctors and 22 pharmacy specialists were interviewed by the survey about main differences of drugs and their practise experience.

Data were collected from 106 health care specialists. 98 respondents knew main differences about generic and brand drugs – 91.7% family doctors and 95.5% pharmacists. More than half of family doctors (n=65, 77.4%) considered, that drugs are not mutually comparable (p=0.181). Family doctors more frequently named such differences as: brand drugs has clinical research (49%); active substance quality, quantity and bioavailability is safer (69%); and of course the price is consistent with the quality of research (34%). At the same time pharmacists emphasized manufacturing process (65%) and excipient better quality and quantity of active substance(76%).

79 (94.0%) of family physicians recognized, that there were needs for replacement from generic drugs to branded drugs in their practise, as a main reason of medication side effects or lack of therapeutic effect, - respectively 20.2% and 57.1%.

Very often – 81.8% of cases patients requested medication replacement due to economic conditions (72.7%), while only 9.1% patients thought that cheapest generic could achieve the same effect. In interviews 14 (63.6%)

pharmacy specialists answered that they must take responsibility for issued drugs ($p=0.656$).

Conclusion. The most part of health care professionals knew differences between brand and generics. In their opinion, brand drugs are better in research quality, manufacturing processes, and in terms of substance quality and quantity. Pharmacists were limited in their professional point of view by economic situation. Opinions about taking responsibility in pharmaceutical care about replacement of drugs were different among young and older specialists.

EFFECTS OF TRIMETHYLAMINE-N-OXIDE ON THE DEVELOPMENT OF ENDOTHELIAL DYSFUNCTION

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Key words. Trimethylamine-N-oxide, endothelial dysfunction, isolated aortic rings

Introduction. Trimethylamine-N-oxide (TMAO) is a metabolite produced from dietary choline, phosphatidylcholine (lecithin) and L-carnitine by gut microbiota and host liver. It has been shown that elevated levels of TMAO are associated with increased incidence of cardiovascular mortality, development of kidney diseases and diabetes complications. In addition, it has been demonstrated that administration of TMAO augments the development of atherosclerosis. Vascular endothelial dysfunction usually evolves before the development of atherosclerotic lesions progression and is present in all above mentioned diseases. However the effect of TMAO on the development of endothelial dysfunction has not been studied before.

Aim. The purpose of this study was to examine the effects of long-term and single TMAO administration on the development of endothelial dysfunction.

Methods. Isolated aortic rings from male Wistar rats were used to study the acute effects of TMAO on the development of endothelial dysfunction. The function of endothelium was determined before and 1 hour after the incubation in buffer solution containing 1mM TMAO. To assess the effects of chronic administration of TMAO on the development of endothelial dysfunction, male

CD-1[®] mice were used. Experimental animals were fed with Western diet (21% fat, 0.15% cholesterol) and received TMAO together with drinking water at the dose of 120 mg/kg/day. After 10 weeks of treatment, mice were sacrificed and function of endothelium was assessed in isolated aortic rings. Plasma samples were used to characterize biochemical profile and heart tissues were used to measure the tissue level of TMAO.

Results. Incubation of rat aortic rings in buffer solution containing 1 mM TMAO did not induce any significant changes in the function of the vascular endothelium. The average EC₅₀ values for acetylcholine before and after incubation together with TMAO were 35±1 nM and 46±3 nM, respectively. Treatment with TMAO for 10 weeks significantly increased TMAO amount in plasma and tissues. Plasma TMAO concentration increased 39 times and heart tissue TMAO level increased 29 times. Treatment with TMAO did not induced altered function of vascular endothelium. The average EC₅₀ values for acetylcholine in aortic rings of control group and treated group animals were 26±11 nM and 37±21 nM, respectively. In addition, administration of TMAO did not changed concentrations of glucose, free fatty acids and triglycerides.

Conclusions. TMAO does not alter function of vascular endothelium neither single nor long-term administration.

EFFECTS OF PERIVASCULAR ADIPOSE TISSUE ON ENERGY METABOLISM OF VASCULAR ENDOTHELIUM AND SMOOTH MUSCLE CELLS

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Key words. Perivascular adipose tissue, energy metabolism, smooth muscle cells, endothelial cells

Introduction. Perivascular adipose tissue (PVAT) is the fatty tissues that surround the vasculature. Recent studies have shown that PVAT produces a large number of metabolically active substances, e.g. adipokines, chemokines and hormone-like factors which regulate the vascular tone and are involved in the maintaining vascular homeostasis. In addition, it has been

shown that some of PVAT secreted substances influence the energy metabolism in muscle and liver cells. However, nothing is known about PVAT effects on energy metabolism of vascular endothelium and smooth muscle cells.

Aim. The aim of this study was to assess the effects of PVAT on the fatty acid and glucose metabolism in the vascular endothelium and smooth muscle cells.

Methods. Intact aortic rings from Wistar rats were incubated with or without PVAT in modified Krebs-Henseleit buffer solution containing 2 μM phenylephrine and $[9,10\text{-}^3\text{H}]$ palmitate (5 $\mu\text{Ci/ml}$) or D- $[\text{U-}^{14}\text{C}]$ glucose (0.625 $\mu\text{Ci/ml}$). After five hours of incubation, $[9,10\text{-}^3\text{H}]$ palmitate oxidation was determined by measuring $^3\text{H}_2\text{O}$ or D- $[\text{U-}^{14}\text{C}]$ glucose oxidation was determined by measuring the $^{14}\text{CO}_2$ in the incubation buffer solution. Aortic tissues and PVAT after the incubation were dissolved in scintillation solution to assess the accumulation of fatty acids and glucose in vascular tissues and PVAT.

Results. The metabolism rate of glucose and palmitate in PVAT was relatively low. PVAT metabolised glucose and palmitate at a rate of 2.4 ± 0.1 and 0.02 ± 0.001 nmol/mg/5h, respectively. Vascular tissue oxidated palmitate with the rate of 0.8 ± 0.1 nmol/mg/5h, but incubation with PVAT statistically significantly increased palmitate oxidation to 1.3 ± 0.1 nmol/mg/5h ($p<0.05$). The presence of PVAT did not change the uptake of fatty acids in aortic tissue. PVAT did not changed the oxidation of glucose in vascular tissues and the metabolism rates with and without PVAT were 5.4 ± 1.1 and 4.7 ± 2.0 nmol/mg/5h, respectively. PVAT did not change the uptake of glucose into vascular tissue.

Conclusion. Perivascular adipose tissue facilitates the oxidation of fatty acids in the vascular tissues and has no impact on glucose oxidation.

COMPARISON OF THE PHARMACOLOGICAL AND TOXICOLOGICAL PROPERTIES OF SYNTHETIC AND NON-SYNTHETIC CANNABINOIDS

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Key words. Synthetic cannabinoids, Cannabis, JWH-018, CB1, CB2

Introduction. Both the recreational and medical use of marijuana is on a rise in the world, with more and more western countries opening up for limited legalization. Meanwhile, producers of synthetic drugs are selling synthetic cannabinoids in the form of incense, which people smoke and inhale. The latter drugs are legal, and not fully regulated, and many patients in Europe and America are being admitted after using synthetic cannabinoids. In this thesis, the author explores the pharmacology and toxicology of both non-synthetic and synthetic cannabinoids, and compares them.

Aim. Because synthetic cannabinoids are still quite new, there is not much research and knowledge regarding the side effects of these drugs. They are also legal, making them available to not only adults, but also minors. As both psychiatric and somatic disturbances occur with use of the new synthetic cannabinoids, the adverse effects must be explored and compared with the adverse effects of the drug that is mimicked – Cannabis. The relevance is high for doctors and other health care professionals, who might work in the emergency room and will need to prescribe the correct treatment. The aim of this thesis is to highlight these problems.

Approach. A scientific literature review and comparison has been done, where the author of this thesis has searched databases to find the newest material regarding non-synthetic cannabinoids and synthetic cannabinoids. The main topics focused on have been pharmacology, toxicology and legal aspects.

Results. Many of the authors suspicions regarding synthetic cannabinoids potency-related adverse effects with respect to the side effects experienced with cannabis are suggested to be true. Synthetic cannabinoids may pose an even bigger threat to the individuals using them, than non-synthetic cannabinoids.

Conclusions. As synthetic cannabinoids are relatively new in the recreational drug market, there should be done more research on their side effects, to understand treatments to counter-act these. There should also be rigorous efforts to ban these drugs, as the producers evade laws by changing

molecular structures on their designer drugs, keeping them legal when a piece of legislation places a ban on them.

TABLET CORES FRIABILITY AND HARDNESS AS PREREQUISITE FOR FILM COATING PROCESS

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Key words. tablet cores, friability, hardness, film coating.

Introduction. Significant proportion of the tablets produced are film coated. In such case tablet consists of the tablet core and film coating. Tablet cores are coated for functional, protective and decorative purposes. To ensure the quality of film coated tablet, core must comply with intermediate product quality specification. Friability and hardness testing is a part of the inprocess control, as it affects mechanical strength of the tablet cores during the coating and final product during packaging and transporting, it also affects dissolution and disintegration parameters of final product.

Aim. The aim of the study was to investigate what are the acceptable friability and hardness limits for tablet cores to ensure the film coating quality using data acquired from JSC Grindex final dosage form validation reports, pharmacopoeias, scientific publications and pharmaceutical technology handbooks.

Results. 19 final dosage form validation reports of amitriptyline, zopiclone and bisacodol film coated tablets from JSC Grindex, 26 scientific publications and 10 literature sources were reviewed to summarize friability and hardness acceptance criteria.

Average friability results from JSC Grindex final dosage form validations reports were: amitriptyline tablet cores – 0.02 %, zopiclone tablet cores – 0.31 % and bisacodol tablet cores – 0.08 %. Average hardness results were: amitriptyline tablet cores – 76 N, zopiclone tablet cores – 45.38 N and bisacodol tablet cores – 46.48 N. The yield for film coated tablets was 99.91 % for amitriptyline, 100 % for zopiclone and 100 % for bisacodol which conforms to product acceptance criterion. Also all referenced tablets met product specification limits of the European Pharmacopoeia for dissolution and disintegration tests.

In the majority of the revised literature the friability limit of not more than 1 % was specified for tablet cores, although some documents referred to

the friability limit of 0.3 % or 0.5 %. Increasing of the hardness is one of the ways how to reduce friability.

Conclusions. Based on the reviewed data friability limit of not more than 1 % is the most commonly specified acceptance criterion used as prerequisite for tablet core film coating. Hyphenated quality tests e.g. dissolution and disintegration of film coated tablets passing acceptance criteria are supporting meaningfulness of such limit. No hardness limits were specified in the literature reviewed. Manufacturers are free to adjust hardness of tablet cores to achieve required friability.

SESSION IV

PSYCHOTHERAPY, PSYCHOSOMATICS, NEUROLOGY

PROFESSIONAL BURNOUT AMONG DOCTORS IN LATVIA

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Key words. Burnout syndrome, doctors, Maslach burnout Inventory.

Introduction. Burnout syndrome is often observed in health care professionals, especially doctors who are exposed to high risk of stress in the workplace. According to Maslach et al., burnout has three interrelated dimensions: emotional exhaustion, depersonalization and low personal accomplishment. Prolonged exposure to stress is usually the main cause of emotional exhaustion and it manifests through the loss of enthusiasm for work, feeling helpless, trapped, and defeated. Depersonalization occurs when physicians treat patients indifferently, objectify them, and develop a negative attitude toward their colleagues and profession. Inefficiency, or the lack of a sense of personal achievement, is characterized by the individual's withdrawal from responsibilities and detachment from the job. Burnout syndrome among physicians is the potential risk due to its negative impact on patient care and its quality. Therefore, it is very important to clarify the existence of burnout syndrome in doctors.

Aim. To determine existence and severity of burnout syndrome in doctors and compare existence and severity of burnout syndrome in various specialities of doctors of several hospitals in Latvia.

Methods. In this study 2 research tools were used: Demographic questionnaire and The Maslach Burnout Inventory (MBI; Maslach & Jackson, 1981). Inventory consists of 22 items and each item were evaluated in Likert 7-point scale, ranging from 0 to 6. The answers were divided into 3 subscales: Emotional Exhaustion (EE), Depersonalization (DP), and Personal Accomplishment (PA). The study received permission from the Ethics Committee.

Data were analyzed in SPSS program. Pearson correlations in SPSS program were made. In order to evaluate the consistency of the Maslach

burnout Inventory, it was found that Cronbach's alpha value is 0.85, meaning that the questions are consistent.

Results. In study participated 89 doctors of various specialities. According to results respondents were 25 to 70 years old (mean $38.1 \pm SD=12.05$), 77.5%, were female, but 22.5% male. Mean values of Emotional Exhaustion were ($M=22.06 \pm 12.05$), minimal value 0, maximal value 54. Depersonalization subscale ($M=7.64 \pm 6.6$), from 0 to 30, whereas for Personal Accomplishment ($M=35.32 \pm 8.5$), minimal value 9, maximal – 48. Results for MBI emotional exhaustion subscale shows that 32.6% of respondents and MBI depersonalization subscale 33.7% of respondents have higher scores than mean, and MBI reduced sense of personal accomplishment subscale – 32.6% have lower scores than mean, this subscale lower results indicate higher possibility of burnout, while other two subscales interpretation are traditional - higher scores mean higher possibility to burnout. In Maslach burnout Inventory comparing 3 subscales, it was noticed that there are statistically significant correlations between Emotional Exhaustion and Depersonalization ($p < 0.01$)

Conclusion. The third part of the study sample showed emotional exhaustion, depersonalization and low personal achievements, which indicates the burnout syndrome. Taking in account study's sample amount, it is necessary to continue research and to explore possible factors affecting burnout development.

TREATMENT MOTIVATION FACTORS CORRELATION AMONG DRUG AND ALCOHOL ADDICTIVE PATIENTS

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Key words. Treatment motivation, addiction.

Introduction. Motivation is factor that induces patients to seek treatment options, accomplish treatment guidelines and perform constructive activities to achieve long-term result and positive changes. It plays important role in any disease treatment, particular chronic, including addiction to psychoactive substances.

Aim. To determine whether there are statistically significant correlations in treatment motivation among drug and alcohol addicts.

Methods. In study took part 208 patients 108 of them were from Minnesota program and 100 respondents from methadone program. Such tools were used: a demographic questionnaire developed by the study authors, SOCRATES 8A/ 8D questionnaires (Miller & Tonigan, 1996), which consists of three scales: Recognition, Ambivalence and Taking steps. And “Treatment motivation questionnaire” (Ryan, Plant & O'Malley, 1995) where answers were divided into 4 subscales: External reasons, Internal reasons, Confidence and Help-seeking. Data were analyzed in SPSS program, to evaluate motivation factor correlations using Pearson correlations.

Results. In study participated 208 patients, 7 surveys were incomplete. Further were analyzed 201 surveys. Respondents were 17 to 67 years old (mean 38.24 ± 10.28), 36.3% women and 63.7% men. Respondents were divided into 2 groups 53% were drug addicts, 47% - alcohol addicts. Analyzing SOCRATES 8A/8D questionnaire for drug addicts we observed mean values in each subscale – Recognition ($M=31 \pm 3.31$), Ambivalence ($M=16.46 \pm 2.41$) and in Taking steps ($M=34.4 \pm 3.26$). Whereas for alcoholics in Recognition scale ($M=32 \pm 3.23$), Ambivalence ($M=17.27 \pm 2.21$) and Taking steps ($M=34.08 \pm 4.08$).

According to SOCRATES survey there are statistically significant difference in Recognition and Ambivalence scales ($t=0.001$ and $t=0.032$) and there are higher mean values for alcohol dependent patients. In drug addicts as well as alcohol addicts were found statistically significant correlations between Recognition and Ambivalence as well as Taking steps ($p<0.01$). Also, a positive correlation were observed between Taking steps and Ambivalence, this means that the stronger results in Taking steps, more pronounced Ambivalence.

In both groups, drug and alcohol addictive patients, were found statistically significant correlations ($p<0.01$) between External reasons and Internal reasons. Negative correlations were observed in drug-addicts patients between External reasons and Confidence (-0.49^{**})

Conclusion. Alcoholics showed higher recognition of their addiction problems with statistically significant results, which corresponds to data from other researches. It could be explained by alcoholic patients' personality being less damaged than drug addicts', allowing to actually admit their addiction and start treatment.

Results of ‘Treatment motivation questionnaire’ showed a statistically significant positive correlation between External reasons and Internal reasons,

meaning- the stronger the external motivation is, the stronger will the internal motivation be.

Considering that Confidence scale indicates expectations regarding treatment outcome, it is possible to observe, that the negative correlation between External reasons and Confidence reveals the close connection for addicted patients between their motivation and prognosis of treatment, respectively, the stronger the outer motivation, the worse the prognosis of positive outcome after treatment.

ETIOLOGY AND CLINICAL SYNDROMES OF LACUNAR STROKE

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Key words. lacunar infarct, etiology, risk factors, syndromes

Introduction. Twenty five percent of ischemic strokes are lacunar in type, also it is part of the deeper process which affects brain but the cause and pathogenesis remains unclear. This probably leads to suboptimal prevention and treatment. Lacunar syndromes have role in diagnostic and choosing therapy, as they could be specific to lacunar stroke.

Aim. To evaluate risk factors, burden of lacunar strokes and periventricular leukoencephalopathy, therapy and its effectiveness, secondary prophylaxis recommendations and lacunar syndromes among lacunar stroke patients in Pauls Stradins Clinical University Hospital.

Results. 102 patients, mean age 69.38 (min. 34, max. 91). From risk factors arterial hypertension had 89.2% (n=91), diabetes had 11.8% (n=12). Atrial fibrillation had 13.7% (n=14) and cortical ischemic stroke in history had 19.6% (n=20). GFR was under 60ml/min to 8.8% (n=9) patients and proteinuria had 13.7% (n=14) patients. Arteria carotis communis intima media (ACC-IM) thickness was under 0.9mm only 11.8% (n=12) of patients and ACC stenosis over 50% had 14.7% (n=15). LDL over 3mmol/l had 38.2% (n=39) and cholesterol over 5mmol/l had 42.2% (n=43). Most dominant

syndrome was pure motor stroke 43% (42.2%). Pure sensory stroke 8.8% (n=9), sensorimotor stroke 12.7% (n=13), ataxic hemiparesis 14.7% (n=15), dysarthria-clumsy hand syndrome 6.9% (n=7), atypical lacunar syndrome 14.7% (n=15). Antiplatelet drugs in acute therapy were used in 93.1% (n=95) cases. Intravenous thrombolysis was chosen only in 2.9% (n=3) cases and Warfarin was used in 2% (n=2), and new anticoagulants weren't used at all. Syndromes reduced or disappeared in most of cases. In 90.2% (n=92) for secondary prophylaxis were recommended antiplatelet drugs but in 8.8% (n=9) anticoagulants. Anticoagulants were used for therapy and prophylaxis to patients with cardioembolic stroke. 34.3% (n=35) of patients didn't have any lacuna in CT, 23.5% (n=24) had 1 lacuna, 38.2% (n=39) had 1-5 and 3.9% (n=4) had more than 5 lacunas. 43.1% (n=44) had periventricular leukoencephalopathy.

Conclusions. Results show that most common risk factor is hypertension. ACC-IM thickness may be associated with lacunar strokes. Lacunar strokes often combine with periventricular leukoencephalopathy without atherosclerotic changes in blood vessels. It shows that lacunar strokes are part of small vessel disease, which can be subclinical for a long time. Pure motor stroke is most prevalent syndrome. Antiplatelet drugs are most used therapy in case of lacunar stroke.

EVALUATION OF NO EVIDENCE OF DISEASE ACTIVITY IN MULTIPLE SCLEROSIS PATIENTS IN LATVIAN MARITIME MEDICINE CENTRE

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Keywords. Multiple sclerosis, autoimmune, immunomodulating therapy.

Introduction. Multiple sclerosis (MS) is chronic, inflammatory autoimmune demyelinating disease affecting central nervous system (CNS), which is the main reason of disability in young adults. MS affects more than 2.5 million people worldwide. Unfortunately, MS is not curable, though with help of immunomodulating therapy (IMT) it is possible to help MS patients to avoid clinical activity. The main aim of IMT is to prolong No Evidence of Disease Activity (NEDA) period.

Aim. The aim of the study is to assess and compare IMT effect on relapses, MRI activity (contrast-enhancement, new plaques), disability progression - Expanded Disability Status Scale (EDSS), NEDA assessment.

Material and methods. 474 MS patients were included in the study, they started IMT at Latvian Maritime medicine centre Multiple sclerosis centre (LMMC MSC) in period from 2008 till 2012. Medical data were collected in archive of LMMC MSC and analysed using SPSS22. NEDA means absence of relapses, no sustained EDSS score progression and no new/enlarging and/or contrast enhancing lesions on MRI.

Results. 72.6% of 474 MS were women, 27.4% - men. Form: cerebrospinal (CS) 93.5%, cerebral 6.3%, spinal 0.2%. Course: relapsing-remitting (RR) 76.6%, secondary progressive (SP) 21.9%. primary progressive (PP) 0.4%, clinically isolated syndrome (CIS) 0.8% benign course of the disease 0.2%.

IMT was received by 88% of all patients. IMT: 27.4% Rebif®, 20% Betaferon®, 18.3% Avonex®, 15.9% Copaxone®, 14.4% Extavia®, 4.1% Mitoxsantrone. 29.1% have changed or discontinued IMT. Most changed - Rebif® 31.9%, Betaferon® 30.4%, Avonex® 19.6% and Extavia® 2.2%, mainly because of ineffectiveness (36,2%) and side effects (26,1%).

Patients without IMT more often experienced relapses (21.2% vs. 10.3%, $p=0.004$) disability progression (68.4% vs. 52.8%, $p=0.04$) and MRI activity (52.6% vs. 50.4%, $p<0.005$). 72.6% patients are without relapses, 24.9% without disability progression, 24.3% have neither (no clinical activity). In 'no clinical activity' group 40% are without MRI activity.

Regarding absence of clinical activity, Avonex® and Copaxone® proved to be more effective (36.8%, 31.8% respectively), followed by Extavia® (28.3%) and Rebif® (27.2%) ($p<0.005$). Only 16.9% of patients receiving Betaferon® were without clinical activity. Extavia® group had disability progression less often than other IMT (35%, $p<0.005$). Avonex® group had MRI activity less often than other IMT (44.7%, $p<0.005$).

8.6% patients meet NEDA criteria, 73.2% female, 26.8% male. Two of them don't receive IMT. Proportion of NEDA patients in following IMT groups: 13.3% in Extavia® group, 12.3% in Rebif®, 11.8% in Avonex®, 6.1% in Copaxone®, 4.8% in Betaferon®.

Conclusions. Patients with IMT are less likely to experience relapses, disability progression and MRI activity. All IMT tend to prevent relapses, nevertheless they have less impact on MRI progression. Avonex® is the most potent on decreasing MRI activity, Extavia® – on disability progression. Almost every third patient changed or discontinued IMT. Only 8.6% of all

patients meet NEDA criteria, most of them being from Extavia® group, proportionally.

DEPRESSION AND ITS CORRELATION WITH THE RISK OF CARDIOVASCULAR MORTALITY IN CARDIOLOGY PATIENTS

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Keywords. depression, mental health, cardiovascular mortality risk, cardiovascular risk factors, psychosomatic medicine.

Introduction. Cardiovascular diseases (CVD) remain the leading cause of premature death globally. According to the WHO, 17 million people die annually from CVD and it is estimated that the number of deceased will increase to reach 23.3 million by 2030. Meanwhile, depression is a disease, which, according to the prognosis of the WHO, will become the leading cause of disease burden globally by 2030. A large body of evidence has shown various associations between depression and CVD. The results of this study will contribute to the current understanding of the association between depression and CVD mortality risk and will provide scientific basis for the discussion concerning the necessity of early psychotherapeutic intervention.

Aim. The aim of the work is to examine the prevalence and correlation of depression, CVD mortality risk and CVD risk factors in cardiology patients at Pauls Stradins Clinical University Hospital.

Materials and methods. The study sample consists of 100 patients from the Department of Cardiology. CVD mortality risk was assessed according to the SCORE chart, by interviewing patients and by examining their medical records. Depression was assessed by internationally recognized PHQ-9 score in Latvian and Russian language. Statistical data was processed in IBM SPSS Statistics.

Results. There is a statistically significant positive correlation ($r=0.47$, $p<0.05$ in men vs $r=0.51$, $p<0.05$ in women) between depression and CVD mortality risk in cardiology patients. Furthermore, depression was positively and significantly associated with age ($r=0.40$, $p<0.05$ vs $r=0.42$, $p<0.05$), smoking ($r=0.32$, $p<0.05$ vs $r=0.33$, $p<0.05$), systolic blood pressure ($r=0.31$, $p<0.05$ vs $r=0.37$, $p<0.05$), and positively but insignificantly with total

cholesterol ($r=0.25$, $p>0.05$ vs $r=0.26$, $p>0.05$). Depressive symptoms were observed in 61% of patients, of which 23% have clinically significant depression: 14% - moderate depression, 7% - moderately severe depression, and 2% - severe depression. An increased risk ($>5\%$) of CVD mortality was found in 26% of patients.

Conclusions. Depression is directly associated with CVD mortality risk and CVD risk factors. At least 23% of patients have clinically significant depression and should be provided pharmacotherapy and/or psychotherapy. In addition, 26% of patients have an increased risk of cardiovascular death. The results of this study suggest that a multidisciplinary psychosomatic approach should be considered for all cardiology patients.

A RETROSPECTIVE ASSESSMENT OF SURGICAL AND CONSERVATIVE TREATMENT FOR PATIENTS WITH LUMBAR INTERVERTEBRAL DISC HERNIAS IN RECUH STATIONARY “GAĪĻEZERS” IN 2014

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Key words: lumbar, disc, hernia, surgical, conservative.

Introduction: A herniated intervertebral disc usually affects people of working age and the most common localisation is in the lumbar region. When a disc herniates, it can cause pain in the lower back and if a nearby nerve root is involved, it can lead to pain, sensory and motor disturbances in the legs or even a disorder of the pelvic organs. The first choice treatment for this condition is conservative, but if that fails an operation might be needed.

Aim: The aim of the study is to retrospectively evaluate the efficiency of treatment for symptomatic lumbar disk hernias by looking at patient complaints before and after conservative and surgical treatment.

Results: The total number of patients in the study is 366, of which 251 (68,6%) are conservative and 115 (31,4%) are surgical, 186 are women and 180 are men, with the average age of 49 years. Conservative treatment was received by 115 men, average age 44.9 years, and 136 women, average age 52.8. For men/women L4 was affected in 48%/47% and the L5 in 33%/24% of the cases. Complaints before men/women – back pain 99%/97%, leg pain

87%/88%, sensory disorder 29%/43%, motion disorder 29%/43%, urinary disorder 1%/2%.

Improvement from those affected men/women- back pain 84%/94%, leg pain 85%/98%, sensory disorder 83%/88%, motion disorder 97%/78%, urinary disorder 100%/100%. Surgical treatment was received by 65 men, average age 49 years, and 136 women, average age 48. For men/women L4 was affected in 50%/63% and the L5 in 41%/29% of the cases. Complaints before men/women – back pain 98%/92%, leg pain 99%/100%, sensory disorder 82%/86%, motion disorder 65%/46%, urinary disorder 9%/4%.

Improvement from those affected men/women- back pain 94%/92%, leg pain

92%/98%, sensory disorder 72%/86%, motion disorder 74%/58%, urinary disorder 100%/100%. This study also found that there is a correlation between people getting conservative treatment for the first time and staying in the hospital longer than people who have had conservative treatment before by 6,5 days on average ($p < 0,023$).

Conclusions: The efficiency of conservative and surgical treatment is similar and very good for symptoms like back pain, leg pain and urinary disorder. The research also shows that conservative treatment is more efficient for sensory and motion disorders. Patients with repeated conservative treatment had shorter hospital stay, than patients that had received treatment for the first time.

The result of this research is without looking at the severity of the symptoms before and after treatment, so it does not demonstrate the amount of improvement for the patient and more research could be done in that aspect.

**DETECTION OF ANTIGANGLIOSIDE ANTIBODIES:
CLINICAL SIGNIFICANCE FOR PATIENTS IN PAULS STRADINS
CLINICAL UNIVERSITY HOSPITAL 2014**

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Key words. Anti-ganglioside antibody, neuropathy, cytoalbuminologic dissociation

Introduction. Gangliosides are a family of glycosphingolipids broadly distributed on plasma membrane components in the nervous system. Autoantibodies most commonly found in association with neuropathies are GM1, GQ1b, asialo-GM1, GM2, GD1a and GD1b. The major diagnostic role is set for two of them – anti-GM1 and anti-GQ1b. Antiganglioside antibodies are used as differential diagnostic markers for mainly Guillain-Barre´ syndrome (GBS), multifocal motor neuropathy (MMN) and Miller-Fisher syndrome (MFS) in case of a clinically presented peripheral neuropathy.

Aim. Our aim was to study the clinical importance of antiganglioside antibodies for patients: impact on patient's diagnose and specific therapy as well as their relevance as a diagnostic marker together with other clinical and laboratory findings.

Results. Retrospectively we analysed patients evaluated for antiganglioside antibodies during 2014 in Pauls Stradins Clinical University Hospital. Overall, 43 patients aged from 23 - 78 years were enrolled in the study. 14 patients (32.6%) were positive for at least one antiganglioside antibody. 7 patients had positive reaction against a single ganglioside, 5 patients – against two gangliosides, 2 patients - against three gangliosides. 29 patients (67,4%) were found negative for all of the antibodies. Anti-asialoGM1 (8 cases) and anti- GM1 (7 cases) were the most frequently found antibodies. From paraclinical studies, cerebrospinal fluid examination was done in 23 patients; cytoalbuminologic dissociation was present in 15 out of 23. As a distinct group, six patients were chosen who had both - antiganglioside antibodies and cytoalbuminologic dissociation in CSF. From 14 antibody positive patients only 6 patients had clinically and neurographically approved polyneuropathy (2- GBS, 1-MFS, 2- motor sensory

axonal demyelinating neuropathy, 1 – pure sensory polyneuropathy), rest of the group had cerebrovascular diseases, neuroinfections or radiculopathies. Specific treatment was given to 5 antibody-positive acutely presenting patients (2 – i/v methylprednisolone; 1- IVIG; 2 – IVIG and plasmapheresis therapy).

Conclusions. Antiganglioside antibodies are not a unique marker for autoimmune neuropathies, suggesting the need for the development of specific criteria for the use of antiganglioside antibodies in differential diagnostics. The establishment of an algorithm for cases when patients have one of the above-mentioned diseases is crucial. In our study, a noteworthy connection between cytoalbuminologic dissociation in CSF and antiganglioside antibodies positive patients was found, proving it to be a potential criterion for more studies in the future. Further studies for the evaluation of antiganglioside antibodies in relation to other nosological units are necessary.

WAKE-UP STROKE: TREATMENT AND OUTCOME

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Key words. Wake-up stroke; thrombolysis; severity

Introduction. Wake up stroke is an ischemic stroke which occurs during sleep and patients realize stroke symptoms shortly after waking up. Up to 25 % of all strokes occur during sleep. There are observations that point toward strokes during sleep being more severe and having worse clinical outcome. As a result of unknown onset of symptoms, this large group of patients is excluded from thrombolysis. To identify potentially salvageable tissue in wake-up stroke patients who may benefit from thrombolysis, multimodal imaging approaches such as perfusion CT, should be performed.

Aim. To analyze incidence of wake-up strokes and reperfusion treatment outcome in patients with wake-up strokes.

Results. Retrospective study assessed all of patients medical documentation in Pauls Stradins Clinical University Hospital Clinic of Neurology during the period from 1 January 2014 to 31 December 2014. 85 patients met the criteria of wake-up stroke – acute cerebral stroke with neurological defects noticed upon waking. The incidence of wake up stroke was 7,2% (85) out of all 1185 patients. The average age was 71,7 years, women were slightly older than men (73,4 and 69,6 years old). There were slightly more women in wake up stroke group – 55,3% (47). Compared to the known onset time stroke group, age and sex distribution appeared to be similar. NIHSS (National Institutes of Health Stroke Scale) on hospital admission were greater in wake-up stroke group compared to known onset time stroke patients, respectively, 10,6 and 8,8, indicating that wake up stroke may be clinically more severe. It also evidenced by the longer hospital stays – 10,0 days, compared to the known onset time stroke patients – 9,6 days. 13% (11) of 85 wake-up stroke patients were treated using reperfusion therapy such as thrombolysis or/and thrombectomy. Average NIHSS score in this group on hospital admission was 12,5 but in group without reperfusion therapy – 10,1. Reperfusion therapy improved neurological function on discharge – NIHSS decreased by 5,9, while in patients without treatment, just by 4,5. Favorable outcome defined by modified Rankin Scale by a score of 0-3 were more frequently observed in patients who received reperfusion, compared to group where it was not used, respectively 64% and only 49% of cases. 8 patients died in a group that didn't receive reperfusion therapy and none in reperfusion therapy group.

Conclusions. Wake-up stroke patients may benefit from reperfusion therapy, achieving significant improvement, if correctly selected using perfusion CT.

SUPERSTITIONS: STRUCTURE AND SOURCES

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Key words. superstitions, superstitious beliefs, superstition's source, superstitions' structure.

Introduction. Scientific discoveries, rational explanations mean nothing when it's about superstitions as the psychological phenomenon which pushes an individual to believe that two independent events are connected and could influence the outcome of any important situation of individual's life.

On the one hand, superstitions and superstitious beliefs are so common when it's about observing an individual in his everyday life, life that has too much events that stay unexplained by logic, so the interpretation of cause and consequences is wrong. On the other, superstitions are so rare when it's about scientific researches, because there is a lack of valid measurement instruments, to moreover, cultural influence is too strong to adapt any method that was successfully used in any other research which was made on other cultural sample.

Aim. Research students' superstitions as the psychological phenomena and shed a light on its structure and sources. In other words, the aim of the present study is to find out where does it come from, and how the diversity of superstitions (superstitious beliefs) can be structured into complete model.

Materials and methods. 152 respondents took a part in the current, study, according to the aim of the research respondents were asked to name three superstitions (superstitious beliefs) they believe the most and how were they acquainted with the superstitions they believe in.

After all respondents filled the questionnaire all the qualitative data set was transformed into quantitative data set.

All superstitions (superstitious beliefs) were structured according to the model, which was introduced by Žeželj, Pavlović, Vladislavljević, Radivojević (2009):

- Unspecified Bad Consequences

- Unspecified Good

- Protective Rituals

- Specific Consequences

All the answers about superstitions (superstitious beliefs) source were structured into groups that were based on collected data.

Results. The results indicate that dominant structure of superstitions on the present sample is "Unspecified Bad Consequences", then follows "Protective Rituals" and "Specific Consequences" and the last common is "Unspecified Good Consequences".

Answering the question about the source of superstitions, the results indicate that basic sources of superstitions are parents, grandparents, other relatives, friends/ mates, internet, TV.

Conclusion. Interpreting current results, it's clear that respondent tend to belief in superstitions that have a negative valence which is based on a negative prediction about the situation's outcome. The fact that the next common structure is "Protective Rituals" enhances the importance of superstitions' negative valence and respondent's wish to reduce anxiety, fear

and insure positive outcome of situation. The fact that the main sources of superstitious beliefs are parents and grandparents indicates that present phenomenon is a part of socialization on its micro level, internet, TV indicates the importance of informational technologies.

THE RISK FACTORS AND COURSE OF PROGRESSIVE CEREBRAL INFARCT

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Key words: Progressive Cerebral Infarct, Risk Factors, Course

Introduction. In most people who have had a cerebral infarct (CI), loss of function is usually greatest immediately after the stroke occurs. However, in about 15 to 20%, the stroke is progressive, causing greatest loss of function after a day or two. This type of stroke is called an evolving or progressive stroke. Progressive stroke is more common in hemorrhagic stroke type. However 20% of ischemic stroke patients have progressive stroke. However, the worsening of the neurologic deficit is not synonymous with progression of ischemia or enlarging tissue necrosis, because some patients deteriorate as a result of systemic causes such as, arterial hypertension, infection and even from applied therapy.

Aim. To find out progressive CI incidence in clinic and to determine the factors which are the cause of CI symptom progression.

Results. There were less progressive CI patients with atrial fibrillation and with cardioembolic CI ($p < 0.05$), but more with atherothrombotic CI ($p < 0.05$). Brachiocephalic artery pathology were observed less frequently in progressive CI group than in control group, accordingly 67% and 81.8% ($p = 0.025$). We observed a tendency towards progression of CI with clinically significant artery occlusion or stenosis. There were significant variation in progression of CI with diabetes in CI progressing group 19.3% and in control group 9.1% ($p = 0.052$). We observed an association that prescribing clonidine to reduce blood pressure in prehospital phase may lead to CI progression compared to control group in CI progressing group 19.3% and in control group 9.1% ($p = 0.052$). Mannitol was used in 59.1% in progressive CI group and

18.2% in control group ($p = 0.00$). Intrahospital pneumonia was observed more commonly in progressive CI group than in control group, accordingly 11.4% and 1.1% ($p = 0.005$). The progression of neurologic deficit was observed in first 48h (62.5%) or in first 72h (30.7%).

Conclusions.

Factors that may precipitate CI progression are atherothrombotic CI subtype, clinically significant artery occlusion and diabetes.

There is an implication that prescribing clonidine in prehospital phase may lead to CI progression.

Pneumonia may precipitate CI progression.

CI progression is more commonly observed in first 72 hours.

THE IMPACT OF THE LOCATION OF SPONTANEOUS INTRACEREBRAL HEMORRHAGE ON THE CLINICAL OUTCOME

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Key words. Spontaneous intracerebral hemorrhage, location, outcome.

Introduction. Spontaneous intracerebral hemorrhage is a hemorrhage within the brain parenchyma. It is the second most common form of stroke (15-30%), but is associated with the highest mortality rate. SpICH is twice as common as subarachnoid hemorrhage.

Aim. The aim of the study is to compare the impact of the location of SpICH and ICH score on the clinical outcome, who was treated in Pauls Stradins clinical university hospital department of Neurosurgery for the time period between 01.07.2013. and 31.12.2014.

Results. Retrospective study of 188 conservatively treated patients medical records. The average age of the patients was 66 years old (range 28-94).

All patients were divided in 4 groups according to the location of the hemorrhage: lobar, in the basal ganglia, cerebellar and in the brainstem. The clinical outcome was divided in 3 groups: patients were discharged, were transferred to another hospital and the third patients group died.

Lobar hemorrhage was diagnosed in 38,1% of cases. 82,4% of the patients with ICH score 0 were discharged, 17,6% were transferred to another hospital. 63,6% of the patients with ICH score 1 were discharged, 36,4% - were transferred. In cases with ICH score 2 28,6% of the patients were discharged and 35,7% were transferred. In 40% of the cases with ICH score 4 patients were transferred to another hospital. Mortality rate with ICH score 0 and 1 was 0%, 35,7% – with ICH score 2, 100% mortality were observed in cases with ICH score 3 and 60% – with ICH score 4.

SpICH in the basal ganglia was diagnosed in 57,1% of cases. 62,9% of patients with ICH score 0, 46,6% – with ICH score 1 and 19% – with ICH score 2 were discharged. Transferred to another hospital were 31,4% of patients with ICH score 0, 50% of patients with ICH score 1 and 22,2% of patients with ICH score 3. Mortality rate in cases with ICH score 0 was 5,7%, with ICH score 1 was 9,1%, with ICH score 2 – 27,8% and with ICH score 3 – 77,8%.

Spontaneous intracerebellar hemorrhage was diagnosed in 2,9% of cases. 50% of patients with ICH score 1 were discharged, the other 50% of patients were transferred. One patient with ICH score 2 was transferred to another hospital, the second with the same score died.

SpICH in the brainstem was in 1,9% of cases. Mortality rate was 75% (all with ICH score 2), the other 25% had ICH score 1 and were discharged.

Conslusions.

The most common location of the SpICH is the basal ganglia.

With the equal ICH score in all locations, the better clinical outcome was in cases with the lobar hemorrhage, worse results was in brainstem SpICH cases.

The highest mortality were observed in a brainstem SpICH cases.

Cerebellar SpICH was diagnosed only in 2,9% cases and have a low mortality risk.

**SPONTANEOUS INTRACEREBRAL HEMATOMAS RISK
FACTOR EVALUATION IN PAULS STRADINS CLINICAL
UNIVERSITY HOSPITAL NEUROSURGERY CLINIC**

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Key words. Spontaneous intracerebral hemorrhage, risk factors.

Introduction. Spontaneous intracerebral hematomas (SpICH) are hemorrhagic stroke in brain parenchyma. SpICH is the second most common type of stroke, found in 12 people out of 100 000 in a world per year. SpICH is serious health condition which is related to a poor recovery prognosis, as well as with high levels of mortality. There are known factors that increase risk of SpICH: age, sex, race, arterial hypertension, previous cardiovascular events, alcohol and drug abuse, liver dysfunction.

Aim. Explore incidence of risk factors of SpICH in population of Pauls Stradins Clinical University Hospital (PSCUS) patients.

Results: Retrospective study of 234 patients medical records (for a period between 01.07.2013. and 31.12.2014). Included only patients with no underlying vascular pathology. All patients were screened for a presence of 5 risk factors, which increase SpICH incidence: age, sex, arterial hypertension, liver dysfunction, alcohol abuse, history of CVA events.

From all patients included in study 51,28% were men and 48,72% were women.

Average age of patients were 66 years (range 28-94). All patients were divided into 2 groups: age up to 55 years and above 55 years. In the first group there were 61 (26,07%) patients, in the second group - 173 (73,93%) patients.

Arterial hypertension wasn't diagnosed in 11 (4,7%) patients, 23 (9,83%) patients had a history of the primary arterial hypertension (PAH) stage 1, 147 patients - PAH stage 2 and 53 (22,65%) had severe PAH (stage 3).

Past medical history of CVA was found in 41 (17,52%) patients.

Liver function damage was defined as increased levels of ALAT, ASAT and thrombocytopenia – were diagnosed in 46 (19,66%) patients.

Chronic alcohol abuse was detected in 11 (4,7%) patients.

Conclusions:

According to the literature SpICH is more common in men over age 55 years. Our results show equal distribution of SpICH between genders after the age of 55 years.

AH plays a significant role in SpICH disease, (PAH wasn't diagnosed only in 11 patients). The study also showed that most commonly PAH was at the 2 stage (62,82%).

Liver functional damage in patients with SpICH is less frequent, because only in 19,66% of all patients were ascertained changes in these indicators.

From anamnesis previous history of CVA was ascertained even rarer, only in 17,52% of cases.

Chronic alcohol abuse was detected in 4,7% of all cases.

CONSTIPATION IN INPATIENTS WITH SCHIZOPHRENIA

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Key words. Constipation, schizophrenia, antipsychotics, diet, physical activity.

Introduction. Compared to general population people with psychiatric disorders develop physical illness more often (Sartorius, 2007). Risk is especially high in schizophrenia patients and could be attributable to poor lifestyle choices like smoking, low physical activity and neglect for their health (Carney *et al*, 2006). These patients also often have diabetes, hypertension, dyslipidemia and high Body Mass Index (BMI, Correll *et al*, 2007). Patients with schizophrenia have 2-3 times higher risk for premature death compared to general population. Suicide is the most common cause of death; nevertheless natural causes make a large part as well, for instance cardiovascular disease (Saha *et al*, 2007). Some physical health problems haven't received as much attention, like constipation. Some of the most serious complications include ileus and perforation. There are several factors that could predispose schizophrenia patients to constipation, like medication, especially antipsychotics (Hert *et al*, 2011).

Aim. The aim of this study was to estimate prevalence and possible contributing factors of constipation in patients with schizophrenia currently being treated in psychiatric hospital. Patient interview was performed using

questionnaires. Rome III Diagnostic Questionnaire (The Rome Foundation, Inc.,2006) to evaluate constipation. Dietary Instrument for Nutrition Education (DINE, Roe *et al*, University of Oxford, 1994) was used to assess dietary habits, measuring three categories (fiber, fat, nonsaturated fat) in points derived from questionnaire. Level of physical activity was evaluated using International Physical Activity Questionnaire short form for last 7 days (IPAQ Research Committee, 2001). List of currently used medication was obtained from patient case records as well.

Results. Together there were 81 participants, of them 38 women and 43 men. Mean age was 44,86 years ($M=44.86$, $MD=41$, $SD=13.79$). 32.1% ($n=26$) of total participants had constipation currently or during last 3 month period. There was no difference between genders and prevalence of constipation wasn't more frequent with increasing age ($p>0.05$). In total 39.5% had low, 37% had moderate and 23.5% had high physical activity level. There was no correlation between rate of total physical activity and constipation ($r= -0.134$, $p>0.05$). Fiber intake was lower in constipation group ($M=31.12$; $SD=13.76$) than non-constipation group ($M=35.6$; $SD=12.77$), but it wasn't statistically significant ($U=588$; $p=0.199$). It was similar for fat intake ($M=28.88$; $M=31.07$; $p=0.392$). Both groups didn't differ in typical and atypical antipsychotic use.

Conclusions. In the studied group of patients one third had constipation currently or during last 3 month period. There was no significant correlation between prevalence of constipation and decreased physical activity. Although fiber and fat intake was lower in constipation group, it wasn't statistically significant. Medication use didn't differ significantly in both groups. It can be assumed that constipation is caused by multiple factors and their combination in schizophrenia patients. Therefore more extensive research is needed to evaluate contributing factors for constipation in schizophrenia patients and to possibly increase their quality of life.

TIME SPENT IN DIAGNOSING ACUTE ISCHEMIC STROKE: A RETROSPECTIVE SINGLE CENTRE STUDY

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Key words. Ischaemic stroke, door-to-ct, thrombolysis.

Introduction. The “best therapy” for stroke is preventing it in the first place. In the case it has already occurred, timely action and orchestrated work of emergency medical services together with physicians and radiologists at the admissions department is vital. The most effective therapy for eligible patients suffering from acute ischemic stroke is thrombolysis (tPA), and it provides best results when administered in less than three hours from the onset of stroke. Another condition with similar clinical features – brain haemorrhage – has to be excluded using radiologic imaging techniques e.g. computed tomography (CT). Given the narrow available time-frame, every minute spent in setting the correct diagnosis is crucial. The current guidelines for early management of patients with acute ischemic stroke (provided by American Heart Association/ American Stroke Association) recommend an initiation of a CT scan within 25 minutes and start of the tPA therapy within 60 minutes from arrival at the emergency department.

Aim. We set out to investigate time spent in each of steps from admission (*door*) to physical examination by a neurologist (*physician*), to CT-scan, to thrombolytic therapy (*needle*) where applicable. Our main hypothesis states that *door-to-CT*, *door-to-physician*, and *door-to-needle* (where applicable) times are not affected by time of the day (office-hours vs. off-hours) or weekend (working days vs. weekends). This thesis will also give an overview of median values of above mentioned measures, enabling a comparison to similar studies from abroad.

Results. After excluding incomplete case histories, data set contained information about 53 patients treated with tPA and 450 treated conservatively. The median *door-to-physician* time was 8 minutes for tPA group and 12 minutes for others, median *door-to-CT* time 45 and 70 minutes accordingly. Median *door-to-needle* time was 100 minutes. *Door-to-CT* and *door-to-physician* time across all patients are both affected by weekends (*Mann-Whitney*, $p < 0.01$), but are not affected by office hours ($p > 0.3$). *Door-to-needle* time in patients treated with tPA was not affected by weekends or office hours ($p > 0.1$). Whilst *door-to-physician* time for the tPA group was within the

advised time-frame in the majority of cases (68%), it appears that *door-to-CT* and *door-to-needle* times exceeded the recommended time-frames in all of the reviewed cases.

Conclusions. We must reject our hypothesis and conclude that weekends affect the in-hospital delay. In comparison to available literature, median *door-to-CT* and *door-to-needle* time was rather long and it is therefore advised to seek measures of improving it, e.g. by employing *stroke pathways* or pre-hospital alarming systems that have been shown to reduce intra-hospital delays.

WEST SYNDROME IN LATVIA (2004-2014)

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Keywords. West syndrome, infantile spasms, hypsarrhythmia, etiology.

Introduction. West syndrome is an age-dependent multi-etiological epileptic syndrome, characterized by epileptic spasms and chaotic EEG abnormalities and psychomotor deterioration. Spasms are brief axial movements, lasting 0.2-2 s, more often in flexion than in extension. The incidence of West syndrome ranges between 2.9-4.3 per 100,000 live births. The age of onset of epileptic spasms peaks between 3 and 9 months, in Latvia average age – 6,2 months. There are about 3-4 new cases per year in Latvia. The underlying etiology is classified into three groups – prenatal, perinatal and postnatal group. The most common etiologies of West syndrome are hypoxic-ischemic encephalopathy, tuberous sclerosis complex and chromosomal pathologies.

Aim. Our aim was to examine the underlying etiology of infantile spasms cases in Latvia for the time period from 2004-2014.

Results. 28 infants were enrolled in the study, etiology was prenatal in 9, perinatal in 15, postnatal in 3, and 1 other. Etiologies were: prenatal group - 1 (3,6%) corpus callosum hypoplasia, 4 (14,3%) tuberous sclerosis complex (TSC), 3 (10,7%) chromosomal, 1 (3,6%) Dandy Walker malformation; perinatal group - 13 (46,4%) hypoxic-ischemic encephalopathy (HIE), 1 (3,6%) intracerebral hemorrhage (ICH), 1 (3,6%) ischemic stroke 1; postnatal group - 1 (3,6%) herpes simplex meningoencephalitis, 2 (7,1%) postnatal

hypoglycemia. Children's cerebral palsy was diagnosed in 7 (25%), spastic form in 6 (21,4%), mixed in 1 (3,6%) cases. CDKL 5 (gene mutation associated with infantile spasms) was diagnosed in 2 (7,1%). One patient with Angelman syndrome and infantile spasms was found. This association is very rare, there was EEG with hypsarrythmic-like features also known as pseudo-hypsarrythmia.

Conclusions. 1. The average age of onset of epileptic spasms in Latvia is 6,2 months.

2. The most common etiology of infantile spasms is hypoxic-ischemic encephalopathy (HIE).

3. The most common etiologies of West syndrome in Latvia are similar as described in other studies worldwide.

STUDENTS COMMUNICATION ABOUT SEXUALITY WITH DOCTORS

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Keywords. University students and sexuality; Sexual communication;

Introduction. Communication about sexual life and sexuality is often one of the most emotionally challenging aspects of a relationship. Sexuality is an important social issue, which is constructed by gender, culture, religion, social norms, emotions and wellbeing as well.

Aim. The aim of the study was to find out whether the students in Latvia talk about sex life with doctors and to determine the factors that are associated with the communication on sexual life.

Results. A cross sectional study was conducted among students from 21 higher education institutions in Latvia from December 2014 to January 2015. Analyzed samples were 1806 correctly filled self-reported questionnaires. Students were aged 18 - 25, 69,2% females and 30,8% males, 31,6% were medical students and 68,4% non-medical students. 75% females and only 29% males completely agreed or rather agreed that they would like to talk about

sexual topics to family doctor ($p<0,05$). Medical students rather (65%) than non – medical students (58%) would talk with family physician ($p<0,05$). If female students had a question about sex life they would talk about it with their gynaecologists in 75%, while the male students would discuss with urologists in 57% cases. Questions about sexuality males and females would discuss with psychotherapist almost equally, but medical students more (44%) than non – medical students (25%) ($p<0,05$). 42,4% females and 42,4% males completely agreed or rather agreed that they would like to talk about sexual topics to another specialist (for example, sexopathologist) ($p<0,05$). 79,8% family physicians, 4,8% gynaecologists, 5,3% psychotherapists and 3,3% other specialists (for example, sexopathologists) during visit had not asked female students about their sexual relationships. 71,2% family physicians, 8,3% urologists, 7,6% psychotherapists and 7,2% another specialists (for example, sexopathologists) during visit had not asked male students about their sexual relationships. It should be noted that the selection error is possible, because participants of study were only those who voluntarily agreed to participate.

Conclusions. Student communication with doctors differs markedly by the sex of the student and also depends on whether students are studying medicine or not. Students more often choose specialists than family doctors for discussing sexual problems. Female students prefer to discuss their sexual problems with gynaecologists, but male students with urologists.

EMPATHY IN FORENSIC PATIENTS WITH SCHIZOPHRENIA

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Key words: schizophrenia, empathy, forensic

Introduction: empathy has been described as the capacity to understand others and experience their feelings in relation to oneself. Social behavior abnormalities are among the most pervasive, disabling features of schizophrenia. Since abnormalities in the experience and expression the affect are consistently documented in schizophrenia, deficits in empathy may be anticipated. It's widely accepted that empathic skills support long term social commitment. The Empathy Quotient (S. Baron-Cohen et al, 2004) was used to

assess the empathy. Forty of the questions on this measure tap empathy; the remaining twenty are distracter items. On each empathy item a person can score 2, 1, or 0, so the EQ has a maximum score of 80 and a minimum of zero. In S. Baron-Cohen et al, 2004 research participants with Asperger syndrome (AS) or high functioning autism scored significantly lower on the EQ (mean \pm standard deviation: 20.4 ± 11.6) than adults with no psychiatric disease (ANP) (mean \pm standard deviation: 42.1 ± 10.6); of the adults with AS/HFA, 81% scored equal to or fewer than 30 points out of 80, compared with only 12% of controls. The EQ has been found to have adequate reliability and validity.

Aim: the aim of this study is to evaluate the empathy of forensic patients with schizophrenia.

Results: participants of this study were forensic patients with schizophrenia, total: 40, 34 men and 6 women. Participants' attributes were as follows (mean \pm standard deviation): age, 33.5 ± 10.09 years; age of illness onset, 24.3 ± 6.49 years; duration of illness, 9.95 ± 8.4 years. Marital status: alone and/or divorced – 70%, married – 30%. Education: primary - 42.5%, secondary education – 52.5%, higher education – 5%. Empathy (mean \pm standard deviation; EQ score ≤ 30 , %): 42.58 ± 11.79 ; 20.

Conclusion: the forensic patients with schizophrenia (FPS) showed no significant deficit in empathy as it was anticipated: the difference between FPS result is not as high as the difference between AS and ANP.

THE RELATIONSHIP BETWEEN INSIGHT AND HOPELESSNESS IN FORENSIC PATIENTS WITH SCHIZOPHRENIA

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Key words. schizophrenia, insight, hopelessness, forensic.

Introduction. In recent years, researchers have reached a consensus on the definition of insight, which is now considered a continuous and multidimensional construct that includes the following aspects: awareness of mental disorder, awareness of achieved effects, awareness of need for medication, awareness of social consequences. Impaired insight has been suggested as a predictive value for poor treatment responses and outcomes in patients with schizophrenia especially by affecting a patient's quality of life, adherence to treatment and increasing the risk of relapse and rehospitalisation.

Hopelessness has been reported to be associated with suicidality in schizophrenia. In this research insight was evaluated by the four items of the Scale to Assess Unawareness of Mental Disorder (SUMD), (Amador et al. 1993). There are no cut-off points for this scale: the higher the score, the lesser the insight (1- good insight, 5 – lack of insight). Hopelessness was evaluated by the Beck Hopelessness Scale (BHS), an instrument with recommended cutoff points of 0–3 (none or minimal), 4–8 (mild), 9–14 (moderate) and 15–20 (severe) (Beck et al. 1974).

Aim. The purpose of this study is to evaluate the insight and hopelessness of forensic patients with schizophrenia and the relationship between them.

Results. This study included 40 forensic patients (34 men, 6 women) with schizophrenia. Participants' attributes were as follows (mean \pm standard deviation): age, 33.5 ± 10.09 years; age of illness onset, 24.3 ± 6.49 years; duration of illness, 9.95 ± 8.4 years. Education: primary - 42.5%, secondary education - 52.5%, higher education - 5%. Marital status: alone and/or divorced - 70%, married - 30%. Insight (mean \pm standard deviation, lack of insight %): awareness of mental disorder - 2.65 ± 1.92 , 37.5; awareness of achieved effects - 1.95 ± 1.57 , 17.5; awareness of need for medication - 2.15 ± 1.75 , 25; awareness of social consequences - 2.05 ± 1.7 , 22.5. Hopelessness (mean \pm standard deviation): 5.15 ± 3.99 ; none or minimal hopelessness - 37.5%, mild hopelessness - 47.5%, moderate hopelessness - 7.5%, severe hopelessness - 7.5%. There is high correlation between some items of SUMD: awareness of achieved effects and awareness of need for medication - $r = 0.543$, $p = 0.000$; weak correlation between: awareness of need for medication and awareness of mental disorder - $r = 0.307$, $p = 0.041$, awareness of mental disorder and hopelessness - $r = -0.354$, $p = 0.016$.

Conclusions. On the one side the lack of insight is relatively high in forensic patients with schizophrenia (37.5%). On the other hand there are many patients with mild hopelessness (47.5%) and it seems to be dependent on insight: the better insight the higher hopelessness ($r = -0.354$). These are two big issues, their assessment should be considered in the treatment and in the follow-up visits of patients.

FREQUENCY OF DEPRESSION IN FAMILY DOCTOR PRACTICE, THE DIAGNOSTIC AND TREATMENT STRATEGIES OF FAMILY DOCTORS DIAGNOSING DEPRESSION

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Key words: Depression, family doctor, PHQ-9 scale

Introduction. Family doctors are more actively involved in early detection and treatment of depression. this research shows different aspects of tactics encountering depression in primary care.

Aim. To find out frequently used diagnostic and treatment strategies of depression by family doctors and their opinion of possible conductive and impendiment facors of depression therapy.

Using the most often used assessment instrument of depression by family doctors - the Patient Health Questionnaire (PHQ-9) – find out freaquency of depression and possible influence of chronic somatic illness on assessing emotional and somating symptoms.

Results. Survey of 82 family doctors reveals that more often doctors notice emotional changes in patient toward depression (52,4 %) than patients themselves are turning to family doctor with complaints of depressed mood (41,5 %). To assess depression 36,6% of doctors use diagnostic scales. Also Patient health Questionare – 9 (PHQ-9) is used the most frequently – by 15,9% doctors. 63,4 % of family doctors are not using diagnostic scales but 34,1% from all doctors would like to use scale that patients are filling themselves.

When family doctors have diagnosed depression 57,3% of them are appointing visit to psychiatrist, 32,9 % to psychotherapist, 57,3% are prescribing antidepressant while 9,8% have a watchful waiting strategy. As impedimental factor of treatment of the depression family doctors most often (48,4%) mention patients denial of the diagnosis, 28% mention weak compliance using antidepressants. As conductive factors of treatment of the depression family doctors mention a possibility of patients being better informed about depression (42,4%), better aviability of mental health proffesional (28%) and decreasing stigmatization about depression in society (25 %).

134 patients aged from 18 and 80 were screened in family doctor practice for depressive disorder using validated depression diagnosing and severity

scale Patient Health Questionnaire-9 (PHQ-9). 7 patients (5,2%) met criteria for probable major depression and 5 (3,7%) for other depressive disorder.

Conclusion. Family doctors are diagnosing depression more often because they notice changes in emotional status of patients. To diagnose depression majority of family doctors already use or would like to use depression assessment scale. As most impedimental factor doctors mention patients denial of the diagnosis and therefore patients being better informed as the most conductive factor for better treatment of depression.

The frequency of depression in family doctor's practice is close to population rates and PHQ-9 depression assessment scale can be effectively used for diagnosing depression in primary care setting.

THE EFFECT OF SUMMARY RADIATION, AIR PRESSURE AND TEMPERATURE, RELATIVE HUMIDITY, SEASONALITY AND LUNAR PHASES AND RISK, SEVERITY AND OUTCOME OF ISCHEMIC STROKE

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Key words: Ischemic Stroke, Weather Patterns, Circadian Variations

Introduction. Stroke is the third leading cause of mortality and disability. There is a large consensus regarding the main stroke determinants, but little information on its triggering factors such as, air pressure, temperature and humidity, radiation, seasonality and lunar phases. Previous studies have considered the association between weather patterns and stroke, but the results of these studies have been inconsistent, therefore we present the investigation of weather patterns and their relationship with stroke in Latvia.

Aim. The aim of the present study was to determine the relationship between variations in monthly air temperature, pressure and humidity, seasonality and lunar phases and stroke incidence, severity and outcome.

Results. A total of 533 patients were included during the 1 – year study period. The study cohort was 48,9% male and 51,1% female, with mean age 69 in men and 76 in women. The rate of occurrence of stroke was highest in the late morning 06:00 - 11:59 hours and in the afternoon 12:00 – 17:59 hours

compared with other times of the day. There were no significant variation in stroke incidence, severity and outcome between lunar phases, mean summary radiation, actual, minimal and maximal relative air humidity in the day of the stroke, 24h, 48h and 72h prior the stroke, actual air pressure in the day of the stroke, 24h, 48h and 72h prior the stroke, air acutal, minimal and maximal temperature in the day of the stroke, 24h, 48h and 72h prior the stroke, stroke subtype or localization. We also concluded no statistically significant variation between dramatic weather fluctuations and acutal air temperature decrease by 5 degrees Celsius and ischemic stroke incidence, severity and outcome. There were significant increase in ischemic stroke in males in winter ($p = 0,047$) and at low relative air humidity ($p = 0,007$). We also observed a tendency towards increased ischemic stroke incidence at high actual air temperature ($p = 0,098$).

Conclusions.

Ischemic stroke incidence increases in winter in males and at low relative air humidity.

There is a tendency towards increased ischemic stroke incidence at high actual air temperature.

Ischemic stroke incidence, severity and outcome is not dependent from mean summary radiation, actual, minimal and maximal air pressure, relative air humidity and temperature in the day of the stroke, 24h, 48h and 72h prior the stroke, dramatic weather fluctuations, stroke subtype and localization, and lunar phases.

CLINICAL CHARACTERISTIC OF MIGRANE IN LATVIA

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Key words. women, chronic pains, specific treatment.

Introduction. Migraine is a chronic neurological disease characterized by moderate to severe headaches that is typically unilateral with pulsating quality. Headaches may be preceded by an aura that consists of sensory, motor, or language symptoms. The epidemiological profile varies in the different regions of the world; therefore such studies are useful to concretize the aims of the care of the migraine patients and to plan the necessary resources.

Aim. The aim of the study is to get the epidemiological information about the migraine patients in the Latvia, analyze this information and compare it to the statistics of the world.

Results. There was taken data about 60 patients at the age from 18 to 59 years, with the most of people at the group of age 25-39 years (58,3% from all people). As in other similar researches the biggest part of respondents were women (88,3%). There was 61,7% of respondents who lives in Riga and Riga district, even if there was used data bases of Riga headache consulting rooms for the research of patients. The half of the migraine patients (51,7%) have higher education, and just 1,7 % have elementary education and others are with secondary and secondary professional education. It is turned out, that the jobs of the majority of respondents are related with communication with people (51,7%), and 18,3% are working with computer constantly. 29 people or 48,4% of respondents marked that at least one of their relatives has a migraine.

Diagnosis migraine with aura has 35 people or 58,3%, and the most frequent sign of the aura is blurred vision (35%). For the most of the patients (46,7%) the migraine begins at the typical age – 15-24 years. 70% of all respondents have attacks of the migraine 1-4 times in a month, 21,7% of all respondents have attacks more than 4 times in a month, and only 8,3 % 1 time in 2-3 months. The most common triggers for the attack are stress (68,3%), tiredness (45%) and menstrual cycle (28,3%). The length of the headache varies from 4 hours (6,7%) to more than 72 hours (10%), mostly 13-24 hours (23,3%) and 49-72 hours (23,3%). The most of the patients were well examined – for 50 % of respondents a CT scan, and for 41,7 % an MRI scan was used.

Conclusions. The epidemiological information of migraine are similar in Latvia and other Europe countries – the most of the patients are well educated and at public work working women at the reproductive age. The diagnostics and the treatment of the migraine are at the high level comparatively, but there is a lot of patients anyway with an often and long-lasting attacks. It must be thought of the efficiency of used treatment.

ADAPTATION OF SCHUTTE EMOTIONAL INTELLIGENCE SCALE

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Key words. Emotional intelligence scale, scale adaptation.

Introduction. Scientists is showing spacious interest about the research of emotional intelligence in the last 20 years, where is promote and pointed the importance of emotional intelligence measuring in different aspects: clinical, organization, education and social (Bastian, 2005).

In empirical research Dr. N. Schutte emotional intelligence scale (SEIS) is showing high validity and reliability.

In Latvia, we do not have any instruments that could show information about Emotional intelligence, which psychologist can use in research.

Aim. The aim was to make adaptation of Schutte emotional intelligence scale, without including standardization. Schutte emotional intelligence scale (SEIS) was designed by Dr. Nicola Schutte, 1998, Australian university, ($\alpha = 0.85$ to 0.87). The questionnaire consists of 33 items. The items are classified in 5 subscales.

In general 400 Latvia nationality respondents took a part in the research, where 350 questionnaires were useful. Study respondents aged form 19 – 56 years.

Results. The results show that factor structure of Latvian version questionnaire not to conform to original version questionnaire. Factor structure from Latvian selection consists of 6 factors: emotion perception ($0.45 - 0.70$), emotion awareness ($0.50 - 0.66$), emotion regulation ($0.40 - 0.70$), social skills ($0.40 - 0.76$), empathy ($0.41 - 0.73$) and positivism ($0.44 - 0.75$). Factors like empathy, emotion regulation and positivism are not included in the factor structure of original questionnaire.

Results obtained from the research, shows, that Schutte's Latvian version of emotional intelligence questionnaires adequate factors are reliability ratios ($0.70 - 0.78$) and results show a high threshold within two week period ($0.80 - 0.91$).

Conclusions. The results provide that the factors awareness of emotion, social skills, perception of emotion to fall with original Schutte Emotional

intelligence scale factors, but in Latvian version factor structure also have two new factors: positivism and empathy.

Different research results showed that emotional empathy is more characterized by collectivist culture, but positivism by individualism culture (Gokcen, Furnham, Mavroveli, & Petrides, 2014).

ASSESSMENT OF THE CHILDREN EMOTIONAL WELL-BEING COLOUR TEST

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Keywords. Anxiety, children, well-being.

Introduction. Child's emotional well-being affects child's development and physical health (UK National Institute for Health and Clinical Excellence 2008). Childhood is a risk phase for development of anxiety related symptoms. As fear and anxiety is a part of normal child development, normal and pathological anxiety distinguishing is difficult (Beesdo, Knappe, Pine, 2009). Generalized anxiety increases risk to develop depression and addictions (Keeton, Kolos, Walkup, 2009). These are the reasons why is it important to asses child's emotional well-being and anxiety level.

Aim. The aim of this research is to access convergent validity and internal correlations in children emotional well-being Color test. This test involves selection of two out of six drawings of faces displaying one emotion and two out of five colors. The test is developed in Riga Stradins University Psychotherapy and Psychosomatic Medicine Department.

Results. In the first part of this research 17 Latvian speaking and 30 Russian speaking schoolchildren were tested with two tests in English/Latvian or English/Russian versions, to access the Spearman's correlation between the original tests, and the translated version of the tests, and also internal consistency for the translated versions. SPSS software was used to calculate statistics. All the translated versions were suitable for being used on the second part of the research. Spearman's correlations were 0.68 or higher, with $p < 0.05$. Cornbach's alphas were 0.72 or higher, with $p < 0.05$.

On the second part of the research 33 children from the age of eight to 17 were tested with the Color test, Child Anxiety Life Interference Scale and Personal Well-being Index-Schoolchildren test translated versions. In Chi-

squared correlation test no significant correlations were found between selecting a face displaying emotion, and selecting a color. Comparing Color test, with other validated instruments, in MANOVA test there was found a significant correlation between selecting the black color in combination with green color and gaining higher points (having a higher anxiety level) in the Child Anxiety Life Interference Scale, and also selecting the black color in combination with any other color (except brown) gaining lower result in Personal Well-being Index-Schoolchildren.

Conclusions. Color test correlated significantly with anxiety level (Child Anxiety Life Interference Scale), and well-being (Personal Well-being Index-Schoolchildren), thus demonstrating the convergent validity of the Color test in this study. It is suitable to use the Color test as a simple screening method for the child's emotional well-being. Further examination of the Color test in younger age groups would be needed.

NOCEBO EFFECT DIFFERENCES BETWEEN GENDERS

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Key words. Nocebo, male, female, difference, nocebo effect.

Introduction. Nocebo is a psychogenic effect caused by a suggestion or belief that something is harmful. The nocebo effect plays a significant role in patient health care, especially when presenting important health related information about treatment and its side effect to patients.

Aim. The aim of the research is to find a statistically relevant proof of nocebo effect differences between males and females thus showing the significance of the impact of how the presentation of health related information affects the outcome of treatment and overall patient's physical and mental state.

Results. In total the study group consisted of 114 students (69 females; 45 males). The control group consisted of 59 students (35 females, 24 males). The nocebo group consisted of 55 students (34 females; 21 males). The results in control and nocebo groups showed that the average headache level during the class raised. Students were asked to evaluate their headache level at

the beginning and at the end of the class by choosing a scale number that would describe their level of headache (1 – no headache; 6 – very severe pain). In control group it was observed that the headache level had worsened by 0,086 in females and 0,417 in males. Whereas, in placebo group it worsened by 0,647 in females and 0,571 in males.

Conclusions. Placebo effect has a great impact on females, whereas in males it showed no significant difference between the groups. This suggests that when presenting health related information to females, placebo effect should be taken into consideration. For better results, the study population should be increased, especially by including more males.

SEXUAL EXPERIENCE AND RELATED NEGATIVE EMOTIONS AMONG LATVIAN STUDENTS

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Keywords. Sexual-satisfaction, fear-of-sex, sexual problem self-blame, sexual-anxiety, sexual-depression.

Introduction. Sexuality is one of central aspects of being human. Sexuality is experienced and expressed in thoughts, fantasies, desires, beliefs, attitudes, values, behavior, practices, roles, and relationships. People experience a variety of emotions when they engage in sexual activities or even when they only talk or think about them.

Aim. The aim of present study was to determine factors (gender, sexual experience, present sexual relationships etc.) associated with sexual emotions and communication practices among Latvian students.

Results. A cross sectional study was conducted among students from 21 higher education institutions in Latvia from December 2014 to January 2015. Analyzed samples were 1806 correctly filled self-reported questionnaires. Students were aged 18 - 25, 69.2% females and 30.8% males, 31.6% were medical students and 68.4% non-medical students. Only 1% of female and 30% of male student are satisfied with their sexual function and would not change anything. 38% of female and 3% of male student feel that

they have a sexual problem or dysfunction and would like to do something about it ($p<0.05$). 12% of female and 17% of male student feel depressed about their sexual life. 26% of female and 44% of male student would blame themselves in case of sexual problem ($p<0.05$). There is no statistical difference between genders in feeling fear about engaging in any sexual activities, initiating sex, talking about sex and also feeling anxious about their sexual lives. Among sexually experienced students 13% are afraid of engaging in any sexual activities, but among inexperienced students 59% ($p<0.05$). Among sexually experienced students only 17% do not communicate about their sexual life because they are afraid of incomprehension, but among inexperienced students - 40% ($p<0.05$). Sexually experienced students are less anxious and less depressed about their sexual life comparing with inexperienced students. Students, who live with partners, are less afraid of initiating sex, less feel anxious and are less depressed about their sexual life, differences are statistically significant. More confident about sexual life were students who have one permanent partner and have sex several times per week.

Conclusions. Women are less satisfied, but also less depressed about their sexual life than men. Men would blame themselves in case of sexual problems more than women. People who have sexual experience, have permanent sexual partner, live with their partner and also have sex more often, feel less fear about engaging in sexual activities, initiating sex and talking about sex, feel less anxious and less depressive about their sexual life and also would blame themselves less in case of sexual problems.

AXON GUIDANCE AND GROWTH

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Key words. Neuron, axon, growth, guidance, summarize.

Introduction. During the development of the nervous system and all throughout life the navigation of axons is guided by attractive and repulsive ligands binding to a wide variety of receptors expressed on axon's growth cone. These processes are followed by intracellular cascades that lead to dynamic changes in the cytoskeleton and as a result the axon grows in the direction determined by the expression of ligands.

Aim. To summarize and create an understanding of currently available open-source information on the axon growth-inducing factors, intracellular processes and dynamic changes in cytoskeleton; as well as develop a schematic explaining the key aspects of these processes.

Results. Four families of ligands - netrins, slits, semaphorins, ephrins - that activate specific signaling pathways, depending on the receptor, act locally and can induce attraction, repulsion, collapse of the growth cone and change the speed of axon extension. Influencing such processes as development of nervous system, regeneration and growth of axons in both day to day life as well as after an injury. From this we can easily adjudicate, that dysfunction of these ligands may be a cause of some neurodegenerative diseases. However, in order to sanely discuss these problems, we need to have a general understanding of the key processes that are followed by specific ligand-receptor complex formation.

Calcium (Ca^{2+}) alterations in axon tip - the most significant changeover in growth cone during further axon elongation route selection. During slight Ca^{2+} increase ion connects to calcineurin, a protein that is responsible for retraction. Besides that, this uniform process is stabilized with cGMP that has an inhibitory effect on cAMP, a secondary messenger participating in attraction process. On the other hand, if the concentration is high, Ca^{2+} itself induces intracellular ion extraction from endoplasmic reticulum through RyRs and IP₃Rs. In high concentrations Ca^{2+} activates CaMKii, that can „un-cap” SynGap protein from microtubules and start attraction also known as mechanical elongation.

This term contains vast amount of processes that are based on the variety of structures and proteins. The most noticeable are microtubules that provide movement, stabilization and environment for other cell structures; actin filaments that mostly concentrate in growth cone parts named filopodium and lamellipodium, helping to explore surroundings for guidance cues. These structures interact with various forms of proteins that both within and outside of growth cone, making its development and movement much more complex and spacious than it may appear at first glance.

Conclusions. Guidance and growth of axons is a multi-layered process. Unfortunately, our understanding of it currently is at a rudimentary level. As tools of visualizing these processes improve, we can likely expect to find answers to questions regarding treatment of injury and disease, as well as gain insight in neuronal plasticity and axon regeneration.

SESSION V

REHABILITATION, NUTRITIONAL SCIENCE, PUBLIC HEALTH, OCCUPATIONAL MEDICINE

PHYSICIAN-PATIENT CONFLICT, - REASONS FOR CAUSES, STATISTICS, POSSIBLE SOLUTIONS IN LATVIA HELTHCARE SISTEM

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Key words. Physician, patient, conflict, reasons, statistics, solutions.

Introduction. Today physician-patient relationships have become more worse than it was before.

Historically physician-patient relationships was relationships between two individuals, one – patient, who need some help, another – physician, who can provide it for patient.

Today relationship model have become more difficult, - in these relationships have entered pharmaceutical industry, medical technologies, different laws and government regulations and money.

Aim. The aim of this research was to do physician-patient conflict situations in Latvia healthcare system, - discover conflicts causes, incidence growth trends, and try to find solutions.

We have analysed last fifth year information about patients complaints from Latvia Health ministry Healthcare quality control division registries.

We analysed complaints growth trends, distribution between different medical fields (internal medicine, surgery, neurology oncology, psychiatry).

Particular careful analysis was on gynaecology and obstetrics (in obstetrics sometimes are two persons – mother and new-born whose healthcare was a case of complaint).

We analysed complaints about incapacity for work documents and situations when incapacity for work document had been given unlawfully.

Results and conclusions. In last fifth year patient – physician conflict steadily growing. Main reason which rise conflict is not a bad treatment but misunderstanding between patient healthcare system, physician-patient

communication problems and difficult finances. This was our first analysis, we need continue and betake it deeper for real solutions finding.

CHRONIC PAIN EXPERIENCE AND SOCIAL SUPPORT IN SENIORS: A PHENOMENOLOGICAL ANALYSIS

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Key words. chronic pain, seniors, older adults, pain experience, family support, social support.

Introduction. Family includes several generations of people, hence people of different ages. Formerly the oldest members of family were considered as its head. They were treated with honor and respect. Nowadays society's attitude towards elderly has changed a lot comparing to the past. Pain adversely affects activities of daily living and quality of life in general. Research data suggests that decreased social activity negatively affects other activities of seniors. (Buchman et al., 2009, Peat et al., 2004) Partners and family are often recognized as primary support structures, this means that seniors are seeking for help in family. Consequently, the relationship between family members plays an important role in ensuring the well-being of seniors.

Aim. To analyse chronic pain experience and social support in seniors.

Results. The majority of seniors in pain are receiving help from relatives. This form of help appear to be helping seniors in daily routine and material support. But seniors do not feel any emotional support from their relatives. This indicates that despite the received support in housework, seniors feel lonely. Social isolation is increased by the shame of asking for help and the belief that "I have to deal on my own". Finally, seniors believe that age is unavoidably associated with pain.

Conclusions. Chronic pain significantly affects the daily life of seniors. It restricts both activities - mobility, activities of daily living and sleep, and social participation. Support from family and social services is important factor in reducing social isolation of seniors with chronic pain and thus helping them to fight against pain.

COMPARISON OF COMPLIANCE WITH SANITARY AND HYGIENIC NORMS AMONG MEDICAL FACULTY STUDENTS IN DIFFERENT STUDY YEARS

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Key words. Hygiene, nosocomial infections, students.

Introduction. As part of their education medical students are often located in the hospital setting and in close contact with patients, therefore, it is important for them to comply with sanitary and hygienic requirements to minimise the risk of disseminating hospital infections.

These requirements have been defined in the Cabinet of Ministers Regulation No. 574 "Regulations Regarding the Basic Requirements for a Hygienic and Counter-Epidemic Regimen in a Medical Treatment Institution".

In this study the information was gathered through an anonymous questionnaire. Medical Faculty (MF) students from study years 3, 4, 5 and 6 were asked to answer 20 questions. The questions were prepared basing on the aforementioned Cabinet of Ministers Regulation, as well as on studies from different countries regarding primary and secondary sources of nosocomial infection in medical treatment institutions.

Aim. To determine whether a difference exists in the compliance with sanitary and hygienic norms between MF students in different study years.

Results. No significant differences were observed between MF students in different study years with regard to their compliance with sanitary and hygienic norms.

Conclusions. Even though medical students have good theoretical knowledge regarding hygienic and counter-epidemic requirements, the application in practice is not sufficient.

Medical students have been taught how to correctly wash their hands and they know in which situations hands have to be disinfected, but they admit that they do not always do this in practice.

Medical equipment is rarely disinfected and the white coats are washed less than once a week.

The hospital has an important role in the performance of hygienic measures, because more than a half of the respondents perform disinfection with the disinfectants available at the hospital.

Overall the results of this study correlate with the results of studies carried out in other countries.

DADIH ICE CREAM MODULATES PERITONEAL MACROPHAGE ACTIVITY: AN EXPERIMENTAL STUDY USING *IN VITRO* MODEL

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Keywords. Functional food, immunomodulator, macrophage, probiotic.

Introduction. Dadih is one of Indonesia's heritage foods from Minangkabau, West Sumatra. This traditional food contains probiotics. The health benefits of dadih probiotic have been proven. However, in the original form, dadih has sour taste, rendering it less favorable by many people. To overcome the taste problem and increase its acceptance, dadih can be modified into ice cream. Moreover, a study showed that ice cream supports the availability of probiotics.

Aim. We aimed to prove that dadih processed into ice cream retains its benefit for health by improving macrophage activity as a proxy of immune system function.

Results. An experimental study with randomized post-test only control group design was conducted on 24 mice divided equally into four groups. Group I as control; group II, III and IV was given ice cream with dadih concentration 25%, 50% and 75%, respectively, for two weeks. Peritoneal macrophages of all groups were isolated. Identification was made toward percentage of active macrophages phagocytizing latex and latex amount that phagocytized. One-way Anova and Tukey tests in SPSS15 were used to analyze the data. A P-value less than 0.05 was considered significant.

The results showed that there was an increase in activity of macrophages in the treatment groups compared to the control group. The mean percentage of active macrophages phagocytizing latex in the treatment groups was higher than the control (group IV: 0.84 ± 0.043 , group III: 0.76 ± 0.072 , group II: 0.76 ± 0.091 vs. group I: 0.61 ± 0.047 ; $P < 0.05$). Based on the amount of latex

phagocytized, macrophages of the treatment groups phagocytized more latex particles than the control group (group IV: 6.00 ± 0.825 , group III: 5.50 ± 1.246 , group II: 4.73 ± 0.273 vs. group I: 4.13 ± 0.905 ; $P < 0.05$).

Conclusions. The effect of dadih ice cream on macrophage activity increased consistently with increasing concentration. This study proves that dadih modified into ice cream retains its ability as immunomodulator. Clinical trial is needed to pave the way for dadih ice cream as a novel functional food.

THE DISEASE INCIDENCE OF THE SHOULDER JOINT PATHOLOGY TRIGGERED BY THE OCCUPATIONAL ETIOLOGY IN LATVIA FOR THE PERIOD 2011-2013

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Key words. occupational diseases, occupational triggers, shoulder joint pathology.

Introduction. The quantity of the primary-confirmed persons, suffering from the occupational diseases has increased (2011 y. - 107, 2012 y. – 101, 2013 y. – 137 per 100 000 employees) according to the data of the period 2011-2013 of the Occupational and Radiological Medical Centre of Pauls Stradiņš University. The most frequent diseases of the primary-confirmed patients are related to the musculoskeletal, connective tissue and nervous systems. The shoulder joint pathology caused by the occupational factors is a broad term including a number of diagnoses, which have musculoskeletal, connective tissue and nervous system nature.

Aim. Explore the incidence of the shoulder joint pathology triggered by the occupational etiology in Latvia for the period of 2011-2013. Obtain the information to determine the range of the occupational diseases, the most frequent changes of the shoulder joint and to name professions with the highest harmful factor of the risk of the shoulder joint pathology.

Materials/Methods. The analysis and the review of the data obtained during the selection and the research of the Occupational and Radiological Medical Centre of Pauls Stradiņš University Hospital outpatient cards for the period of 2011 to 2013. There have been reviewed 100 random outpatient cards.

Results. The information reviewed is based on 100 outpatient cards (35 patients for 2011, 35 for 2012, 30 for 2013 accordingly). The average age of

the group consisting of 100 patients (15 men and 85 women aged 39 to 66) is 55,8. The total average experience of the patient is 30 years and 5 months, the average experience in harmful conditions is 25 years and 4 months. The highest number of the patients are employed in the manufacturing industry (16% : 8% - in the wood industry, 8% - paper, textile and metal industry accordingly), health care (13% - doctors, physician assistants, nurses), cooking (12% - cooks, confectioners), food industry (10%) and premises maintenance (10%). Occupational factors affect both shoulders in 45% of the cases and only one shoulder is affected in 55% of cases (38% - right shoulder, 17% - left shoulder). The most common shoulder joint pathology is an adhesive capsulitis of the shoulder (57% of patients), which influences on the joint capsule, adjacent tissues and muscle tendons, causes pain and reduces mobility of the shoulder joint. Rotator cuff syndrome affects 26% of the patients, while 10% of the patients have battered shoulder syndrome. 57% of patients have acromioclavicular joint (*art. acromioclavicularis*) arthrosis, 6% - shoulder joint (*art. humeri*) arthrosis. 60% of the patients have disability. 15% of all occupational disease patients with the shoulder joint pathology have received rehabilitation therapy.

Conclusions.

1. Occupational etiology shoulder joint pathology definitely is a widespread disease among people employed in the manufacturing industry, health care, food industry, maintenance and grocery industries.
2. Occupational factors (forced postures, repetitive movements, overload) bring the negative effect on the shoulder joint, bones, muscles and connective tissue.
3. It is necessary to reduce the negative sides of the occupational factors at the workplace and to

FACTORS ASSOCIATED WITH LONG –TERM WOMEN LOSS HEIGHT

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Key words. height loss, menopause, hand grip strength.

Introduction. People typically lose about 1 cm every 10 years after age 40. Total height loss during aging is 2,5-7,6 cm. Females decline at a greater

rate than males. Height loss is a complex, cheap and easy to conduct measure, related to changes in the bones such as osteoporosis, spondylosis and vertebral fractures, muscles, and joints.

Aim. Determine anthropometric and history risk factors related to natural events causing changes in estrogen level in past, and mobility.

Methods. Anthropometric measurements i.e. body height, cervical lordosis, weight, waist circumference and hand grip strength and inquires about body height in age of 25 yr, onset of menopause, number of pregnancies, the age of delivery of the youngest and oldest child, fractures and current need to auxiliary devices for mobility were made to 240 senior women 65–93 yr of age during 2013-2014. The current need to use auxiliary devices for mobility was ranked from 1-4, with the lowest value given to those who do not use auxiliary devices and the other to those who use walking stick, frame, crutches or wheelchair accordingly. The data was analyzed in SPSS-22.

Results. The current height was ranged from 136-181 cm, average $156 \pm 6,9$ cm, the height in age of 25 yr varied between 149-187 cm, average $163 \pm 6,3$ cm. The height loss fluctuated between 0,0- 20,10cm, average $7,10 \pm 4,24$ cm. No statistically significant correlation was found between the age of menopause, the number of children, the age of delivery of the youngest child, bmi, waist circumference. Significant correlations were found with age spearman's ratio $r = 0,435$ ($p=0,000$), current need to auxiliary devices for mobility $r=0,310$ ($p=0,000$), cervical lordosis $r=0,347$ ($p=0,000$), actual height $r=-0,457$ ($p=0,000$), weight $r=-0,214$ ($p=0,001$), right handgrip strength $r= -0,298$ ($p=0,000$), left handgrip strength $r=-0,236$, ($p=0,000$). A small but significant positive correlation was found between the age of the oldest child's delivery and the height loss $r=0,172$, $p=0,02$. Mann- whitney test indicated that height loss was more prominent in the fracture group (mean rank 166) than in the non- fracture group (mean rank 117, $u=1187$, $p= 0,004$). The height loss mean ranks were not statistically different in comorbidity groups. Multiple linear regression analysis for current height, age, cervical lordosis and history of fractures was performed. These variables statistically significantly predicted height loss, $f(4, 234) = 30.479$, $p < 0.0005$, $r^2=0,343$. The height loss was predicted by equation = $29,148-0,199*\text{height}+ 0,145*\text{age}+0,203*\text{cervical lordosis}-2,407*(\text{fracture in history coded as 1, absence as 2})$.

Conclusions. Increased height loss was correlated with age, cervical lordosis, history of fractures, current need to auxiliary devices for mobility.

Protecting factors which correlated with decreased height loss were actual height, body mass and handgrip strength.

OBTAINING DRUGS WITHOUT PRESCRIPTION- MYTH OR REALITY?

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Keywords. Pharmacy; Prescription; Drugs

Introduction. Latvian Pharmacy Act states that pharmacists may sell prescription medications for the recipe, but in pharmacy practice occur situations when people ask medications without a prescription. In this situation, everything depends on the pharmacist's ethics, patient recognition, as well as compliance and pharmacist mission- to help people.

Aim. Clarify if in pharmacies patients can buy prescription drugs without a prescription, and which group of drugs are sold most often.

Results. In study participated 35 pharmacists and 207 respondents. In study population 185 (89.4%) were women. A large part of pharmacists (n=34; 97.1%) reported that visitors asked prescription drugs without a prescription. Respondents' data reflected that 61.4% had asked for this option, of whom 74 (58.3%) had used it more often on weekends or if the drug was needed faster than a possible visit to the doctor, 26 (20.5%) respondents as a reason for asking mentioned lack of time to visit a doctor, 21 (16.5%) – did not address whether the drug is a prescription or non-prescription. More than half of pharmacists (n=21, 60.0%) stated that they have sold prescription drugs without a prescription. As shown by the information obtained from respondents, 51.2%- drugs sold if this was the well-known pharmacist, 28.3%- sold by any pharmacist, 20.5%- the pharmacist did not sell. As a result, 101 (79.5%) of 127 respondents had purchased prescription drugs without a prescription. Pharmacists most often issued without a prescription of antihypertensive drugs (71.4%), NSAIDs (52.4%), nootropic drugs (47.6%), all pharmacist denied sale of antibiotics, narcotic analgesics, hypnotics and sedative. A different situation was observed by respondents, respectively, 54 (53.5%) had bought antibiotics, 42 (41.6%) - NSAIDs, 19 (18.8%)- a variety of heart diseases dedicated medications. When asked about prescription retrieve after purchase, pharmacists reported that almost half of the prescriptions were brought back after purchase (42.9%), while respondents' answered indicate that this promise was fulfilled in less frequently (24.8%). There was statistical significant difference between respondents education

($p < 0.005$), age ($p < 0.005$) and the need for prescription drugs without prescription as well as respondents gender and the context in which ask for prescription medication ($p = 0.006$).

Conclusions. In pharmacies in the most cases patients could buy prescription drugs without prescription, notably if there was well-known pharmacist. Most of the pharmacists' questionnaires were issued following antihypertensive agents, but most respondents had purchased without a prescription of antibiotics, which did not notice any of the pharmacists. These results were radically contrary and could be explained by the fear of antimicrobial resistance. The penalty for selling drugs without a prescription is not sufficiently effective toll for general medication issue of breach of the rules.

THE INFLUENCE OF NOISE ON PATIENTS IN RADIOLOGY DEPARTMENT

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Introduction. Modern medicine is taking a huge step up. All countries are expending treatment and diagnostic facilities. One of diagnostic direction is radiology diagnostic that nowadays is able to detect in the early stages of serious illness and rescue a large part of patient. Unfortunately increasing not only number of organic etiology diseases, but also psycho-emotional nature of disease that influence on a human general state. The daily tension strongly influences human subconscious and develop psycho-emotional disturbances such as generalized anxiety disorder, insomnia, panic attacks, as well as a variety of specific phobias: claustrophobia, social phobia, etc. Person, who have a high basal level of stress, and when happens most stressful situation such as magnetic resonance imaging (MRI), which he is unable to adequately withstand in this diagnostic test.

Aim. During the opinion poll ascertain influence of noise on patients in radiology department, evaluate patient's discomfort associated with machine noise and other influencing factors, after analysis give a lot of possible variants for resolution this problem.

Results. In the study attend 150 patient. Patient age was from 19 to 83 years, average years 44.04 (Std. Deviation 17,215). After the patient gender

division: 106 women (70.7%, average age 42 years) and 44 men (29.3% average age 48 years). All 150 polled patient had to evaluate their condition during MRI 5-point system using Likert scale (1-No, 2-nearer to No, 3-perhaps a little bit, 4-Yes, 5-Yes, very clearly). Women investigated more often compared than men. The reasons why so often both genders are attending MRI associated by CNS disease, spinal disease and bone-joint system diseases, which coincides with the literature data. 46% of patients didn't feel any discomfort when attended the MRI procedure, but 54% of patient felt some discomfort using MRI, while women are more often associate the discomfort with noise ($p=0.036$). Woman are afraid the first time using MRI ($p=0.009$), but men aren't afraid and using MRI more often. There are statistically reliable correlation by age groups (Spearman's rho) between the expressions of discomfort and age: the older woman are more frequently noted in the general discomfort ($p = 0.01$), headaches / dizziness ($p = 0.013$) as well as unpleasant vibration feeling ($p = 0.023$).

Conclusions. MR machine's noise is possible reduce by two ways: active change MR machine technical modifications or passive using headphones / ear plugs, etc.

Latvia is solving noise problems topical method passive because of financial constraints. In this case the most important are patient information and support, the cooperation of doctor-patient is proven as one of the most effective methods. It is believed that 40% of patients will develop anxiety-related reactions (from a small discomfort for up to claustrophobia and panic attack), therefore it is necessary that would be cooperation between doctor and patient.

LOW BACK AND NECK PAIN AMONG EMPLOYED WORKERS IN LATVIA

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Key words. Low back pain, neck pain, work environment.

Introduction. Back pain in working individuals is a commonly present complaint. It is estimated that 37% of low back pain (LBP) is attributed to occupational factors [Punnett L *et.al.*,2005]. Chronic neck pain is widely prevalent and a common source of disability in the working-age population.

Aetiology of chronic neck pain includes neck sprain, mechanical or muscular neck pain, myofascial pain syndrome, postural neck pain as well as pain due to degenerative changes [Gertrud Kirchhoff *et.al.*, 2006].

Aim. The aim of this retrospective study was to analyze work-related pain association with age and occupation.

Materials and methods. The retrospective questionnaire study was based on the data from the survey “Work conditions and risks in Latvia 2012-2013” within the project “Practical application of the legislation regarding labour relations and Occupational safety in sectors and companies”. A group of 814 employed workers with complaints of pain was analysed. From ten different localisations of pain, two most common (low back and neck) were chosen and analysed regarding age and gender. Descriptive statistical analysis was performed using SPSS 20.0 software.

Results. The retrospective research cohort included 814 employed workers, who complained about pain in different localizations. Identified group represented 40.2% (n=327) male and 59.8% (n=487) female respondents. Low back pain was mentioned by 59.6% (n=485; 95% CI 56% to 63.0%); neck pain – 27.6% (n=220, 95% CI 24.5% to 30.7%). Low back pain group were represented by 42.5% (n=206) male and 57.5% (n=279) female respondents; whereas the group of respondents with neck pain consisted of 31.4% (n=69) males and 68.6% (n=151) females. In all age groups low back pain was the most common complaint (54.9%-64.5%) and the dominant age group of respondents with low back pain was 45-54 years – 34.0% of all 485 respondents with low back pain (n=165; 95% CI 27.8% to 38.2%); neck pain was second dominant complaint (14.6%-36.7%) – also with prevalence in the group of 45-54 years – 40.9% of 220 respondents with neck pain (n=90; 95% CI 34.4% to 47.4%). In every occupational sector low back pain was the most common complaint (47.8%-65.8%) and the dominant occupational group was qualified craftsman, excluding 2 respondents from senior manager group. Neck pain varied from (25.8%-34.1%) and the dominant occupation sector were medium level managers.

Conclusions.

- 1) Low back pain is the most common pain related complaint amongst employed workers.
- 2) The most affected age group is 45-54 years.
- 3) Low back pain is common amongst craftsmen, whereas neck pain is typical for medium level managers.

PAIN PREVALENCE AND LOCALISATION AMONG COMPUTER WORKERS

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Key words. Pain, computer workers, exposure.

Introduction. Adoption of inadequate postures at workplace, repetition of tasks such as typing and use of computer mouse and sitting for prolonged periods of time might lead to symptoms in the neck, upper limbs, eyes, thoracic spine and low back. Complaints of pain amongst computer workers are common and provided that the use of computers at workstations is widespread in all industry sectors workplace factors leading to pain were analyzed.

Aim. The aim of the study is to verify the relationship among work-related characteristics and pain among computer workers.

Materials and methods. A sample of employees were examined and explored using data from the survey “Work conditions and risks in Latvia 2012-2013” within the project “Practical application of the legislation regarding labour relations and Occupational safety in sectors and companies”. A group comprised of 737 workers and self-employed respondents was analyzed. From the whole register, only those who marked computer work for more than 2 hours daily were chosen for further investigation. They were divided into four groups according to the duration of the computer exposure (from 50% of the whole amount of work to 100%) and were sorted by following criteria: age (18-24, 25-34, 35-44, 45-54, 55-80), nationality (Latvian, Russian, others) and education (from basic to higher education). Number of regions, that were affected and the effort to change the undesirable conditions in different groups were compared. The cohort consisted of 251 male and 486 female respondents. Specific group was arranged, classified and further statistical analysis was executed using SPSS software.

Results. Significant correlation between amount of computer exposure and the prevalence of lower back and neck pain, pain in the hands and legs, headache, toothache, stomachache and heart symptoms was found (respondents with 50% computer exposure have 26,5% fewer pain symptoms). Significant difference was found between men and women, affected by computer exposure (males are 27% exposed compared to females). Younger respondents have 9% less pain symptoms, but they tend to take measures

concerning their health 1,2 times more than elder respondent. Education seems significant based on dominant difference between respondents with professional medium education and other respondents (20% more exposed than respondents with basic education).

Conclusion.

1. Computer exposure significantly increases pain variability in every age group, in both genders.
2. Respondents in the elder age groups tend to have more pain symptoms, whereas the youngest group leads in aspiration of improving any existing health problem.
3. Respondents with professional medium education have the most pain symptoms and they also tend to care more about their health conditions.

HUMAN WEIGHT EFFECTS ON HEALTH AND ITS RELATIONSHIP WITH CHRONIC DISEASES

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Key words. Hypertension, obesity, diabetes mellitus, chronic diseases.

Introduction. Nowadays, everyone is well aware that human health is based on three essential parts, and only state of complete physical, mental and social well-being as a whole can be considered healthy. And one of main indicators of physical well-being is normal body mass index, which is an integral component of the physical health in general. On the other hand increased BMI is considered a global problem in healthcare, and should not be considered as a problem of countries like USA or Mexico.

Physicians are the ones who most often see how obesity can harm patients. Metabolic syndrome, seen in obesity is the cause of cardiovascular disease, which is the most common cause of death in Latvia. Also, type 2 diabetes is mainly caused by nutritional factors and obesity.

Aim. The aim of this research is to find out body mass index effects on human health and its correlation with chronic diseases.

Results. Were interviewed 100 persons, in age from 18 years and above, about their daily habits and health condition. The study included 78 women and 22 men. Their body mass index varies from 19.0 kg / m² to 48.0 kg / m².

37% of individuals have a normal body mass index. 28% were overweight. 19% had obese class I. 5% had obese class II. 11% had obese class III.

37 out of 100 interviewed persons had normal body mass index. 27 out of 37 persons (or 73%) had normal blood pressure and 10 out of 37 (or 27%) had high-normal blood pressure, and no one out of 37 had history of hypertension. However, individuals with increased BMI divided more significant, 24 persons out of 63 (or 38%) had normal blood pressure, 14 out of 63 (or 22%) had high normal blood, and 24 out of 63 (or 40%) had hypertension. But statistically it is considered as a weak correlation between body mass index and blood pressure (correlation coefficient $r = 0.0464$ and $P \text{ value} < 0.001$).

No one out of 37 person with normal body mass index had diabetes. 10 out of 63 (or 16%) persons with a increased body mass had diabetes mellitus. However statistically it is still considered a weak correlation and data is not statistically reliable ($r = 0.154$; $P = 0.127$).

66 out of 100 (or 66%) Of the people interviewed claims to have a chronic illness, 42% out of them are obese and 26% are overweight. Among obese people 28 persons (or 78%) had chronic diseases. Among overweight persons 17 persons (or 63%) had chronic diseases. Among persons with normal weight 21 persons (or 57%) had chronic diseases. Depending on these data correlation between body mass index and chronic diseases is weak and statistically not reliable. (Correlation rate. $R = 0.295$; $P = 0.003$).

Conclusions.

1. Latvian society encounter problems associated with the excess weight.
2. People who are overweight more often complains about symptoms that interfere with their quality of life.
3. The study observed a weak correlation between overweight and the incidence of chronic diseases.

**PREVALENCE OF IRON DEFICIENCY ANEMIA AND
LATENT IRON DEFICIENCY AMONG YOUNG NULLIPAROUS
WOMEN - STUDENTS AT RĪGA STRADIŅŠ UNIVERSITY AND ART
ACADEMY OF LATVIA**

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Key words. Iron, Deficiency, Anemia, Women.

Introduction. Iron deficiency anemia is the most common haematological abnormality and is likely the most common non-infectious disease. Iron deficiency mainly affects women of childbearing age. Symptoms of anemia include dizziness, fatigue and muscle weakness, which reduces the patient's ability to work and quality of life. Iron deficiency may also have an impact on pregnancy's outcome - it is associated with higher risk of premature delivery, increased blood loss during delivery and lower birth weight. Anemia is responsible for about 20% of maternal mortality.

Aim. To determine prevalence of iron deficiency anemia and latent iron deficiency among young nulliparous women, comparing students at Rīga Stradiņš University (RSU) and Art Academy of Latvia (LMA). Identify risk factors (RF) and symptoms associated with development of iron deficiency.

Results. The study includes 112 women from age 20 to 31 years. Of these 112 women 11 (9.8%) have iron deficiency anemia, 20 (17.86%) have latent iron deficiency. This suggests that 31 (27.68%) have some degree of iron deficiency. In last three months 100 (89.3%) women had experienced at least one of these symptoms: increased fatigue, heart palpitations during exercise, hair, nails or skin changes. No statistically significant differences were found comparing RSU and LMA. An analysis of data showed statistically significant possibility to link these RF with the development of iron deficiency anemia: diet free of red meat ($P=0.030$) or chicken ($P=0.011$) and vegetarianism ($P=0.002$). Data also shows that women who had taken iron supplements during last three months are most likely to be anemic ($P=0.005$).

Conclusions. Almost third part of women included in study have iron deficiency and close to 10% have iron deficiency anemia. Vegetarianism and diet without red meat or chicken are strongly linked with development of iron deficiency anemia. Data raises doubts about readiness of young women for their first pregnancy, assessing it from the perspective of body iron stores. It

would be advisable to pay more attention to the amount of body iron stores of young women and correct the deficiency before pregnancy if possible.

HIGHER INCIDENCE OF TYPE 2 DIABETES AMONG WOMEN; WORKING IN NIGHT SHIFTS. A REVIEW

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Key words. Incidence, diabetes, women, night shift.

Introduction. Night shift work has various adverse health outcomes; like diabetes, hypertension and also malignancies. Diabetes is a global epidemic related to various lifestyle factors. The expected prevalence has been predicted to be 4.4% of total world population by the year 2030. With the trend towards 24x7 work schedules, women are increasingly participating in night shifts. Moreover these women have an additional risk of bad pregnancy outcomes, if they have diabetes. Disruption of circadian rhythm causes various physiological changes leading to increased risk of type 2 diabetes mellitus.

Aim. This study aimed to review qualitatively and summarize the evidences on the possible relationship between incidence and risk of type2 diabetes among women, working in night shifts.

Results. Two studies were selected for qualitative review from three data bases: CINAHAL, PubMed and Google Scholar accessed from the library, university of eastern Finland. One study showed 365 positive cases among a cohort of 62574 nurses, and the other one demonstrated 6165 and 3961 incident cases in two different nurse cohorts of 69269 and 107915 respectively. Only one of these studies assessed the risk of type 2 diabetes with respect to number of years worked in night shift. The adjusted hazard ratio (adjusted for Body Mass Index) being 1.03 (95%confidence interval 0.98-

1.08) and 1.24 (95% confidence interval 1.13-1.37) for women working in night shifts for 1-2 years and more than 20 years respectively.

Conclusion. The incidence of type 2 diabetes mellitus seems to be higher among night shift working women. The risk also increases with an increase in number of years worked at night. Moreover, the higher incidence seems to have a correlation with the body weight. Despite clear trends the major drawback of the current studies was short follow up and only nurse cohorts. Nevertheless, additional studies are warranted for further confirmations.

MALT BEVERAGE AS A HEALTHY ALTERNATIVE TO OTHER SWEETENED BEVERAGES

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Key words. malt beverage, sweetened beverages, maltose, B group vitamins.

Introduction. Sweetened soft drinks are very advanced today in the world and also in Latvia. Beverage health effects can be harmful because of composition of added sugars (empty calories), artificial sweeteners and a variety of food colourings. Such drinks are available to any customer, including children.

Aim. The aim of research is to analyse the nutritional value and vitamins of malt beverages and compare it to other Latvian stores available sweetened beverages. New recipe for malt beverage with no added sugar (sucrose), artificial sweeteners and food colourings have been made collaborating with food technologists. Nutritional value and vitamins of new product have been tested in laboratories. The results compared with other sweetened beverages based on information on labels. Beverages available in stores divided into groups - malt beverages and kvass, soft drinks, ice tea, lemonade and non-alcoholic sparkling drinks, and athletes drinks. Information gathered about 53 different beverages. Also one of the tasks was to figure out consumers rating of malt beverages with different sugar content and sweetness. This is done by using questionnaire which includes organoleptic characteristics of three different malt beverage samples and the closed type questions about its healthiness. Participants - 113 adults with no sex and age restriction.

Results. The results showed that the malt beverages and kvass group is the highest in energy value but this group has least artificial sweeteners and food colourings. The newly created malt beverage nutritional analyses results show that natural malt sugars still constitute a relatively high carbohydrate, hence the energy value although there is no extra sucrose added. Analysed information about carbohydrate fractions shows that the most malt beverage sugar is made up of maltose. Analyses results show that malt beverage is a great source of B group vitamins. The questionnaire results show that consumers are accustomed to the sweet taste of beverages, however, if offered a beverage with less sweetness, a lot of people would prefer it first.

The glycemic index of maltose is even higher than sucrose and that's why the malt drink is recommended for athletes and everyone who needs a rapid energy intake. Malt beverages have significant dose of natural B group vitamins so it is recommended to athletes, pregnant women as well as vegetarians and vegans.

ELECTRONIC CIGARETTES HELP PEOPLE QUIT SMOKING?

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Key-words. e-cigarettes, inflammation, nicotine.

Introduction. In the current time young people find e-cigarettes as an alternative for traditional cigarettes. In general new invention do not contain tobacco, although it do use nicotine from tobacco plants. Definite advantage of e-smoking is lack of smoke, but it produces some kind of aerosol. The benefits and risks for health are still unfortunately unclear. E-cigarette users claim that electronic device is completely harmless, but scientist stay restraint. Some of experiments reveal that aerosols and flavorings damage lung cells by creating harmful free radicals and inflammation in lung tissue. What is more the inhaled vapors contain heavy metals and other possible nanoparticles of carcinogens, which can reach farther into lung tissue, cell systems, and blood stream. It causes locally oxidative stress and contributes to cell damage.

Aim. The aim of study was to verify if e-cigarettes users find them way to give up smoking. We created short survey of 16 questions, which help us check opinion among this group of people. Results of survey were analysed. Total number of questionnaires reached 204.

Results. Within group of e-smokers there were 198 present smokers and 6 ex-smokers. The age of people was as follows: 190 at group from 18 to 26 year old, 3 26-40 year old and only 5 between 40 and 60 year old. The age of interviewees was probably generated by way we gathered people who filled out a form (via popular social network). The number of people with secondary education was 150, with basic education 24 and with high education 30. 152 people was born in the city and 52 was born in the countryside. In our survey we asked how many times have you tried to quit smoking. A lot of people tried to quit at least one time but only six quit definitely. For 91 % people e-cigarettes were beginning of addiction to nicotine. Only 9 percent changed their traditional cigarettes on e-cigs. Furthermore especially those people who on average smoked 5-10 cigarettes a day were more likely to choose e-cigarettes with high content of nicotine. This trend of choosing higher contents of nicotine in liquid by traditional smokers was evident.

Conclusions. As a result unfortunately the majority find electronic addiction capability to start to try nicotine. When people quit from traditional cigarettes reached for higher contents of nicotine in e-cigs than dose, who begin their addiction from electronic and did not smoke before. It is important to know accurate influence of e-cigs on our organism before we legitimise it formally as a treatment of nicotine addiction.

PREVALENCE OF COMPUTER VISION SYNDROME BETWEEN OFFICE WORKERS IN LATVIA

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Key words. Computer vision syndrome, office workers, tired eyes, eye strain.

Introduction. Computer Vision Syndrome is described by American Optometric Association as a group of eye and vision-related problems that result from prolonged computer use. Many individuals experience eye discomfort and vision problems when viewing digital screens for extended

periods. The level of discomfort appears to increase with the amount of digital screen use. In Latvia 98.1% of companies use computers in their daily work. Many professions, such as economists, accountants, secretary, administrators etc., work with computers for a whole day. Often they forget about visual hygiene and prophylaxis to prevent changes in vision. A long term vision discomfort can lead not only to changes in employee health, but also economical disadvantages to the companies.

Aim. With a survey we wanted to find a prevalence of Computer Vision Syndrome between office workers in Latvia and to collect information about most common symptoms of CVS, vision hygiene and prophylaxis that is used in offices in Latvia.

Results. 116 office workers from Latvia answered a survey about CVS. The mean age of participants was 38.4 years. Females were 63.79% (74/116), but males - 36.21% (42/116) from participants. The analysis of hours, spent on working with computer reveals that 77.6% (90/116) of respondents work with computer more than 6 hours per day, 17.2% (20/116) works for 4-6 hours and 5.2% (6/116) less than 4 hours per day. The most common visual problems reported among computer users were tired eyes – 80.17% (93/116), neck pain – 54.31% (63/116), shoulder pain 40.51% (47/116) and dry eyes 32.76% (38/116). All participants have at least one of the CVS symptoms. 36.2% (42/116) of participants do not make breaks to rest their eyes, but 31.89% (37/116) every day make 2-5 at least 15 minutes long breaks from computer work. Most of participants - 83.6% (97/116) do not use display filters for computers. Female were found to be at a higher risk to develop neck pain ($\chi^2=6.976$, $P<0.05$).

Conclusion. High prevalence of vision related problems was noted among office workers. Double vision was found to be associated with working hours. There is a need to increase the ergonomic awareness among office workers to prevent development of symptoms that are related to use of computer.

CHARACTERISTICS OF PHYSICAL DEVELOPMENT FOR TRAINING PERSONS HEALTH

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Key words. Physical development, muscle – fat mass ratio, muscle strength, healthy eating, active physical activity.

Aim. Identify characteristics of physical development of people practicing health promoting activities.

Introduction. Health is a factor influencing the quality of life of every person. It allows to live an interesting and valuable life. The most valuable factors of promoting health is physical activity and healthy eating. These days a lot of people involved in active physical activity are doing it not because of competition, but to improve health, lose weight and for social reasons. Increasing number of sports clubs and the number of people who visit them shows that the population's interest in personal physical education and physical fitness is growing. There are a lot of research on how physical activity and individual nutrients affect the person's health. However, there is not enough research on how health-raising activities compatibility influences a person's physical development indicators.

Methods. To evaluate nutritional habits and knowledge about healthy nutrition representatives were given anonymous questionnaire.

The anonymous questionnaire of nine additional questions was designed to evaluate participants' physical activity.

To evaluate anthropometric data skin and subcutaneous tissue fold were measured using caliper, extremities volumes were measured using metric tape.

To evaluate maximum muscle strength of certain muscle groups three exercises were performed: bench press, squat, deadlift.

Results. Exercise frequency per week had moderate statistically significant ($p < 0,05$) correlation with body fat mass, and muscle – fat mass ratio. Also moderate statistically significant ($p < 0,05$) correlation between experience in physical activity and large muscle groups maximum strength was found. Muscle mass and BMI had also moderate statistically significant ($p < 0,05$) correlation with large muscle groups maximum strength. Dietary habits

had weak statistically significant ($p < 0,05$) correlation with knowledge about healthy nutrition.

Conclusions. Maximum strength of large muscle groups depends on experience in physical activity. Respondents who perform more exercises per week has lower percentages of body fat and better muscle – fat mass ratio. Dietary habits didn't have statistically significant correlation with maximum strength of large muscle groups and anthropometric data. 71 percent of subjects combines aerobic exercises with strength training exercises, but physical development indicators did not had statistically significant differ from those who perform strength training exercises only.

VITAMIN D AND CARDIOMETABOLIC RISK FACTORS IN PEDIATRIC: A SYSTEMATIC REVIEW

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Key Words. Vitamin D, cardiometabolic risk, children, adolescent.

Introduction. Cardiovascular diseases are the number one cause of death globally. About 75% of diseases are related to preventable risk factors such as obesity, high blood pressure, metabolic disorders.

Vitamin D deficiency is becoming increasingly more prevalent across multiple population, which is also potential risk factor for cardiovascular disease.

Nowadays there is increasing the amount of evidence confirming the vitamin D deficiency in adults could be related with cardiometabolic risk. However the most risk factors are started in childhood, it is necessary to examine the evidence of this relationship in particular population group.

Aim. Collect and analyze of available research data on the relationship between vitamin D levels in the blood serum and cardiometabolic risk factors in children and young adults

Research methods. Data search was performed in five databases - Science Direct, ProQuest, EBSCO, PubMed, Cochrane Library, by the key words, which are divided into three groups - Vitamin D, cardiometabolic risk factors and pediatric. The report was included the cross-sectional studies, the respondents were relatively healthy and younger than 18 years, and studies which were analyzed the correlation between vitamin D and some of the

cardiometabolic risk factors. The report was selected studies, which were published in the 2004th until 2014.

Results. The systematic review included 15 cross-sectional studies that met all inclusion criteria. The analyzed studies included a total of all cardiometabolic risk factors measurements in its analysis of the vitamin D serum levels, the most found correlation was with body mass index as an indicator of overweight, as also with lipid parameters. The most common vitamin D as measured was 25(OH)D. All studies were of high quality and comparable to each other.

Conclusions. The correlation between vitamin D and cardiometabolic risk factors in pediatric were conflicting. The highest level of evidence is a statistically significant correlation between vitamin D and obesity (as body mass index) and lipid disorders (as highdensity lipoprotein cholesterol levels in serum). Research evidence does not confirm the possible effect of vitamin D mechanism to cardiometabolic risk factors in children and young adults, but there are indications that it works in the long term. This justifies the need for more longitudinal epidemiology studies.

LIFESTYLE SURVEY OF MEDICAL STUDENTS AND RESIDENTS OF RĪGA STRADIŅŠ UNIVERSITY

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Key words. Healthy lifestyle, overweight, students.

Introduction. According to WHO estimates, by 2020, noncommunicable diseases will account for approximately three quarters of all deaths in the developing world. According to data of study "Health Behaviour among Latvian Adult Population, 2012" by The Centre for Disease Prevention and Control (CDPC) of Latvia in age group from 25 to 34 years, 41,8% men and 28,5 % women are overweight. Overweight and obesity are linked to noncommunicable diseases such as diabetes, metabolic syndrome, cardiovascular diseases, orthopedical, neurological, psychological and other health problems.

Aim. The aim to the study was to clarify the lifestyle habits and find out the main risk factors for overweight of the medical students and residents of Rīga Stradiņš University. In this study the information about the diet, bad habits, duration of sleep, level of physical activity, knowledge about healthy lifestyle was gathered and compared between the groups of respondents. Weight and height data was also collected to calculate the body mass index (BMI). It was important to find out if they check their health condition regularly and what their self-assessment of their health is.

Results. The study involved 172 respondents, 96 (55.8%) residents and 76 (44.2%) students. The average age for students was (years \pm SD) 23.63 ± 2.07 and 27.16 ± 3.05 years for residents. The average BMI ($\text{kg/m}^2 \pm \text{SD}$) was 21.81 ± 3.39 for students and 22.76 ± 3.82 kg/m^2 for residents. Only 4 (4.16%) of residents and 2 (2.63%) of students admitted the lack of knowledge about healthy lifestyle ($p=0.33$). 4 (4.3%) of residents and 11 (14.5%) of students are smokers ($p=0.02$). 72 (75%) of residents and 28 (36.8%) of students have work in night shifts ($p=0.001$). 9 (9.7%) of residents and 46 (62.2%) of students take a nap on weekdays ($p=0.001$). The basic principles of healthy eating are ignored by 36 (37.9%) residents and 29 (32.9%) students ($p=0.462$). The majority of respondents lacked moderate and intensive physical activities. In the previous year 21 (27.6%) of students and 36 (37.5%) of residents have not had preventive check-up by their general practitioner ($p=0.17$). During the previous year 6 (8%) of students and 19 (19.8%) of residents have not had their blood pressure checked ($p=0.03$). The blood glucose was not checked 38 (51.4%) of students and 65 (68.4%) of residents ($p=0.024$) and lipid profile was not checked 56 (73.7%) of students and 87 (90.6%) of residents ($p=0.024$).

Conclusion. Both students and residents have several, preventable risk factors for overweight and obesity: unhealthy diet, lack of physical activities, smoking, and work on night shifts. To avoid obesity students and residents need to pay more attention to a healthy lifestyle.

CARDIOVASCULAR RISK FACTOR INCIDENCE OF WORKING NURSES

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Key words. Nurses, cardiovascular risk factors, shift work, rotation shift.

Introduction. Overweight and associated cardiovascular risk factors, including hypertension, dyslipidaemia and hyperglycaemia, are increasing, even among younger people. Health care workers, who work in night hours, are at higher cardiovascular risk prevalence. Smoking, irrational diet and stress are widespread among night shift employees and that increases the risk of getting high blood pressure, dislipidemia, and overweight.

Aim. Determine and evaluate cardiovascular risk factors of working nurses.

Methods. The study included 48 nurses aged 45-55 years. Nurses were divided in two groups: first group - 24 day shift nurses; second group - 24 rotation shift nurses. The study was carried out using Questionnaire (including questions about age, physical activity, stress, alcohol, smoking) and assessment protocol, including anthropometrical assessment (weight, height, waist and hips circumference, body mass index), blood pressure, heart rate, and questions about laboratory measurements (total cholesterol, triglycerides, low-density lipoprotein, high-density lipoprotein and blood glucose levels).

Results. The day shift nurses average age was 51,8 years, but rotation shift nurses average age was 49,7 years. Analyzing blood pressure results showed, that rotation shift nurses had higher systolic (4mmHg) and diastolic (3mmHg) blood pressure compared to day shift nurses. Body mass index was higher for rotation shift nurses, it was 27,1, while day shift nurses was 26,6. There was no statistically significant difference between heart rate, waist and hips circumference, total cholesterol and glucose levels among rotation and day shift nurses. 50% of rotation shift nurses were smokers and that is two times more than day shift nurses. During the last month 58,3% of day shift nurses had used alcohol, however only 37,5% of rotation shift nurses had done that. 83,3% of rotation shift nurses note that they had stress at work during the last month, which is 29,2% more compared to day shift nurses. During the last month 62,5% of day shift nurses performed physical activity, which is 16,7% more compared to rotation shift nurses. (P. Smith et al, 2013) study shows similar results. The rotation and night shift nurses had higher BMI as well as a higher prevalence of being smokers and having stress compared to day shift

nurses. Prevalence of alcohol users among rotating shift nurses was lower than in (P. Smith et al, 2013) study.

Conclusions. The results show that nurses who work in rotation shift have higher cardiovascular risk factor prevalence, compared to day shift nurses. Rotation shift nurses have higher systolic and diastolic blood pressure, body mass index, have stress and a habit of smoking.

SLEEP HABITS AND SLEEP QUALITY AMONG MEDICAL STUDENTS OF RIGA STRADINS UNIVERSITY

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Keywords. Sleep habits, sleep quality, medical students.

Introduction. Sleep and its quality is essential to ensure persons physical and psychological well being as it plays crucial role in some of the body's physiological responses. Thus ongoing unhealthy sleep habits and lack of sleep quality can affect physical health in ways like developing chronic diseases and mentally, causing emotional problems, affect thinking and prolonging reaction time in different situations. Medical students are subjected to high academic standards and high responsibility while working with patients thus they are exposed to high stress levels throughout studies. These factors, among others, may be responsible for unhealthy sleep habits and poor sleep quality and therefore medical students could be predisposed to problems associated with ongoing sleep problems.

Aim. The aim is to determine sleep habits and sleep quality among medical students of Riga Stradins University

Results. During the research, 306 Latvian medical students from all study years in Riga Stradins University have been surveyed. Survey included Pittsburgh Sleep Quality Index and questions about respondent's lifestyle - diet, exercise and unhealthy habits, opinion about their stress levels and intensity of their study process. 82 % of the respondents were female and accordingly 18 % male. 65% of them noted that they suffer from intermittent stress episodes, 27 % said they are under stress on regular basis and only 8% revealed that they don't suffer from stress at all. Also 44 % of them revealed that they sleep 5 -7 h per night, slightly less than average amount needed for a

good nights sleep (according to most guidelines) and 32 % said that their hours of sleep differ every night. Statistically significant evidence exists to show that medical students in Riga Stradins University suffer from poor sleep quality and disturbing sleep patterns. Further examination of the results is necessary to reveal additional insights into their sleep habits and factors that may affect them.

Conclusions. Medical students in Riga Stradins University are subjected to different factors that cause unhealthy sleep habits and poor sleep quality. Some of these factors, like stress and intensity of the studies, can be associated with studies in university. And some of these factors, like caffeine, are being used, despite the medical knowledge about them and their effects on sleep quality.

PREVALENCE OF OSTEOPOROSIS, TREATMENTS AND MOST COMMONLY ARISE COMPLICATIONS IN THE GENERAL PRACTITIONERS PRACTICE

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Introduction. Osteoporosis is a chronic, progressive and multi-factorial skeletal disease and it is one of the 10 most serious and disabling diseases. It is characterized by decreased bone mineral density also known as thinning of the bones, with reduction in bone mass, due to depletion of calcium and bone protein. That lead to enhanced bone fragility and the consequent increased risk of fracture. Osteodensitometry is the most widely used bone mineral density determination method.

Aim. Perform data analysis and determine the prevalence of osteoporosis. Find out methods of existing treatments and their effectiveness as well as complications that most commonly arise in General Practitioner's practice.

Results. Summarizing the out-patient card data it was concluded that 24% of the initially selected 274 patients were affected by osteoporosis. Patient's average age is 66.9 years. Based on the clinical classification 46% has established postmenopausal osteoporosis, 34% has Senile osteoporosis and 20% has the secondary osteoporosis. Evaluating osteodensitometry

performance analysis, osteopenia was observed in 43% of patients, osteoporosis in 27% of patients, and severe osteoporosis in 30% of patients. 25% of study participants are daily smokers. Changes in laboratory test were observed in 36% of cases, 34% of which was found that there were reduced levels of vitamin D in serum and 21% had a reduction in calcium levels in serum. Collecting data on osteoporosis complication causes it was found that 37% had a history of bone fractures and 75% noted chronic pain. Furthermore 75% of patients are using medications, 52% of patients are using vitamin D supplement, 42% of patients are using calcium supplement and 37% of patients are using bisphosphonates supplement. Once data was processed with SPSS computer program, the results suggested that 60% of patients with severe osteoporosis have more than one fracture. It was found that fractures occur more frequently for patients with osteopenia rather than osteoporosis, and this is consistent with the literature data. 67% of patients who use medications daily haven't had any bone fractures, while 24% of patients who don't use any medication on daily bases have experienced bone fractures. Pain was observed in 32% of patients with osteopenia, 30% of patients with osteoporosis and 38% of patients with severe osteoporosis. Study also showed that 75% of patients with reduced bone mineral density have normal levels of calcium in the blood and 44% of patients have normal levels of vitamin D in serum.

Conclusion. Osteoporosis is a common disease that General Practitioners encounter on a daily bases. It leaves a significant impact on quality of life for all patients who suffer from this disease as complications involve pain and bone fractures. Effective osteoporosis therapy reduces bone fractures and improves bone mineral density.

MEDICAL COMPLICATIONS FOLLOWING TRAUMATIC SPINAL CORD INJURY DURING PRIMARY REHABILITATION

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Key words. Spinal cord injury, complications, SCIM.

Introduction. Medical complications of spinal cord injury include pressure ulcers, autonomic dysreflexia, urinary tract infections, pain, spasticity and others. They may have a negative effect on a patient's health, social

integration and quality of life or even result in a lethal outcome.^{1,2} Therefore, it is very important to understand which complications are common for people with traumatic spinal cord injury, and which factors lead to their involvement. Understanding of typical complications of this group of patients leads to improved planning of prophylactic activities and consequently to better therapeutic outcome.

Aim. To get better understanding of the incidence, types and risk factors of medical complications of patients with traumatic spinal cord injury during primary rehabilitation.

Methods. Retrospective review of 134 medical records of patients with traumatic spinal cord injury who underwent primary rehabilitation in National Rehabilitation Centre “Vaivari” between January 2011 and December 2014 was performed. Statistical analysis is done using SPSS package.

Results. The mean age of subjects was 41,8 years. Men accounted for 83,6% of patients, women – for 16,4%. The injury was located in cervical region in 53,0% of cases, thoracic – 25,4%, lumbal and sacral – 21,6%. American Spinal Injury Association (ASIA) category A lesion was diagnosed in 25,4% of patients, B – 26,9%, C – 17,9%, D – 27,6%. The major cause of traumatic spinal cord injury were falls (37,3%), followed by transport accidents (29,1%), sport and leisure activities (18,7%), other causes (7,5%), and assault (2,2%). The most common complications were the following: pain (76,9%), spasticity (47,8%), urinary tract infections (44,8%), pressure ulcers (24,6%), and orthostatic hypotension (14,2%).

Patients with complete injuries showed higher incidence of pressure ulcers ($p<0,001$) and urinary tract infections ($p<0,001$). Higher level of injury was associated with orthostatic hypotension ($p<0,05$), urinary tract infections ($p<0,05$) and spasticity ($p<0,001$). Pneumonia was prevalent largely among patients with complete and high lesion ($p<0,05$).

Conclusions. The most common complications following traumatic spinal cord injury are pain, spasticity, urinary tract infections, pressure ulcers and orthostatic hypotension. Complete injuries are associated with the presence of pressure ulcers and urinary tract infections, higher level of injury - with orthostatic hypotension, urinary tract infections and spasticity.

DIFFERENT BODY WEIGHT SUPPORT SYSTEM STRATEGIES INFLUENCE ON BALANCE AND COVERED DISTANCE FOR STROKE SURVIVALS USING MECHANICAL GAIT TRAINER

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Key words. Stroke, mechanical gait trainer, body weight support system, physical therapy

Introduction. Stroke survival patients gait function lost or huge dysfunction in gait parameters leads to calmer, more settle way of life. It also leads to restriction of patient daily physical activities. The patient and his family members future heavily depends on his ability to walk and move, that's why return of the gait features and balance training is one of the most important goals of physical therapy. Recent studies show that gait trainer integration in physical therapy procedures improves patients after stroke gait and balance. However, the different body weight support system (BWSS) strategies influence on after stroke survivals balance and covered distance have not been evaluated in previous studies.

Aim. To compare different (BWSS) strategies influence on after stroke patient covered distance and balance using a mechanical gait trainer.

Results. The study subjects were divided into two treatment groups by BWSS strategy. The treatment lasted 4 weeks, each week body weight unloading amount was changed. According to strategies I group weight unloading was 60% / 45% / 30% / 15% of body weight and II group 30% / 22.5% / 15% / 7.5%. The patients were tested three times: at the beginning, after two and 4 weeks.

Berg's balance scale results at the beginning of the study for I group was $4,6 \pm 5,32$ points, II – $2,8 \pm 3,11$ points. Second test results in I group hasn't improved statistically significantly ($p > 0.05$), while II group results have improved significantly ($p < 0.05$) respectively, but no statistically significant difference was found between the groups ($p > 0.05$). Comparing the data of the start and end of the study both groups showed statistically significant improvement ($p < 0.05$). Respectively I group $33,4 \pm 22,76$ points, II - $36 \pm 17,2$ points. There was no statistically significant difference between the groups ($p > 0.05$).

Evaluation of patients covered distance at the beginning for I group were 0m, group II - 0 m ($p = 1$). Second testing results in I group hasn't

improved statistically significantly ($p > 0.05$), while II group results have improved significantly ($p < 0.05$), but no statistically significant difference was found between the groups ($p > 0.05$). Comparing the data of the start and end of the study in both groups statistically significant increase ($p < 0.05$). I group result was 141.2 ± 114.57 m, II - 199.6 ± 131.42 m. However, there was no statistically significant difference found between the groups ($p > 0.05$).

Conclusions. Mechanical gait trainer using different BWSS strategies showed significantly improvement in patients' balance and covered distance during the study. No statistically significant difference between different BWSS strategies have been observed. The study is continuing to grow the sample and find out the effectiveness of different methodologies.

RELATIONSHIP BETWEEN PHYSICAL ACTIVITY, FUNCTIONAL ABILITY AND JOINT HEALTH IN CHILDREN WITH HAEMOPHILIA

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Keywords. Haemophilia; Physical activity; Functional ability; Joint health; Children

Introduction. Even before 40 years various forms of physical activity has not been recommended for patients with haemophilia, assuming that the sedentary lifestyle will reduce the risk of injury. However epidemiological studies have shown the benefits of physical activity in prevention and rehabilitation of various diseases including haemophilia and their complications. Despite this positive trend, children with haemophilia still tend to be less physically fit than their healthy peers.

Aim. The main purpose of this study was to assess physical activity in children with haemophilia and its association with their functional ability and joint health.

Material and methods. Research material consisted of 10 boys aged 4 – 17 (mean 9.44 ± 4.30 years) with severe or moderate haemophilia A or B.

Subjects activity level was assessed with Pediatric version of Haemophilia Activities List (PedHAL), joint health with Haemophilia Joint Health Score (HJHS version 2.1), functional ability with a Six-Minute Walk Test (6MWT).

Results. The analysis showed that in Lithuanian children with haemophilia reduced physical activity in sport and leisure activities ($81,17 \pm 16,55$ points) and functional ability ($481,55 \pm 83,46$ points) were revealed. A strong statistical correlation was found between the low ratings of physical activities and functional ability of lower limbs scores – leisure activities and sport and sitting/kneeling/standing ($r=0,711$, $p=0,021$), and functions of legs ($r=0,772$, $p=0,009$). A strong statistically significant correlation ($r=-0,787$, $p=0,046$) was found between functional state of joints and physical activity in daily life scores. Functional ability displayed significant correlation with the subjects age ($p=0,046$).

Conclusions. Lithuanian children with haemophilia showed reduced physical activity and functional ability when compared with their healthy peers. With the reducing of joint damage in children with haemophilia, the level of physical activity and functional ability in this population of patients increased. It means that increasing of joints damage in children with haemophilia, deteriorated their physical activities in daily life. The increasing of leg's functional capabilities, improved children's with haemophilia participation in leisure activities and sport. Age influences the subject's functional ability.

EFFECTIVENESS OF DIFFERENT RELAXATION THERAPIES FOR ADOLESCENTS WITH LOW BACK PAIN

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Key words: vibroacoustic therapy, massage, low back pain, psychosocial factors, physical indicators

Introduction: It's thought that back pain is a multiple health disorder. About 50 percent disability cases, caused by LBP are related to worsening of

physical health, the rest – with psychological distress and behavior during illness. Although there is no common opinion regarding the nature of these factors and their relations, the priority should be focused on psychosocial factors. They determine the ability to manage pain, so it's important not only to effectively control the physical pain but also mental and psychological disorders. In recent years, mental health issues have devoted more and more attention, but research in which to draw attention to adolescents of LBP and psychosocial factors interfaces still limited. In particular, there is a lack of studies, demonstrating the effectiveness of different relaxation therapies (vibroacoustic therapy and massage) for adolescents with LBP. This has encouraged us to conduct this study.

Aim: To assess effectiveness of different relaxation therapies for adolescents with low back pain and determine factors causing pain.

Results: In study participated 40 (n=40) 13 – 18 years old adolescents with LBP. Two groups were formed – group I (n=20) and group II (n=20). Participants of group I have got physiotherapy procedures using stabilization exercises and vibroacoustic therapy. Participants of group II have got physiotherapy procedures using stabilization exercises and classic back massage.

After rehabilitation results of the tests were improved in both groups statistically significantly ($p<0,05$). Evaluation of pain according to Visual Analog pain Scale (VAS) in the group I decreased 2,70 points, in the group II – 2,45 points. Evaluation of functional condition according to Oswestry questionnaire in the group I improved 2,70 points, in the group II 2,95 points. Evaluating psychosocial factors, it was stated that 15 percent of all participants have psychosocial difficulties, 25 percent are likely to experience them and 60 percent don't experience difficulties. Adolescents from both groups have most problems with their peers. LBP experienced by adolescents is linked with behavior problems and emotional symptoms ($p<0,05$). Evaluation of trunk muscles static endurance also improved in both groups statistically significantly ($p<0,05$). Adolescents' LBP is correlated with ratio of trunk side muscles and back extensor endurance ($p<0,05$).

Conclusions: After rehabilitation both group adolescents' low back pain decreased ($p<0,05$) and evaluation of lumbar spine functional condition changed statistically significantly ($p<0,05$). In the group I which have got physiotherapy and vibroacoustic therapy compared to the group II which have got physiotherapy and classic back massage pain intensity decreased more efficiently. However, significant difference ($p>0,05$) was not found between used methods. Statistically significant correlation ($p<0,05$) was found between

adolescents' LBP and emotional and behavior problems, trunk side muscles and back extensor endurance.

EFFECTS OF DIFFERENT STRENGTH WORKOUT REGIMES ON STRENGTH AND ENDURANCE CHARACTERISTICS IN PEOPLE WITH SPINAL CORD INJURY

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Key words. Spinal cord injury (SCI), strength, endurance.

Introduction. The main goal of rehabilitation for people with SCI is to achieve functional independence and personal mobility. It is possible to achieve longer-lasting and more complex execution of movements by increasing muscle strength and endurance.

Aim. To find the most suitable method of strength training and to compare the effect of two different training regimes on the characteristics of maximum strength and power endurance in people with SCI.

Materials and Methods. The study was conducted the NRC "Vaivari" from July to December 2014. The study included 10 people with SCI ranged in age from 26 to 52 years. Participants were divided into two groups who attended the gym for 7 times in 3 weeks. Maximum overcoming resistance test and maximum number of repetitions test were performed by exercise machines "CYBEX Bravo 8800" and "IMPACT LC9830". The first group performed at a moderate speed – the concentric and eccentric phase lasted for 2 seconds, at the end of each phase there was a pause for 1 second. The movements were executed with a full range, at a steady pace. 8-12 repetitions in one attempt, with resistance around 75% of the maximum. A total of 3 rounds of each exercise, with 2-minute breaks between the attempts. The second group performed at a slow pace – the concentric and eccentric phase lasted for 10 seconds, without pauses. The movement was executed without full amplitude, without relaxation at the final stages until muscle failure occurred within 90 to 120 seconds from the beginning of the exercise. In this group the first resistance value of the workout exercises was 65 % of the maximum.

Results. For the first group the strength increased by 19.2%, while for the second group -by 20.3%. The first group had changes ($p < 0.05$) in strength

in one exercise, the second group – in three exercises. In both groups the greatest increase of strength was in the exercise “straightening the forearm, using high-blocks”. In this exercise for the first group the strength was increased by 44%, in the second group - by 50% ($p < 0.05$). In the first group the force strength values, which were established after the maximum number of repetitions lifting the 50% weight of the maximum weight of what was the end of the study, in four exercises on average decreased by 9.5%, while in the second group increased by an average of 17.3%, which indicates that for the first group the strength increased faster than the endurance, while for the second group, the endurance of strength increased faster.

Conclusions. In both training programs the maximum strength was greatly increased. Strength endurance was significantly improved for second group. Study should be continued with more participants. Data can be used to develop guidelines for coaches working with SCI patients.

PHYSICAL DEVELOPMENT AND SPINE POSITION ASSESSMENT FOR THE RIGA SCHOOLCHILDREN OF THE 1ST, 2ND, 6TH AND 7TH FORMS

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Introduction. Physical development and spine condition of the children are important indicators of their health. Physical development is characterized by the weight and height, spine position and posture. Children spend most of their time sitting on their school benches, but unfortunately those benches are not suitable for the children's stature, and over a longer period of time it causes changes of the spine position. An important factor is also the heavy weight of the school bags, which often exceeds the standards accepted for the children in the Republic of Latvia.

Aim. To assess physical development by weight and height, position of spine, weight of the school bags, to assess the school bench conformity to the children's stature in the 1st, 2nd, 6th and 7th forms of the Riga school.

Results. Summarizing the results of the questionnaire, it was concluded, that 70% of the 109 children of the 1st and the 2nd forms are actively engaged in sports after school. Asked about therapeutic gymnastics,

only 11% of the respondents are currently engaged, 25% have done it earlier, and 64% have never been to therapeutic gymnastics. 37% of the respondents feel back pain, but 85% are feeling good on their school benches.

Summarizing the answers of 91 children from the 6th and the 7th forms, the results show that 65% of them are actively engaged in sports after school. 62% have never attended therapeutic gymnastics, 4% are attending it now, and 34% have attended it some time ago. 36% of the respondents answered that they feel back pain, but 68% are feeling good on their school benches.

Processing data with SPSS computer programme, the results show that the body weight of the 41% of the children from the 1st and the 2nd forms exceeds the preferred limits, but 10% of the children demonstrate insufficient body growth. 35% of children have back issues – i.e., 26% posture weakness, 9% – scoliosis. For 67% of the children the weight of their school bags exceeds the norm.

54% of the children from the 6th and the 7th forms have increased weight, but 6% – decreased height. 37% of the children in this group have back issues.

The school benches are suitable for 46% of the 1st and the 2nd form schoolchildren, and for 42% of the 6th and the 7th forms.

Conclusion. Comparing questionnaire and the measurement data between the two groups, significant differences are not found. In both groups one third of the children have problems with their posture and almost one half of the children have the increased body weight. More than a half of the children have too heavy school bags and the school benches that are not suitable for their stature.

PECULIARITIES OF BASKETBALL PLAYERS FUNCTIONAL MOVEMENTS AND ITS RELATIONSHIP WITH TRAINING FREQUENCY

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Key words. Basketball players, functional movements, training frequency.

Introduction. The function movements are complex movements, involving the body's kinetic linking system, i.e interacting of interdependent body segments. Basketball players perform many and various functional movements involving body's kinetic chain. The function movement screen is a testing tool to assess fundamental human movement pattern its impairment can affect a person's movement restriction. These tests are also used in sport to predict possible musculoskeletal injuries, or to prevent re-injury. Thirty two basketball players took part in the research. The athletes were divided into two groups according to the total number of weekly training and competition participated. The first group of athletes (16 basketball players) consisted of moderately active athletes, who trained and participated in competition 2-4 times a week (the average age was $22,5 \pm 1,4$). The second group (16 basketball players) consisted of very active athletes, who trained and participated in competition 7-14 times a week (the average age was $21,2 \pm 0,7$). The groups were homogeneous by age, body composition index and training experience. Questionnaire survey, anthropometric measurement, functional movement screen, modified star excursion balance test were applied in the research. Arithmetic average and standard deviation were calculated. The nonparametric Mann-Whitney test was used to compare independent samples. To assess the reliability of statistical hypotheses the level of significance was set at $p < 0,05$. The correlation was determined by applying Spearman correlation coefficient.

Aim. To evaluate functional movements of basketball players and its relationship with training frequency.

Hypothesis. More trained and participated in competition basketball players would get better functional movements results.

Results. First group of basketball players had $15,2 \pm 1,4$ Functional movement screen score. Second group of basketball players had $16 \pm 1,3$ functional movement screen score. Statistically significant difference between these groups was not found ($p > 0,05$). In both groups 27 percent participants had functional movement screen score less or equal 14 which shows the higher risk of injury. Small correlation ($r^2 = 0,09$) ($p < 0,05$) between both groups functional movement screen score and players training frequency was found. Dynamic balance test score was $90,7 \pm 0,02$ percent and it was lower than recommended. Lower score than 95 shows that injury chance is 6.5 times higher. There was no statistically significant difference between both groups ($p > 0,05$). The long jump score for the second group of basketball players was significantly higher ($255,5 \pm 8,6$ cm) than for the first group of basketball players ($242,4 \pm 9,9$ cm).

Conclusions. Hypothesis is proved partly because a statistically significant difference was found only in the long jump results of second group which shows the size of athlete's explosive power.

RELATIONSHIP BETWEEN ANTERIOR KNEE PAIN AND HIP MUSCLE STRENGTH

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Key words. Anterior knee pain, muscle strength.

Aim. The aim of this study was to analyze the relationship between hip muscle strength and anterior knee pain and the resulting functional limitation.

Methods. The study included a total of 52 participants with the anterior knee pain, aged from 18 to 60 years, average 30.7 years old, 18 women and 34 men. In the process of analysing the results were used the data of 46 participants with radiologically confirmed clinical diagnoses: patellofemoral chondromalacia ($n = 23$), infrapatellar tendinitis ($n = 12$), meniscus injury after arthroscopic treatment ($n = 11$). In the study as assessment tools were used: the numeral pain scale (evaluation of pain intensity), fixation of pain duration and pain localization, evaluation of pain-related functional limitation with Kujala scoring questionnaire and muscle strength testing using manual muscle tensodynamometer.

Results. Analysing the results by individual clinical diagnosis, in groups appeared statistically significant ($p < 0.05$) connection with the hip muscle strength and pain intensity. In the group of infrapatellar tendinitis pain intensity correlated with hamstring strength, while among the participants in the group of meniscus damage after arthroscopy, pain intensity correlated with m.biceps femoris, m.quadriceps femoris and the strength of external hip rotators and m.gluteus minimus. In contrast, in all study groups was found the connection with the strength of the hip muscle and the results of Kujala scoring questionnaire (i.e. functional restrictions caused by pain).

Conclusions. The study results showed that the AKPS can manifest at different structural damage of the knee joint. Also there proved to be relationship with the power of the muscles and the strength of AKPS. This relationship was both direct and inverse in different groups according to structural damage. Results showed that hip muscle strength is significantly ($p < 0.05$) associated with the restriction of functional activity for people with AKPS.

ASSESSMENT OF ADAPTING THE ENVIRONMENT TO PERSONS WITH VISUAL OR HEARING DISABILITIES

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Key words. Deaf, blind, disabilities, adaptation, occupational therapy.

Introduction. Integration of disabled people into society is becoming more and more important. People of the community with blind or deaf disabilities face a lot of difficulties in adjusting to the social environment. These difficulties include not only the lack of information, but also unadaptable environment. Both deaf and blind disabled people have the same rights to health care as any other human being.

As long as in Lithuania occupational therapist does not work neither with blind nor deaf it is very important that social workers and other professionals could receive adequate information about the visual and / or hearing disabilities, in order to adapt the environment to promote the autonomy of these people.

Aim. The aim of this work is to define difficulties ascendant to people with deaf or blind disabilities in adjusting to the environment.

Results. In this research have participated 10 blind and 44 deaf subjects. Study showed that the majority of subjects experienced disability in early childhood period. All subjects experienced difficulties in adapting to the environment. For example, hearing impaired individuals have difficulties in getting information because of the Lithuanian grammar deficiency.

Most of the public buildings are not adapted to the visually impaired persons. Also, difficulties arise in the environment of hearing impaired people, since even 54.2% of women and 57.9% of men with hearing disabilities are difficult to communicate with the people around them.

It was also noted that both the visually impaired and hearing impaired people feel more comfortable being in their communities than in public places.

Conclusions. Both visual and hearing disabilities have experienced difficulties in adapting the environment. For example, hearing impaired persons have difficulties to get information because of the Lithuanian language grammar lack. And blind people are not adapted to the most of the public buildings.

Vision or hearing impaired persons exposed to high levels of public isolation often felt lonely. Study showed that visually impaired people while adapting the environment faced challenges by unsuitable public for buildings and their surroundings. Public transport is also not fully adapted to these people because they can not see the vehicle number and where put the money for ticket.

The results showed that most hearing impaired subjects adapting environment experiencing many difficulties in the social sector, particularly due to the lack of sign language interpreters or these services nonadherence. Low hearing impaired men working capacity increases distruction of themselves. There are also difficulties because they can not communicate with the people around them.

THE NEED OF OCCUPATIONAL THERAPIST ASSISTANCE FOR SUBJECTS WITH EMOTIONAL, BEHAVIORAL AND SENSORY INTEGRATION DISORDERS

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Key words. Sensory integration disorders, education, emotional and behavioral disorders.

Introduction. Sensory integration system is very important to successful individuals' integration into the surrounding world. Due to this system we can feel the touch, smell different scents, see and hear what is happening around us, balance and conceptualize our movements. Those with sensory integration dysfunction can get too weak, too strong or mixed reaction to incoming stimuli, or feel the need to increase the stimuli. Children with special educational needs have sensory integration disorders. As a result, they face many difficulties in learning process and communicating with others. In order to improve successful sensory integration of children with special educational needs parents should consult with an occupational therapist. Although occupational therapists in Lithuania do not work in schools yet, teachers and parents should be introduced with sensory integration disorders and their correction methods.

Aim. The aim of this work is to investigate the need of occupational therapist in assistance for subjects with emotional, behavioral and sensory integration disorders.

Results. With assistance from the teachers 14 subjects with emotional, behavioral and sensory integration problems were selected. "Sensory integration disorder evaluation form" was used. A majority of the subjects reported too strong response to tactile stimuli, causing irritability and anxiety. Another part of the subjects actively seek physical contact with others. Due to a weak observational reaction to proprioceptive stimuli, it is difficult to concentrate and understand their body position in space. It was also noted that the learning results inferior to those whose reaction to visual stimuli is impaired, compared with those who respond to visual stimuli adequately.

Conclusions. The assessment of subjects' sensory integration disorders has indicated that the most sensory integration disorder affects fine motor capability areas (47.7 points), auditory and language areas (45.0 points) and tactile field (41.1 points). Least difficulties subjects had in the general motor capability areas (31.0 points).

Emotional and behavioral problems are more frequent in subjects with sensory integration disorders. It was noted that the biggest problem was that children tended to avoid working in groups and preferred to perform tasks individually (53.6%). A frequent problem was also identified - children were often impulsive, get annoyed quickly and are inattentive (42.9%).

Evaluating learning problems affected by sensory integration disorders it was noticed that children with more expressed fine motor capability areas were statistically more distracted during the lessons ($R = 0.41$ $p = 0.032$), they often had difficulties in reading ($R = 0.59$ $p = 0.001$) and grammar training ($R = 0.41$ $p = 0.032$). Children with more expressed general motor capability areas were statistically less hyperactive ($R = -0.38$ $p = 0.047$).

RESTING METABOLIC RATE AND INTERINDIVIDUAL DIFFERENCES IN ADULT MALE ENDURANCE ATHLETES

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Key words. resting metabolic rate, fat free mass, indirect calorimetry, predictive equation, energy flux.

Introduction. As one of the most active groups in the population, elite athletes possess higher energy needs for daily training and recovery than the rest of the population. Meeting energy requirements is a nutritional priority for athletes to maintain appropriate body weight and composition in order to achieve peak performance in sports. As such, being able to accurately determine the energy requirements of athletes is an important component of developing nutritional plans and providing recommendations to enhance sports performance. Under- or overestimation of athletes' energy requirements could result in a loss of body mass, increase in fat mass, compromise of sports performance, increase in the risk of sports injuries and, potentially, growth failures in young athletes. Estimation of resting metabolic rate (RMR) using the factorial method has become the main approach for the estimation of energy requirements.

Aim. The aim of the present research is to define RMR of adult male endurance athletes and to analyze the role of constitutional and environmental factors in determining the individual differences. The tasks of the study is 1) to measure the RMR by indirect calorimetry and, by obtaining the data of the

athletes' constitution, total energy flux/24 h, the thyroid hormone level, define its role in determining the individuals' RMR; 2) to find out the factorial equation/s, if any, which predicts RMR closest to the value measured by indirect calorimetry.

Methods and materials. The methods of the study are bioelectrical impedance, indirect calorimetry, the 3-day food and physical activity diary, blood analysis, VO₂ max test, factorial equations. The participant selection principle is goal-directed.

Results. The results of the research show, that the mean RMR of adult male endurance athletes in Latvia is 2174 kcal/d. Resting metabolic rate correlates best with the body surface area ($r = 0,42$), nevertheless it can be predicted even more precisely, when based on a number of variables, i.e. height, VO₂ max and the mean energy intake ($r = 0,70$).

Conclusions. For a precise evaluation of an individual's RMR, the use of indirect calorimetry is recommended: on individual basis, all the equations demonstrated considerable variability between measured and predicted RMR (254 – 487 kcal). In condition where this technique cannot be used, the two equations developed by De Lorenzo and Cunningham predict the RMR of athletes better than any of the other tested prediction equations, i.e. within 256 and 254 kcal.

THE ROLE OF DIETARY SUPPLEMENTS DURING PREGNANCY

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Key words. Pregnancy, supplements, vitamins, minerals

Introduction. Micronutrient deficiencies affect people of all ages, but its effects more devastating in pregnant women and their children. Poor maternal nutrition and unhealthy lifestyle contributes to at least 20% of maternal deaths and increases the probability of poor pregnancy outcomes including intrauterine growth restriction, resulting in low birth weight, stunting, wasting and mortality. In industrialized countries where balanced and unbalanced diet is generally accessible have also observed at many nutrient deficiencies, particularly for fiber, iron, folic acid, calcium and vitamin D. This

is the main reason why people pay attention of maternal diet, lack of certain nutrients and malnutrition risk. Most often this type of problems are solved with the help of dietary supplements, less of a nutritionist advice and diet adjustment. In recent years the numbers of registered dietary supplements are grown. They are freely available in various combinations and doses, different forms like multivitamins and certain nutrient complexes. In fact people often are using dietary supplements without healthcare providers recommendation and real need. Therefore, there is a high risk of overdose. So it is very important to inform young mothers about their actual nutrient needs, composition of dietary supplement and potential risk of certain nutrient overdose.

Aim. Find out the available information about dietary supplements who are allowed to use in pregnancy and their composition

Results. Total were surveyed 50 different dietary supplements who are allowed to use in pregnancy and are registered in register of dietary supplements of Latvian Food and Veterinary Service. Most popular vitamins in dietary supplements are folic acid (in 43 supplements), B12 (in 32 supplements) and B6 (in 29 supplements). Of minerals - iron (in 34), zinc (in 25) and iodine (in 22). 58% of dietary supplements contains excessive doses of vitamins B12, B6 and B1. Two of the registered supplements contain teratogenic dose of vitamin A. In their composition widely (96%) used food additives. On average one supplement contains 6 different additives like colorings, emulsifiers, thickeners, sweeteners and stabilizers.

Conclusion. Many dietary supplements who are allowed to use in pregnancy contains excessive doses of vitamins and minerals and their usage can pose a risk of certain nutrient overdose.

AWARENESS OF HEPATITIS B VACCINE AMONG MEDICAL STUDENTS AND THEIR VACCINATION STATUS AT RIGA STRADINS UNIVERSITY

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Key words. B hepatitis, vaccination status, medical students.

Introduction: Hepatitis B virus (HBV) is a potentially life-threatening infectious disease and a well-recognized occupational hazard for health-care workers including medical students.

Methods: A cross-sectional study was conducted at Riga Stradins University, Faculty of Medicine, to assess the knowledge and awareness about hepatitis B vaccine, the status of hepatitis B vaccination, and the reasons for not getting vaccinated among the third, fourth, fifth and sixth-year medical students. The information was gathered through a questionnaire completed by 60 students from each year of medical school included in this study.

Aim. To determine the vaccination status of medical students included in this study, to assess the percentage of unvaccinated students and to gain more knowledge about reasons for not being vaccinated. To evaluate how knowledgeable and informed medical students are regarding hepatitis B vaccine and the necessity for it.

Results. The present study demonstrates that approximately 10 % of questioned medical students are not vaccinated or are not sure about their vaccination status, which puts them at a higher risk of being infected and spread infection in the future. The students have not been fully informed about the B hepatitis vaccine and the requirement to get vaccinated as laid down in a Cabinet of Ministers regulation Nr. 330. 8.5% of included students answered that they haven't been informed about need to be vaccinated, 17% are not informed that hepatitis B vaccine for medical students is free of charge. 90% of the medical students included in the study admitted that they were not required to provide proof of vaccination upon beginning clinical practice sessions in hospitals

Conclusions. It is important for all medical students to be vaccinated against hepatitis B, and they need to be fully informed about vaccination regulations. As well it is important that they are required to proof their vaccination status before medical practice in hospital. We should continue the

study in order to obtain more accurate data. Suggestions should be made to alter the current situation.

AGE-RELATED DIFFERENCES ASSOCIATED WITH USE OF RECOMMENDED MEDICATIONS FOR HYPERTENSION AND POSSIBLE IMPROVEMENT OF COMPLIANCE

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Key words. Medications, compliance, motivational tools.

Introduction. Few studies have evaluated age-related differences in the factors associated with the underuse of recommended medications in patients diagnosed with hypertension. Motivational tools for elderly patients can improve compliance to antihypertensive therapy and so reduce amount of patients who use medication improperly.

Aim. The aim of this study was to identify age-related differences associated with the recommended medications for treatment of hypertension and to find the most suitable motivational tools to improve compliance.

Materials and methods. From November 2014 to January 2015, we collected information from prescriptions of 139 cardiac patients with antihypertensive therapy in pharmacy located in Daugavpils, Latvia. We divided the patients into older (65 years of age and older, n = 84) and younger groups (younger than 65 years of age, n = 55). Data on socio-demographic characteristics and medication class, count, use were obtained from a prescription. Additionally, we asked the patients to provide reasons for not taking their medications.

Results. Among study population more than half of patients were 65 years of age and older (60.4%), more women than men (48.2% vs. 12.2%, p=0.152). A significantly increased count of prescriptions was noted in older patients compared with younger, including one (28.1% vs. 25.9%), two (13.7% vs. 10.1%), three (10.1% vs. 2.9%), four (7.2% vs. 0.7%), and five prescriptions (1.4% vs. 0%) (p=0.037). In older group the total number of medications was also higher than in younger group, respectively, one (19.4% vs. 18.0%), two (18.0% vs. 12.9%), three (10.1% vs. 5.8%), four (7.9% vs.

2.2%), five (4.3% vs. 0.7%), and six active compounds of medications (0.7% vs. 0%) ($p=0.286$). A significantly increased count of monotherapy for medications in older group were observed compared with fixed combinations, especially if patients had four or more prescriptions (84.6% vs. 7.7%; $p=0.015$).

Conclusions. Patients in older group more often had great number of prescriptions, especially with one drug substance. The underuse of recommended therapy could be related to total number of medications. For this group of patients most suitable motivational tools (drug cards, electronic systems) could increase compliance of therapy.

NONADHERENCE TO COLORECTAL CANCER SCREENING PROGRAMME

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Key words. male gender, population location, risk groups.

Introduction. Colorectal cancer (CRC) is one of the most common cancer in Latvia. CRC screening programme is a population-based public health initiative to reduce new cases of CRC, along with associated disability and death. CRC screening in Latvia is insufficient to cover the minimum target population. CRC screening programme in Latvia doesn't meet the criteria for organized screening, because of low participation rates. Guaiac tests is used in Latvia.

Aim. The aim of the study is to research nonadherence to guaiac fecal occult blood test (gFOBT), assess risk factors, risk groups to nonadherence.

Results. This research involved 108 randomly selected persons of which 56(51,9%) were women and 52 (48,1%) men. Mean age was 57,9 years. From the selected group of persons 79 (73,1%) had performed gFOBT and 29 (26,9%) hadn't. Of those never done gFOBT 13(44%) participants weren't aware of existence of gFOBT, 3(10%) couldn't understand performance techniques of test, 6(21%) considers test to be useless, 6(21%) considers test to be unpleasant, 1(3%) have another considerations. The vast majority 93,5% of all participants would agree on alternative to gFOBT. The most important factor that were significantly, negatively affecting adherence to the gFOBT

was male gender. gFOBT have never done 21(40%) of men and 8(14%) of women, $p=0.02$. Aware of gFOBT purpose were 23(44%) men, 40(71%) women, $p=0.06$. 23(44%) men and 42(75%) women understood performance of gFOBT, $p=0.01$. As well 13(25%) men considered gFOBT useless more than women 6(11%), $p=0.051$. Absolutely nonadherent to gFOBT were 29 persons of which 8 (27,6%) were women and 21 (72,4%) were men. Mean age was 54 years. All of selected group had visited general practitioner (GP) at least 1 time a year. Mean number of visits to GP in nonadherent group was 1.4 compared to adherent group 2.5, $p=0.001$. Mean number of invitations to gFOBT in nonadherent group was 1.0 compared to 2.4 in adherent group, $p=0.001$. Aware of gFOBT purpose in nonadherent group were 1(4%), adherent group 62(79%), $p=0.001$. None in nonadherent group understood performance of gFOBT, in adherent group 65(82%), $p=0.001$. In adherent group 73(92%) considers gFOBT useful, in nonadherent 16(55%), $p=0.001$. In nonadherent group 4(14%) were acquainted with CRC, in adherent group 67(85%), $p=0.001$. Oncological disease in family was more observed in adherent group 11(14%) than nonadherent group-0%, $p=0.001$. Population's location in Riga, Rēzekne, countryside didn't affect adherence to gFOBT. Adherence rate to gFOBT - in Riga 37(77%), Rēzekne 24(77%), Pierīga 8(73%), Rēzeknes rajons 10(56%) $p=0.32$.

Conclusions. Male gender is associated with nonadherence. Adherence correlates with GP attendance number, gFOBT invitation number. Population's location does not affect adherence. Nonadherent group of persons are often unaware of test existence. Nonadherent group is less aware of gFOBT purpose, test performance, test usefulness, CRC existence and symptoms. Higher compliance rate could be achieved through clarification of nonadherence risk groups, assessing risk factors, promoting risk factor disposal. The vast majority would prefer gFOBT alternative.

CHALLENGES OF IMPLEMENTING MENTAL HEALTH POLICY IN LITHUANIA

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Key words. Mental health, human rights, suicides, public sector, government.

Introduction. Lithuania has one of the highest rates of suicides in the world. It is well known that suicides are one of the most important issues in mental health. Before considering our study, we made hypothesis, that there must be a direct link between suicides rate and mental health policy implementation. Using qualitative and quantitative methods, we analyzed how mental health policy implementation was made since Lithuania's independency until nowadays (data until 2010). Our study consisted of three parts: interviews with mental health experts, analysis of the topics on mental health in both media and government and review of mental health policy implementation steps through 1990-2010.

Aim. To analyze the basic challenges of implementing mental health policy in Lithuania through the viewpoints of policy decision makers and mass media.

Results. The study revealed strong connection between the famous mental health tragedies in Lithuania - suicides of famous people, cases of homicides and governmental decisions in mental health policy. There is a lack of consistent mental health policy as well as fulfillment of mental health strategy, which was created and recreated during mentioned period for several times. The analysis of governments' transcripts revealed that there is no problematic discursion about the running of mental health care institutions as well as the analysis of their input and importance towards mental health system.

Conclusions. Mental health policy is unusual topic in both media and government. When it is, it does not necessary come to clear and strong changes in mental health law changes following appreciable variations in situation. However, at the light of European Union provided mental health policy, it is fully understandable that the harms in mental health policy could be minimized by investing to stigma decrease, disabled integration to society and de-institutionalization. The overcoming of these challenges are still in the future.

PREVALENCE OF DEPRESSION SYMPTOMS IN 6TH YEAR MEDICAL STUDENTS

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Key words. Depression; medical students; prevalence; PHQ-9.

Introduction. The importance of depression diagnostics and treatment increases with every year because its prevalence also rises (better diagnostics, specific lifestyle of information age, stressful environment). Studies indicate that depression not only decreases well-being and overall state of person's health, but also is creating enormous depression related financial losses (decreased productivity, extra expenses (social and medical care expenses)). Because of prolonged and stressful medical education programme, medical students are expected to have higher depression prevalence in comparison to general population. Student depression can be the reason for study failure leading to university dropout. In this way student's health can suffer, potential for success decreases and society loses potential specialist and funding that was invested in him, therefore researching and addressing this problem is very important.

Aim. Research aim is to determine prevalence of depression symptoms in the 6th year medical students of RSU and LU medical faculties, and compare these results with depression symptom prevalence in people of similar age that are not attending higher education establishment.

Results. Research participant assessment using PHQ-9 questionnaire revealed that 66.01% (N=134) of the student respondents had total score below 10 points, meaning they didn't had enough depression symptoms for the diagnosis. 33.99% (N=69) of respondents had total score above or equal to 10 (at 10 points test's sensitivity is 88% and a specificity is 88% for depression). Students of both researched medical faculties displayed almost identical depression prevalence - Riga Stradins University 34.078% and University of Latvia 33.333%. People in the same age group (23-26 years old) that are not learning in a higher education establishment had 22.58% (N=14) prevalence of depression symptoms and 77.42% (N=48) had no or only mild symptoms that couldn't be attributed to depression disorder. In medical student group females had 37.34% (N=59) and males had 22.22% (N=10) depression symptom prevalence. 15.27% (N=31) of students had severe or moderately severe symptoms that require specialist consultation, but only 4.84% of comparison

group had severe or moderately severe symptoms. The most common symptom was fatigue and lack of energy.

Conclusions. Depression symptom prevalence is higher in 6th year medical student group than in people of similar age that are not attending higher education establishment. Depression prevalence in different medical faculties is almost identical. Prevalence of depression in female students is higher than in male students.

THE ANALYSIS OF TRENDS IN PSYHOTROPIC MEDICATION PRESCRIPTIONS

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Keywords. benzodiazepines, elderly, prescription, psychotropic, drug.

Introduction. The increased use of benzodiazepines in case of sleep disorder is the reason of development of both psychological and physiological dependence, and it can cause the risk of side effects, which is especially dangerous for the elderly.

Aim. To summarize trends in the prescriptions of psychotropic drugs between two independently selected time periods in open pharmacy, paying particular attention to patients in the age group from 55 to 75 years.

Results. Together were analysed 558 specific recipes, respectively 244 (year 2014) and 314 (year 2011) prescriptions. In the 2011 average age of the population was 61.25 ± 14.61 years, while in the 2014 medications were prescribed for a little more elderly patients, respectively 65.60 ± 14.32 years. In both periods recipes were prescribed mainly for women. Comparatively to year 2011 women were prescribed by 4.0% p more, but men by 4.0% p less ($p > 0.05$). Mainly psychotropic drugs were prescribed for patients in the age group from 55 to 75 years, in 3 years, this proportion has grown up by 0.4% p. In the same age group recipes were prescribed mostly for women, if compare two periods, prevalence had increased by 0.6% p, but number of prescriptions for men had decreased by 0.2% p. In the therapy of insomnia benzodiazepines mostly were prescribed for patients aged 55-75 years and the proportion

between the both periods had grown by 3.8%. In this age group the main indications were related with mental and behavioral disorders, the prescribing for this indication was decreased by 2.4% p in the year 2014. Statistically significantly more frequently was prescribed drug class with anxiolytic, muscle relaxant and anticonvulsant potency compared to other psychotropic drug classes, respectively, in year 2014 - 25.80% of all cases, and in year 2011 - 23.20% of all cases ($p = 0.022$). This group of psychotropic drugs in the year 2014 were prescribed by 2.6% p more than in 2011.

Conclusion. Comparing this two periods in general, as well as in the specific age group (55-75 years), prescribing increased for women, but not for men. Mainly drugs with anxiolytic, muscle relaxant and anticonvulsant properties were prescribed, including diagnosis of insomnia, which was the most commonly in patients aged from 55 to 75 years. The observed trend in the therapy of insomnia increased the likelihood of adverse events.

PHARMACY COMPOUNDED DRUGS-THE GOAL OF INDIVIDUALIZED PHARMACY

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Keywords. Pharmacy, drug forms, individualization.

Introduction. Nowadays patients are able to get industrially manufactured drugs more easy. Not always these drugs can be adjusted to the patients personal needs. The majority of pharmacies in Latvia (42 %) ensures compounded drug production under the prescription of doctor. In the free market economy the pharmacy offers are based upon patient requests- when the level of welfare is growing, the demand for better pharmaceutical service is growing as well.

Aim. To find out, if the growing accessibility of industrially manufactured drugs is influencing peoples attitude towards pharmacy compounded drugs.

Results. We have gathered data from 118 people, and 96 (81%) of them were women. People from 20 to 50 years prefers to buy pharmacy compounded drugs, unlike people over 50 – 47,0% against 24.8% ($p=0,047$). In total the most bought drug form is solutions (29,9%) and ointments (13,7%),

compared with other drug forms - powder, capsules, cosmetics, gels ($p=0,238$). After analysing the age groups, people from 20 to 50 chooses solutions and ointments – 38,6%, compared with people over 50 - 14,3%, therefore 17,0% and 12,8%. People from 20 to 50 believes that adjusting the drugs form according to patients needs in a pharmacy is an advantage, but people over 50 thinks the main advantage is individual approach, 22,9% against 29,2% ($p=0,026$). The time of production (14,3%) and packaging (12,9%) are faults according to group 20 to 50, but the group over 50 is not satisfied with the price (2,5%) and the time of production (2,5%). Overall most of the respondents are satisfied with the pharmacy compounded drugs (52,4%, $p=0,152$). If a doctor has prescribed pharmacy compounded drugs, then 97,1% of the respondents have purchased the drugs, on own initiative 36,7% respondents have purchased pharmacy compounded drugs.

Conclusions. The drugs produced in pharmacy have not lost their demand in both of the age groups. The most important advantages for both of the groups are the adjustability of the drugs and the individual service. Most of the times no one has problems with pharmacy compounded drugs, except with the time spent on production.

NEEDS OF PARENTS AND PROFESSIONAL COMPETENCIES OF NURSES DURING HOSPITALIZATION OF A CHILD

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Introduction. Needs of parents during hospitalization of their child, during the health care process, are connected with interaction of multi-level environment in the hospital and new, unusual social, cognitive, and emotional experience. Goal of hospitalization of a child is diagnostics of the disease, treatment, and health care, during which a complex net of relationships with health care team is created. For a successful cooperation between child's parents and health care team it is necessary to identify needs not just of children, but also of their parents, because satisfaction of parents with the care provided to the child in the hospital depends on it. To identify and satisfy needs of parents in the hospital environment, very important is the professional competency of nurses' which is a dynamic combination of cognitive and meta-

cognitive knowledge; skills and understanding; interpersonal, intellectual, and practical skills, and ethical values. It is developed and created during interaction of the social, educational, and health care environment; learning process, and is implemented in connection with theoretical knowledge and experience of the health care practice.

Aim. Aim of the research is to compare the importance of components of the professional competence between working nurses and students of the 1st level professional higher education (EQF) study program “Nursing”, who fall within 5th level of EQF.

Results. To reach this goal, an activity research was performed using quantitative research method. Results obtained during the research show the importance of components of the professional competency, their observance and necessity to emphasize them in the field of health care. Evaluation of importance of components of nurses’ professional competence in 10 point scale is higher for the attitude, empathy, critical thinking, motivation, experience, skills, cooperation, and knowledge. After summarizing results during the research among study program “Nursing” students, average evaluation of necessity of professional competence components’ importance, observation, and actualization scores 6 points.

Conclusions. Components of the professional competence of nurses are created within the social, educational, and health care environment. It is important to base the professional educational process of nurses on the pillars of education for sustainable development – learning to be, learning to live together, learning to transform oneself and society.

ANALYSIS OF OCCUPATIONAL AND ENVIRONMENTAL CAUSES OF LUNG CANCER IN LATVIA

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Key words. Lung cancer, smoking, occupational risk factors

Introduction. Lung cancer has been on a rapid rise worldwide during the last three or four decades, in part due to modern social habits and unhealthy lifestyles [Du YX et.al, 1996]. It is the leading cause of cancer deaths worldwide among both men and women, with more than 1 million deaths

annually [Luca Esposito et. al., 2010]. According to GLOBOCAN2012, there were 1183 new lung cancer cases in Latvia in 2012.

Aims. 1)to analyze epidemiological tendencies of lung cancer in Latvia; 2)to analyze carcinogenic risk factors in the anamnesis of patients' with lung cancer; 3)to analyze patients' awareness of carcinogenic factors.

Results. Study included questioning of patients with established lung cancer. 50 patients were questioned about awareness, smoking habits, occupational factors, familial and personal anamnesis. Histological type and stadium of cancer was also analyzed. Identified group represented 30,0% of female (n=15) and 70,0% of male (n=35) patients. Mean morbidity age was 60,8 (95% CI 58,7 – 62,9), median – 60,0 years. 70,0% (n=35) admitted active smoking in anamnesis with significant prevalence among men ($P<0,001$); 46% (n=23) were passive smokers; 5 non-smokers admitted passive smoking as the only risk factor. Mean pack-years for smokers were 35,5 (95% CI 28,7 – 42,3). Hazardous work conditions admitted 68% (n=34, CI 55,1% - 80,9%). Frequent occupational factors were diesel engine exhaust (41%), welding fumes (21%), agrochemicals (17.2%), paints and solvents (21%). Most frequent cancer types were squamous cell cancer – 20 (40,0%; 95% CI 26,4% - 53,6%); adenocarcinoma – 21 (42,0%; 95% CI 28,3% - 55,7%), small-cell cancer – 9 (18,0%; 95% CI 7,4% - 28,7%). A significant correlation between education level and awareness of risk factors was found ($r_s=0,706$, $P<0,001$); as well as between education and smoking continuation after diagnosis ($P=0,001$). Squamous cell cancer was found more often among smokers ($P=0,019$). Stage I was diagnosed in 5,9% (n=3); II – 11,8% (n=6); III – 45,1% (n=23); IV – 35,3% (n=18).

Conclusions. 1) The majority of lung cancer patients in Latvia undergo multiple carcinogenic factors that supposes cancer's complex genesis. Passive smoking between non-smokers seems to be important risk factor. 2) Cancer is often diagnosed on late stages, protection is not used, and prophylaxis is avoided. Labor conditions and diagnostics should be improved. 3) A positive correlation between education level and awareness of lung cancer risk factors was found.

CARPAL TUNNEL SYNDROME SIMPTOMS RISING IN THE STUDENT COMMUNITY USING COMPUTER

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Key words. Carpal tunnel syndrome, simptoms, student.

Introduction. Carpal tunnel syndrome is a median entrapment neuropathy that causes paresthesia, pain, numbness, and other symptoms in the distribution of the median nerve due to its compression at the wrist in the carpal tunnel.

Some of the predisposing factors include: diabetes, obesity, pregnancy, hypothyroidism, and heavy manual work or work with vibrating tools.

Aim. To get information about carpal tunnel syndrome symptoms rising speed in medical faculty 1,3, and 6 studying years students.

Results. We got this data from 150 medical students, from 1,3,6 courses. We have splitted our interview in three logical parts: 50 students from each course. Questions list: life style, time spend using computer, sleeping time, working experience, numbness, pain, paresthesia in first and second finger region and neck pain.

1 course students mark numbness in first and second finger region-2%. Pain first and second finger region-4%. No one don't mark paresthesia-0%. Neck pain-34%. 22% are working. 52% are using computer nearly 3-4 hours. 26%- 1-2 hours. 16%- 5-6 hours. 6%- 7-8 hours. No one person don't spend their time more than 8 hours-0%. 46% of students sleeping time is 6-7 hours. 34% sleeping time is 8-9 hours. 10%- 4-5 hours. 10% of students sleeping time more than 9 hours.

3 course students mark numbness in first and second finger region-10%. Pain first and second finger region-12%. Paresthesia-6%. Neck pain-48%. 34% are working. 46% are using computer nearly 3-4 hours. 18%- 5-6 hours. 12%- 7-8 hours. 8%- 1-2 hours. 4% more than 8 hours. 66% of students sleeping time is 6-7 hours. 18% sleeping time is 8-9 hours. 10%- 4-5 hours. 6% of students sleeping time more than 9 hours.

6 course students mark numbness in first and second finger region-34%. Pain first and second finger region-44%. Paresthesia-16%. Neck pain-

64%. 56% are working. 38% are using computer nearly 5-6 hours. 36%- 3-4 hours. 14%- 7-8 hours. 6% more than 8 hours. 4%- 1-2 hours. 62% of students sleeping time is 6-7 hours. 32% sleeping time is 4-5 hours. 6%- 8-9 hours. No one 6th year student don't sleep more than 9 hours-0%.

Conclusion. All complains connected by carpal tunnel syndrome have much more issues 6 course students, next 3 course students. On the other hand, 1 course students have less issues.

Most of students from the high courses have job, comparing with novice students.

Quantity of time using computer have straight correlation with studying year. Students from the high courses spend their time using computer much more than novice students. Novice students sleep more then high course students. High course students have more risk factors to get carpal tunnel syndrome.

HEALTH RISKS ASSOCIATED WITH AGING IN THE PHYSICIANS WORKING IN LATVIA

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Introduction. The ageing of societies has major implications worldwide. Today in Europe, the ageing workforce is clearly evident and this that is why the need for appropriate age management structures and interventions is significant. It is also important to promote and maintain employee health and to encourage motivation, productivity and competence in the workplace.

Objective. The primary objective of this study was to describe the physical, mental, and social aging processes. Identify health risks of the employees and risks of early retirement in internal medicine doctors in Latvia.

Material and Methods. Descriptive, cross-sectional study was conducted in Latvian hospitals in 2014. A total of 150 internal medicine doctors were randomly selected and asked to fill in the questionnaire. The questions are aimed at the diagnosed illnesses and the number of absenteeism days in the previous year, the estimated sickness-related deterioration in the work performance, mental ability reserves.

Results Age-related changes in internal medicine doctors that works in Latvia the most affects musculoskeletal system - 65,3 %, circulatory system

24%, endocrine and metabolic system 25%. Metabolic diseases, directly overweight, increases 2 times after the age of 50. Mental abilities of Latvian Republic internal medicine physicians are at very high and high level - 94%.

Discussion. Age-related decline affects mainly physical and sensory capacities, which are most relevant to heavy physical and mental work. On the one hand industrial changes, particularly the shift from extractive and manufacturing industry towards services and knowledge-based industry, have led to a reduction in the number of jobs requiring high levels of physical strength. Increasing automation and mechanization of tasks, as well the use of powered equipment, have also reduced the need for heavy physical work. On the other hand, the changing world of work values many abilities and skills which are associated with older people, such as good people-skills, customer service, and quality awareness.

The ability of the heart, lungs and circulatory system to carry oxygen decreases. Between the age of 30 and 65, the functional breathing capacity can reduce by 40%. These changes can affect the ability to do extended heavy physical labor, reduce the body's ability to adjust to hot and cold conditions.

The actual functions of information processing change very little. Moreover, some cognitive functions, such as control of use of language or the ability to process complex problems in insecure situations, improve with age. In most work tasks, speed and precision can be substituted by the high motivation of aging workers and the experience they have assembled throughout their work life. Even though the speed of learning may slow with age, the actual learning process is not dependent on a person's age. Strong motivation to learn can also compensate for the slower learning speed.

THE RISK FACTORS FOR WOMEN OF REPRODUCTIVE AGE IN THE WORKING ENVIRONMENT, AWARENESS OF INFLUENCE ON HEALTH. THE MOST COMMON RISK FACTOR FOR POSSIBLE EFFECTS ON THE REPRODUCTIVE HEALTH AND EARLY PREGNANCY

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Key words. Reproductive health, ergonomic risk factors, work environment.

Introduction. In the world of all working women 75% are of reproductive age. Several of global studies described, that both the ergonomic risk factors (lifting of heavy weights, awkward posture, etc.) and the noise can cause menstrual disorders, miscarriages, preterm birth, low birth weight. In order to timely avoid harmful labor risk influence on women`s reproductive health, future pregnancy, is needed to inform women about the risk factors of work environment that were listed in Rule No. 660 of the Cabinet of Ministers in Annex 2 when their entry into potential workplace.

Aim. To identify the most common risk factors for women in Latvia in reproductive age (18-44 age), to explore how large is awareness among women about labor risk factors and their impact on health, and is there a link between the lack of information and education. Data from survey „Working conditions and risks in Latvia 2012-2013” were analysed, including interviews with 1371 employed women, of whom 608 were of reproductive age. An anonymous questionnaire was used in the survey developed in 2006 by TNS Latvia together with research partners from Inspecta Latvia, Ltd. and Institute for Occupational Safety and Environmental Health. Explore and describe the most common risk factor potential impact on reproductive health and on early pregnancy period (from publications).

Results. Analysis showed that most common risk factors in the work environment for women at age 18 – 44 are awkward posture (55.03%), carrying and moving of heavy weights (26.08%) and loud noises (24.37%). The women exposed to these risks for more than 25% of their working time were included in the analysis. Of the 608 women analysed 21,45% were not aware about risk factors at their workplaces and 19.34% were not informed on

the impact of risks on their health and necessary medical examinations. While analysing the link between education level and awareness of working risk factors, results showed that only a small part of surveyed women had primary education (only 37 of 608) therefore cannot accurately judge the connection between women's level of education and awareness.

Conclusions. In Latvia most common risk factors at workplaces for women of reproductive age are awkward postures that are linked to increased frequency of miscarriages. In Latvia approximately 1/5 of all interviewed women are not aware about risk factors in their working environment. Therefore more attention shall be paid by both employers and doctors to warn women about the potential risks to reproductive health in the work environment.

A COMPARISON OF THE OCCURANCE OF BACK PAIN BETWEEN THE YOUNG PEOPLE ENGAGED WITH DANCING AND BODYBUILDING

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Key words. Back pain, dancers, bodybuilders.

Introduction. The incidence of back pain is increasing in our population, especially among young people. Worldwide, 80% of the population have felt back pain at some point in their lives, of whom 30% are young people (18-30 years old).

There is relevance between some sports/activities and back pain. For dancers it is a common incident as Dancing is one of the sports that frequently causes back pain, while in bodybuilding it is much less common as bodybuilders have strengthened back muscles, which is why back pain occurs less often with them.

Aim. To compare back pain incidence between young people (aged 18-40) who are dealing with dancing or bodybuilding.

Methods. The research included 97 respondents- 44 women and 53 men. A questionnaire was used to gather data. Respondents answered 27 questions about sports and back pain. Data was compiled in Excel tables and processed with SPSS 16.0 data processing method.

Results. 90,7% (53 dancers, 35 bodybuilders) of respondents have felt back pain at least once in their lifetime; 60,2% of them are dancers and 39,8% - bodybuilders. Back pain while doing sports was felt 11.4%, after the sports – 58.2% and in the rest position – 30.7%. 80% of the bodybuilders and 83,0% of the dancers have had pain at the lumbar spine; 17,1% of the bodybuilders and 9,4% of the dancers - at the cervical spine; 2,9% of the bodybuilders and 7,5% of the dancers - at the thoracic spine. From all the responders back pain trauma had occurred on 12,5% of them and 87,5% of them had not suffered trauma. From all the responders with back pain, 32% have had a possible etiological diagnosis. The most common back pain reasons were mentioned to be: intervertebral disc rupture, scoliosis, spondylosis, compressed nerve. To release pain 11,4% of sportsmen have used drugs but only half of the medications had been effective.

Conclusion. After summarizing results it is clear that most of young sports practitioners have felt back pain at least once in their lifetime. Dancers experience a higher occurrence of back pain compared to body builders. The most common localization of back pain is the lumbar spine. Most sportsmen who have back pain mention that back pain mostly occurs directly after the sport. Although sportsmen are in pain, usually they do not visit the doctor to resolve the problem. Dancers and bodybuilders should gradually increase their training program load. Well suited equipment is essential. If there are some symptoms or complaints, professional sportspeople should visit a doctor to find the reason and resolve the problem.

THE EFFECTS OF WORKPLACE AIR QUALITY ON UPPER AIRWAYS

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Key words. Occupational diseases, upper airways, inflammation.

Introduction. Inflammation of the upper airways is a common workplace-related complaint. The usual diagnosis is chronic rhinitis, which affects one-third of Europe's population. There is reason to believe that a major etiologic factor in it is workplace environment-related, thus, occupational rhinitis can be spoken of as a separate diagnosis. With it being a diagnostically challenging task, a promising diagnostic technique is medical thermography. It is, if used correctly, a useful investigative tool, which can

prove that upper airways are prone to inflammation due to occupational environment factors.

Aim. The aim of this paper is to figure, whether workplace environment can cause upper airway inflammation. In order to do so, it is intended to perform two observations on two groups of patients; the first group being employed at a metalworking factory 8 hours a day and the second working an 8-hour shift in a newly-renovated office. Not only is it aimed to collect an extensive medical and occupational history from each patient, it is intended, with the help of an infrared medical camera to take 3 thermograms of each subject: AP view, LL left and LL right. The thermograms are to be analyzed using a program that tracks temperature changes up to 0.01°C. The above mentioned is to be done twice – the first time on Monday morning and the second time – on Thursday evening. Aside from the mentioned observations, workplace air parameters (temperature, relative humidity, CO and CO₂ concentrations) are to be measured.

Results. 16 office workers and 13 factory workers have been observed. The average nasal temperature on the first day was 32.18°C and 32.79°C on the last day, meaning there had been a 1.9% increase; the respective temperatures on the left and right sides of the patients' noses were on average 27.33°C on the first day and 27.65°C on the last day (1.19% increase) on the left and 30.43°C and 30.68°C on the right (0.84% increase). Additionally, ear temperatures have been measured and a 2.21% increase in temperature was shown in the left ear and a 1.71% increase was shown in the right. There had been a 2.44% increase in room temperature between the first day and the last, as well as higher concentrations of CO and CO₂. Aside from that, 56.25% of the patients had complaints of recurring nasal congestion, while 18.75% complained of chronic dryness in the upper respiratory tract, which got worse towards the end of each week.

Conclusions. There is certain proof that workplace air parameters can cause occupation-related inflammatory processes in the upper airways; there have been increases in both the workplace air parameters, as well as nasal and ear temperatures. A deeper medical and occupational history showed that 56.25% patients had complained of recurring nasal congestion, and 18.75% - of chronic dryness of the upper airways.

CHANGES IN VISION CAUSED BY THE LOAD OF RIGA STRADINS UNIVERSITY 6 COURSE MEDICAL STUDENTS COMPARED WITH 12TH GRADE HIGH SCHOOL STUDENTS

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Key words. Reading, vision loss, medical students, high school students.

Introduction. High school students has mastered 15 subjects, while for medical students in six years, this number reaches 53, which includes the only compulsory subjects. Study material in middle school and in medicine mainly is learned by reading. Accordingly, an increase in the number of subjects increases the pressure on humans eyes. In addition, vision can be affected by incorrect choice of distance, as well as increased time spent studying the material viewed on the computer monitor.

Aim. Collect data from Riga Stradins university study program "Medicine" 6-year students and 12th grade high school students, to find out what are their reading habits and lasting impact on the visual quality.

Results. The study collected data from 115 respondents, of which 53 were middle school students and 62 medical students. Of the total number of respondents decreased visual acuity in the last 6 years notes 53.9% (62/115), of which medical students 56.5% (35/62) and middle school students 50.9% (27/53). Visual acuity problems in the family notes 77.4% (48/62) of medical students and 60.4% (32/53) middle school students. Of the total number of respondents insufficient (less than 30 cm) distance reading of the paper material practiced by 39.1% (45/115) and PC-format material (less than 45 cm) 43.5% (50/115). Learning material in paper form for reading the time devoted among secondary school students dominated from one to five hours a day 64.2% (34/53), while among medical student till three hours per day 82.2% (51/62), so medical students spend less time reading paper format material comparing to middle school students ($p=0,001$). PC-format material learning everyday medical students spend three to five hours 41.9% (26/62) and middle school students one to three hours a day 49.1% (26/53). Medical students spend more time reading PC- format material comparing to secondary school students ($p=0,000$).

Conclusions. Summarizing the study data showed that among medical students vision loss in the last six years is more frequent than among high school students. Reduced reading distance learning material increases the visual impairment. Medical students everyday spend more time reading the computer format materials compared to high school students, which can often cause changes in vision.

PROVEN INTERNATIONAL STUDENTS IN RUSSIA HAVE A NEGATIVE TENDENCY TO SOCIO-EMOTIONAL AND MEDICAL LABILITY

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Keywords. International, Russia, socio-emotional, medical, lability

Introduction. Russia is becoming an ever more popular study destination for international students and attracts a huge number of Bachelor, Master and Postgraduate students from different countries. Russia prides itself on its centuries-long history of high quality education, worldwide degree recognition, and high demand for Russian graduates across the world, as well as on, the affordable educational programs. Medical education has its own professional and academic aspects to it. Medical students must work with patients and gain experience in clinical settings. It is assumed that these international students have a negative tendency to both socio-emotional and medical lability.

Aim. We aimed to investigate general wellbeing, safety, support services and participation of international students in social, leisure and recreational activities in Russia.

Materials & Methods. A survey was conducted via a printed questionnaire which included personal data, questions about participants' general experience towards Russia and their university, and questions about social experience. Participants included 120 international students studying in Moscow, Russia (70% females, 30 % males, mean age = 21.5±1.0). Statistical analysis was performed using SPSS version 16 for Windows (SPSS Inc., Chicago, Illinois, USA).

Results. 11.8% of comments discussed positive experiences while living and studying in Moscow, Russia. 83.3% of students indicated that they feel threaten and unsafe. Among problems most international students faced

including discrimination, negligence, high cost of living, language barrier and hazards in the city. Most of students indicated that they were not involved into any kind of social activities hence developing emotional stress and their health status was in an unsatisfactory level.

Conclusion. As expected, studying in a foreign country greatly affect one's socio-emotional and medical status. The lability level of such aspects significantly increases the global social and medical problems in various ways. However, it has yet to be proven that the academics performance of international students is deteriorating. Most of them actually perform better compared to local students.

PRESCRIPTION CIRCULATION IN PHARMACIES – PROOF OF ADHERENCE TO THERAPY

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Keywords. Cardiovascular diseases; diabetes; patient adherence to therapy.

Introduction. In case of cardiovascular disease and diabetes incorrect and irregular drug use with lack of adherence to treatment can cause severe clinical manifestations of the disease, repeated hospitalization and even death. Cardiovascular disease is the most common cause of death in the world. According to the World Health Organization (WHO) 17,5 million people die of cardiovascular disease, while 1,5 million die of diabetes annually. Many of whom are of working age. In Latvia cardiovascular diseases is also the main cause of death.

Aims, materials, and methods. The aim of the research was to examine the factors affecting patient adherence to antihypertensive and antidiabetic therapy based on prescription circulation in drug stores. A retrospective quantitative study was conducted from December 2014 to January 2015 analyzing prescription circulation and dispensed drugs for arterial hypertension and diabetes treatment at „Aura-Farm” Ltd. pharmacies. The information was summarized in a database, using the following criteria – the prescription start date, the patient's sex, diagnosis code, the prescribed medication by its chemical name, quantity, dosage regimen, prescription dispense date, amount of drugs patient received, drug price and patient co-

payment amount. The obtained data was statistically analyzed using SPSS software.

Results. During the study 134 prescriptions were analysed. The most frequent number of prescriptions per patient was one ($n = 66$; 49.3%), two ($n = 36$; 26.9%) or three ($n = 19$; 14.2%) being less common. The main part of prescription medication was administered for cardiovascular disease therapy (88.8%) and less for diabetes treatment (11.2%). In almost all prescriptions the dosage form was a tablet (99.2%). Most often doctors used drug trade names ($n = 129$; 96.3%) and only in 5 prescriptions (3.7%) the medicinal international non-proprietary name was used. Although the prescribed and issued Brand-Name and generics drugs ratio remained constant, 73 prescriptions (56.2%) prescribed and dispensed Brand-Name drugs, 43.8% of the cases - generic drugs. In most cases ($n=117$; 87.3%), the start date of the prescription corresponds to the date of dispense. Only 17 prescriptions (12.7%) had different start and dispense dates. 14 prescriptions had been dispensed within the same calendar month of the issue of the prescription, while 3 (2.3%) were dispensed later during the period of validity. Patients with two or more prescriptions collect their medication within the same calendar month less frequently than those with a single prescription, respectively 14.3% versus 33.3% ($p = 0.432$).

Conclusions. The wide use of Brand-Name drugs in prescriptions indicates a certain amount of chronic patients who receive drugs for the treatment of a particular disease repeatedly. These patients could be the target group to preserve long-term adherence. The frequency of Brand-Name drug prescribing and dispensing illustrates patient awareness of long-term drug effects. Medication dispensation not within the calendar month of the start date of the prescription is rarely observed, which could be explained with possible patient drug accumulation.

CONTRACEPTIVE CHOICE AND THE MECHANISM OF AWARENESS AMONG YOUNG PEOPLE

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Key words: knowledge about contraception, contraceptive methods, abortion, emergency contraception

Introduction: Abortions count, which are performed in Latvia, each year continues to decline, but unborn children count, still is very high. In year 2013 are made 8715 abortions. 61,9% of them are legal abortion. It seems, that public have lack of knowledge about contraception and for them is necessary educational activities.

Aim: Determine community used contraceptives and young people's knowledge about contraceptive methods and knowledge dependence from medical education.

Methods and materials. In work for all is used equal questionnaire, which is set up and placed in www.visidati.lv resource. This questionnaire includes different Questions about 18 to 30 years old students' sexual activity and their knowledge in contraceptive field. Questionnaires were offered to respondents in electronic resources and printed format. In further data processing process respondents are divide in groups by according to relation to the medical education and gender. From 16 questions in the questionnaire, 7 questions are made with aim to assess students' knowledge about contraception methods. Other questions is about respondents' contraception methods choice and students' attitude against those methods. Data from the questionnaires are processed in Microsoft Excel and SPSS programs.

Results: The questionnaire performed 100 medical and 101 other study programs students. The most commonly used method of contraception is a barrier methods- 58.2%. 61.2% of respondents made contraceptive method choice without consulting the others. To the question - "Who do you think should take care of contraception?" - 89.1% of respondents think that the responsibility about contraception should take both partners. To the questions about students knowledge of contraception absolutely right answered 21.2% of medical students and 0% of other study programs [p <0.05]. Among women the correct answers is 11.7%, while among the men - 5.3% [p <0.05].

Evaluating emergency contraception and abortion 81.8% of the women who carried out the abortion, also used emergency contraception.

Conclusions:

1. The most used contraceptive method among students is barrier method.
2. The responsibility about contraception choice take both partners, and their selection mainly affects neither the doctors or friends, or partner, or teachers.
3. The Highest level of knowledge in contraception area showed women, which are studying medicine.
4. Among the women, who carried out the abortion, most of them also have used emergency contraception.

SESSION VI

PAEDIATRICS, GYNAECOLOGY, OBSTETRICS

BASIC FIBROBLAST GROWTH FACTOR (bFGF) AND FIBROBLAST GROWTH FACTOR RECEPTOR 1 (FGFR1) APPEARANCE IN CONGENITAL INTRA-ABDOMINAL ADHESIONS IN CHILDREN UNDER ONE YEAR OF AGE

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Key words: intra-abdominal adhesions, growth factors.

Introduction. Congenital intra-abdominal adhesions occur due to disruption of the normal embryologic development. Interruption of typical intestinal rotation and fixation during fetal development can occur at a wide range of locations. The most common type found in paediatric patients is incomplete rotation predisposing to midgut volvulus. There are limited publications that investigate the possible aetiology and pathogenesis of congenital peritoneal adhesions.

The aim of this work was to investigate expression of bFGF and FGFR1 in congenital intra-abdominal adhesions.

Material and Methods. The specimens used for research were obtained from 50 patients aged 1 to 292 days who underwent abdominal surgery due to the obstructive gut malrotation and several additional pathologies. Specimens are property of the collection of the Institute for Anatomy and Anthropology of Rīga Stradiņš University. Tissues were processed for bFGF and FGFR1 by means of biotin-streptavidin immunohistochemistry.

For quantification of structures, the semiquantitative counting method was used. The designations were as follows: 0, negative reaction; 0/+, occasionally marked structures in the view field; +, a few positive structures in the view field; +/++ few to moderate positive structures; ++, a moderate number of marked structures in the view field; ++/+++, moderate to numerous number of positive structures; +++, a numerous number of marked structures in the view field; ++++, abundance of marked structures found in the view

field. Data analysis was conducted using Statistical Package for the Social Sciences (SPSS) program version 20.0.

Results. bFGF was seen exclusively in fibroblasts and macrophages. In four cases the number of marked cells was abundant, in five cases numerous, but in two cases moderate to numerous. Eleven specimens showed a moderate number of bFGF positive cells. Two specimens showed few to moderate bFGF positive cells, 15 – few positive cells. Occasional positive fibroblasts and macrophages were observed in four cases. 15 specimens showed a completely negative reaction to bFGF.

A numerous number of FGFR1 fibroblasts and macrophages was observed five cases. In another eight cases a moderate to numerous number positive structures was marked. FGFR1 positive structures were mostly seen in moderate (13 cases) and few to moderate (12 cases) appearance. Few fibroblasts and macrophages contained this factor in nine specimens. Occasional positive structures were observed in three cases.

Using the Pearson's correlation test a strong positive correlation was observed between the immunoreactive structures for bFGF and FGFR1 ($r = 0.523$; $p < 0,001$).

Conclusions. Connection between the less distinct bFGF and more prominent FGFR1 proves the compensatory stimulation of receptors as a response on the lack of the same factor in course of adhesion disease.

CLINICAL SIGNS OF SYSTEMIC INFLAMMATORY RESPONSE SYNDROME (SIRS) IN CHILDREN WITH SEVERE INFECTIONS

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Key words. Paediatric sepsis; systemic inflammatory response syndrome; SIRS; severe infections.

Introduction. Sepsis has been a leading cause of morbidity and mortality in children population. According to World Health Organization each year sepsis leads to approximately 6 million children deaths worldwide. The International paediatric sepsis consensus conference defined sepsis in children as SIRS (Systemic Inflammatory Response Syndrome) associated with a suspected or proven infection. Infection is proved by positive culture,

examination or radiology tests. Early clinical recognition of SIRS criteria and sepsis, initial management in the outpatient and hospital wards are essential for preventing progression of infection to more severe forms and death.

Aim. The aim of this study was to evaluate the prevalence, clinical findings, diagnostic and therapy strategy of SIRS and sepsis in children hospitalized in The Children's Clinical University Hospital in Latvia with severe infections in time period from February 1 2014 until February 1 2015.

Results. In this study total amount of 72 patients with severe infections were screened for systemic inflammatory response syndrome (SIRS) and sepsis. In study population 50.6% (n=39) of the children with infection were detected as septic - according to the International paediatric consensus conference definition criteria they had positive SIRS. 33.8% (n=26) of the patients with infection SIRS was negative, but in 9.1% (n=7) SIRS criteria were not evaluated. Analysing demographical data, no statistically significant gender difference was found in study population - 51.3% (n=20) of SIRS patients were boys, 48.7% (n=19) were girls. A diagnosis of systemic inflammatory response syndrome was mostly confirmed by the combination of abnormal leukocyte count and respiratory rate >2SD above normal of age – in 28% (n=11) of cases, 23% (n=9) of patients SIRS was confirmed by combination of abnormal leukocyte count with fever and respiratory rate >2SD above normal of age. In 61.5% (n=24) cases of sepsis blood culture was taken. In 37.5% (n=9) of these cases blood culture was positive. Most common isolated bacteria in sepsis patients were *Escherichia coli* and *Streptococcus pneumoniae*. 2.5% (n=1) sepsis patients developed MODS. Focus of infection in majority of sepsis patients was pulmonary (41%; n=16). Mean duration of hospital stay in sepsis group was 10.6 days. 25% (n=10) of sepsis patients were treated in ICU. All sepsis patients received antibacterial therapy; the detailed analysis will follow at the conference course.

Conclusion. In 50.6% (n=39) of the children with severe infection developed sepsis, which indicates the high risk of development of life-threatening disease. Therefore it is essential to evaluate and recognize SIRS as early as possible. Abnormal leukocyte count in combination with respiratory rate >2SD above normal of age were the most common criteria noticed in infected children (28%), which should be considered in clinical evaluation of each children with infection.

EVALUATION OF ACUTE ROTAVIRUS GASTROENTERITIS SEVERITY IN HOSPITALIZED CHILDREN

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Key words. Rotavirus gastroenteritis, Vesikari 20-point scoring system, severity

Introduction. Rotavirus is known to be the leading cause of severe gastroenteritis in children worldwide. More frequently rotavirus gastroenteritis is associated with severe symptoms and increased hospital admissions, compared to other types of acute infectious gastroenteritis. It establishes a large public health burden. Each year in children under 5 years of age, rotavirus infection leads to approximately 25 million clinic visits, two million hospital admissions, and 180 000-450 000 deaths worldwide resulting in 5% of all child deaths with cause-specific mortality rate of 86 (rotavirus deaths under age five per 100 000 population under age five).

Aim. Aim of this study was to determine severity of acute Rotavirus gastroenteritis episode, based on 20-point Vesikari score in hospitalized children. Hypothesis- more than 50% of hospitalized children with acute Rotavirus gastroenteritis had moderate or severe acute Rotavirus gastroenteritis episode.

Materials and Methods. Study type: prospective, descriptive. Study was conducted in Children Clinical University Hospital in Latvia within a time period of February 2014- December 2014. All children (aged 0-18 years) with positive Rotavirus antigen in their stool sample were included in the study. Patients were divided into two groups: based on their gender and age (patients under and above 2 years of age). For the statistical analyses, symptoms were graded according to the Vesikari 20-point scoring system for severity of rotavirus diarrhea. All tests were performed in MS Excel 2010 and SPSS (version 20.0 (SPSS)) and p value <0.05 was considered to be statistically significant.

Results. 235 patients were included into the study. All of them had a positive Rotavirus antigen in their stool sample. 51.1% male (n=120) and 48.9% (n=115) female patients. 63.8% (n=150) patients had more than 6 diarrheic stools in 24 hours during the course of their illness. In 55.1% (n=131) of the cases diarrhea lasted for 1 to 4 days. 46.4% (n=109) of patients had 2-4 episodes of vomiting within 24 hours. In 46.4% (n=109) of the cases duration

of vomiting lasted for 2 days. 45.1% (n=106) of patients had axillar temperature in range of 3.1 to 38.4 degrees of Celsius. Most of the patients- 69.4% (n=163)-had moderate dehydration. All patients 100% (n=235) received i/v rehydration. Overall 6.0% (n=14) of patients had a moderate severity of Rotavirus gastroenteritis and 94.0% (n=221) were evaluated to have a severe episode.

Comparing patients' gender (p=0.117), both age groups (p=0.812) and the severity of the episode, there was no statistically significant correlation observed between those three parameters (evaluated with Mann-Whitney test).

Conclusion. More than 90% of patients had a severe episode of acute Rotavirus gastroenteritis based on Vesikari 20-point severity scoring system.

Diarrhea was the prevailing symptom.

There was no statistically significant correlation between patients' gender and age groups with severity of the episode. Both age groups and genders experienced equal severity of symptoms.

WOMEN'S SEXUALITY DURING PREGNANCY

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Key words. Women, sexuality, pregnancy.

Introduction. Sexuality plays an important role in promoting women's health and well-being. During the lifetime, sexuality can undergo changes by numerous factors both internal and external. Females sexual function can be affected by age, education, culture, chronic diseases, pregnancy, parity, and other psychosocial factors. (Aslan et al.,2002, Laumann et al.,1999, Basson, 2005) Pregnancy is the time of significant physiological, psychological, physical and social change in the women's life. These changes can influence the women's sexuality and relationships with their partners impacting on the desire, response and sexual behaviour. (Sueiro et al., 1998, Escudero-Rivas et al., 2013, Glazener, 1987) During the progress of the females pregnancy sexuality often changes. It has been shown in a several studies. (Pauleta et al.,2010) An overall decline in sexual activity has been observed, the frequency of intercourse and the sexual desire decreases in pregnancy, reaching a significant degree in the third trimester. (Leite et al.,2009) Several

studies have been developed showing that sexual dysfunction seems to be a very frequent health problem. Such problem is observed in 25%-92% of women. (Laumann et al.,1999) Sexual dysfunction can have a major impact on the women's quality of life. Impairment of the sexual function can cause the emotional distress as well as damaging effects on the women's self-esteem, sense of wholeness, and their interpersonal relationships. (Laumann et al.,1999, Rosen et al., 2000)

Despite the growing number of studies on females sexuality during pregnancy all over the world, there is a lack of data on pregnant women living in Latvia. Considering the actuality of this problem the study was conducted to assess the woman's sexual function and satisfaction with the sexual life during pregnancy.

Aim. The aim of the study was to evaluate the woman's sexual function and satisfaction with the sexual life during pregnancy.

Methods and Materials. A prospective study was conducted with 78 healthy pregnant women between the ages of 20 and 40 years presenting a stable relationships with their partners. The females sexual function and satisfaction with the sexual life was assessed through the anonymous FSFI questionnaire during antenatal visits. The female sexual index was analysed during the study, where six different domains were evaluated including desire, arousal, lubrication, orgasm, satisfaction and pain. The data and results of researches were processed with SPSS 20.0 program and interpreted.

Results. The study showed a similar pattern of the women's sexual function during the first and second trimesters that significantly dropped in the third trimester. Comparing the second and third trimesters the significant differences were observed almost of all FSFI domain parameters. The sexual dysfunction increases as pregnancy progresses: the first trimester it is 18.8%, in the second trimester - 35%, while in the third trimester of pregnancy - 42.9% of women's. Most significantly of all FSFI domains were impaired the female's sexual desire, which remains markedly reduced in all trimesters, with the greatest decline in the third trimester. The women's satisfaction with the sexual life decreases as pregnancy progresses, the most in the third trimester.

Conclusions. The women's sexual function change during the pregnancy, sexuality parameters falling as pregnancy progresses. Almost of all FSFI domain scores significantly decreases in the third trimester of pregnancy, including the women's satisfaction with the sexual life. Most significantly affected FSFI domain is the sexual desire. For the deeper understanding of the changes in the woman's sexuality during pregnancy, it is necessary to continue

researches, including the more detailed study of the factors related to the woman's sexual life during the pregnancy.

EXPECTANT MANAGEMENT OF INTRAUTERINE GROWTH RESTRICTION PREGNANCY - PERINATAL OUTCOME

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Key words. Intrauterine growth restriction, early neonatal period, delivery management

Introduction. Intrauterine growth restriction (IUGR) is the reason for increased morbidity and mortality in all periods of human life. The development of this pathology defines a variety of factors many of which are preventable. There is still no developed effective tactics for pregnancy and delivery, which would protect both mother and child from undesirable consequences.

Aim. The aim of the research is to comprehend the influence of expectant management of IUGR pregnancy on the perinatal outcomes.

Methods. The research was made in Riga Maternity Hospital in Latvia. In the research were included 96 neonates with the weight below 10th percentile (IUGR group) as well there was compiled the control group. We evaluated the condition of neonate by 13 criteria and studied its frequency depending on the gestational period. The weight of neonates was evaluated using the percentile scales - Intrauterine Growth Curves based on U.S. data.

Results. In the subgroup of 37 - 39th week in the IUGR group in comparison with 40 - 42nd week subgroup, statistically more often was noticed hypoglycaemia, polycythaemia, acidosis, poor feeding, neurological abnormalities, transportation to an intensive care unit, transportation to another hospital for the further treatment and there was a higher number of days spent in the hospital. In the subgroup of 37 - 39th week in the control group statistically more often was noticed making infusions and there was a longer time spent in the hospital.

Conclusions. Recognizing the IUGR to the fetus, there is justified the temporizing tactics with regard to resolution of pregnancy if only the health status of mother allows that and preeclampsia is excluded.

COMMUNITY ACQUIRED PNEUMONIA IN CHILDREN: ASSESSMENT OF INDICATIONS AND DURATION OF TREATMENT

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Key words. Community Acquired Pneumonia, SIRS, paediatric.

Introduction. Despite the fact that significant medical progress has been made in the field of vaccinations and medical examination, as well as the growing selection of medicaments, the data of the World Health Organisation (WHO) suggests that community acquired pneumonia (CAP) is the cause of death for 1.1 million children aged under five. This constitutes 17% of the overall global child mortality.

In order to improve the ability to diagnose and treat pneumonia, as well as to enhance related economic efficiency, a joint working group was set up between the Rīga Stradiņš University (RSU) and the Children's University Hospital. The group of researchers and medical experts created common guidelines for treating CAP based on evidence, as well as an algorithm for treating children with fever. The guidelines intend to serve for an early examination of children with SIRS and sepsis.

Aim. The aim of this research is to investigate the indications for hospitalisation and duration of treatment of children with CAP.

Results. In the study 569 children with diagnosed CAP in the Emergency Unit were enrolled and analysed. It was concluded that the SIRS criteria were not assessed in 34% (n=191) of the cases.

A significant difference was found studying the emergency unit assessment data for SIRS criteria: only 9.8% (n=56) were SIRS positive during the first evaluation, but analysing the same data retrospectively - 41.3% (n=235) were positive for SIRS criteria.

From those of SIRS negative, 69.1% (n=231) of the patients had mild pneumonia, 28.4% (n=95) had moderate, and 1.5% (n=5) had severe pneumonia. The median duration of treatment for the SIRS-negative patients with mild pneumonia was five days (min 1; max 22 days). In the case of SIRS-

positive patients, the median duration for treating the pneumonia also was five days (min 1; max 69 days).

Conclusions. It can be concluded that the guidelines for SIRS assessment are not fully utilised.

The retrospective analysis highlights that 42% of the children should have been ambulatory treated, minimising the chances of hospital acquired infections. The duration of treatment of the SIRS-negative patients with mild pneumonia did not differ from those SIRS-positive; which significantly impacts the financial expenses of the hospitalised patient. The research results indicate that there is a need to create standardised algorithmic guidelines for assessment, examination, and therapy of the patient that could aid the doctor at first suspicion of pneumonia.

The research has been conducted within the scope of the National Research programme on main diseases threatening the life expectancy and life quality of the Latvian population.

MATERNAL KNOWLEDGE AND ATTITUDE TOWARDS THE IMPORTANCE OF CHILDREN IMMUNISATION

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Key words. Parent knowledge, vaccination decisions, vaccine hesitancy.

Introduction. Despite that vaccination is known to be the most successful method to prevent infectious diseases, growing number of parents have concerns about vaccine safety and necessity. According to the data given by Centre for Disease Prevention and Control of Latvia (CDPC), from 2008 to 2010, immunization coverage for all vaccine-preventable diseases (VPD) have decreased in range 5 – 10%. Data of 2013 shows that immunization coverage is close to target level, but is not above it. Doubts about vaccine safety and myths that are cultivated in mass media can lead to outbreaks of VPD.

Aim. To assess parents attitude towards vaccine safety and reliance on health care providers, as well as clarify, how parents evaluate their understanding and knowledge about VPD and immunity.

Results. By now we have interviewed 178 mothers. 97% (n=172) of mothers were vaccinated in their childhood, 69% (n=123) decided to receive

additional vaccines after reached age of 18. 74% (n=132) think vaccination is urgent topic, but most of mothers (58%, n=103) are not into discussing this topic with others. Majority of mothers (85%, n=151) vaccination questions address to their family physicians. Out of 177 mothers who answered question about communication with their physician on vaccination topic, 70% (n=124) admit their physician wasn't able to answer all their questions. 59% (n=105) admit that articles in media about vaccine side effects scare them. Although, 53% (n=95) disagree that their attitude is influenced by non-health care providers, only 39% (n=69) find out author's level of education before reading the article. Mothers consider they know, how immunity develops after infectious agent's natural invasion (67%, n=120), how immunity develops after vaccination (60%, n=107), and 52% (n=94) consider they know manifestations and complications of VPD. 60% (n=107) of those who answered question about vaccine safety (n=177) believe they are safe. More to add, 51% (n=90) was sure vaccine would protect their child against certain VPD. 78%, (n=138) recommend other mothers to vaccinate their children, but 19% (n=33) believe vaccination is unnecessary. 91% (n=79) out of 87 mothers, who have more than one child, did vaccinate their children according to schedule. 92% (n=161) out of 176 mothers are going to vaccinate their new-born according to schedule, but 2 mothers did not answer this question, because they have not decided yet.

Conclusions. despite that most of mothers will vaccinate their children, significant amount of them have serious doubts about vaccine safety and have uncertainty in some questions regarding vaccination. Communication strategies focused on safety may increase parent confidence about vaccination. Further data is necessary and will follow.

COMPARISON OF PROGRESSION AND OUTCOMES IN DOCTOR AND MIDWIFE GUIDED CHILDBIRTHS

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Key words. Midwife, Childbirths, Agreement.

Introduction. In childbirth midwives tend to represent the more spiritual and natural side, by guiding a pregnant woman through the process from the

start of her pregnancy up to 28 days after the baby has born they develop a trustful and reassuring environment for the new mother, they also tend to intervene in the childbirth process much less frequently, only when its necessary. Doctors, on the other hand, represent more routine and less individual approach to childbirth, with less visits, time they spend with the pregnant woman and the lack of interpersonal connection development, they are preferred in cases where the pregnant woman has a serious chronic medical condition, like epilepsy, heart disease, but that doesn't mean midwives are qualified for those situations.

Aim. Study compares the progression and outcomes of childbirths where the pregnant woman with her 1st pregnancy and 1st childbirth has an agreement with a midwife or a doctor. Aim is to compare the data from patient histories to find out which one, doctors or midwives, have a bigger rate of epidural anaesthesia usage in childbirths, rate of episiotomy, rate of perineal traumatism, rate of caesarean sections, length of childbirth in year 2013.

Results. In 2013 there were a total of 155 1st pregnancy 1st childbirth agreements with doctors and midwives. 26 (17%) were with doctors and 129(83%) with midwives. Average length of doctor agreement childbirths was 9 hours and 52 minutes and average length of midwife agreement childbirths was 12 hours and 7 minutes. In doctor agreement childbirths rate of epidural anaesthesia was 34,6% and in midwife agreement childbirths it was 18,6%. Episiotomies were performed in 38,8% of doctor agreement childbirths and in 28,8% of midwife agreement childbirths. Rate of caesarean sections in doctor agreements was 30,7% and only 8,5% in midwife agreements.

In 73% of doctor agreement childbirths there was no vaginal traumatism and in midwife agreement childbirths 24%.

Conclusions. In conclusion, midwife agreement childbirths are longer due to midwives letting the childbirth process take its own natural path. Epidural anaesthesia is less preferred in midwife agreement childbirths, since it's an intervention in the natural process. Perineal traumatism is more common and heavier in midwife agreement childbirths because they try to avoid intervening with episiotomy, which is a controlled cut to avoid heavier tears. Rate of operative interventions with caesarean section in the natural process is much higher in doctor agreement childbirths, doctors task isn't to provide a natural childbirth experience but to assure the safety of both mother and new-born baby.

PSYCHOLOGICAL ASPECTS OF A PRETERM BIRTH

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Introduction. With the 21st century's rhythm of life, which includes in itself making a successful family life, career and a particular social status acquisition in society, a woman during pregnancy is subjected to a psychological burden, which may result in complications during pregnancy, as well as with premature birth. It is therefore essential for medical personnel and relatives well in advance to notice changes in the woman's psychological state and to provide assistance.

Aim. To evaluate the women after preterm labour. To find out whether there have been socio-economic and psychological risk factors that could have caused premature birth. Using the Edinburgh postnatal depression scale (EPDS), to clarify whether the puerperal women had been in a depressive state.

Results. 51 women who had a history of a preterm birth were interviewed. Distribution by age groups: <20 years - 2 (4%), 20-29 years old - 18 (35%), 30-34 years old - 16 (32%), 35 years old and over - 15 (29%). Current pregnancy: first - 14 (27%), repeated - 37 (73%). The current birth: first - 20 (39%), repeated - 31 (61%). Women in marriage - 31 (61%), unmarried couples - 16 (31%), single mothers - 4 (8%). Education: higher- 28 (55%), secondary - 13 (26%), secondary professional - 7 (14%), primary - 3 (6%). Depending on the gestation time, the delivery was on the: 22-27 week - 1 (2%), 28-33 week 14 (27%), 34-37 week - 36 (71%). Previous birth was preterm for 32%. Complications in both the current and previous pregnancy - 5 (16%). Problems existing in pregnancy: genitourinary infections - 4 (8%), other infections - 3 (6%), threat of termination of pregnancy - 7 (14%), placental attachment pathology was in 7 (14%), was not in 31 (61%). Family support during pregnancy: yes - 46 (90%), partly - 3 (6%), no - 2 (4%). Family history of premature labour: yes - 11 (21%), no - 40 (79%). During pregnancy employed were: yes - 37 (72%) no - (28%). Income level: less than 200 EUR / month - 2 (4%), 200-500 Euro / month - 20 (39%), > 500 Euro / month - 29 (57%). From all women given questionnaires, 10 were puerperal women for who using EPDS is possible to have a depression - 3 (30%), no depression - 7 (70%).

Conclusion. The risk of premature birth is increasing in direct connection to age. A history of preterm birth is a risk factor. Complications during a previous pregnancy is not a risk factor for the development of complications in the current pregnancy. Support from family and friends, as well as whether or not a woman has a relationship or a woman is a single mother, does not affect the risk of premature birth. Higher levels of education and lower income levels could be related to the risk of premature birth. Evaluating the EPDS, depression could be a risk factor for a preterm birth.

CONGENITAL VIRAL HEPATITIS C, DIAGNOSTIC AND THERAPEUTIC TACTICS IN THE COMPARISON WITHIN A PERIOD OF 10 YEARS VSIA BKUS

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Introduction. World Health Organization data shows that approximately 180 million people are infected with hepatitis C in the world, whereas in Europe there are approximately 5-10 million people infected. Hepatitis C prevalence in Latvia (2008 study) - The prevalence of antibodies (anti-HCV) in Latvia is 2.4%, and hepatitis C virus (HCV-RNA) prevalence is 1.7%, about 40 thousand of chronic hepatitis C patients including congenital viral hepatitis C, the incidence of HCV vertical transmission is approximately 2 to 5 percent in HCV RNA positive mothers (information about incidence in Latvia is unknown).

Aim. Aim of the work is to explore congenital viral hepatitis C prevalence in Latvia, diagnostic and therapeutic principles in the time period from 2005 and compare chronic viral hepatitis C therapy, its effectiveness and side effects.

Results. Retrospective analysis of patients' medical cards. In the period from 2005 medical cards of 50 patients were analysed - 36 patients from mothers with positive markers hepatitis, 14 patients with chronic hepatitis C who were infected with horizontal transfer path. The most commonly diagnosed viral hepatitis genotype nr 1 (36% of patients), genotype nr 3 (26%) part of the patients do not have a defined genotype (32%).

Patients with congenital viral hepatitis C - Alat is raised 42% of cases, relatively - in patients who have acquired the virus horizontal transfer path - it

is increased 92%. Liver biopsy result (HAI index) - in patients with chronic viral hepatitis, extracted in horizontal transmission path is on average 2 times higher than in patients with congenital viral hepatitis.

Conclusions.

1. The most commonly found genotype for paediatric patients in Latvia is 1 hepatitis C.
2. 16% of patients with congenital viral hepatitis have had spontaneous remission.
3. The indicators of liver damage in patients with congenital viral hepatitis in not as relatively diagnostically specific as for patients infected in horizontal transmission path.

QUESTIONNAIRE OF SURVEY ON COSTS OF MEDICAL MANIPULATIONS AND FUNDING OF MEDICAL STUFF ACROSS THE EUROPEAN COUNTRIES

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Key words: gynecology, oncology, costs, Europe

Introduction. The European Union clinical University hospitals, including those from new European countries, are providing medical services according high quality standards; however, there are significant differences in medical service payment by the state. There are also differences in the amount of the payment for in and out-patient services. According to World Bank's assessment, several of new European Union member states are ranked as high-income countries alongside to old European member states, but the payment gap of medical services, between these European member states, is very relevant.

Aim. To analyze the gynecological service payment covered by state across the European countries.

Results. Insurance costs of the physicians are very different across the European Union countries, with the highest percentage in Germany (15.5%) and the lowest in France (100 Eur per year). In most countries, surgery is paid

by the state, but, by contrast, in Latvia patients have to pay fixed payment of EUR 43 for treatment even in case of malignancy and additional payments for staying in hospital. The fees of oncogynecological surgeons for the full workload ranges from 4,000 Eur in Denmark to 500 Eur in Macedonia after the taxes. Refundment from government varies a lot for the same manipulations in different countries.

Conclusion. Despite the fact that new European countries are ranked as high income countries by World Bank, there is tremendous difference in the manipulation costs covered by government and refundment of medical stuff.

LIFE QUALITY OF CHILDREN SUFFERING FROM ASTHMA: USE OF STANDARDIZED LIFE QUALITY QUESTIONNAIRES IN LATVIAN CHILDREN 7-17 YEARS OLD

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Key words. Asthma, children, quality of life (QoL)

Introduction. Asthma is one of the most common chronic respiratory diseases in children characterized by recurrent attacks of breathlessness and wheezing. Asthma cannot be cured, but appropriate management can control the disorder and enable people to enjoy a good QoL.

The prevalence of asthma is 4,2% of the population in Latvia. To obtain a complete picture of a child's health status, both the conventional clinical indices and the child's health-related QoL have to be measured. In this study we used Latvian version of self-administered Standardised Paediatric Asthma Quality of Life Questionnaires (PAQLQ(s)).

Aim. The purpose of study was to evaluate the quality of life of children suffering from bronchial asthma.

Results. The examined group consisted of 33 boys and 17 girls, 7-17 years old (mean age 10,7). There were no patients with severe asthma. 16 children suffer from mild asthma and 34 – from moderate. Spirometry test was performed in all patients in the course of the treatment. Assessing the lung function, none of the patients had decreased FEV1 and just 4 patients

had positive bronchodilator test ($FEV_1 > 12\%$). 35 (70%) patients had well controlled asthma, 12 (24%) - partly controlled and 3 (6%) - uncontrolled asthma. The majority of patients ($N=23,46\%$) as a treatment received combination of inhaled glucocorticoids (IGK) and short or long acting B2 agonists (B2A). 13 patients (26%) were treated with 3 medications – leukotriene receptor antagonists (LTRA), IGK and B2A. 9 patients (18%) received 1 medication – B2A, 3 patients (6%) received only LTRA. One patient (2%) received combination of IGK and LTRA and one patient (2%) received IGK. Other allergic diseases (allergic rhinitis, atopic dermatitis, etc.) were found in 15 patients (30%) and only 4 patients (8%) did not have positive allergy tests (skin prick test and/or an allergen-specific IgE blood test).

Overall score ranged from 3,00 to 7,00 (1=severe impairment, 7=no impairment). Mean overall score 6,08. The QoL is decreased in both patient groups with mild and moderate asthma and the mean score is respectively 6,44 and 5,91.

The assumption was that the degree of the severity of asthma may affect the QoL. Statistic analysis confirmed significant relationship between the severity of disease and the activity domain.

Conclusion.

1. PAQLQs is valid and it is comfortable to use for QoL measurement in clinical practice for children with bronchial asthma.
2. This study showed mean overall score was worse in patients with moderate asthma and that the most affected QoL domain for asthmatic children was the symptoms domain.
3. The evaluation of the QoL can help establish individual plan of treatment.

BIRTH TRAUMA AS THE CAUSE OF PERINATAL MORTALITY IN LATVIA

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Key words. Perinatal mortality, birth trauma.

Introduction. Birth injury represents neonatal trauma sustained during labour and delivery. The overall incidence of birth injuries in the world is estimated at 2-7 per 1000 live births (Taylor et al., 2007). Significant birth trauma accounts for fewer than 2% of neonatal death and stillbirths in the United States (Kenner et al., 2007]. Predisposing to birth trauma are large size of infant, cephalopelvic disproportion, dystocia, prolonged labour, and breech presentation. In Latvia in 2013 non of infant or child had death due to birth trauma (Statistical Yearbook of Health Care in Latvia, 2013) but we lack detailed analysis of the birth trauma effects on perinatal mortality over a longer period of time.

Aim. The goal of this research is to analyse injury acquired during birth as a cause for perinatal mortality. A retrospective cross-sectional research was conducted using autopsy protocols data gathered by Children's Clinical University Hospital Pathology department in the time period from 2003 to 2013. The selection criteria were death occurring from 22nd completed week of gestation to the 7th completed day after birth and intrapartum death caused by the birth trauma. The data was processed in Microsoft Excel using descriptive statistics.

Results. In the time period from 2003 to 2013, out of 1850 perinatal death cases, 38 cases (2.05%) were attributed to birth trauma. Out of all autopsies performed in 2003 it accounted for 6.18% (n=11 out of 178 autopsies), 2004 - 4.02% (n=7/174), 2005 - 2.25% (n=4/178), 2006 - 1.48% (n=3/203), 2007 - 1.08% (n=2/185), 2008 - 0.51% (n=1/196), 2009 - 2.81% (n=5/178), 2010 - 2.27% (n=3/132), 2011 - 1.41% (n=2/142), 2012 - 0% (n=0/144), 2013 - 0% (n=0/140). The most common cause of death was unilateral or bilateral tear of *tentorium cerebelli* with or without subdural hematoma n=26 out of 38 (68.4%), massive cephalohematoma (n=6/38; 15.8%). The combined intranatal trauma was observed less frequently – fractures of the right humerus and the spine (n=1/38; 2.63%), fractures of the

right humerus combined with the occipital bone fracture (n=1/38; 2.63%). Of those cases where there was no information about specific birth trauma (n=4/38; 10.53%), as a side pathomorphological diagnosis there were mentioned meconial aspiration (n=1), breech presentation, (n=1), intrauterine pneumonia (n=1), intranatal asphyxiation (n=1).

Conclusion.

1. In the time period from 2003 to 2013 birth trauma in Latvia accounts for 2.05% of all perinatal death what does not differ from the data of other countries.

2. Birth trauma as a cause of death no longer occurs, gradually declining from 6.18% out of all perinatal death causes in 2003 till 0% in 2013.

3. In the years 2012 and 2013 there were no deaths due to birth injuries, providing evidence that the quality of obstetric assistance in Latvia has improved.

IRON DEFICIENCY ANEMIA AND VAGINAL CANDIDIASIS IN PREGNANCY

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Key words. iron deficiency, anaemia, vaginal candidiasis, pregnancy.

Introduction. Anaemia among pregnant women seen in up to 34% of cases. Iron deficiency can lead to pregnancy complications, premature birth, developmental retardation, low birth weight. Iron deficiency weakens the body's resistance to infection, because iron is an important component of the immune system and it takes part in immunological processes and reactions. Vaginal candidiasis is microbiologically proven 30-40% of pregnant women without any complaints or symptoms, and usually during the third trimester. 85-90% of cases it is caused by a yeast-like fungus *Candida albicans*. Studies have shown that ascending asymptomatic vaginal candidiasis could cause premature birth and hence the further development problems of the child. Studies have demonstrated a link between iron deficiency and infections, including infection of an opportunistic pathogen as *Candida albicans*. These infections often manifests in immunosuppressed patients like HIV-infected patients and in patients who have undergone organ transplantation. Pregnant

woman can be regarded as a "physiological" immunosuppressive situation that occurs in fetal development in a woman's body to protect the fetus from repulsion. The question therefore arises - how vaginal flora changes during pregnancy may be associated with the development of iron deficiency. There is little research on this aspect. From the point of view of research there should be investigation of the possible relationship between iron deficiency and vaginal candidiasis development in pregnancy. Results and conclusions will help to judge is it important or unimportant to treat iron deficiency in pregnancy, if there is correlation between iron deficiency and vaginal candidiasis, to prevent vaginal candidiasis development and related pregnancy complications.

Aim. To clarify the possible correlation between iron deficiency anaemia and vaginal candidiasis development during pregnancy.

Results and Conclusions. To the time of submission of abstract results and conclusions are not available because the study is the data acquisition phase, which will be completed in February 2015. A preliminary results and conclusions will be presented in the conference.

PREGNANCY COMPLICATIONS AND OUTCOMES AMONG WOMEN WITH HIGH BODY MASS INDEX

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Key words. Pregnancy, BMI, maternal obesity

Introduction. Obesity is a fast growing social and economic issue, according to 2011 data published by Eurostat 20.9% of women in Latvia aged 18-74 were obese and another 32.5% had excess body weight. Women who are overweight or gain too much weight during pregnancy have increased risk of developing preeclampsia, eclampsia, gestational diabetes, fetal macrosomia or having an emergency caesarean section, elective caesarean section, prolonged hospital stay. (FC Denison et al, 2013; Callaway LK et al, 2006; Jared M. Baeten et al, 2001).

Aim. To access pregnancy complication and outcomes among women with high Body Mass Index (BMI) in RP SIA „Rīgas Dzemdību nams” and compare them with available research data on the subject.

Results. Out of 316 women in our selected research population, 216 (68.35%) had normal BMI (18.5-24.9 kg/m²) and 100 (31.65%) had BMI>25 kg/m² (in overweight group 72 women (72%) had BMI 25-29.9 kg/m² and 28(28%) had BMI >30 kg/m²). Mean age in both groups was 29.4 years and 29.5 years respectively, Median in both groups was 29 years. Mean BMI in control group (normal BMI) was 21.64 kg/m², in overweight group 28,98 kg/m². Chi-square test was used to analyse the data. Fetal macrosomia in control group vs. study group 18% and 29% respectively (P= 0.0277), gestation diabetes 2.78% vs. 7% (P= 0.0788), preeclampsia 1.85% vs. 8% (P= 0.0078), necessity to admit new-born to intensive care unit 11.11% vs.17% (P=0.1474), emergency caesarean section 21,43% vs. 20,27% (P= 0.8387), threatened abortion 27.78% vs. 35% (P= 0.1928), prolonged hospital stay (>3days) 48,6% vs. 59 % (P= 0.0856), excessive weight gain during pregnancy 37.96% vs.70% (P= 0.0001).

Conclusions. After data evaluation was made among collected data from RP SIA „Rīgas Dzemdību nams” archive and based on reviewed research papers and publications, we can conclude that although our results are consistent with overall patterns seen in pregnancy outcome of overweight and obese women, not all of our results are considered to be statistically significant due to number of reviewed cases and our exclusion criteria as well as possible restrictions in study design. However based on available publications we can safely conclude that high BMI before pregnancy and excessive weight gain during pregnancy is a strong risk factor for complications and adverse pregnancy outcomes. Maternal obesity is not only a clinical burden but also an economical one, thus it should be addressed on government level so that appropriately targeted interventions can be developed to battle obesity in maternity population. This could help not only to improve pregnancy outcomes but also to build a better understanding of the issue and the pathophysiological mechanisms behind it.

ASPIRATION PNEUMONIA: ETIOLOGY, DIAGNOSTICS AND TREATMENT TACTICS IN CHILDREN'S CLINICAL UNIVERSITY HOSPITAL

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Key words. Aspiration pneumonia; aspiration; children.

Introduction. Several studies indicate that 5 to 15 percent of cases of community-acquired pneumonia are aspiration pneumonia. Most common recurrent pneumonia is aspiration pneumonia. Aspiration pneumonia is the most common cause of death in patients with dysphagia due to neurologic disorders. Aspiration pneumonia should be considered in the differential diagnosis for any patient with dysphagia and an infiltrate in a dependent bronchopulmonary segment. There has not been research for aspiration pneumonia for children so far in Latvia.

Aim. Evaluate the most common causes of aspiration pneumonia, diagnostics and therapeutic tactics for children that were treated in Children's Clinical University Hospital the in period from 2010 - 2014.

Methods. A retrospective by using information from the Children's Clinical University Hospital archival records of patients who are diagnosed with aspiration pneumonia from 2010 -2014. For the study there were selected patients classified to ICD 10 classification code J69, diagnosed as aspiration pneumonia.

Results. From the 76 selected patients 62 met the criteria set out. Forty-two (68%) patients have a neurological disease. Twenty-three (37%) patients have palliative care. For the first two years of life aspiration pneumonia was 26 (42%) patients. For all patients for diagnostic were used chest X-ray. For twenty-seven (44%) patients for diagnostic was used bronchoscopy. Bilateral pneumonia was found in 27 (44%) cases; the right lung pneumonia in 26 (42%) cases, and the left lung in 9 (14%) cases. Clindamycin was used for 25 (40%) patients for the treatment, and tazobactam / piperacillin was used for 17 (27%) patients. Additionally to antibiotic therapy for 26 (42%) patients was applied to physical therapy.

Conclusions. Aspiration pneumonia is more common for patients with neurological disease. The most common causes of aspiration pneumonia are chronic aspiration. For more than half of the patients, diagnosis is confirmed by X-ray. Clindamycin is often selected for basic drug therapy.

THE INCIDENCE, DIAGNOSTIC AND THERAPY METHODS OF ATOPIC DERMATITIS IN CHILDREN UP TO 7 YEARS OF AGE IN GENERAL PRACTITIONERS PRACTICES

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Key words. Atopic dermatitis, children

Introduction. Atopic dermatitis is the most common skin disease in children with a prevalence of 10–15% before school age. About half of the patients suffer from moderate to severe atopic dermatitis. The disease is of great economic importance because it is so common and generally chronic. Frequently, the dermatitis is associated with other atopic diseases such as food allergies, asthma, and allergic rhinitis. The prevalence of food allergies in patients with severe atopic dermatitis is believed to be around 30%. Close coordination between primary care physicians and specialists is essential for the adequate treatment of chronically and severely affected patients.

Aim. The aim of this research was to assess incidence, diagnostic principles and therapy methods in children with atopic dermatitis up to 7 years of age in general practitioners (GPs) practices.

Results. In this research two GPs practices were included. In one of the practices general practitioner was with paediatric subspecialty, in another one – with therapeutic specialty. All together in this research 210 children ambulatory cards were screened. In period from January 1 2009 to January 1 2015 there were 67 children with diagnosis of atopic dermatitis, 32 (47.8%) of the patients with this diagnosis were girls and 35 (52.2%) were boys. The average age in children with diagnosis of atopic dermatitis was 11.17 months. In 47 (70.1%) cases there were no additional diagnostic tests done to confirm diagnosis. In those cases, where to prove diagnosis of atopic dermatitis additional tests were done, most common was allergen-specific IgE test – in 14 cases (20.9%). Allergen-specific IgE test more often was used in GPs practice, where GP is with paediatric subspecialty. Dermatologist was the most popular specialist, who patients were referred to – in 21 cases (31.3%). In GPs practice, where GP is with therapeutic specialty, patients were referred to specialists more often than in the practice, where GP is with paediatric subspecialty. Most patients received emollient therapy (Bioderm Atoderm, Essex, Bepanten etc.) – in 57 cases (85.1%), local corticosteroid therapy (Fucidin H, Advantan, Elocon etc.) – in 34 cases (50.7%). In none of the cases calcineurin inhibitors (for example, Elidel) were used.

Conclusions. Incidence of atopic dermatitis in GPs practices is high, this is why general practitioners should be informed about atopic dermatitis diagnostic principles and newest therapy methods. The overall sex ratio for atopic dermatitis patients is equal. In most cases general practitioners made diagnosis of atopic dermatitis without any additional diagnostic tests. The most often used therapy combination for patients with atopic dermatitis is emollients together with topical corticosteroids.

CAUSTIC OESOPHAGEAL BURNS WITH CONCENTRATED ACETIC ACID IN CHILDREN'S CLINICAL UNIVERSITY HOSPITAL DURING THE PERIOD FROM 2005 TO 2015

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Key words. Caustic oesophageal burns, concentrated acetic acid, complications – strictures.

Introduction. Oesophageal mucous membrane contact with chemically active substances is an urgent situation that requires immediate assistance. Often long-term treatment is necessary, because of the different complication development such as oesophageal strictures. According to literature, the most often corrosive substances are being swallowed by young children aged two to five years (*Fishmann DS, 2011*).

In order to control and reduce oesophageal burns with acetic acid, the Cabinet of Ministers of Republic of Latvia adopted the Regulation No. 334 of the restriction of trade of concentrated acetic acid.

Aim. To summarize the number of patients and analyse current information on oesophageal chemical burns caused by ingestion of concentrated acetic acid in the Children's Clinical University Hospital (CCUH) before and after the entry into the force of the Cabinet of Ministers regulation No.334 on 1st January 2010.

Results. In the study 44 patients were included who suffered from chemical oesophageal burns from 1st of January, 2005 till 31st of December, 2009. The mean age of the group was 2.4 years. From all hospitalized patients, 23 (52.27%) had burns with concentrated acetic acid. After burns five patients or 11.36% developed complications – strictures, 80% (n=4) of them after ingestion of concentrated acetic acid.

29 patients were hospitalized in CCUH with oesophageal chemical burns during the period from 1st of January, 2010 till 31st of December, 2014. Mean age was 2.36 years. Nine or 33.79% of patients had burns from concentrated acetic acid. Overall strictures as complications developed in six or 21.85% of the patients and one of them, or 16.6% was from concentrated acetic acid.

In total there were 32 patients with oesophageal burns caused by concentrated acetic acid admitted to CCUH from 1st January, 2005 till 31st December, 2014. Using *Mann Kendall* trend test in *MS Excel* program, it was estimated that the number of patients who are suffering from concentrated acetic acid burns statistically significantly decreased in the last 10 years ($p < 0.005$).

Conclusions.

1. Most frequently oesophageal burns gain children under the age of three, which corresponds to the data available in the literature.

2. After the introduction of the trade regulation of concentrated acetic acid on the 1st of January, 2010, the number of patients, who got chemical burns by ingesting concentrated acetic acid decreased from 52.27% to 33.79%.

3. There is statistically significant decrease in chemical burns from concentrated acetic acid in the last decade ($p < 0.005$).

4. More research is necessary to evaluate if the introduction of regulations by the Cabinet of Ministers of Republic of Latvia has affected the number of accidents that happen with concentrated acetic acid.

SURGICAL MANAGEMENT OF BLUNT DUODENAL INJURIES IN CHILDREN

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Key words: blunt abdominal trauma; duodenal injury.

Introduction: Duodenal injuries are rare in children and usually caused by a fall over the handlebar and during car accidents. Retroperitoneal location of the duodenum, nonspecific symptoms, associated injuries and unreliable history may lead to delay in diagnosis, while missed injuries are associated with increased morbidity and mortality rates. Therefore, duodenal injury

secondary to blunt trauma continues to pose a diagnostic and therapeutic challenge.

Aim: The purpose of our study is to evaluate the cause, clinical features, radiologic findings and management of duodenal injuries in Children's Surgery Department, Children's Hospital,

Affiliate of Vilnius University Hospital Santariskiu Klinikos. Here we report the analysis of five cases of operative blunt duodenal injuries in children treated successfully.

Results: A retrospective review of children diagnosed with perforated duodenal injuries between 1983 and 2014 was conducted in our hospital. Statistical analysis was performed using MS Excel. Five children: 4 (80%) males and 1 (20%) female aged from 8 to 12 years (10.6 ± 1.6) were included in the study. There were 4 (80%) penetrating duodenal injuries: 2 ruptures of the second part, 1 of the third part and 1 of the fourth part of the duodenum. Initial symptoms and physical findings included nausea, vomiting and upper abdominal pain (80%). Physical examination revealed positive peritoneal signs in 3 patients (60%). One (20%) child had duodenum obstruction symptoms caused by retroperitoneal space hematoma. CT scans demonstrated free air in the retroperitoneum (20%). Ultrasonography of abdomen was the most common and helpful diagnostic test (40%). There were 3 (60%) children with other concomitant solid organs and skeletal system injuries. 3 (60%) patients underwent operative management by primary repair, 1 (20%) patient – duodenojejunostomy with Braun's anastomosis and 1 (20%) child underwent retroperitoneal space hematoma's evacuation. The average hospital stay was 29 ± 19.2 days (10–57). 3 (60%) patients had an uneventful postoperative period, 1 (20%) developed duodenal fistula which was managed conservatively, 1 had ileus mechanicus symptoms and abscess of the pancreas. There were no deaths and all patients recovered fully.

Conclusions: Duodenal injuries were predominantly blunt in children. When surgery was required, primary repair was usually feasible. Postoperative complications were frequent, but all children survived. Prompt diagnosis and relevant treatment of blunt duodenal injuries are crucial for saving patients' lives, preventing further complications and for complete recovery.

IMPACT OF EPIDURAL ANAESTHESIA ON THE RATE OF OPERATIVE VAGINAL DELIVERY

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Key words. Epidural, operative vaginal delivery, fetal distress

Introduction. Epidural anaesthesia (EA) is widely used as labor analgesia. Usage of EA varies between 25-66% in different countries. It has been reported that EA can slow down the course of labor and increase the risk of operative vaginal delivery. Slower course of labor can lead to an increased risk of fetal distress. Some studies have also demonstrated an increase in occiput posterior position of the fetal head at delivery if EA is used. It represents a mechanism that may contribute to the lower rate of spontaneous vaginal delivery consistently observed with EA. [*Lieberman et al., 2005*]

Aim. To evaluate the impact of EA on the rate of operative vaginal delivery.

Materials and methods. In this retrospective case-control study 832 records of women who had a vaginal delivery at Riga Maternity hospital in 2013 were analysed. Parturients were divided into two groups: EA group, which included 304 women (220 primiparas and 84 multiparas) and control group, which included 528 women (257 primiparas and 271 multiparas) who did not have EA during labor.

Results. Both primiparas and multiparas who received EA were older (\pm SD) than their respective controls – primiparas 27,6 \pm 4,3 years vs. 26,1 \pm 4,6 years ($p=0,003$), multiparas 32,4 \pm 4,4 years vs. 30,8 \pm 5 years ($p=0,003$).

EA group primiparas had longer latent phase of the first stage of labor than control group primiparas (median (IQR): 240 (180-330) min vs. 210 (150-277) min, $p=0,001$). EA group multiparas had longer first stage of labor (median (IQR): 340 (270-433) min vs. 310 (240-390) min, $p=0,031$) and longer latent phase of the first stage of labor (median (IQR): 180 (120-261) min vs. 149 (90-192) min, $p<0,001$) than multiparas in control group.

Vacuum extraction was used in 1,27% of all deliveries with EA. Moreover, vacuum extraction was used only in primiparas as there was no statistically significant difference between EA group primiparas and control group primiparas (1,7% vs. 1,2%, $p=0,593$). EA did not increase the rate of occiput posterior position of fetal head. However, primiparas with EA and

occiput posterior were more likely to develop acute fetal distress in comparison to primiparas with EA and without occiput posterior position of fetal head (40% vs. 9,8%, $p=0,029$; $RR=4,09$, 95% CI 1.3-12.9). There was no statistically significant link between occiput posterior position and acute fetal distress in control group primiparas.

In addition, EA group primiparas had cervical lacerations more frequently than control group primiparas (22,3% vs. 14,4%, $p=0,024$).

Conclusions. Parturients who request EA are older. EA does not increase the likelihood of operative vaginal delivery. However, EA prolongs the latent phase of the first stage of labor. The risk for acute fetal distress among primiparas who receive EA is increased in case of occiput posterior position of the fetal head. Primiparas with EA have cervical lacerations more frequently.

NASAL BONE FRACTURES IN CHILDREN AND ADOLESCENTS. EVALUATION OF PLAIN FILM RADIOGRAPHY AS A DIAGNOSTIC METHOD TO DETERMINE TREATMENT TACTICS

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Key words. Otorhinolaryngology, nasal, trauma, pediatrics, x-ray.

Introduction. In pediatric population nasal bones are the second most common site of fractures in the craniofacial area. In adolescence, nasal bone fracture pattern more closely follows that of adults. Nasal fractures are less common in very young children mostly due to underdeveloped nasal bones and other factors. Plain radiographs of the nose are difficult to interpret because of possible growth plate fractures and cartilaginous injuries.

Aim. Retrospectively collect data of patients admitted to the Children's Clinical University Hospital ENT department with the diagnosis „Fracture of nasal bones” S02.2 (ICD-10) from 01.01.2012. to 31.12.2014. to obtain descriptive statistics concerning the pediatric population with this diagnosis. Evaluate is the plain film x-ray a necessity when diagnosing nasal bone fractures and does it have any impact on the decision for surgical reduction of the fracture.

Results. During the time period of three years given above there were

153 patients admitted to the ENT department with diagnosis S02.2. Among those 120 (78,4%) were male and 33 (21,6%) were female. Patients were from 2 to 17 years old. The etiology of trauma was obtained from 89 (58,2%) patients' histories. Convincingly the most common cause was sports trauma 43(28,1%). 34 (89,5%) out of 38 patients with no nasal bone fracture on plain x-ray film and 85 (92,4%) out of 92 patients who had a fracture on x-ray film were treated with surgical reduction of the fracture. Statistical analysis yielded no significant difference between these groups ($p=0,587$). 7 (77,8%) out of 9 patients without visual deformity of the nose and 112 (98,2%) out of 114 patients with visual deformity had visual reduction of the fracture, statistical difference was significant ($p<0,001$).

Conclusions. Based on the descriptive statistics a risk group of nasal bone fracture patients in pediatric population can be outlined – boys who do contact sports in their early teenage years. As to plain film radiography it is safe to conclude that it is unreliable for the evaluation of nasal fractures in children. Furthermore this study showed, that the decision for the surgical reduction of the fracture can be based on the results of a thorough patient examination and the fact that the patient presents with a visual deformity of the nose.

EPSTEIN-BARR VIRAL INFECTION IN ONCOHEMATOLOGICAL DISEASES IN CHILDREN

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Key words. Epstein-Barr virus, Lymphoproliferative disease, Hemophagocytic syndrome, Hodgkin's disease

Introduction. One of the most common forms of herpes virus infection is an infection caused by Epstein-Barr virus (EBV), a herpes virus type 4. Infection rate of adults with EBV is about 90-100%, and children,

according to different authors from 50% to 80%. Today, EBV is associated with a number of cancers, mainly lymphoproliferative (lymphoma, nasopharyngeal carcinoma, 10-20% of all cancers of the stomach) and autoimmune diseases (rheumatic diseases, vasculitis, ulcerative colitis, etc.).

Aim. To study the role Epstein-Barr virus in oncohematological diseases in children

Materials and methods. At the Department of Paediatric Infectious Diseases from 2005 to 2013, we have worked on the study of different clinical forms of EBV infection in children. During this time, we observed 2456 children with EBV infection. Methods which we applied are clinical, epidemiological, serological and molecular diagnostic techniques.

Results of study. Among all children surveyed, 46.4% were recorded with infectious mononucleosis, 23.1% - chronic active EBV infection form, 16.2% - atypical, 10.9% - latent, 2.4% - generalized form, 0.5 % - lymphoproliferative disease (LPD), 0.5% - hemophagocytic syndrome (HPS). Hemophagocytic syndrome manifested with clinical picture of chronic infectious mononucleosis, febrile (50%) and hectic fever (50%), all patients with marked hepatosplenomegaly, generalized lymphadenopathy, and tonsillitis. The general analysis of blood and sterilized puncture of sternum revealed pancytopenia (expressed anemia, leukopenia, and thrombocytopenia). On serological examination, EBV IgG VCA and IgG EBNA EBV were detected. Lymphoproliferative disease associated with EBV in our patient demonstrated - lymphogranulomatosis (50%), leukemia (50%). In 1 child with HPS and 1 patient with leukemia on background of chronic EBV infection ended lethally.

Conclusions. Today, Epstein-Barr virus both in the literature and the results of our research cause oncohematological diseases. The results of our research in patients with chronic EBV infection registered Hodgkin's disease and leukemia.

FLOW CYTOMETRIC AND IMMUNOHISTOCHEMICAL PHENOTYPE OF PEDIATRIC LEUKEMIA IS HIGHLY CONCORDANT

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Keywords. Acute leukemia, phenotype, immunohistochemistry, flow cytometry.

Introduction. Acute leukemia (AL) is the most frequent paediatric malignancy with good outcome. Modern options for diagnosis and treatment monitoring facilitate the favourable prognosis; immunophenotyping and genetics are the main diagnostic approaches. Immunohistochemistry (IHC) performed usually on bone marrow and flow cytometry (FC) of marrow or blood are the main phenotyping techniques. FC is fast and allows simultaneous detection of multiple antigens, while cell morphology and infiltration pattern are visible on IHC. Very few comparative data on IHC and FC results have been published.

Aim. The aim was to retrospectively compare IHC and FC results of paediatric AL patients and to define areas of discrepancy. FC was performed by FacsCanto II cytometer (Becton-Dickinson) according to Euroflow protocols, IHC was stained by AutostainerLink 48 (DAKO).

Results. 41 patient treated at the Children's Clinical University Hospital in 2011-2014 had both FC and IHC performed at diagnosis: 29 cases of B-acute lymphoid leukemia (ALL), 3 T-ALL, 1 Burkitt lymphoma, 1 chronic myeloid leukemia in blast crisis and 1 juvenile myelomonocytic leukemia. FC files from the Clinical Laboratory database were reviewed for the study by INFINICYT v.1.5 software; IHC slides from the Pathology archive were microscopically re-evaluated. Antigens CD1a, CD3, CD4, CD5, CD7, CD8, CD10, CD15, CD19, CD20, CD34, CD45, CD79a, CD99, CD117, HLA-DR, MPO and TdT were analysed (304 pairs altogether). MS Excel database was designed; Wilcoxon signed ranks test for differences was performed by IBM SPSS v.21. Differences were found in 95 pairs (31.3%); interpretation of positivity differed only in 22 pairs (7.3%), in remaining cases a degree of antigen expression was different. FC was more sensitive in 61/95 cases of discrepancy (64.2%), and in 15/22 cases of the critical difference. Statistically, the results of IHC and FC were not different ($Z=-0.287$, $p=0.774$). Number of tests for CD3, CD10, CD15, CD19, CD20, CD34, CD45, CD79a,

MPO and TdT was sufficient for statistical analysis. There was no significant difference between IHC and FC detection of CD3 ($p = 0.157$), CD15 ($p = 0.157$), CD19 ($p = 0.351$), CD20 ($p = 0.102$), CD45 ($p = 0.08$) and MPO ($p = 0.655$). FC was significantly more sensitive for CD10 ($p = 0.034$) and CD34 ($p = 0.003$), and IHC was more sensitive for TdT ($p = 0.023$).

Conclusions. The study demonstrated a high concordance between IHC and FC: 68.7% results were analogous and 92.7% diagnostically compatible. FC was slightly more sensitive, the difference was significant for diagnostically important antigens CD10 and CD34. Contrariwise, IHC seems to be more suitable for TdT detection than FC in Euroflow setting. Good agreement of IHC and FC makes it possible to use the methods as mutual external controls for antigens that are used by both protocols.

IMMUNOHISTOCHEMICAL EVALUATION OF FACTORS INVOLVED IN MORPHOPATHOGENESIS OF BILATERAL CLEFT LIP AND PALATE (BCLP)

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Key words. Bone, growth factors, cleft.

Introduction. CLP is the second most common malformation in the world. This is a multifactorial disease involving many different genes and growth factors in palatogenesis under the influence of epigenesis. Despite many research the role of factors regulating molecular events in CLP tissue are still unclear. From them, significance of growth factor TGF β involved in proliferation and cellular differentiation, TGF β R3, OPG involved in bone activation, OC and OP responsible for mineralization, BMP2/4 responsible in growth of hard tissue, Msx-1 involved in craniofacial development, are mentioned. Additionally, tissue degradation enzymes and their inhibitors like TIMP-2 and MMP-2 may play a role in palatogenesis.

Aim. The evaluation of tissue growth, activity, mineralisation, degradation and its suppression factors in BCLP affected tissue.

Material and methods. Hard and soft tissue were analysed from 5 children using Immunohistochemistry to show TGF β , BMP2/4, TGF β R3, OPG, OC, OP, TIMP-2 and MMP-2. One child underwent surgery 3 times and

tissue was collected from all these cases. The data were evaluated semiquantitatively (0 – no positive structures found, 0/+ - occasional, + - few, ++ - moderate, +++ - numerous and ++++ - abundance).

Results. Moderate number of BMP2/4 positive chondrocytes were detected in all cartilage cases. OPG showed numerous to abundant number of cells in cartilage, while occasional its cells were seen in bone. Number of TGFβ-containing structures varied - from occasional to numerous in soft tissue and few to numerous in cartilage. TGFβR3 was showed in numerous chondrocytes, but its lack to sometimes few cells was detected in soft tissue and bone. Interestingly, occasional OP immunoreactive cells were observed only in the bone. Abundance of OC chondrocytes occupied a cartilage, while the bone demonstrated just few positive OC cells. Occasional Msx-1 chondrocytes were seen in CLP affected cartilage. Rare MMP-2 positive cells were seen in soft and hard tissue. Similar situation was also with TIMP-2 immunoreactive cells in connective tissue, while in cartilage positive for factor cell number increased up to moderate. In child, who underwent three surgeries, number of TIMP-2 and MMP-2 positive structures increased, such for TGFβ decreased and for TGFβR3 increased by age.

Conclusions. Persisting expression of TGFβ and TGFβR3 in CLP affected tissue proves the involvement of these factors in still continuing growth and development of tissue. OPG and OC are two richly expressed factors in cartilage giving evidence for its cellular activity and mineralisation, which is absent for CLP affected bone. Non-distinct expression of MMP-2 and TIMP-2 with slight predominance of the first one do not prove the tissue remodelling in CLP in these children. The repeated surgeries increase the tissue remodeling potential, but decrease the growth possibility of CLP affected tissue.

ANTITUBERCULOSIS DRUG ADVERSE REACTIONS AND THEIR IMPACT ON THE OUTCOME OF TB TREATMENT IN CHILDREN FROM 2009 TO 2013

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Key words. Paediatric tuberculosis treatment adverse reactions

Introduction. Adverse drug reactions are encountered frequently during treatment of tuberculosis (TB). They can be either dose-dependant or

idiosyncratic. The most common reactions associated with first-line anti-tuberculosis drugs are gastrointestinal and cutaneous in nature. Hepatotoxicity has been associated with the three most important first-line drugs, namely isoniazid, rifampicin and pyrazinamide. Most of these reactions are mild and self limiting, but some are severe and can compromise treatment regimens for TB. They can lead to treatment disruption, failure, relapse and drug resistance.

Aim. To evaluate different types of anti-tuberculosis drug adverse reactions, their incidence, severity and impact on the outcome of TB treatment in children.

Results. This is a retrospective, descriptive study. 228 patients less than 15 years old and hospitalized in "Rīgas Austrumu klīniskās universitātes slimnīca" stationary "Tuberkulozes un plaušu slimību centrs" were analysed.

Among 228 patients treated between 2009 and 2013, the incidence of all adverse reactions was 23,2%. More often adverse reactions were detected in children between ages of 5 and 10 years old (28,88%), less often between ages of 10 and 15 years old (19,23%). From all anti-TB drug adverse reactions the most common was hepatotoxicity, which was detected in 39 children (17,1%), other common reactions included rash, which was seen in 6 children (2,63%), nausea, vomiting and/or diarrhea were present in 5 children (2,19%). Less common encountered adverse reactions were arthralgia (0,43%), aggressiveness and behavioural disorders (0,43%), as well as idiosyncratic intolerance of isoniazid (0,43%). During treatment of tuberculosis 3 children (1,31%) had to discontinue all anti-TB drugs due to severe drug adverse reactions, 5 children (2,19%) had to discontinue therapy with pyrazinamide, and 1 child (0,43%) had to discontinue therapy with isoniazid due to idiosyncratic intolerance to this drug. Children with adverse drug reactions had prolonged hospitalization (mean 109,38 days) compared to children without them (mean 131,4 days), $p=0,033$. Therapy with isoniazid ≤ 5 mg/kg, rifampicin ≤ 10 mg/kg and pyrazinamide ≤ 30 mg/kg caused hepatotoxicity in 10 out of 107 children (9,34%), but therapy with isoniazid > 5 mg/kg, rifampicin > 10 mg/kg and pyrazinamide > 30 mg/kg caused hepatotoxicity in 29 out of 121 children (23,96 %), $p=0,004$.

Conclusions. In order to successful TB treatment it is important to reduce the development of severe anti-TB drug adverse reactions by making pre-treatment evaluation, notably of liver and renal function. Patient education and close clinical and laboratory monitoring can facilitate early recognition of adverse drug reactions therefore treatment interruption or symptomatic management, and careful re-introduction of appropriate treatment can be made.

NORMAL RANGE OF BONE MARROW CELLULARITY IN PEDIATRIC PATIENTS DEFINED BY AUTOMATIC CELL COUNTS

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Key words. Bone marrow cellularity, hemopoiesis, myelopoiesis.

Introduction. Damage, activation or malignancy of hemopoiesis are reflected by bone marrow cellularity (BMC) that is traditionally measured by subjective cytological and histological evaluation of low reproducibility. BMC decrease with age is an established phenomenon, but age-related normal and critical values have not been quantitatively defined. Hematological analyser Advia 2120i (Siemens AG) can be used to test bone marrow suspension for total number of nucleated cells (BMC equivalent) and their differential counts.

Aim. The aim was to evaluate cellularity of non-neoplastic bone marrow in paediatric patients, retrospectively analysing marrow total leukocyte count (tWBC) and myeloid cells (neutrophils + monocytes, MC). 100 samples (72 non-hematological disorders and 28 tumours without marrow involvement) obtained in 2011-2014 were analysed. The results were compared to cytological reports and in 43 cases to histological findings of the same sample. Spearman correlations were calculated by IBM SPSS v.21.

Results. tWBC and cytological BMC highly significantly correlated ($\rho = 0.856$, $p = 8.1E-30$). Median tWBC of the total cohort was $67.6 \times 10^9/L$ (95% range 20.9 - $186.7 \times 10^9/L$). BMC of 37 samples was cytologically normal, their tWBC 95% range was 24.5 - $86.0 \times 10^9/L$, median $54.8 \times 10^9/L$. Very low cytological BMC corresponded to tWBC $< 10.5 \times 10^9/L$ and very high to $> 168.8 \times 10^9/L$; these outlying values may be considered critical. BMC of 11 samples was histologically considered as normal (95% range 31.8 - $190.1 \times 10^9/L$, median $64.4 \times 10^9/L$). BMC decreased with age: at 0 - 4 years median tWBC was $86.6 \times 10^9/L$, at 5 - 9 years $67.8 \times 10^9/L$ and at 10 - 17 years $57.7 \times 10^9/L$ (difference non-significant).

Median MC ratio in bone marrow in the whole cohort was 61.5% (95% range 34.7 - 84.5%); median absolute MC count was $40.5 \times 10^9/L$ (8.2 - $141.9 \times 10^9/L$). MC content was cytologically reported as normal in 25 samples, median MC ratio in this group was 60.5% (95% range 44.4 - $78.4 \times 10^9/L$), absolute MC count $31.4 \times 10^9/L$ (10.4 - $46.5 \times 10^9/L$). MC share in bone marrow

significantly correlated with age ($\rho = 0.273$, $p = 0.006$). As expected, absolute MC count highly significantly correlated with tWBC ($\rho = 0.965$, $p = 1.4E-58$) and cytological BMC ($\rho = 0.843$, $p = 4.4E-28$). There was a significant correlation between MC ratio and cytological BMC ($\rho = 0.233$, $p = 0.020$).

Conclusions. tWBC by ADVIA 2120i is an objective alternative to traditional methods of assessing BMC. The results estimate normal tWBC range of $24.5 - 86.0 \times 10^9/L$ and normal MC range $10.4 - 46.5 \times 10^9/L$.

BMC decrease with age was tentatively supported by the study. A larger cohort is necessary to define age-related norms.

The obtained data suggest that marrow myeloid compartment increases with age. BMC seems to correlate with MC ratio, suggesting that in reactive setting cellularity increases mostly due to hyperplastic myelopoiesis.

STUDENT LIFESTYLE HABITS INFLUENCING BODY MASS INDEX(BMI)

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Key words. body mass index, lifestyle habits.

Introduction. The problem of obesity has been one of the most significant societal challenges of the 21st century. What is very concerning is that this problem also affects children. Having excess weight promotes pathological conditions leading to the development of many diseases. Therefore it is of fundamentally important that children are encouraged to develop healthy lifestyle habits from an early age that deny excess weight accumulation and improves their quality of life.

Aim. Establish and assess current BMI parameters, and lifestyle habits (how athletic, hours of TV watched, regular breakfast consumption etc.) of Ķekavas High School grades 5 to 8 in 2015, and to conclude which lifestyle habit/s has the greatest impact on these children`s BMI.

Results. 100 students from Ķekavas High School participated in this research. 59% were girls and 41% were boys with the Mean age 12.88 ± 1.05 years. The Mean height of the children was 160.29 ± 9.52 cm, the mean weight was 50.23 ± 13.24 kg, while the mean BMI was 19.34 ± 3.39 . BMI was normal

72% (48% girls and 24% boys) of all participants, while the mean BMI was 18.73 ± 1.79 , and 9% (2% girls, 7% boys) were underweight with a mean BMI of 15.73 ± 0.76 . 4% were severely underweight (only boys) with a mean BMI of 14.24 ± 0.63 and 13% (8% girls and 5% boys) were overweight with a mean BMI of 24.70 ± 1.54 and 2% (1% girl and 1% boy) were obese with a mean BMI of 30.57. There was a proved negative correlation of 0.31 (Sig = 0.001) between BMI and exercise frequency per week. Those who exercised (68% of children) from 2 to 6 times per week had a mean BMI of 18.59 ± 3.05 , while those who didn't (32% of children) had a BMI of 21.74 ± 3.21 . No significant relationship was found between higher BMI and gender, having regular breakfast, consumption of fast food, eating while watching TV and time spent watching television or using a computer ($p > 0.05$).

Conclusion. The results showed that having regular exercise had the greatest impact on BMI. From all 100 participants, 68% regularly took part in physical activities at least 2 times per week in addition to the activity received at school leading to a healthy BMI. However, 32% of all participants had no additional activity in addition to the activity received at school leading to having a BMI that could lead to possible future health problems. Therefore, it is necessary to encourage children to actively participate in physical activity (ex. after school programmes/sports teams) in addition to the activity received at school. When conducting future studies similar to this one, in order to gain a more accurate correlation between child lifestyle (particularly eating habits) and BMI, more advanced information gathering methods (ex. child habit journaling and parental observation) and a larger number of participants would be beneficial.

VACCINE-PREVENTABLE DISEASES IN CHILDREN'S CLINICAL UNIVERSITY HOSPITAL IN LATVIA FROM 2005 TO 2014 YEAR

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Key words. Vaccine, vaccine-preventable, vaccine coverage, pediatric.

Introduction. The National Immunization Program (NIP), directed

principally at children, is one of the most successful examples of effective preventive care. Because of the appropriate immunization there is the marked decrease in cases of infections with vaccine-preventable diseases. Although doctors from Children's Clinical University Hospital (CCUH) in Latvia occasionally face such diseases as diphtheria, pertussis, rubella etc.

Aim. Aim of the study is to collect statistics of vaccine-preventable diseases (VPD) in CCUH from 2005 to 2014 year and to propose the hypothesis of the reason why vaccine-preventable diseases still emerge among children in Latvia.

Results. Retrospective descriptive study conducted from 2005 till 2014 year in CCUH were registered 731 patients with vaccine-preventable diseases (diphtheria 8.34% (61), hepatitis B 5.61% (41), tuberculosis 2.74% (20), tetanus 0% (0), pertussis 8.07% (59), poliomyelitis 0% (0), Haemophilus influenzae type B 0.68% (5), measles 1.10% (8), pneumococcal 1.37% (10), varicella 69.77% (510), mumps 1.64% (12), rubella 0.68% (5)). Average count of bed days for one patient are 8 days. The youngest patient is only 14 days old but the elder one was 17 years 11 months and 17 days old.

Patients and parents treated with VPD in CCUH during 2014 were interviewed for specific VPD. From 46 patients 46% (21) answered to questionnaire and there were found out that 48% (10) out of 46% (21) patients were not vaccinated according to vaccination calendar, 52% (11) out of 46% (21) patients answered that there was similar case of disease in their kindergarten, school, etc.

Conclusions. In spite NIP, VPD still are common in children in Latvia (731 patients from 2005 to 2014 year) and is pressure to health care's budget (average 8 bad days for one patient). Every hospitalization with VPD is painful for little patients because 95.89% (701) of them have blood tests, i/v medicaments or infusion done. In 2014th 48% (10) out of 46% (21) of patients with VPD were not vaccinated according to vaccination calendar.

ROUTINE BLOOD TEST MAY BE DIAGNOSTICALLY MISLEADING IN PEDIATRIC ACUTE LYMPHOID LEUKEMIA

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Key words. Acute lymphoid leukaemia, laboratory diagnosis

Introduction. Acute lymphoid leukaemia (ALL) is the most common paediatric malignancy with almost 90% survival. The outcome is worse in delayed diagnosis, for ALL tumour cells rapidly proliferate, doubling time is about 4 days. Diagnosis is straightforward in most cases: leukocytosis with blast cells and reduction of normal hemopoiesis is easily found by routine blood test, thus making laboratory screening the foremost diagnostic option. In children, though, at least 20% ALL cases have pancytopenia without peripheral blastosis at diagnosis. There are no statistics on laboratory features of primary paediatric ALL in Latvia; diagnostic problems arising from atypical presentation have not been studied.

Aim. The aim was to retrospectively analyse clinical blood tests of paediatric ALL at diagnosis to characterize the main blood counts and to identify problematic cases. Test results since 2008 were available from the Children's Clinical University Hospital database. Leukocytes (WBC), neutrophils (NEU), hemoglobin (HGB), platelets (PLT) and blast cells (BC) were analysed.

Results. 85 paediatric ALL cases have been diagnosed in 2008 – 2014. Patients' age varied between 2 weeks and 17 years (median = 4), 48 patients were boys. WBC median was $11.0 \times 10^9/L$, WBC were normal at diagnosis in 24.7% cases, decreased in 24.7% and increased in 50.6%. NEU, respectively, $0.8 \times 10^9/L$, 26.5%, 67.5% and 6.0%. HGB - 7.7g/dL, 15.3%, 83.5% and 1.2%. PLT - $65 \times 10^9/L$, 7.1%, 89.4% and 3.5%. BC median was 30%, no blasts were found in 32% cases. All main parameters were abnormal in 30 patients (35.3%), at least one parameter was critical in all these cases. In contrast, all parameters were normal in 2 patients, no critical changes were found in another 9 cases.

0 to 59 days were needed for diagnosis (median 2 days), the first test was diagnostic in only 38 cases (44.7%); in 10 patients (12.0%) the diagnosis was proven in more than a week, 3 cases needed more than a month. The number of blood tests performed till diagnosis varied from 1 to 24 (median = 2), more than 10 tests were performed in 2 cases. Time to diagnosis

significantly correlated with blood counts: there was negative correlation with WBC ($p = 2.8 \times 10^{-13}$) and BC ($p = 2.1 \times 10^{-15}$), positive correlation with normal HGB ($p = 0.009$), normal PLT ($p = 0.002$) and lack of critical values ($p = 1.3 \times 10^{-6}$).

Conclusions. The study revealed that only half of paediatric ALL patients diagnosed in Latvia in 2008-2014 presented with leukocytosis and two thirds had peripheral blastosis. One third of cases had pancytopenia without peripheral blasts at diagnosis, that is considerably more frequent than reported in literature.

Less than half of patients were diagnosed by the first blood test. In the rest of the cases with unconvincing blood tests the diagnosis was delayed up to almost three months.

INFLUENZA VACCINATION COVERAGE AMONG CHILDREN WITH BRONCHIAL ASTHMA

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Key words: influenza, vaccination, bronchial asthma.

Introduction. Annual influenza vaccination is recommended by WHO for children aged between 6 months and 5 years and for everyone with chronic lung disease including asthma. However, according to the Centre for Disease Prevention and Control the number of vaccinated against influenza in Latvia has decreased since 2006 and in the season of 2011/2012 dropped to 0.44% of the population of Latvia.

Aims. Assess the knowledge of children with bronchial asthma and their parents about influenza and vaccination against it. Determine influenza vaccination status during the seasons from 2012 up to 2015 among children with bronchial asthma and research the causes why they or their parents consider it necessary or unnecessary to vaccinate.

Materials/Methods. During the study a survey of 72 persons was realized. Among the interviewees were 19 children aged 12-17 with confirmed bronchial asthma diagnosis and 53 parents of children with confirmed bronchial asthma diagnosis which were at least 6 months old and younger than 12. The survey took place in the Children University Hospital in Riga in out- and in-patient departments. Collected data were analysed with MS Excel and SPSS programs.

Results. Among 72 children 6.9% (n=5) were vaccinated against influenza in the season of 2014-2015, 5.6% (n=4) in the season of 2013-2014 and 4.2% (n=3) in the season of 2012-2013. Four parents of vaccinated children in the season of 2014-2015 made an independent decision to protect their child from influenza and one parent followed the doctor's advice. 16.7% of other 48 adults (n=8) and 52.6% of children (n=10) have never thought about the necessity of influenza vaccine. The other frequently stated reasons not to vaccinate a child were: assumption about the inefficiency of influenza vaccine and that a child without a vaccine has never had influenza infection. 100% of interviewed children and 96.2% of adults (n=51) knew how influenza is transmitted. 68.4% of children (n=13) and 96.2% of adults (n=51) knew the symptoms of influenza, 57.9% of children (n=11) and 71.7% of adults (n=38) knew the possible complications of influenza. 89.5% of children (n=17) and 94.3% of adults (n=50) supposed that influenza can proceed more seriously in children and individuals with chronic diseases. 42.1% of children (n=8) and 45.3% of adults (n=24) considered vaccination as the most efficacious method to prevent influenza, 52.6% of children (n=10) and 54.7% of adults (n=29) supposed that the risk of vaccinated individuals to come down with influenza is considerably lower.

Conclusions. Influenza vaccination coverage among children with bronchial asthma is very low. The most of interviewed children and a part of adults have never thought about the necessity of influenza vaccine. However, more than a half of interviewed children and adults were informed about transmission, symptoms and complications of influenza. To increase influenza vaccination rates in risk groups including children with bronchial asthma diagnosis, medical personnel should educate the members of the risk groups and their relatives.

ANTI-NMDA RECEPTOR AUTOIMMUNE ENCEPHALITIS IN PSYCHIATRIC PRACTICE

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Keywords. Autoimmune, encephalitis, NMDA receptor antibodies.

Introduction. Anti-NMDA receptor encephalitis is a disease occurring when antibodies produced by the body's own immune system attack NMDA (N-methyl-D-aspartate) - type glutamate receptors in the brain. NMDA receptors are glycine and glutamate, that provides stimulating neurotransmission in the brain. It is important for synapse plasticity, and in turn, for higher functions, such as learning and memory. The biggest part of anti - NMDA receptor encephalitis cases are associated with paraneoplastic syndrome. However, many new cases of non-paraneoplastic anti-NMDA receptor encephalitis have been increasingly recognised recently. Symptoms of this disorder develop and resolve as a multistage process. Most patients experience a viral-like prodrome followed by psychosis, memory, behavioural and cognitive deficits, seizures and dyskinesia.

Aim. Our aim is to acquire and gather information about anti-NMDA receptor encephalitis course, symptoms and the development of psychiatric symptomatology of the disease process and the recovery period. We analyse a case of a 15 year old girl with anti-NMDA receptor limbic encephalitis, who was hospitalised in BKUS "Gaiļezers" with de novo acute polymorphic psychotic disorder with symptoms of schizophrenia. The first manifestation of the disease were seen six months prior to hospitalisation as an overemotional reaction to daily events. The patients psychic and somatic condition in the unit deteriorated significantly. The patient also developed catatonic symptomatology and was transferred to the intensive care unit. The council of doctors: discussed differential diagnostic between schizophrenia induced catatonia and autoimmune limbic encephalitis (most likely NMDA) induced catatonic condition. The patient received antipsychotic therapy, immunosuppressive therapy (methylprednisolone, immunoglobulin, plasmapheresis, rituximab) and electroconvulsive therapy.

Results. Blood serum - anti-NMDA positive IgA + 1:10 IgG +++ 1: 320, IgM ++ 1: 100. Anti-glutamate receptors (NMDA type) CSF +. IgA ++ 1:

3.2, IgG +++ 1:32, IgM ++ 1: 3.2. MRI of the brain - endured hypoxic-ischemic damage of the basal ganglia and frontal-parietal lobe subcortical parts. Paraneoplastic process was not found. Initiation of treatment with rituximab in four courses. The further course of the disease was with positive dynamics. Gradually improved mental symptoms - the patient began to observe the surroundings, follow objects, exercise with help of second person, paresis was not observed, the girl started to read, there was a memory improvement and she started to communicate. Sequelae - behaviour, memory, cognitive and psychotic disorders, selective mutism, sleep disturbances, changes in appetite, extreme weakness.

Conclusions. It is a first-time case study analysis, in Latvian children psychiatric practice, which shows a nonparaneoplastic anti-NMDA receptor autoimmune limbic encephalitis, that starts with polymorphic psychotic disorders by type of schizophrenia, as well as the consequences of the phenomenon remains mental health disorders.

CHANGES IN ADMISSION RATES, LENGTH OF HOSPITAL STAY AND FREQUENCY OF COMPLICATIONS IN CHILDREN HOSPITALIZED TO CHILDREN'S UNIVERSITY HOSPITAL BETWEEN 2003 AND 2004, AFTER INTRODUCTION OF CHICKENPOX VACCINATION INTO THE LATVIAN NATIONAL IMMUNIZATION CALENDAR

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Introduction. Chickenpox is an extremely contagious infectious disease with worldwide spread. Each year 5459.6 chickenpox cases are registered in Latvia with the mean annual incidence rate of 239.032 per 100,000 persons. In 2008 chickenpox vaccination was introduced into the Latvian National immunization calendar. Clinical studies from different world countries have proven this vaccine's efficacy, which, based on the literature data, reaches 95%. Vaccination reduces number of chickenpox cases, indirectly protects groups of population in which vaccination is contraindicated, as well as reduces possibility of *herpes zoster* development later in life. It also reduces need for hospitalization, frequency of complications and mortality.

Aim of the study. To study the effect of chickenpox vaccination introduction into the National Immunization Programme on incidence, number of complications and length of hospital stay in children of different age groups at Children's Clinical University Hospital (CCUH) between 2003 and 2014.

Materials and methods. 565 case notes of children hospitalized to CCUH with diagnosis of chickenpox were analysed in this retrospective study. Data was processed using SPSS Statistics and MS Excel 2013 software.

Results. After the introduction of chickenpox vaccination into the National Immunization programme in 2008, a reduction in the number of disease cases from 6953 in 2003 to 2396 in 2014 ($p=0.28$) was noted, along with an increase in chickenpox immunity levels from 48.1% in 2008 to 84.5% in 2014.

There was no statistically significant reduction in CCUH chickenpox patient admission rates ($p=0.684$). However, mean annual number of cases in 1 – 3 y.o. age group has decreased from 12.4 (2003 – 2007) to 8.7 (2008 – 2014). Mean annual number of chickenpox cases in 12 – 18 y.o. group was 5.8 in 2003 – 2007, and it has decreased to 4.7 in 2008 – 2014. Mean hospital length of stay has also decreased from 5.24 days in 2003 to 3.21 days in 2014 ($p = 0.42$). Frequency of chickenpox complications among hospitalized children has not changed ($p = 0.52$).

Conclusions. Introduction of chickenpox vaccination into the National Immunization programme positively influenced chickenpox situation in Latvia in terms of reduction in number of cases and incidence. Overall number of patients admitted to CCUH with chickenpox has not changed; however, reduction of number of cases in specific age groups was noted. Frequency of chickenpox complications has not changed, although the mean length of hospital stay reduced.

CONGENITAL DEVELOPMENTAL ANOMALIES AS THE CAUSE OF PERINATAL MORTALITY (2003-2013 YEAR)

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Key words. Perinatal mortality, congenital anomalies.

Introduction. Congenital anomalies are one of the most common cause of perinatal mortality in the whole world. The average total prevalence of congenital anomalies in Europe was 23,2 per 1000 births (Dolk, 2010), in Latvia it is 32,8 per 1000 live born (Statistical Yearbook of Health Care in Latvia, 2013). Congenital anomalies as the cause of perinatal mortality are described in about 33% of cases (De Galan-Roosen, 1998). However there is no information about, exactly how these anomalies affect on perinatal mortality.

Aim. The aim of our study was to analyse the frequency of congenital anomalies as the cause of perinatal mortality, currency between different stages of perinatal period and organ systems and also to determine the most common congenital anomalies, density of isolated/combined anomalies in Latvia, Children's Clinical University Hospital during the period from 2003 to 2013.

Results. Data from autopsy protocols of Children's Clinical University Hospital for the period 2003-2013 were obtained in retrospectiv cross-sectional study and processed by MicrosoftExcel 2013. Descriptive statistical method was used. 323 protocols from 1850 were obtained and analysed. In analysis of direct/indirect causes of perinatal mortality, one or more congenital anomalies were found in 17,4% of cases. If we attribute the total count of congenital anomalies to total count of autopsies made in each year, the results are: 2003.-22,9%, 2004.- 16,6%, 2005.-21,3%, 2006.-15,27%, 2007.-20,6%, 2008.-13,7%, 2009.-19,6%, 2010.-7,5%, 2011.-14,7%, 2012.-15,9%, 2013.-21,4%. Congenital anomalies as the cause of perinatal mortality most frequently were found during the postnatal period (52%). During the antenatal period, death from congenital anomalies most frequently occurred in period 28.-36. weeks gestation (35%). Isolated congenital anomalies (65%) were found more common than combined (35%). Chromosomal anomalies as the cause or perinatal mortality were found in 4,02%. Congenital anomalies most common affected cardiovascular system (29%), central nervous system

(16%), urogenital system (15%). A total of 28 different congenital anomalies of cardiovascular system were found – open arterial duct (17% of all), ventricular septal defect (17%), hypoplastic left heart (8%), transposition of the great vessels (8%) are the most common. A total of 24 different congenital anomalies of central nervous system were found – hydrocephaly (32%), anencephaly (8%) are the most common. A total of 20 different congenital anomalies of urogenital system were found – hydronephrosis (18%), multicystic renal dysplasia (18%) are the most common.

Conclusions. The number of congenital anomalies as the cause of perinatal mortality in Latvia during the last 10 years is not increased, compared to other countries. The incidence of congenital anomalies during the last 10 years is unstable, with no tendency to increase/decrease, what can indicate of the quality of perinatal diagnostics. More than half (52%) of letal congenital anomalies were found during the postnatal period. Compared to other countries, it was found a little density of chromosomal anomalies. Errors in diagnosis and missing data, discovered during data analysis, lead to conclusion that there is a need for improvement in perinatal autopsy procedure.

GROWTH OF EXCLUSIVELY BREAST-FED AND FORMULA FED INFANTS DURING THE FIRST 6 MONTHS OF LIFE

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Key words. Breast feeding, formula feeding, growth.

Introduction. Breastfeeding has always been the criterion standard for infant feeding. Prior to the advent of commercial formulas, breastfeeding was the only way to feed an infant. In the 20th century for the first time nonhuman milk formulas were created and mass produced. Since then, many have tried to compare these infant feeding types. Currently WHO and UNICEF recommend mothers worldwide to exclusively breastfeed infants for the child's first six months to achieve optimal growth, development and health.

Aim. To compare body weight, weight gain and height dynamic of exclusively breast-fed and formula fed infants from 1-6 months of life.

Results. 200 participants took part in the study with 100 (50%) (57% female, 43% male) being exclusively breast-fed and 100 (50%) (39% female, 61% male) being formula fed infants. The study included infants with a

minimum birth weight of 2800 grams and a maximum birth weight of 4200 grams. Minimum birth length was 46 centimeters and the maximum 58 centimeters. Exclusively breast-fed infants had a higher average weight at birth and at 1 month of age. However, formula fed infants were heavier from the 2nd-6th months of life. A statistically significant difference was found between the two study groups observed from 2-4 month of life ($p < 0.05$). Exclusively breast-fed infants had a greater height from birth to the 3rd month of life, while formula fed infants had a higher height between 4-6 months of life. A statistically significant difference was observed in both study groups at only 1-2 months of age ($p = 0.032$ and $p = 0.037$). Greater weight gain was observed in the formula fed infant group, with an exception regarding the 5th month of life. A statistically significant difference was observed in the weight gain of both study groups at the 3rd month of life ($p = 0.022$). An equivalent height dynamic with amplitude of 0.03-0.11cm ($p > 0.05$) was observed in both study groups, except for the 3rd month of life. However, the 3rd month of life formula fed infants has a statistically significant greater height dynamic- 0.5cm ($p = 0.002$).

Conclusions.

1. Formula fed infants have a higher weight from 2-6 months of age. A statistically significant difference between the two study groups was observed at 2-4 month of life.
2. Greater weight gain was observed in the formula fed infant group, with an exception of the 5th month of life. Statistically significant weight dynamics differ in both study groups at the 3rd month of life.
3. Equivalent height dynamics were observed in both study groups except for the 3rd month of life.

COMPARING ACUTE RESPIRATORY DISEASES, DIARRHEA, AND ATOPIC DISEASES OF EXCLUSIVELY BREAST- FED AND FORMULA FED INFANTS DURING THE FIRST 6 MONTH OF LIFE

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Key words. Breast feeding, formula feeding, diseases.

Introduction. Prior to the advent of commercial formulas, breastfeeding was the only way to feed an infant. In the 20th century for the

first time nonhuman milk formulas were created and mass produced. Since then, many have tried to compare these infant feeding types. Currently WHO and UNICEF recommend to exclusively breastfeed infants for the child's first six months to achieve optimal growth, development and health. Breast milk is an essential part of proper child development because it provides essential and irreplaceable nutrients. It serves as the child's first immunization – providing protection from respiratory infections, diarrheal diseases, and other potentially life-threatening ailments.

Aim. To compare acute respiratory diseases, diarrhea, and atopic diseases in infants 1-6 months of age that were exclusively breast-fed and formula fed.

Results. 200 participants took part in the study with 100 (50%) (57% female, 43% male) being exclusively breast-fed and 100 (50%) (39% female, 61% male) being formula fed infants. In the exclusively breast-fed group, acute respiratory disease was observed in 33% of the infants. The difference between the formula fed group and the breast fed group was statistically significant ($p = 0.02$) with acute respiratory disease being observed in 49% of formula fed infants. Formula fed infants observed 1.95 times greater risk of developing acute respiratory diseases during the first 6 months of life (confidence interval 1.11 to 3.46) than breast-fed infants. Hospitalization for acute respiratory diseases occurred in 4% of breast-fed infants and 6% of formula fed infants ($p > 0.05$). Acute diarrhea was observed in 5% of exclusively breast-fed infants and 8% of formula fed infants ($p > 0.05$). Hospitalization due to acute diarrhea affected 1% of breast-fed infants and 6% of formula fed infants ($p = 0.05$). Atopic diseases were observed in 13% of exclusively breast-fed infants and 19% of formula fed infants ($p > 0.05$). Hospitalizations due to atopic diseases occurred in 0% of the exclusively breast-fed infants and 4% of the formula fed infants ($p = 0.04$).

Conclusions.

1. Exclusively breast-fed infants are less likely to have acute respiratory diseases than formula fed infants.
2. Infant feeding mode does not affect hospitalization for acute respiratory diseases.
3. Exclusively breast-fed and formula fed infants do not have statistically significant differences in acute diarrhea and atopic diseases.
4. Hospitalization for acute diarrhea and atopic diseases occur more frequently in formula fed infants.

HIV PATIENTS CARE DURING ANTENATAL PERIOD AND DELIVERY

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Key words. HIV, pregnancy, antiretroviral therapy.

Introduction. The number of HIV infected people is increasing every year in Latvia. There were 6117 persons in 1st October 2014, of which 250 were new cases during the last year (84 women). Of these new cases 4 patients were infected by mother to child transmission route (MCTC). Nowadays HIV positive women receive good antenatal care (ANC) and prophylaxis of MCTC, which significantly reduces transmission risk and encourage HIV positive women to attend ANC.

Aim: To analyze care and outcome of HIV positive pregnant women in Riga Maternity Hospital (RMH).

Results. In the research were reviewed 194 delivery charts during the period 2010-2014, in RMH. 164 (85%) of patients had ANC, but 29 women (14,9%) were without ANC and in one case there was no information about ANC (0,5%). 123 (87,9%) women with ANC received antiretroviral treatment (ARVT), while other 17 (12.1%) did not. Patients with ANC more often receive ARVT ($p < 0.001$). There was found in 234 of all cases in complications (127,9% for the case) there were pregnancy complications, but no difference was found in women with ANC and without ANC ($n=160$, 97,6% versus $n=27$, 96,4%; $p > 0,05$). The most common pregnancy related complication was intrauterine growth restriction ($n=41$; 17.5%), but there wasn't evidence that ARVT can affect this outcome ($n=99$; 78.0% versus $n=30$; 75%, $p > 0.05$). 142 women (73.2%) received ARVT during labor and in 39 did not (20.1%). There was no correlation between ANC and ARVT during labor ($p > 0.05$). Mostly women with ANC had elective Cesarean-section CS ($n=103$; 63.2%) and emergency CS ($n=37$; 22.7%), while women without ANC mostly had - spontaneous vaginal delivery ($n=18$; 62; 1%) and emergency CS ($n=7$; 24.1%). There was not found significant difference in preterm labor rate between women with ($n=19$; 11,6%) and without ($n=5$; 17,2%) ANC. Apgar score at 5 minutes was higher in newborns whose mothers received ANC (p

<0.05). In neonatal period complications were detected in 103 (53.4%) newborns, but altogether there were listed 143 complications (144.7% for the case). More common were perinatal infections (n=35; 23.5%) and complications associated with prematurity (n=23; 15.4%). Complications in neonatal period were more common in women without ANC (n=23, 79.3% versus n=79, 48.5%; $p < 0.05$). The most common co-morbidities of HIV infected women were virus-hepatitis C (n=96; 41.9%), sexually transmitted infections (n=61; 26.6%), and drug abuse (n=56; 24.5%).

Conclusions. ANC is important for reducing neonatal complication risk. Women with ANC more frequently received ARVT and delivered baby by elective CS important measures for MCTC transmission prophylaxis.

INTRAUTERINE FETAL GROWTH RESTRICTION IN MONOCHORIAL AND DICHORIAL TWIN PREGNANCY

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Key words. multiple gestation, intrauterine fetal growth restriction, monochorial, dichorial

Introduction. The incidence of multiple gestations has risen significantly on the global level during the past three decades, primarily due to the increased use of assisted reproduction technology, fertility drugs for ovulation stimulation, but also in part due to older maternal age at childbirth, which is known risk factor for spontaneous dizygotic twinning. In Latvia, between years 1980 and 2013, the twin rate increased from 0.78% to 1.28% of all deliveries. Compared to singletons, twin pregnancies are more likely to be complicated by fetal intrauterine growth restriction (IUGR) which is associated with higher mortality and morbidity, especially regarding infants with asymmetric restriction. Special features of placental blood circulation in monochorial (MH) twin pregnancy can affect fetal growth more likely than in dichorials (DH).

Aim. The aim of this study is twofold: firstly, to determine the frequency of MH and DH twin growth discordance, as reflected in the differences in newborn anthropometric measurements, and, secondly, to

diagnose fetal IUGR and exclude other risk factors, which affect intrauterine fetal growth.

Results. The difference of birth weight percentile in each newborn twin pair showed that there is significant discordance in MH compared to DH twins (SD 20.23 vs. 16.82, $p=0.034$), but there is no statistically significant difference in length and head circumference percentile ($p=0.37$ and $p=0.81$). 78 of all 600 newborns, analyzed in this study, had IUGR (with birth weight below 10th percentile), 49 of them were MH (24.5% (49 of 200) newborns of MH twin deliveries), 19 were DH (9.5% (19 of 200) and 10 in control group with singletons – 5% (10 of 200). The rate of fetal IUGR diagnosed through Ponderal index (PI), 44.9% cases (35 of 78) was asymmetric and 55.1% (43 of 78) symmetric. Frequency of asymmetric or symmetric fetal IUGR depends on count of fetuses and chorionicity ($p=0.05$); 22 MH newborns had asymmetric fetal IUGR and 27 symmetric, DH 8 vs. 11 and singletons 5 vs. 5. 24 monochorials with fetal IUGR had another risk factors that affect fetal growth (oligohydramnios, gestational anemia, smoking, FETS, preeclampsia, umbilical cord abnormalities), but 25 had none of them, dichorials 14 vs. 5 and singletons 5 vs. 5. The frequency of coexisting fetal IUGR risk factors does not show statistical significance in these three groups ($p=0.12$), which means that twin pregnancy affects intrauterine fetal growth itself.

Conclusions. Fetal growth discordance by their weight is more often in monochorial than dichorial twin pairs, but there is no difference in length and head circumference. Compared to singletons, twins displayed significantly increased incidence of the fetal IUGR, and it more likely affects monochorials. Coexisting risk factors of fetal IUGR have no higher impact on fetal growth than chorionicity itself.

CHOICE OF HORMONAL CONTRACEPTION METHODS FOR WOMEN IN LATVIA

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Key words. Hormonal contraception, Latvia.

Introduction. Hormonal contraception methods, when used according to instructions, are classified as top-tier or first-tier methods – which are the most effective and the easiest to use. However according to reproductive health overview in Latvia during year 2003 – 2011 hormonal

contraception was used only by 13 % of women. In other European countries hormonal contraception is used by approximately 41.2 % of women in fertile age. Over the past 40 years, there have been significant advances in the development of new contraceptive technologies, including transitions from high-dose to low-dose combined oral contraceptives, and from inert to copper-bearing and levonorgestrel-releasing intrauterine devices (IUD). In addition, combined injectable contraceptives – a combined hormonal patch and ring, progestogen-only injectable and implants have been introduced.

Aim. To detect which methods of hormonal contraception are more commonly used among gynaecological patients depending on their age, the number of childbirths and previously used contraception method.

Results. In this study during year 2010 to 2014 there were 373 women who chose hormonal contraception. Combined hormonal contraception (CHC) was prescribed to 221 (59.2%) women, but progestin-only contraception (PC) – to 152 (40.8%) women. Most frequently used type of hormonal contraception was Combined oral contraception – 175 (47.2%) and hormonal intrauterine device (*Mirena*) which was chosen by 110 (29.6%) women. 78.2% of women who chose CHC previously continued its use and 21.8% started it for the first time. Average age of patients who chose CHC was 29.8 ($p < 0.01$) years and average count of childbirths was 0.79 ($p < 0.01$). Women who chose PC were older - 33.72 years old ($p < 0.01$) and with more childbirths – 1.7 ($p < 0.01$). The only age group where PC was more prescribed than CHC was women after 40 years of age. New hormonal contraception methods like sub-dermal implants and mini-IUD (*Fleree*) were chosen by 3 (0.8 %) and 5 (1.3 %) women respectively.

Conclusions. The most frequently used hormonal contraception method is combined oral contraception and the second most used method is hormonal IUD (*Mirena*). Those women, who are older and have more childbirth, choose progestin only contraception. However, absolutely all women in age group up to 19 years chose combined hormonal contraception. New hormonal contraception methods like sub-dermal implant and mini-IUD (*Fleree*) are not popular in Latvia. The issues and contraceptive methods can be confusing so careful education using charts and other aid is recommended to enhance the therapeutic relationship and patient responsiveness. The choice of contraceptive methodology will be determined not only by individual needs, personal preference and resources but also by its safety and incidence of side effects.

HABITS OF USING VITAMINS AND MICRO NUTRIENT SUPPLEMENTS DURING PREGNANCY

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Key words. pregnancy, anemia, vitamins, micronutrient supplements, iron, folic acid.

Introduction. A lot of studies evaluate the essential vitamins, microelements and macroelements effects on the pregnancy and its outcome. In some countries, e.g Canada, guidelines have been developed for pregnant women, which included recommendations about certain dietary supplements and vitamin use. According to the World Health Organization (WHO) and the *National Institute of Clinical Excellence* (NICE) guidelines in the United Kingdom the following is recommended to pregnant women: 1,5-2g calcium, 200-2000IU vitamin D, 30-60 mg iron, 0.4 mg folic acid, 2 mg of vitamin B6, and 350mg of magnesium and 150 µg iodine per day. There are no certain guidelines in Latvia, however folic acid and iron replacement therapy in case of anemia is recommended in the first trimester of pregnancy in accordance with the provisions of the Cabinet of Ministers nr.611

Aim. To clarify the vitamins and nutritional supplements usage habits among pregnant women and assess how does it conforms with international recommendations.

Material and methods. the survey was carried out in Maternal and child care unit in Riga Maternity Hospital from December 2014 to February 2015. 100 randomly selected women in postpartum period were surveyed and their medical data were collected. All the data obtained were processed with Microsoft Excel 2010 program. The research was accepted by RSU Ethics Commission (27.11.2014.)

Results. 100% (N=100) of research participants were using vitamins or nutrition supplements during pregnancy. 66% (N=66) were using special complex vitamins, the most common of them are: 28% (N=28) Elevit Pronatal, 13% (N=13) Livol Multi Total for pregnant women, 11% (N=11) Mamita, 9% (N=9) PregnaCare, 6%(N=6) Ladee Pregna, 3% (N=3) Pregnasan, Bio multi and Amway multi vitamins 2% each (N=2). 69% (N=69) were using any of microelement separately (iron, calcium, magnesium, B6 and D vitamin, folic

acid, iodine). Analysing use of separate nutrition supplement, the most used is iron supplements - 38% (N=38), MgB6 - 28% (N=28), folic acid 25% (N=25). WHO and NICE recommended amount pregnant women provided themselves: 85% (N=85) with iron, 81% (N=81) with folic acid and MgB6, 50% (N=50) with D vitamin, 29% (N=29) with iodine and 18% (N=18) with calcium. 60% (N=60) pregnant women were using vitamins on the advice of doctor, 40% (N=40) began using on their own. The most often complex vitamins and nutrition supplement were begun in early pregnancy – 48% (N=48). Analysing medical records, 61% (N=61) of pregnant women in some of pregnancy period haemoglobin level were reduced and anemia during pregnancy was diagnosed.

Conclusions. The most used nutrition supplement is iron, which can be explained with the widespread distribution of anemia during pregnancy. Though none of complex vitamins and nutrition supplements contains all of these components WHO and NICE recommended amount. There are required additional knowledge and understanding of certain vitamins, macro- and microelements role and use during the pregnancy for both antenatal care specialists and pregnant women.

INSTRUMENTAL VAGINAL DELIVERY AND EPIDURAL ANALGESIA

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Key words. Instrumental vaginal delivery, epidural analgesia, duration of delivery

Introduction. Epidural analgesia (EA) is an injection of local analgetic into the epidural space, causing segmental sympathetic and sensory nerve blockade [Joy L. Hawkins, 2010]. Approximately 60% patients in the USA prefer EA during labour. In contrast its use is only 9,5-15% in Hong Kong [Shemila Abbasi et al., 2014]. In Riga Maternity Hospital the incidence of EA in 2014 was - 11,06%. EA reportedly prolongs labor resulting in the higher rates of instrumental vaginal deliveries and increased use of oxytocin [F. Gary Cunningham et al., 2014]. EA is associated with maternal

hypotension, fetal bradycardia and decreasing Apgar score [Mousa WF et al., 2012].

Aim. Evaluate the possible correlation between epidural analgesia and instrumental vaginal delivery rates. Investigate the impact of epidural analgesia on labor, maternal and fetal condition. Compare EA group with the control group at Riga Maternity Hospital and Pauls Stradins Clinical University Hospital "Maternity Care Center".

Results. EA had affected the incidence of acute fetal distress 2,8% (n=17) comparing with the control group 1,2% (n=10), $p=0,007$. Prolongation of the first labor period: 8,8078 (SD=4.004) vs. 7.0097 (SD=4,2897) $p<0,0001$, and the second labor period: 1.2885 (SD=1,503) vs. 0,7045 (SD=1,378) $p<0,0001$, in EA group was statistically proved. EA was associated with the increased need for oxytocin stimulation: 58,49% (n=372) vs. 26,88% (n=242) $p<0,00001$. The average cervical dilatation at the beginning of EA was 5,3 cm (SD=1,858). No statistically significant relation was found between the use of EA and the rates of vacuum extraction: 2,4% vs. 2,6%, $p=0,403$. Forceps delivery was practised in neither of two groups. EA was not associated with maternal hypotension: 3,8% vs. 2,8%, $p=0,139$.

Conclusions. The research proved that the use of epidural analgesia can cause fetal distress. The EA prolongs the first and the second stage of labor. These results coincide with the information mentioned in publications and similar studies. Statistically significant correlation between the use of epidural analgesia and instrumental vaginal delivery rates, as well as maternal hypotension was not confirmed. This study should be continued to investigate other possible side effects of epidural analgesia.

PREGNANCY OUTCOME AMONG WOMEN WITH POSITIVE HEPATITIS B SURFACE ANTIGEN CARRIER STATUS

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Key words. pregnancy, Hepatitis B, HBsAg, preterm birth.

Introduction. The global prevalence of hepatitis B virus (HBV) infection varies widely among different countries, but according to World Health Organization, Latvia is considered mid-endemic for hepatitis B, making

it still an important health concern in Latvia. Hepatitis B is particularly important regarding pregnant women. Most pregnant women with HBV infection are chronic carriers, indicated by positive hepatitis B surface antigen (HBsAg). Studies of pregnant HBsAg carriers have mainly focused on vertical transmission of HBV to the fetus. However, little is known about the impact of maternal HBV infection on pregnancy outcome, and findings from different studies are not consistent. Some studies have suggested association between chronic hepatitis B and gestational diabetes, preterm birth, fetal macrosomia and lower Apgar scores. [Lao et al, 2012, Sirilert et al, 2014, Tse et al, 2005]

Aim. To evaluate the impact of maternal HBsAg status on the course of pregnancy and its outcome.

Methods. A retrospective case-control study over a two years period from 2012 to 2013 was conducted, using data from Riga Maternity hospital medical records. The study included 90 HBsAg-positive pregnant women (case group) and 132 HBsAg-negative pregnant women (control group). Only singleton pregnancies were included.

Data were analysed using SPSS 22.0 and MS Excel. P value <0.05 was considered to be statistically significant.

Results. Among 12 179 women with singleton pregnancies delivered in this period, 0,7% were HBsAg-positive. The mean age was not statistically different between case and control groups (29.81 ± 4.43 vs. 29.36 ± 5.73 , $p=0.526$), as was the parity (1.87 ± 1.11 vs. 1.74 ± 1.01 , $p=0.389$). There was no significant difference between case and control groups regarding hypertensive disorders during pregnancy (5.6% vs. 5.3%, $p=0.935$), premature rupture of membranes (21.1% vs. 20.3%, $p=0.872$) or gestational diabetes (1.1% vs. 0.8%, $p=0.784$). However, there was significantly higher proportion of preterm births among HBsAg-positive women compared to control group (8.9% vs. 1.5%, $p=0.009$). As for infant outcome, there was no difference in mean Apgar scores and fetal distress between two groups. Women in case group had slight, but not statistically significant increase in fetal macrosomia (18.9% vs. 13.8%, $p=0.300$) and low birth weight (6.7% vs. 2.3%, $p=0.103$). Maternal risk factors for hepatitis B were also analysed. Women with positive HBsAg had slightly higher incidence of other sexually transmitted infections (STI) in anamnesis (11.1% vs. 7.6%, $p=0.366$), but the difference was not statistically significant. Women with positive HBsAg had higher rates of hepatitis C (5.6% vs. 3.0%, $p=0.349$), syphilis (2.2% vs. 0.0%, $p=0.085$) and genital herpes (2.2% vs. 0.8%, $p=0.353$).

Conclusions. HBsAg seropositivity among pregnant women in Latvia is still relatively common. There was no statistically significant difference

between the two groups for most of the adverse pregnancy outcomes described in some previous studies. However, this study showed an increased risk for preterm birth among HBsAg-positive women.

CERVICAL PRECANCEROUS LESIONS' TREATMENT QUALITY IN RIGA EAST CLINICAL UNIVERSITY HOSPITAL FROM 2012 TO 2013

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Key words. cervical precancerous lesions, treatment quality

Introduction. Cervical cancer is the second most common cancer worldwide and also in Latvia that affects women under the age of 45, therefore it is important to diagnose and treat cervical precancerous lesions. In modern medicine cervical precancerous lesions are diagnosed with cytology, colposcopy and histology tests, and treated by cervical excision. In order to improve colposcopy service European Federation for Colposcopy has been established quality indicators. All European Union countries are recommended to follow them.

Aim. The aim of this study was to evaluate and compare cervical precancerous lesions' diagnostic and treatment quality in Riga East Clinical University hospital Colposcopy Clinic and Oncology Centre of Latvia according to European Federation for Colposcopy quality standards.

Results. During the period from 02.05.2012 to 31.07.2013 in the Colposcopy Clinic (CC) there were performed 197 cervical excisions, in Oncology Centre of Latvia (OCL) - 247 cervical excisions.

Number of cases having a colposcopic examination prior to treatment for abnormal cervical cytology significantly differs between the clinics (CC- 97,0%, OCL-12,8%; $p<0,001$). In CC documentation of whether the squamocolumnar junction has been seen or not was made in 89,6% of all colposcopy protocols, but in OCL - in 9,7% ($p<0,001$). Excised lesions/conizations with clear margins in CC were performed in 93,8% and it did not significantly differ from OCL - 91% ($p=0,8$). Excisional treatments/conizations containing CIN2+ in CC did not significantly differ from OCL (86,7% vs 87,9%; $p=0,8$). In CC loop electroexcision was performed more frequently than in OCL (69,5% vs 11,5%). In OCL the most popular

method was electroconization (88,5% vs 30,5%); $p < 0,001$. Percentage of treated CIN2+ cases with negative cytology at 12 months in CC was 91,6% and it did not significantly differ from OCL - 92,8% ($p = 0,69$). Preoperative histological data analysis has shown that in CC no excisions were performed for normal histological result, but in OCL it was performed in 4,9% ($p = 0,008$). The most popular preoperative histological result in both clinics was CIN2+ (CC-98,3%, OCL-90,6%; $p = 0,5$). In CC preoperative histological data differs from postoperative data in 12,5%, in OCL-19,2% ($p = 0,1$). From the cases with different preoperative and postoperative data in CC there is no case when preoperative histological result shows normal result/inflammation/CIN1, but postoperative result shows CIN2+, what significantly differs from OCL - 37,2%; $p < 0,005$).

Conclusions. Cervical precancerous lesions' treatment quality in Riga East Clinical University hospital from 2012 to 2013 in common satisfies European Federation for Colposcopy quality standards, however in the Colposcopy Clinic colposcopy is used in almost every case of abnormal cervical cytology, but in Oncology Centre of Latvia it is relatively seldom used method. It is very important to continue the analysis of the treatment's quality and to establish appropriate electronic database as the major source of patients' data.

THE PROPHYLAXIS OF DEEP VEIN THROMBOSIS AND PULMONARY EMBOLISM IN OBSTETRICS: SITUATION IN LATVIA

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Key words. Thrombosis, pregnancy, risk factors, prevention, prophylaxis.

Introduction. The risk of venous thromboembolism increases 10 times during pregnancy, labour and postpartum periods. Deep vein thrombosis and pulmonary embolism (DVT/PE) are a serious pregnancy and postpartum complications, which can be fatal. Nowadays, correctly assessing risk and under medication or/and non-drug prevention, it is possible to completely avoid these complications.

Aim. To evaluate pregnant women with low or average risk of venous thromboembolism before and after childbirth. To find out whether patients of these two groups received the prophylaxis needed.

Results. 200 cases of history with caesarean birth were analysed. Risk factors before birth: age > 35 years - 49 (24.5%), BMI > 30kg / m² - 27 (13.5%), parity ≥ 3 - 45 (22.5%), smoking - 10 (5%), clearly varicose veins - 10 (5%), existing systemic infection - 1 (0.5%), immobility - 0, pre-eclampsia - 8 (0.4%), dehydration / vomiting - 0, multiple pregnancies and / or infertility treatment procedures - 21 (10.5%). Summarizing the risk factors (≥3), medium risk and prophylaxis with LMWH during pregnancy could be considered in 13 (6.5%) pregnant women, prophylaxis with LMWH was observed in 1 (0.5%) pregnant woman. Low risk and prophylaxis with LMWH during pregnancy is not necessary for 187 (93.5%) pregnant women, prophylaxis with LMWH has not been observed for 199 (99.5%) in pregnant women. The results are statistically significant (p > 0.001). Risk factors for after giving birth: Caesarean section - 200 (100%), any surgical intervention after giving birth - 1 (0.5%), the use of forceps - 0, protracted labor (> 24 hours) - 1 (0.5%), postpartum haemorrhage (> 1000ml) or blood transfusion - 8 (4%). Summarizing the risk factors (≥2), medium risk and prophylaxis with LMWH after giving birth should be considered with 119 (59.5%) pregnant women, prophylaxis with LMWH was followed with 19 (9.5%) pregnant women. Low risk and prophylaxis with LMWH after giving birth is not required in 81 (40.5%) pregnant women cases, prevention with LMWH has not been considered for 181 (90.5%) pregnant women. The results are statistically significant (p > 0.005).

Conclusion. DVT / PE risk and prophylaxis during pregnancy are insufficiently assessed in Latvia. In most cases, LMWH prevention should be observed exactly in post-partum period. Despite the fact that during pregnancy prophylaxis with LMWH would be required for a smaller number of pregnant women, it was not carried at all. So the medical personnel's attention should focus not only on post-partum DVT / PE risk assessment, but also to the pregnancy period. Evaluating risk factors incidence of prenatal period, the most common are age > 35 years, BMI > 30kg / m², parity ≥ 3, multiple pregnancies and / or infertility treatment procedures. The most common risk factor for postnatal period is caesarean section.

COMPARISON TWO – YEAR GROUP STUDIES OF ANTENATAL AND EARLY POSTNATAL CARE IN RHESUS NEGATIVE PREGNANT WOMEN

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Key words: rhesus negative, antenatal care, postnatal care, anti-D antibody, anti-D immunoglobulin.

Introduction. Rhesus incompatibility pregnancy is potentially life-threatening condition. Rhesus sensitization during pregnancy is one of the causes of haemolytic diseases of the newborn and in severe cases may develop hydrops fetalis and result in stillbirth. All Rh negative mothers should undergo antibody screening. Risk of Rh immunization can be reduced by administration of anti-D immunoglobulin at antenatal and early postnatal care.

Aim. The objective of this study is to evaluate conditions of anti-D antibody screening and immunization of antenatal and early postnatal care before and after state policy was entered into effect. In 2013, immunoglobulin injection at Week 28 became a state supported program.

Results. The incidence of Rh negative pregnant women in Pauls Stradins Clinical University Hospital in year 2012 was 14.19% (n=288), and in 2014 17.18% (n=346). Sensitized pregnant women were 5.20% (n=15) vs. 3.75% (n=13) p=0.187. 87.2% (n=136) vs. 94.3% (n=181) p=0.133 Rh negative women received anti-D IgG after delivery. Anti D Ig administration during pregnancy was 5.5% (n=15) vs. 25.2% (n=84) p<0.00001, but Ig administration at week 28 was 4.0% (n=11) vs. 8.7% (n=29) p=0.010. Anti-D Ig quantity 625 SV was administrated 87.5% (n=14) vs. 30.87% (n=25) p=0.117, but 1250 SV 12.5% (n=2) vs. 69.13% (n=56) p<0.00001. Antibodies at I trimester had detected 48.7% (n=133) vs. 72.1% (n=240) p<0.00001. Antibodies at II trimester had analysed 41.4% (n=113) vs. 31.8% (n=106) p=0.007.

Conclusion. Rh negative pregnancies are not rare occurrence. Percent of sensitized pregnancies is high compared to other studies 0.3-0.8%. Determination of antibodies at I trimester is significantly higher after state policy changes. Especially low immunoglobulin administration frequency during pregnancy before state policy changes was observed but comparatively and significantly higher thereafter. Despite the fact

that Ig administration during pregnancy is improving, it is insufficient because the incidence of sensitization is not significantly different. Obviously, new antenatal care state policy needs more time to achieves its objective.

FOETAL DISTRESS AT BIRTH AND STAN APPLICATION

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Keywords. Obstetrics, STAN, distress of foetus, Apgar scale

Introduction. STAN is a system that broadens options for assessment of intrauterine foetal condition. It reflects the foetal heart rate, uterine activity and ST segment of foetal electrocardiogram. Foetal ST segment changes are detected if the heart muscles lack oxygen.

Aim. To determine new-born scores on the Apgar scale on the 1st and 5th minute in the STAN and control group. To find out the adverse effects of STAN in new-borns. To clarify if the usage of STAN creates any discomfort for women.

Results. Most frequently STAN is used for primigravida women (84%) in the age group from 19 to 34 (87%). The majority of women were in 41st - 42nd week of pregnancy. In 88% of cases the main indication for the use of STAN was foetal distress. In 60 % of the study group cases there were natural childbirth deliveries, with 33% of cases being caesarean section, while vacuum traction was applied in 7% of cases. Evaluating the

Apgar scale of the 1 minute, it was found out that in 91.7% of the study group cases, the score was ≥ 7 points, while in the control group – in 97.2% ($p < 0.05$) of the cases; in 8.3% of the study group cases Apgar scale was < 7 points (19 out of 229), in the control group - 2.8% (13 of 462) ($p = 0.002$). The Apgar scale assessment in the fifth minute ≥ 7 points was, 98.7% and 99.6% of the study and control group participants, respectively. Epidermal damage at STAN application site was found in 1.7% (4 of 231) of the cases while in 0.86% (2 out of 231) of cases there was no contact when applying STAN. There were no complaints of discomfort due to the usage of STAN.

Conclusion. In 60% cases STAN monitoring allowed natural

childbirth delivery. Apgar scale scores were not significantly different from the control group. Only in 1,7% of cases mild epidermal lesions of the skin, small wounds or haemorrhages in the STAN attachment area were observed. There were no complaints of discomfort due to the usage of STAN.

THE USE OF ESTROGENS AS A RISK FACTOR FOR VENOUS THROMBOSIS

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Key words. estrogen, venous thrombosis, venous thromboembolism.

Introduction. The use of estrogen containing medication (ECM) was identified as a risk factor for venous thrombosis (VT) in women in 1968 already (Welin G., 1968). Additional risk factors favouring VT in premenopausal women who are using ECM are adiposity, smoking, hypertension, diabetes, and migraine with aura. Risk for VT in women who use ECM rises sharply after age of 39, with an estimated incidence of 100 cases per 100.000 person-years, among women who are older than 39 years of age, as compared with 25 cases per 100.000 person-years among adolescents (NEJM, A.M. Kaunitz). Within cross-sectional research, 146 RAKUS *Gailezers* archived patient files were analysed according to criteria: woman, 18-55 years old, hospitalized from 01.01.2010 to 31.12.2014, diagnosed with principal or additional diagnosis I26: pulmonary embolism with acute *cor pulmonale*; I80: lower extremity superficial vein thrombosis and thrombophlebitis; I81: *V.femoralis* thrombosis and thrombophlebitis; I82: other venous thrombosis and thromboembolism (SSK-10 classification).

Aim. Identify the number of women diagnosed with principal or additional diagnosis I26, I80, I81, I82 (SSK-10) and have a recorded prior use of ECM, identify other coexisting risk factors with whom ECM use is not recommended.

Results. Analysis of 146 patient files displayed the following results: 64 patient files had no record concerning contraception methods and were excluded from further analysis; in 58 cases prior use of COC was denied, and in 24 cases it was confirmed (confirmed cases include 2 cases with lethal outcome and 1 case with ECM use before fertility treatment). Further analysis

of cases with confirmed COC use showed: 10 women were aged 39 years or older. Additional risk factors identified: 2 women were diagnosed with adiposity, however, data can not be evaluated correctly as no patient file contained record of BMI; 2 cases with recorded recent trauma; 2 cases with recorded arterial hypertension; 1 case with recorded antiphospholipid syndrome. Distribution according to diagnosis in ECM users: I80.2 - 2, I82.8 - 10, I80.1 - 3, I26.9 - 7, I80.0 - 2. Distribution according to age in ECM users: 18-25 - 2, 26-35 - 9, 36-45 - 8, 46-55 - 5. Distribution according to age in ECM non-users: 18-25 - 2, 26-35 - 10, 36-45 - 11, 46-55 - 35.

Conclusion. Fifteen ECM users were identified to have additional risk factors that may have favoured development of thrombosis. The most frequent diagnoses among ECM users were I82.8 (10) and I26.9 (7) (SSK-10 classification). ECM users most often presented with VT at the age of 26-35 (9) and 36-45 (8) years. It is advisable to identify women with additional risk factors prior to prescribing ECM, and educate them about possible complications of ECM use. It is advisable to pay attention to the contraception method being used by women who are hospitalized with VT and are within reproductive age range.

USAGE OF DROTAVERINA HYDROCHLORIDE IN OBSTETRICS

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Key words. Drotaverina, obstetrics, labour.

Introduction. Spasmolytic drugs are used in many fields of medicine with the aim to ease muscle contractions. There is still popular opinion in Latvia that this group of drugs can facilitate the opening of the cervix. One of the most often used spasmolytics in Latvia is Drotaverina hydrochloride. Even though it is widely used, there are no official guidelines of usage of this drug. Furthermore in other countries this medication is not used in obstetrics due to the lack of evidence based proof of it's efficacy.

Aim. The aim of this research was to collect the data of Drotaverina hydrochloride usage in Latvia to compare this information with data from other countries and to use it later with the aim of creating official guidelines.

Materials and methods. Descriptive and comparing study was done from November 2014 to february 2015. Research was conducted in four obstetrics wards by anonymously questionning medical healthcare professionals. 36 doctors and 64 midwives (all together 100) were questionned in P. Stradiņš Clinical University hospital, Riga Maternity hospital, hospital of Ogre and Jekabpils regional hospital. All healthcare professionals were practicing obstetrics at the moment of questionning. Data obtained were processed with programs Libre Office Calc and SPSS.

Results. After data analysis, it was concluded that only 3 doctors (5%) are not using Drotaverina hydrochloride in their practice. They stated that usage of this drug isn't evidence based. Whereas all 64 midwives (100%) use Drotaverina hydrochloride in their practice widly. 40 respondents (40%) stated that they use Drotaverina hydrochloride in patients with first labour, but 56% haven't noticed any connection between usage of Drotaverina hydrochloride and number of labours. Most commonly used dosage is 80mg, 83 respondents use this dose. 10% of repondents who use this drug stated that they have noticed side effects – 5,2% tachycardia, 2% decrease of blood pressure.

Conclusions. In Latvia Drotaverina hydrochloride is still widely used in obstetrics. The reason for that is medical healthcare professionals opinion that it is effective and harmless. It is necessary to carry out a large-scale study with usage of Drotaverina hydrochloride in labour in order to o ascertain whether its widespread use in Latvian is indeed justified.

WHAT KIND OF MATERNAL FACTORS DURING PREGNANCY INCREASE THE RISK OF LOW BIRTH WEIGHT?

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Key words. Maternal factors, low birth weight, education, working, anaemia.

Introduction. Low birth weight (LBW) is an important risk factor for neonatal and infant mortality and morbidity in adults. In nowadays approximately 10% of term infants in developed countries are small for gestational age, compared with 23% of term infants in developing countries.

Aim. The aim of our study was to evaluate the importance of maternal factors and their manifestation to fetus for LBW in Latvia. In the present study, criterion was delivery of live new-born in period of 37th-41st week of gestation and birth weight <2500g.

Results. In our study there were total of 564 pregnancies and in the study group we included 21 (3,7%) new-borns with LBW.

- This was the first pregnancy for 1 mother and for 5 mothers this was the 2nd and 3rd, for 7 mothers - 5th and for 1–6th and 7th pregnancies.

- 1 mother was primiparous, 12 of the mothers had 2nd delivery, 7 mothers- 3rd, one- 4th delivery

- 2 patients were <20 years old, 6 were 21- 25 years old, 7 patients were 26- 30, 4 patients were in group 31- 35, and 2 patients >35 years old.

- 15 patients had a normal body mass index, 6 patients had reduced body mass index and 6 had increased body mass index.

- 6 patients had irregular menstrual cycle.

- 3 patients born with mental disorders.

- 11 mothers has job.

- Uneducated- 4, with primary education-4, secondary 5, the highest 8.

- 12- anemia in pregnancy, 3 of them have a history of anemia.

- The most common complaints during pregnancy: headache, toxicosis, varicose veins, bleeding (2x), smoking, psychological stress.

Conclusions. Compared with the global data our results are in good position, so we believe that raising public education, with modern technologies and advanced prenatal diagnostics makes it possible to further reduce frequencies of children with LBW and the resulting consequences.

EMERGENCY CONTRACEPTION USER PROFILE IN LATVIA

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Key words. contraception, emergency contraception, reproductive health, Latvia

Introduction. Emergency contraception (EC) is used after an unprotected sexual intercourse to prevent the unintended pregnancy either

when the contraceptive method has not been used at all or an error has been recognized of the used contraception method. EC is not a substitution of any of the regularly used methods of contraception. EC effectiveness depends on the method and time period of use it after the unprotected sexual intercourse. *Levonorgestrel* (LNG) in dose of 1.5mg taken within 72 hours after the unprotected intercourse is the most widely used EC method worldwide. Studies have proven that the use of LNG within 72 hours prevents 86% of the unintended pregnancy cases, and use within 24 hours gives efficiency 95%. The progesterone receptor modulator *ulipristal acetate* (UPA) is also used for EC purpose within 120 hours after the unprotected intercourse with the similar efficacy to prevent the unwanted pregnancy. The main mechanism of contraceptive action of both LNG and UPA is delaying or inhibiting of ovulation. LNG EC is available as the over-the-counter medication in Latvia, and cheaper to compare with UPA EC that is available only by the prescription in Latvia. From the research point of view, it is important to find out why a woman/couple is choosing and using EC, and what are the reasons that led to the use of EC. It is important to clarify woman's/couple's routine contraception usage, and why it was not effectively operated.

Aim. To analyze the reasons for the use of EC, and the contraception use habits and characteristics of individual who is choosing to use EC in Latvia.

Methodology. This is a cross - sectional descriptive study, questioning individuals purchasing LNG EC at 57 pharmacies in different regions of Latvia during a four-month period. They were asked to fill an anonymous structured questionnaire consisting of 27 questions regarding determinants of EC, individual's used contraceptive methods, reproductive and socio-demographic parameters. Data analysis was carried out using MS Excel 2007, CIA and SPSS 19 software, p - value <0.05 was considered significant. The research has obtained the approval from the Ethical Committee of University of Latvia.

Results and Conclusions. At the time of submission of the abstract, study is under the collection of the information and processing of the data. Results and conclusions are still not available to present in the abstract.

ARE PREGNANT WOMEN IN LATVIA INFORMED ABOUT GESTATIONAL DIABETES MELLITUS?

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Key words. Pregnancy, gestational DM, GDM.

Introduction. Gestational diabetes mellitus (GDM) is a one of common medical complication associated with pregnancy. GDM is defined as any degree of glucose intolerance that occurs with pregnancy or is first discovered during pregnancy. GDM imposes risks on both mother and fetus. Some of these risks continue throughout the lifetime of mother and child. To avoid or prevent the development of these complications is very important to educate pregnant women. For women with gestational diabetes mellitus diet is also important to avoid fetal complications and complications during childbirth. Therefore, it is necessary to know about proper nutrition, as well about physical activity during pregnancy.

Aim. The aim of this study is to explore whether pregnant women in Latvia are informed about gestational diabetes mellitus.

Results. 173 pregnant women from Riga maternity hospital and Pauls Stradins clinical university hospital were questioned about their eating habits, physical activity, knowledge about GDM and its complications. In group of juvenile pregnant women GDM had three patient. Only one of this women's group was informed about GDM complications and healthy lifestyle. There were 86 women in age of 18 to 29 years. Half of them knew what means term "gestational diabetes mellitus", but only 16 of this healthy women had information about GDM effects on pregnancy. 16 (18,6%) women had diagnosed GDM in this group of age, but only 6 of them were informed about its complications for mother and for child, as well about healthy habits. Regardless of number of pregnancy in age group of 30 years and more women's awareness was high (65% women knew about GDM, its complications and healthy lifestyle). There were 79 women in this age group and GDM had 21 (26,6%). There were no differences in awareness about GDM between women with multiples pregnancies and women with first pregnancy. Awareness about this disease between healthy and ill patients was similar.

Conclusions. Gestational diabetes mellitus is very important state that requires the attention from physician and also from pregnant woman. Study's results showed very low awareness about GDM in juvenile group and in group of age from 18 to 29 years. In group of 30 years and more awareness was high regardless of pregnancies number and whether there was gestational diabetes mellitus. In addition, as GDM is quite common among pregnant women, its need to improve their knowledge about this disease to prevent maternal and child complications.

MENSTRUAL DISORDERS

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Keywords. Dysmenorrhea, Menstrual disorders, Bleeding Length, Oligomenorrhea, Amenorrhea.

Introduction. Menstrual disorders are common problem in adolescent all over the world. It is a debilitating condition seen mostly in young women of reproductive age, usually form the common gynaecological complaints among adolescents. The common menstrual disorders reported in adolescents are amenorrhea, abnormal/excessive uterine bleeding, dysmenorrhoea, and premenstrual syndrome which can be effectively diagnosed and treated in the adolescent population.

Aim. To investigate the prevalence of menstrual related problems/abnormalities according to age and access menstrual practices among college school adolescent girls.

Method. It was a cross-sectional study on a population based sample of Russian Crimean adolescent aged 15-23 in college school and adolescent foreigners in Crimea. Only girls who had already started menstruating were requested to participate. Information was collected by means of questionnaire that included items on the girls' demographic details, anthropometric, smoking and drinking habit, use of contraceptive pills and socioeconomic status.

Result. A total of 1800 questionnaires were administered and 725 were returned, 120 girls failed to report their date of birth, 93 failed to report their menstrual problems, so 512 subjects were analysed. In the sample population 4.0% of the girls had menstruation interval <21 days, while it was

>35 days in 4.5%. About 8% of the girls said the length of their menstruation interval was currently irregular. About 7% of the girls were suffering from dysmenorrhea.

Conclusion. In conclusion, adolescent girls referring persistent oligomenorrhea first two years from menarche had a higher risk for developing persistent menstrual irregularities. They had longer bleeding periods (>7days) and this has practical implications because it makes adolescent potentially more susceptible to iron deficiency anemia.

EMBRYO SELECTION IMPACT ON EARLY PREGNANCY LOSS

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Key words. Early pregnancy loss, time-lapse monitoring, embryo selection, morphokinetics selection.

Introduction. Early pregnancy loss (pregnancy loss before 12 weeks of gestation) is one of the most significant clinical problems in the field of reproductive medicine. Near to 80% of pregnancies are lost during the first trimester of pregnancy mostly because of embryo chromosomal abnormalities, uterine abnormalities, endocrine defects, thrombophilia, thyroid disorders and infections. These factors systemic exclusion has a significant impact on success of ART outcome. Increased probability of chromosomally normal embryo selection using time-lapse morphokinetics analysis could improve early pregnancy loss rate in patient undergoing infertility treatment.

Aim. Aim of the study was to compare early pregnancy loss rate between conservative embryo cultivation/selection and time-lapse system morphokinetics analysis groups.

Methods. The study was performed in infertility clinic iVF Riga in Latvia. Embryo development was retrospectively analysed between two groups. Treatment outcomes were analysed retrospectively and prospectively. Study group included 243 embryos selected using time-lapse morphokinetics analysis before 146 embryo transfers. Control group included 638 embryos cultivated and selected conservatively before 386 embryo transfers.

Results. For clinical pregnancy rate, differences were not statistically significant at 41.1% for the study group compared with 36.6% for the control group (odds ratio (OR) 1.21; 95% confidence interval (CI) 0.82-1.79; $p=0.33$). Early pregnancy loss per pregnant cycle was statistically significantly decreased for the study group with 28.4% versus 41.8% (OR 0.55; 95%CI 0.31-0.99; $p=0.045$). Analyzing per transferred embryo, the early pregnancy loss rate was statistically significant decreased 9.1% for the study group compared with 19.1% for the control group (OR 0.41; 95%CI 0.17-0.97; $p=0.043$). For implantation rate, differences were not statistically significant at 31.7% versus 28.1%. In the study group of women younger than 35 years with autologous oocytes none of the implanted embryos was lost, but control group early pregnancy loss of all implanted embryos was 25% (OR 0.48; 95%CI 0.38-0.61; $p=0.0003$).

Conclusions. Embryo selection using time-lapse morphokinetic analysis could decrease early pregnancy loss rate and improve success of infertility treatment especially to women younger than 35 years.

SESSION VII

ORAL CAVITY PATHOLOGY, OTORHINOLARYNGOLOGY, OPHTALMOLOGY

REVIEW: ETIOLOGY, CLINICAL MANIFESTATION AND RADIOLOGICAL DIAGNOSTIC METHODS OF ODONTOGENIC SINUSITIS

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Keywords. Odontogenic sinusitis, maxillary sinus, diagnostic, etiology.

Introduction. Maxillary sinusitis of odontogenic origin is a well-known condition in both dental and otolaryngology communities. This type of sinusitis differs in its etiology, microbiology and management from sinusitis of other causes, therefore, failure to accurately identify cause of sinusitis in these patients usually lead to persistent symptomatology and inadequate pharmacotherapy and surgical therapies directed toward disease.

Aim. The aim of this study is to analyse articles about etiology, prevalence, specific clinical signs and most informative diagnostic methods of odontogenic sinusitis that were published from 2004 to 2014.

Results. Total of 25 studies were selected: five retrospective studies, four prospective studies, six case reports, five scientific publications, four literature reviews and one Clinical Key offered book chapter material. The prevalence of odontogenic sinusitis is from 9.2% to 40%. Regarding the age, 4th decade is the most frequently affected. Close anatomical relation between upper teeth and maxillary sinus promotes the development of odontogenic sinusitis. The most frequently involved teeth are the 1st, 2nd and 3rd molar teeth. The common etiological agent in odontogenic sinusitis is iatrogenic: oroantral fistulas and the remaining roots after tooth extraction, foreign bodies in maxillary sinus (endodontic fillings, fragments of dental implants). Specific clinical signs for odontogenic sinusitis are unilateral recurrent disease, nasal discharges with bad smell. Computed tomography is widely used in diagnostic of odontogenic sinusitis. Recent studies have shown that the most informative radiological

diagnostic method for detecting odontogenic sinusitis is the cone-beam computed tomography.

Conclusions. It is common that odontogenic sinusitis is misdiagnosed because of its nonspecific progress and using diagnostic methods that do not completely visualize relation between upper teeth and maxillary sinus. Studies show that prevalence of the disease is growing; because of that odontogenic sinusitis should be considered as the differential diagnosis in patients with recalcitrant unilateral rhinosinusitis, especially, if medical history shows dental manipulations in the upper jaw (like dental extractions, dental implantation, sinus lift etc.). Nowadays, cone-beam computed tomography is becoming the most informative method in diagnosing maxillary sinus pathologies. It has lower radiation intensity than in CT and should help patients to decrease unsuccessful treatment, costs and *unnecessary* antibiotic use.

ANALYSIS OF TMC01 GENE POLYMORPHISMS IN LATVIAN PATIENTS WITH PRIMARY OPEN ANGLE GLAUCOMA

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Keywords. POAG, SNPs, TMC01

Introduction. Glaucoma is a complex, chronic neurodegenerative optic neuropathy and one of the leading causes of adult visual impairment and irreversible blindness, affecting over 60 million people worldwide. Primary open angle glaucoma (POAG) is the most common form of the disease. It is thought that the crucial risk factor for POAG pathogenesis is an elevated level of intraocular pressure (IOP) but other coexisting risk factors that plays an important role are age, race, sex, diabetes mellitus type 2, vascular alteration and oxidative DNA damage. At the present time, glaucoma is clinically defined, but the exact etiology is unknown. Genetic studies are one approach to identify the molecules and pathways involved in disease pathogenesis.

Aim. The purpose of this study was to determine the association of the single nucleotide polymorphism (SNP) rs 4656461 near the TMC01 gene with POAG in the Latvian population.

Material and Methods. The study included 65 patients with POAG and 43 control persons (with cataract). Genomic DNA was isolated from peripheral blood leukocytes. A real-time PCR approach was used for the genotyping of the SNP rs4656461 (TaqMan® SNP Genotyping Assay, Life Technologies). The real time-PCR reactions were carried out in 10µl volume in accordance to manufacturer's protocol.

Results. All samples were successfully genotyped. The observed results were in accordance to minor allele frequencies for this SNP. The genotype "A/A" was predominant among cases (78%) as well as among the controls (84%). The distribution of mutant allele was similar in both study groups.

Conclusions. There were no statistically significant differences between POAG and cataract patients in terms of the different genotype distribution. Additional studies in a larger cohort are required to investigate the associations of different genetic loci with the POAG in Latvian population.

AURICLE EVALUATION IN DYSMORPHOLOGICAL DIAGNOSIS

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Keywords. Auricle, pinna, congenital anomaly, ear malformations.

Introduction. External ear is an important part of the human auditory system, although it is often thought to have only aesthetic value. Auricle has a very complex structure that develops from six mesenchymal hillocks during early phases of the embryogenesis. There is a wide range of shape and size of human pinna. Most of the variations are considered normal, however, minor anomalies may prove to be of diagnostic value in specific syndromes. Unfortunately, physicians usually do not have enough knowledge and experience to adequately assess auricles.

Aim. To explain detailed evaluation of the external ear and to present most common minor anomalies of pinna, as well as to raise awareness of

minor anomalies and its importance for dysmorphological diagnostics among physicians.

Results. More than 600 different syndromes have low set ears or abnormal shape of the pinna. Some of minor anomalies are inherited as autosomal dominant feature and has no clinical significance. However, mostly minor anomalies indicate presence of other organ alterations, especially kidney, heart and brain. External ear anomalies are frequent in multiple developmental defect syndromes that is mostly caused by chromosomal aberrations. Moreover, minor anomalies of the ear, together with congenital malformations of the corpus callosum and brachydactyly, are independent pathogenic gene copy number variant predictors. Because of the tight morphogenetic link, external ear is a sensitive indicator of normal and abnormal pharyngeal apparatus and face structure development. Most common ear anomalies are microtia, macrotia, cryptotia, protruding ear, cup ear, rotated ear, low set ear, preauricular pit, preauricular tag, Darwin's tubercle, and Mozart ear.

Conclusions. Anomalies of pinna may be an indicator in early diagnosis of specific syndromes, especially connected with mental retardation. Moreover, sometimes minor anomaly of the external ear might be the only visible sign of a person that has cardiac or kidney malformations.

SQUAMOUS CELL CARCINOMA OF HYPOPHARYNX

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Key words. Hypopharyngeal cancer, squamous cell carcinoma, TNM, prognosis.

Introduction. Hypopharyngeal squamous cell carcinoma(SCC) represents 3-5% of all SCC of the head and neck region (*Hall,2008*). Thirty percent of patients diagnosed with hypopharyngeal malignancy die within a year of diagnosis, and less than 40% survive to 5 years (*Cooper,2009*).

Aim. The purpose of this study is to characterize the clinical data of first-time diagnosed hypopharyngeal cancer and compare prognosis with laryngeal cancer.

Results. During the span of five years (from January 2010 till December 2014) 141 patients with hypopharyngeal cancer were hospitalized, revealing 111 first-time diagnosed cases, which were included in the study. There were 20 patients in 2010; 24-2011; 18-2012; 26-2013; 23-2014. Hypopharyngeal cancer was diagnosed 94.6% (95% confidence interval (CI)=90.4-98.8%) men and 5.4% (1.2-9.6%) women. Female and male proportion was 1:17.5. The mean age was 63 years \pm 8.6 years (61.4-64.6 years). The predominance of the cases was determined at the age of 60-69 years- 41.4% (32.24-50.56%). The age of the patients ranged from 44 to 93 years. There was no significant difference between the employment groups (employed, unemployed, pensioner) and the period of time from the first symptoms till appointment to the doctor ($p=0.096$). The most common mode of the first sign presentation were dysphagia 26.1% (17.93-34.27%), neck mass 3.4% (15.52-31.28%) and hoarseness 13.5% (7.14-19.86%).

Histological examination revealed SCC in all cases. Stage I hypopharyngeal cancer was not found at all, II-4.6%(0.65-8.55%), III-14.8%(8.1-21.5%), IV-80.6%(73.14-88.06%). Primary tumour T₁ was discovered in 8.3%(3.1-13.5%), T₂-13.9%(7.38-20.42%), T₃-28.7%(20.17-37.23%), T₄-49.1%(39.67-58.53%). Seventy three percents (64.74-81.26%) of patients had metastases in regional lymph nodes with predominance in ipsilateral side for 73%(63.33-82.67%) of cases. A correlation between the parameter T and N was not established ($p=0.622$). Distal metastases were found in 9%(3.68-14.32%) of cases with 70%(41.6-98.4%) in lungs.

The therapy strategies focused on actinotherapy for 63.1%(54.02-71.98%) of patients, actinotherapy plus surgery-2.7%(0.32-5.72%), actinotherapy plus chemotherapy – 3.6%(0.13-7.07%), only a surgical approach for 1.8%(0-4.27%). However, for 28.8%(20.38-37.22%) of patients only palliative approach was possible.

To compare prognosis with laryngeal cancer, a control group was made including first-time diagnosed 111 patients with laryngeal cancer from the same period of time. Stage I laryngeal neoplasm was found in 9.3%(3.8-14.8%), II-24.3%(16.17-32.43%), III-45.8%(36.36-55.24%), IV-20.6%(12.94-28.26%). Primary tumour T₁ was discovered in 10.3%(4.54-16.06%), T₂-29%(20.4-37.6%), T₃-51.4%(41.93-60.87%), T₄-9.3%(3.8-14.8%). Twenty six percents of patients had metastases in regional lymph nodes with predominance in ipsilateral side for 58.6%(40.67-76.53%) of cases. Distal metastases were found in 5.4%(1.2-9.6%) of cases with 67%(28.95-100%) in lungs.

Conclusions. Hypopharyngeal cancer is more commonly diagnosed in male than in female. SCC is the most frequent malignant neoplasm of hypopharynx. Lesions in the hypopharynx mostly have manifestation at an advanced stage of disease and majority of the cases are diagnosed lately. Hypopharyngeal cancer represents worse prognosis than laryngeal cancer.

ANTERIOR CHAMBER ANGLE CHANGES AFTER INTRAOCULAR LENS DISLOCATION

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Key words. IOL dislocation, anterior chamber angle imagining, AS-OCT.

Introduction. Cataract surgery is the most commonly performed surgical procedure in the world, with an estimated 19 million operations performed annually. IOL is an uncommon complication of cataract surgery with an incidence between 0,19- 3%. AS-OCT provides direct visualization of the anterior chamber angle including the scleral spur, ciliary body and ciliary sulcus. Studies have shown AS-OCT analysis of the angle is accurate, repeatable, and correlated to findings of traditional gonioscopy. OCT has become an important tool for assessment of the anterior chamber angle and detection of narrow angle.

Aim. To compare anterior chamber angle at the time of IOL dislocation and after operative treatment, using the AS-OCT.

Results. Together there were analyzed 4 patients: 3 women and 1 man. In time of IOL dislocation, the age changed within from 68 to 78 years, the average age is 73. The artificial lense was deployed in right eye for 3 patients. The time varied from 1 to 156 months, average 84,25 months, between cataract operation and IOL dislocation. The study found that 3 patients had IOL dislocated down to posterior chamber and 1 patient had IOL dislocated in vitreous body. The visual acuity varied from 0,2 to 0,5 after IOL dislocation. The intraocular pressure varied from 18 to 50 mmHg after IOL dislocation. After IOL dislocation a corner of the front camera temporaly enlarged on average to 9⁰ (from 3⁰ minimum to 14⁰ maximum) but nasal did on average to 9,25⁰ (from 5⁰ minimum to 14⁰ maximum). The least enlargement of front

camera corner had the patient whose artificial lense was dislocated in vitreous body.

Conclusion.

1. The AS-OCT is a convenient, non-contact and objective method to assess the anatomy of the anterior chamber angle not only in cases of glaucoma.
2. Anterior chamber angle depends on IOL dislocation site.

THE IMPACT OF ILLICIT DRUG USE ON ORAL HEALTH

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Key words. Illicit drugs, narcotics, oral health.

Introduction. Nowadays, in the age of globalization, people's way of living is changing rapidly, every day has more stressful challenges than it used to and people are often looking for encouragement in the use of illegal substances. Different types of drugs are becoming more accessible, some of them are even introduced as legal, deceiving people, especially teenagers, and encouraging to try them. According to the United Nations data of 20012, 243 million people (5.2%) in the world between the ages of 15-64 have used illicit drugs, mainly cannabis, opiates, cocaine and amphetamine group stimulants at least once a year. Also, with the widening range of available drugs, the range of people using them is expanding as well. If we compare previously, the drug use was linked to the lowest levels of society, then nowadays the use of these substances is popular among socially successful people to maintain their working ability and gain even greater achievements. Such drug use is not kept secret, often even promoted among friends and in social networks. Therefore, the dentists are increasingly more likely to encounter drug users in their practices, and possibly even be the first to diagnose the problem and start to discuss it with the patient about, encourage him to start treatment. The research paper is summarizing the different impacts of the most widely used drugs - stimulants, depressants and hallucinogens - on the patients overall health condition, the expected changes in the oral cavity and possible problems during dental treatment.

Aim. To study the information available on the various illicit drug use effects on oral health and potential problems during the following treatment.

Results and conclusions. Drug use nowadays is a progressive problem, the number of drug addicts and used substances is increasing and induced

effects on the general and oral health is not fully identifiable. A multiple drug use is one of the problems. The most frequently observed problems for drug addicts in the oral cavity is xerostomia, rampant caries, gingivitis and periodontitis, temporomandibular joint problems and tooth wear. Drug-induced psychotropic effects are relatively short-term and transient, but the changes in the oral cavity is a long lasting, difficult to treat and drug addicts can be identified by them between the patients. All illicit drugs affects the cardiovascular system and therefore the use of dental local anesthetic is recommended not sooner than 24 hours after the last intake or another method of analgesia should be considered. When performing dental treatment on drug addicted patients, the infection control is a serious issue as HIV, AIDS and viral hepatitis are more common among drug users than in the average population.

RETINAL THICKNESS CHANGES USING INTRAVITREAL INJECTIONS AT DIFFERENT OCCURRENCES OF POSTERIOR VITREOUS DETACHMENT

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Keywords. Intravitreal injections, posterior vitreous detachment, diabetic maculopathy, retinal vein occlusion.

Introduction. Intravitreal drug delivery has become a popular method of treatment of many retinal diseases, including diabetic maculopathy and retinal vein occlusions. There have been studies that suggest that posterior vitreous detachment (PVD) may alter the retinal penetration of molecules in the vitreous cavity and affect the result of intravitreal injection therapy. (*David T. Goldenberg, 2012*)

Aim. To research the changes of retinal thickness after intravitreal injections at different occurrences of posterior vitreous membrane in patients of PSCUH from 2013 - 2014 depending on various diagnosis.

Methods. Retrospective research using patient ambulatory cards in PSCUH Department of Ophthalmology from 2013 - 2014. The retinal thickness was measured using *Heidelberg Spectralis* optical coherence tomography (OCT). To collect and analyze data Excel:mac 2011 and SPSS 21 was used.

Results. From 78 patients, 52 patients who had had intravitreal injections from 2013 - 2014 were taken for further examination. There were 32 (61.5%) women and 20 (38.5%) men with the median age of 66. They were divided into two groups depending on their diagnosis - diabetic maculopathy or retinal vein occlusion. Each patient group was then divided into patients who had no posterior vitreous detachment, complete posterior vitreous detachment (C-PVD) and partial posterior vitreous detachment (P-PVD). The retinal thickness was measured before the therapy and after 6 months of intravitreal injection therapy. There were 29 (55.8%) cases of diabetic maculopathy (7 (24.1%) C-PVD, 7 (24.1%) P-PVD and 15 (51.7%) with no PVD) and 23 (44.2%) cases of retinal vein occlusion (9 (39.1%) C-PVD, 1 (4.3%) P-PVD and 13 (56.5%) with no PVD). In diabetic maculopathy cases after 6 months therapy retinal edema had lowered an average of 56.9 μm (-9.43 μm for C-PVD, 49.00 μm for no PVD and 140.14 μm for P-PVD) and in vein occlusion cases edema had lowered an average of 184.74 μm (224.78 μm for C-PVD, 172.23 μm for no PVD and -13 μm for P-PVD). The statistical reliability was calculated using Kruskal-Wallis test. For diabetic maculopathy $p=0.063$ and for retinal vein occlusion $p=0.252$.

Conclusions. There is no statistical reliability that the result of intravitreal injections would be associated with or without the presence of posterior vitreous detachment. Further research should be done to exclude factors that may have had an effect.

TYMPANIC PERFORATIONS IN CHILDREN FROM 2003-2015

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Keywords. Tympanic membrane, Perforation, Trauma, Chronic otitis, myringotomy.

Introduction. Tympanic membrane is an important component of the auditory perception. Perforations of the tympanic membrane in pediatric population are rare, but early detection is important, so it does not interfere with the child's development. Untreated cases can lead to hearing impairment and frequent otitis media is observed in cases of a cold or when a small amount of water gets into the outer ear canal. There are three major etiological agents, resulting with a perforation. One reason is a direct contact injury that can cause

tympanic membrane perforation, such as ear cleaning buds, and injuries, that promote rupture of the tympanic membrane, like diving under water when the pressure on both sides of the tympanic membrane is not able to converge. Tympanic membrane perforation can also be as a result of chronic otitis media and if myringotomy has been performed.

Aim. To summarize and analyze current information on tympanic membrane perforation etiology in children in Children's Clinical University hospital from 2003 – 2015.

Results. 79 patients with tympanic membrane perforations were selected. They were divided into 3 groups depending on the etiology -tympanic membrane traumatic perforation, chronic otitis induced tympanic membrane perforation and perforation after myringotomy. More often perforations were as a result of injuries - 49 (64,5%) patients. 19 (38.8 %) of these were girls and 30 (61,2 %) boys. Median age in this group was 13 years. There were 18 (23.7%) patients with perforations after chronic otitis media. In this group there were 8 (44.4 %) girls and 10 (55.6 %) boys. Median age in this group was 4.35 years. In the last group there were 9 (11.8%) patients with a perforation that emerged after myringotomy. Of these, 5 (55.6 %) were girls and 4 (44.4 %) boys. The median age was 11.4 years. Complications and repeated tympanic membrane perforations were observed in 11 cases. 3 of them (26 %) after traumatic perforation, 5 (44 %) after chronic otitis media and 4 (35 %) of the cases were repeated tympanic membrane perforations after myringotomy.

Conclusions.

1. Children tympanic membrane perforation more often is as a result of trauma.
2. More often repeated tympanic perforations are seen in children who originally have had perforation due to chronic otitis.
3. In adolescents most frequently tympanic perforations are due to trauma and after myringotomy, but perforations due to chronic otitis are more often seen in children with the median age of 4.35 years.

ALLERGIC RHINITIS AND FOLLOWING PATHOLOGIES IN CHILDREN

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Key words. Allergic rhinitis, children, pathologies.

Introduction. Allergic rhinitis usually presents in early childhood and is caused by IgE- mediated reaction to various allergens in the nasal mucosa. Commonly allergic rhinitis have complications and some other pathologies, which affects life physical and emotional quality. In childhood it is important, because it affects daily activities and can lead to difficulties in concentration and normal socialization.

Aim. To find out, which are following pathologies in children with allergic rhinitis in data from 2010 january to 2015 january in Pediatric Clinical University Hospital of Riga. To define the most common pathologies from the following: adenoides, atopic dermatitis, gastroesophageal reflux disease, oral allergy, bronchial asthma, cow's milk protein intolerance, post nasal drip and others. Difference between age and sex and diagnostic age.

Results. From 50 patients (100%) there were 29 (58%) males and 21 (42%) females. Diagnosis with allergic rhinitis, which are caused from pollen includes 26 (52%) patients; diagnosis with other seasonal allergic rhinitis 4 (8%) patients; diagnosis with other allergic rhinitis 14 (28%) patients and unspecified allergic rhinitis 7 (14%) patients. The same as literature, most commonly : 26 % have bronchial asthma; atopic dermatitis 16%, gastroesophageal reflux disease 14%; adenoides 10 %; bilateral secretory otitis media - 6%; headaches- 6%; also oral allergy patients 4%; cow's milk protein intolerance had 4%; post nasal drip 2%; Neurological symptoms like vegetative vascular disease 6% and neurosis 2%; also functional gastrointestinal tract disorder 10%; Other dermatological disorders- psoriasis 2%, follicular keratosis- 2%, ichthyosis vulgaris-2%, urticaria 2%.

Diagnostic average age varies: males in 10 years old, females 9 years old, but in all patients the actual diagnostic age is unknown.

Conclusion. In recent years, incidence in allergic rhinitis increases, which is due to the increasing atmospheric pollution. Allergic rhinitis is important for both drug and non-drug therapy along with the avoidance of allergens.

Allergic rhinitis is an allergen proposed nasal inflammation, manifested by one or more symptoms - nasal congestion, runny nose, itching and sneezing and can be complicated with other pathologies. Allergic rhinitis affects males over than females. Most common pathologies are following: bronchial asthma, atopic dermatitis, gastroesophageal reflux disease, adenoides, bilateral secretory otitis media; headaches; neurological disorders and other dermatological disorders.

PEDIATRIC BONE-ANCHORED HEARING AIDS: INCIDENCE AND MANAGEMENT OF COMPLICATIONS

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Key words. BAHA, complication, pediatric.

Introduction. Children who have bilateral deformities of the external and middle ears as well as other type of hearing loss require early amplification with a bone conduction hearing aid for proper speech development. The Bone anchored hearing aid (BAHA) uses direct bone conduction to transmit sound transmission without involving the skin and soft tissue as being part of the vibration transmission path between the transducer and the skull bone. The sound processor has been recently manufactured as a more compact device thus improving its aesthetic appearance.

The indications for Baha implant in pediatric patients are classified as otological or audiological. Otological indications include congenital malformations of the external ear canal and middle ear. It also includes those with chronically discharging ear or recurrent otitis externa. Audiological indications comprise of those with conductive or mixed hearing loss and those with single sided sensorineural deafness whereby the device picks up sound on the deaf side and transmit via bone conduction to the contralateral intact cochlea.

Children are more liable to problems partly because many have craniofacial abnormalities that make their skull bone thinner and also because they are more subject to trauma.

Aim. To perform a retrospective case study to determine the occurrence and type of perioperative and postoperative complications and the management

of these complications. in children implanted with Bone-anchored hearing aids.

Result. Fifty-three children (35 males and 18 females) received a BAHA in the Children's clinical university hospital in the January 2008 – December 2014 period. Of 53 patients, 22 (41.5 %) patients had microtia and canal atresia, 17 (32.1 %) patients had sensorineural hearing loss and 14 (26.4 %) patients had chronic middle ear infection. Significant postoperative complications requiring intervention occurred in 13 (24.1%) patients. Skin overgrowing the abutment occurred in 3 (5.6%) patients and they required revision in the operating room. Five (9.3%) patients had local wound infections one of them requiring oral antibiotics, the others received intravenous antibiotics and 2 (3.7%) infections resulted in removal of the implant. Soft tissue reactions were seen in 2 (3.7%) patients and they required hospitalisation with operation for excision of the skin overgrowth surrounding the abutment. Two (3.7%) children had trauma of the implant site and in one case the screw drifted into the skull.

Implant extrusion occurred in one (1.9%) patient, followed by reimplantation of BAHA system in the other ear.

Conclusions. None of the patients had peri-operative complication following BAHA surgery. The commonest complications are local infection and inflammation at the implant site.

ACUTE OTITIS MEDIA IN CHILDREN: INCIDENCE AND TREATMENT

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Key words. Otitis media, treatment, antibiotics.

Introduction. Acute otitis media (AOM) is a common complication of upper respiratory tract infection whose pathogenesis involves both viruses and bacteria. AOM is the most common reason for outpatient antimicrobial therapy today.

Aim. Explore the incidence of acute otitis media, frequency of a conservative and surgical treatment, complications and clinical developments of Latvian pediatric population using Children's Clinical University Hospital

statistics. In a retrospective study we examined 800 patient's medical histories with upper respiratory tract disease, of them 98 were selected with extra diagnosis - acute otitis media. Of the patients' medical histories was collected information about the course of the disease, the frequency of treatment and complications.

Results. Of all the patients 54 (55.1%) were boys and 44 (44.9%) - girls. In the age group up to 5 years were 35 patients, from 5 to 10 years – 43 patients, from 10 to 18 years – 20 patients. Bilateral acute otitis media were in 46 cases, the right side - 30, the left side – 22. Complications (acute mastoiditis) developed in 2 (2.04%) cases. Antibiotic therapy used in 84 (85.71%) cases; the most common choice of antibiotic was amoxicillin in 26 (26,5%) cases, the second most common antibiotic - cefazolin in 16 (16.3%) cases, the third – ampicillin in 15 (15.3%) cases. Surgical treatment was used in 7 (7.14%) cases. As a predisposing factor in 61 cases was acute respiratory viral infection (including influenza - 2, EBV - 6, CMV - 1). The average hospitalization period is 5,22 days. The choice of antibiotics is correlated with hospitalization period: the average duration is 4,125 days, using the penicillin group preparations; using cephalosporins - average hospitalization period is 6,98 days ($p = 0,003$). CRP and Leukocyte's (LEY) average rates reflect the choice of antibiotics: antibacterial treatment was not used with figures CRO 9.71 mg/L and LEY $9,57 \times 10^3$ U/L; was used cefotaxim with figures CRP 63.80 mg/L and LEY $14,00 \times 10^3$ U/L.

Conclusions. After analysis of the results it can be concluded that the main cause of acute otitis media is acute respiratory viral infection. Inpatients are treated with antibacterial therapy, the most frequent is bilateral acute otitis media. The choice of antibiotic based on laboratory findings; the most common antibiotic is amoxicillin (to accord with international guidelines); complications are rare (2.04%); the average duration of hospitalization is 5.22 days; is not used follow-up period without a prescription antibacterial therapy for children.

**REASONS OF ACUTE HOSPITALIZATION IN PAULS
STRADINS CLINICAL UNIVERSITY HOSPITAL 15
OTORHINOLARYNGOLOGY CLINIC**

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Key words. Otorhinolaryngology, acute hospitalization, rhynosinusitis, tonsillitis

Introduction. The incidence of acute and chronic rhinitis, pharyngitis, laryngitis, tonsillitis, sinusitis, otitis media, epiglottitis is rising. According to the US National Statistical Service data, the frequency of sinusitis overtakes an incidence of arthritis and hypertension. Necrotizing otitis externa mortality rate among adults is 20%. In the US 500,000 patients each year undergoes a sinus surgery. Complications of acute rhynosinusitis is approximately 2-4% of patients who are hospitalized with a diagnosis "acute rhynosinusitis". Epistaxis is a frequent cause of hospitalization for people 50-80 years old.

Aim. To find out the causes of acute hospitalization in Pauls Stradins Clinical University Hospital 15th Otorhinolaryngological Clinic.

Materials and methods. A retrospective research was designed in Pauls Stradins Clinical University Hospitals archive, by using a Otorhinolaryngological 15 Clinic patients medical records for 2012 - 2013. Was created a table which had been given information of all patients and their hospitalization reasons, their gender, age, place of residence, diagnosis, disease cause, duration of hospitalization, complications, applied manipulations. The obtained data processed with Microsoft Excel and SPSS programs.

Results. In 2012 was 1039 acute hospitalizations, in 2013 - 1007 patients, in total 2046. During 2 years was hospitalized 937 women and 1109 men. The most common diagnosis during 2 years was with tonsils related pathology (21.9%), middle ear abnormalities (13.2%) and acute hearing impairment (12.3%). In age group under 18 years of age the most common reason for hospitalization is a nasal pathology, in group 18-40 years: throat disease, 41 - 60 years: ear disease, older than 60 years - the nasal pathology [p <0.05]. Acute hospitalization causes: 5.1% of patients hospitalized again after previous hospitalization and medical treatment; 12.4% have a diagnosis of traumatic cause; 0.8% of patients with HIV / AIDS / HCV / HBV diagnosis; 2.3% of

hospitalized intoxicated by alcohol, 0.6% of patients disease is due to foreign matter.

Conclusions. 1. The average acute hospitalized patient's number, compared to 2 years is equivalent. 2. In general, ear disorder is the leading cause of acute hospitalization, but considering certain diagnoses the most common is tonsillitis that prevails in 18-40 years old patient's group. 3. Among the patients can be met persons in alcohol intoxication, HIV / AIDS / HCV / HBV patients, patients with traumatic diagnosis. 4. Some of patients was hospitalized after previously conducted medical manipulation. 5. The duration of hospitalization does not depend of the patient's age and the presence of complications.

BISPHENOL A IN DENTAL MATERIALS AND ITS EFFECT ON OVERALL HEALTH

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Key words. dentistry, Bisphenol A, BPA, BPA derivatives, dental materials

Introduction. Bisphenol A is a chemical substance used primarily in the production of polycarbonate plastics and epoxy resins. More than 2 million tons of BPA are currently produced every year, which is used in production of plastic bottles and food containers, protective lining of cans and water pipes, dental materials and many other products. Many studies suggests that BPA has potential harmful effects on the human development and overall health.

Aim. Review of the scientific literature on BPA in dental materials, evaluate BPA release and exposure from dental materials and potential human health risks.

Results. Pure BPA is not a component of dental products. In dentistry, most commonly are used BPA derivatives - BisGMA, BisDMA, BisEMA, which are synthesized from BPA, so they may contain a trace amount of BPA. Some of the derivatives hydrolyze into BPA. Dental materials release BPA and its derivatives during polymerization and degradation of material. The amount of released monomers depends on dental material properties, degree of polymerization, oral pH and restoration size. BPA can cause different overall health effects, interfere with organ function and psychological state. But most

of the current studies are based on animals, therefore in humans different results could be observed. It is impossible to rule out other affecting factors or demonstrate a direct link between BPA and pathologies.

Conclusions. Currently, dental materials emit various substances in the oral cavity, so it would be important to determine the emission quantity, nature and biological compatibility with the human body. Depending on the size of the restoration, amount and type of materials used released amount of BPA may be safe, but it is necessary to carry out more research, paying particular attention to the safety of composite materials when they are used in pediatric dentistry. BPA is in such a large variety of products and commodities that we use on a daily basis, that it is almost impossible not to come in contact with it. While we still do not know everything about this chemical compound, how it acts, influences our body and what are the consequences we should lower intake of BPA in aspects which we can control.

CLINICAL PREDICTING FACTORS OF THE SEVERITY OF OBSTRUCTIVE SLEEP APNEA

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Key words. Obstructive sleep apnea, obesity, polysomnography

Introduction. Obstructive sleep apnea (OSA) is a common respiratory sleep related disease characterized by partial or complete collapse of the upper airway during sleep and is associated with excessive daytime sleepiness and cognitive impairment. The prevalence of OSA is approximately 3 to 7% for adult men and 2 to 5 % for adult women in general population. It occurs in association with metabolic syndrome, type 2 diabetes mellitus and cardiovascular diseases and even mild OSA, if left untreated for a long time, can cause serious cardiovascular complications, even death.

Aim. The aim of this study is to investigate correlation between the gender, the age and the physical data with apnea – hypopnea index (AHI). To achieve the goal, a retrospective study was carried out. The study included 115 patients (94 men and 21 women) who visited the Institute of Stomatology Sleep Laboratory from January 2013 to December 2014 to evaluate presumed

sleep – disordered breathing, and who had undergone polysomnography (PSG). The anthropometric measurements (height, weight, the body mass index and the neck circumference) and the tonsil size were evaluated.

The obtained data was statistically processed with MS Excel and SPSS 19.0.

Results. 115 patients were enrolled in the study, the age ranged from 28 to 80 years. The mean age in men was 51,71 (SD±10,99) years and in women it was 62,76 (SD±5,78) years. The position of the tongue relative to the palate, evaluated using modified Mallampati index, revealed 25,8% grade IV, 60,8% grade III and 13,4% grade II. The mean AHI in men was 47 events/h and in women it was 41 events/hr. The mean body mass index in men was 44 kg/cm²; in women it was 40 kg/cm². The mean neck circumference was 44 cm in men and in women it was 40 cm. Correlation analyses showed significant correlations between AHI and weight ($r= +0,46$; $p<0,001$), BMI ($r= +0,49$; $p<0,001$) and neck circumference ($r= +0,49$; $p<0,001$) in men, but not in women.

Conclusions. In the present study, we investigated the association of anthropometric measures with OSA prevalence and severity for each sex. In the male patients the weight, the body mass index and the neck circumference are significant indicators of the obstructive sleep apnea severity. We found no credible correlation in the female patients with some of the clinical indicators and OSA severity.

A RETROSPECTIVE ANALYSIS OF DEEP NECK INFECTION PATIENTS PROFILE IN P. STRADINS CLINICAL UNIVERSITY HOSPITAL

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Key words. Cervical phlegmon, deep neck spaces, infection.

Introduction. Deep neck space infections are serious and life threatening infections which occur in the spaces between the muscles of the neck. Anatomical structure of this region has a crucial importance at the development of the infection, complications and in the surgical treatment. Fast

antibacterial and surgical treatment can prevent serious life threatening complications such as mediastinitis, thrombosis of the jugular vein and sepsis.

Aim. Aim of the study was to obtain information about incidence of deep neck infection in CUH (2012-2014) and find out if it is statistically correct to adjust results to Latvia's population and compare them to other countries' data. Find out the duration of hospitalization, used antibacterial and surgical treatment, bacterial culture, antibacterial sensitivity and comorbidities of the patients that could have had a connection with the development of the infection of the deep neck spaces.

Results. 64 patients were viewed retrospectively (30 women, 34 men), age from 20 to 86 (mean age 51) years. Patient's minimal stay in the hospital was 2 days, maximal 54 days (mean 14 days). Bacterial culture was taken from all 64 patients, most frequently found microorganism was *Acinetobacter baumannii* (8 times), methicillin-sensitive coagulase negative *Staphylococcus aureus* (7 times), methicillin-sensitive *Staphylococcus* (4 times), *Enterococcus* species (4 times) and *Candida albicans* (4 times). All patients received antibacterial therapy, minimum of 2 antibiotics combination. 61 patients received surgical treatment, 16 of them had reoperation. 9 patients received physical therapy in a recovery period for wounds.

Conclusion. Deep neck infection affects men and women equally, usually in middle age. Bacterial culture and antibacterial sensitivity plays a major role for correct antibacterial treatment of infection. If the phlegmon of the deep neck spaces has developed, surgical incision and drainage combined with aggressive antibacterial therapy is the treatment of choice.

**CHANGES IN THE NUMBER OF LYMPHOCYTES
SUBPOPULATIONS AND ANTISTREPTOLYSIN-O WITH THE
CHILDREN WITH THE DIAGNOSIS OF CHRONIC TONSILLITIS IN
LATVIA IN 2012-2014, USED THERAPY**

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Key words. Subpopulations, tonsillitis, children, chryotherapy, tonsillectomy

Introduction. In the primary care sore throat is a very common reason for consultation. However, the cause of tonsillitis is not known in many cases. Relying on clinical presentation and history alone is unreliable in differentiating streptococcal from viral tonsillitis. The palatine tonsil is the organ of the first line of host defence against pathogenic agents, but also a place with recurrent chronic inflammatory processes and controversies in the treatment. Cryotherapy is the local use of low temperatures in the medical therapy. Its goal is to decrease cell growth and reproduction, increase cellular survival, decrease inflammation, decrease pain and spasm, promote the constriction of blood vessels.

Aim. The aim of this study is to explore and investigate correlation between cryotherapy, tonsillectomy, adenotomy and the children's age and the function of the children's immune system with the diagnosis of the chronic tonsillitis by analyzing changes in the number of lymphocyte subpopulations and to determine levels of the antistreptolysin-O.

To achieve the goal a retrospective study was carried out. The study included 132 patients (mean age 6,7 years) with the diagnosis of chronic tonsillitis, who were tested to determine lymphocyte subpopulations aberrations (in a period of 2012–2014 at Children Clinical University Hospital in Latvia). The obtained data was statistically processed with MS Excel and SPSS 20.0.

Results. 132 patients were enrolled in the study, the age ranged from 1,5 to 17,3 years. 34 of 50 patients, who were treated with cryotherapy, relieved that most of them had three phase cryotherapy. 11 of 50 patients received tonsillectomy, and 23 of 50 – adenotomy. Correlation analysis showed significant correlations between the children's age (0-7 years old) and cryotherapy. There was also significant correlation between the children's age

(0-7 years old) and adenotomy. But there was found no correlation between the children's age and tonsillectomy.

The results showed that CD4/CD8 relation 94% of all patients were in the reference interval, CD 19+ B cells 92%, CD16/CD56+ NK cells 95%, CD3+CD8+ T cells 93%, CD3+CD4+ T cells 94% and CD3+ T cells 94% of all patients were in the reference interval. While 32 patients (25%) had an increased number of anti – streptolysin O, that shows that the body is infected by Streptococci and it produces antibodies against the various antigens that the Streptococci produce.

Conclusions. In the present study we investigated the association of the therapy of chronic tonsillitis with the patient's age. We found that 0-7 year-old children were treated with cryotherapy and adenotomy more often with, but tonsillectomy was used similarly between all age groups.

Identification of lymphocyte subpopulation for children with the diagnosis of the chronic tonsillitis is not enough informative to be able to draw conclusions about changes in the action of the immune system.

GASTROESOPHAGEAL REFLUX DISEASE MANIFESTATIONS IN ENT ORGANS IN CHILDREN

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Key words. GERD, ENT disease, complaints, omeprazole

Introduction. Gastroesophageal reflux is the backward movement of gastric contents into the esophagus. During gastroesophageal reflux, the contents of the stomach and upper digestive tract may reflux all the way up the esophagus, beyond the upper esophageal sphincter, and into the back of the throat and possibly the back of the nasal airway. There are ear, nose and throat problems that are caused by reflux reaching beyond the esophagus, such as hoarseness, laryngeal nodules, croup, airway stenosis, swallowing difficulties, throat pain, and sinus infections. These problems require an ENT doctors - they treat many of the complications of GERD.

Aim. Explore and determine the ENT organ disease diagnoses, which is mainly attributed to gastroesophageal reflux disease. Identify the most common complaints of ENT organs, caused by gastroesophageal reflux

disease. Explore the frequency of the proton pump inhibitor (omeprazole) use of children with ENT diseases, which is due to gastroesophageal reflux.

Results. Of 108 patients which were enrolled in this study (mean age 8.9 years) with established gastroesophageal reflux disease most often has been presented in ENT organs following diseases: 52 patients has chronic tonsillitis, 20 - palatine tonsils hypertrophy, 9 - chronic laryngitis and laryngotracheitis as well as chronic pharyngitis, chronic rhinitis and chronic sinusitis. The most common complaints of ENT organs: often recurrent inflammation (tonsillitis, pharyngitis, laryngitis), chronic cough and runny nose, hoarseness, development of otitis media and asthma. These patients often has made adenoidectomy and tonsillectomy. 61% of all patients used proton pump inhibitors for the treatment of gastroesophageal reflux.

Conclusions. Gastroesophageal reflux disease has been considered as a serious risk factor in the development of ENT organs diseases in children.

THE INFLUENCE OF LIP AND LINGUAL FRENULUM ON THE DEVELOPMENT OF THE OCCLUSION

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Key words. Frenulum, diastema, ankyloglossia, occlusion

Introduction. Harmonic and aesthetic smile is everyone's dream. A lot of parents take their children to a dentist due to their own or child's wishes to improve the aesthetics, dental function and oral health. It is common that diastema is a cause of disharmonious smile, which is now turned from defect into effect by 21st century fashion industry. Moreover, an incorrect attachment of the frenulum can cause gum recession, diastema, improper teeth inclination and occlusion, loss of *papilla*, aesthetical, functional, speech, eating and psychological disorders. An incorrect attachment of the frenulum is just one of the reasons for improper occlusion and diastema. That is why before the final diagnosis is set, a detailed examination should be performed. The research paper is summarizing the indications for surgical frenulum treatment, to avoid incorrect occlusion afterwards, and points out the situations, when no treatment is necessary.

Aim. To summarize the information of the influence of lip and lingual frenulum on the development of the occlusion. To make a questionnaire to find

out the frequency of the situations in Latvia, when general dentists and dental hygienists recommend consultations with orthodontists and surgeons.

Results and conclusions. Hypertrophic, *papilla*-penetrating labial frenulum is frequently associated with maxillary diastema. The occurrence of the diastema in population during the growth reduces - frenulum from wide and thick becomes smaller and narrower, attaching more apically on alveolar ridge. Midline diastema occurs in approximately 97% of children with deciduous teeth, 48,8 % in early mixed dentition. But after the total eruption of permanent maxillary canines, occurrence of diastema is only 7-9,3%, that can be explained with incisor mesialization during the canine eruption. Diastema larger than 2 mm after canine eruption requires an active orthodontic treatment (orthodontic plate or braces). Surgical treatment is indicated in cases when there is no remodeling of the transseptal fibers. Postoperative retention is needed. Ankyloglossia is associated with tight, short and inelastic lingual frenulum, which limits the movements of tongue. Its occurrence in population is 0,1-1,7%, predominantly in males. Indications for surgical treatment can start with newborns (when frenulum affects breastfeeding) until children of school age (when ankyloglossia can restrict eating, speaking, other tongue functions and affect occlusion- inducing open bite, narrowing of maxilla, progeny of mandible and mandibular diastema). If the distance between the tip of the tongue and point of attachment of the lingual frenulum is 0-7/8 mm, surgical treatment is indicated. Very often (in 94%) children in Latvia have been referred to surgeon and/or orthodontist for consultations about surgical frenulum treatment. 51% of these consultations happen before the total eruption of permanent incisors and canines. Frequently surgical frenulum treatment is not indicated. Approximately in 1/4th of situations referrals should be made. Many dentists and dental hygienists do not pay attention to lingual frenulum while performing treatment.

THE MOST OFTEN REASONS FOR DENTAL APPOINTMENT

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Introduction. Under the newest guidelines regular dental visits should take place once every 6 months. It can help patients to save their oral cavity in good condition because of detection changes in early stages. In case of pain or other disturbing changes it's necessary to go to dentist as soon as possible.

Aim. The aim of the study was to assess the most often reasons for dental appointment.

Materials and methods. The information were obtained with a authors' survey. 330 questionnaire forms were filled in by patients of Specialistics Clinics in University Hospital in Białystok. First of all authors received a permission from Bioethical Commission. Data was analyzed with Statistica 10.0 (Ch² Pearsona Test; $p < 0,05$).

Results. 167 patients attended for dental checkup (117 ;57,07 % W; 50; 40 % M). Statistically more women than men were interested in dental checkup ($p=0,003$). Till 100 patients (58; 28,29 % W, 42; 33,6 % M) visited dentist only if they had tooth pain. The reason for dental visit of 20 patients (10; 4,88 % W, 10; 8 % M) was problem with periodontium (eg. bleeding). Other disturbing oral cavity states were reason for dental appointment only 6 patients (4; 1,95 % W, 2; 1,6 % M). No statistical relationship between last three tips was found.

Conclusions. Women more often than men are made dental checkup. Men more often than women go to the dentist only when enormous pain was occurred. The oral cavity problems, such as bleeding, or other disturbing states are rare reasons for dental appointment.

DIAGNOSTIC POSSIBILITIES FOR MALIGNANT ORAL TUMORS

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Key words. Maxillofacial surgery, oral cancer, oncology and diagnostics.

Introduction. This review describes the diagnostic options and the importance of early diagnosis for oral tumors. 90% of all oral tumors are squamous cell carcinoma. Oral and pharyngeal cancer, grouped together, is the 6th most common cancer in the world. As many as 275 000 people will be diagnosed with oral cancer, but only approximately 57% will reach 5-year survival. The lifetime risk of developing oral and pharyngeal cancer in Europeans is estimated at 1.85% for men and 0.37% for women. These numbers vary from country to country depending on the economic state and various different factors that affect incidence. Early detection is key for better survival rates and less invasive treatment options.

Aim. To describe the importance of early detection and to identify the best diagnostic options for malignant oral tumors.

Results. We identified the best and most reliable tests for early detection and diagnosis of intraoral squamous cell carcinoma. Clinical examination, cytopathology and histopathology remain the “gold standard” for the detection of oral cancer in Latvia. Additional tests proposed as adjuncts to the oral cancer screening examination include toluidine blue dye staining, chemiluminescent and autofluorescent lighting devices. Radiological imaging is an indispensable test used for diagnostics and treatment planning and is used in 90 % cases. Some studies suggest HPV testing should be done before deciding a treatment plan. Although there are other methods for early tumor detection other than visual examination, no single method for screening seems to be applicable and cost effective in the general population.

Conclusion. It is very important to identify premalignant lesions in this region because treatment options during this stage are much less invasive. Many factors are important for improvement of survival rates, such as early detection, multiprofessional approach, regular clinical examinations and risk factor detection. Based on the fact that no screening method is cost effective,

clinical intraoral and extraoral examination, during dentist and general practitioner visits, plays a large role in early detection.

INFLUENCE OF DIFFERENT MEDICINE ON TEETH AND ORAL HEALTH

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Key words. Adverse drug reactions, drug induced, drug effect, effect of medications.

Introduction. Nowadays a wild range of medicines is used and some of it can cause undesirable changes in oral cavity, worsening oral function, comfort and quality of life. The influence can be observed in the oral mucosa, salivary glands, periodontal tissue, dental or alveolar bone (Spolarich, 2014; Seymour RA, 2008). Sometimes this expression is not notable, but often can be seen as a lesion of mucosa. Pathogenesis of these changes is mostly uncertain, but patient's general health problems, pharmacological activity of used medication, toxic interactions of other drugs and genetic diseases are predictably a major influencing factor (Femiano et al, 2008). Medicine's undesirable effects on the oral tissue can be divided into two groups- A and B. 80% of A- group medicine has an expected way of expressions, because their pharmacological activity is predictable. But 15-20% of B-group medicine include drugs that have caused complications, are previously conducted unexpected or unexplained toxic screening tests and are not found to be related to imunulogical or non-immunological processes (Femiano et al, 2008, Seymour, 2008). People often talk about changes in taste or dry mouth feeling, but many complications in the form of both oral mucosa tissue and the teeth and jaw bones are left neglected (Scully et al, 2004). Every specialist who prescribe some form of medication, must be aware of the risk of complications and should see seeing the organism as a whole, remembering also about the oral health (Tredwin et al, 2005). A lot of patients with health problems should take more than one drug that has impact of the oral and dental health (Cope, 2011). The patient should understand that all drugs can cause undesired effects on the organism, even if it is used at recommended doses and indications.

Aim. 1) Detailed view of scientific literature - the effects of drugs on the oral tissues. 2) To explore and collect data about commonly used drugs in Latvia during the last five years and their impact on oral health.

Conclusions.

1. It has been proven, that medication cause adverse effects on oral and dental health- it may be predictable, unpredictable or even unexplained;

2. In the treatment of chronic diseases, it's important to inform the patient about possible adverse drug reactions and to require regular inspection of the oral cavity;

3. The most common diseases in the world and Latvia- cardiovascular diseases, treatment can cause almost any possible changes in the oral cavity over a long period of time.

4. Some of the complications can be prevented by stopping the use of the drug. Adverse reactions in the oral cavity may be irreversible, timely undiagnosed- even fatal;

5. Non-prescription drug sales have reduced in last five years in Latvia, while prescription drug sales have increased. It provides greater patient control when using the medication.

OUTCOMES OF MICROSURGICAL APICOECTOMIES: RETROSPECTIVE STUDY

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Key words. Apical microsurgery, outcome, prognostic factors.

Introduction. Apical surgery often is the last option in maintaining the endodontically treated tooth with persisting or emerging periapical pathology. The success rate of microsurgical endodontics in the literature is found about 80-90%. Certified endodontists in RSU Institute of Stomatology in Riga have been performing microsurgical apicoectomies for several years, however there is a lack of data about the results of this procedure. The retrospective study conducted in Latvia in 2012 has concluded that the result of the apical surgery is 73,5%, but the analysis of the data was limited and therefore the need for further research on this issue is indicated.

Aim. To determine results and potential prognostic factors of the microsurgical apicoectomies performed in RSU Institute of Stomatology, Department of Endodontics.

Results. The data on 45 patients that had undergone the apical surgery in the Department of Endodontics, Institute of Stomatology, RSU during the period from 2009 to 2014 were collected. Thirty-six patients with 57 resected teeth were included in the study to determine the results of performed apicoectomies. The mean age of the patients was 39,8 years (22 to 76) and the mean follow-up period was 26 months (5 to 62). The most of the teeth (89%) were located in maxilla and almost all of them were anteriors - incisors or canines. The success rate in this study was 80,7%, and all of the teeth that have been extracted due to the reasons not related to healing were excluded from this study. In the cases with a short follow-up period healing was detected in 90%, whereas in the long-term group (> 3 years) only in 59%. Twelve different factors have been analysed in relation to the healing, but only the quality of coronal restoration has been proven to have the statistically significant impact ($p=0,023$) on the outcome.

Conclusions. The success rate of the apicoectomies performed by endodontic specialists in the clinic in Latvia for the anterior teeth is 80,7%, however the short-term observation after apical surgery may overestimate the prognosis and healing potential because of the risk of regression. In this study the quality of coronal restoration has been found to be a statistically significant factor that affects the outcome. There is an urgent need for further research on the outcomes of apical microsurgery and prognostic factors at high-level evidence.

CONNECTION OF THE FUNCTIONAL QUALITY OF REMOVABLE DENTURES AND PATIENTS SPEECH ADAPTATION

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Keywords. Dentures, speech, phonetic adaptation, self-evaluation

Introduction. Speech is the most important form of communication in society; its impairment may lead to psychological and social problems. Rationally designed removable prosthesis, made with respect of individuals phonetic needs improves the patient's quality of speech, accelerates the patients phonetic adaptation. However ill fitted, technically defective removable dentures with incorrect artificial teeth arrangement will reduce oral

cavity volume, restricts exhaled air flow, and restrains the movement of the tongue, thus disturbing speech sounds production.

Aim. The aim of the study is to investigate the influence of dentures functional quality on patient's speech quality.

Method. 100 (age range 28-83) patients were surveyed, forming 3 groups: Control - patients with natural dentition (n=50), from the experimental group (n=50) subgroups were formed (28 patients with adequate, 22 patients with inadequate functional quality of removable dentures). The speech samples were video recorded (Sony 610 HD). The approval of the Committee on Research Ethics was obtained (RSU/29.03.2012). Speech quality evaluation protocol (approved by Latvian Association of Audiology and Speech pathologists 13.06.2013). The quality of dentures was assessed using the modified version of previously published protocol. The data were analyzed with a statistical software package (SPSS 20.0, SPSS Inc. and MS Excel). Used the significance level $\alpha=0,05$.

Results. One or more alterations in speech quality were detected in 58% (n=29) of patients with removable dentures and in 30% (n=15) of control group ($p=0,005$). The most frequent alterations in dentures quality was absence of correspondence between the base and anatomy of oral cavity, which appeared due to alveolar ridge atrophy (47%), followed by insufficient retention of the denture (16%), fractures of denture base or artificial teeth (12%), as well as ulceration (11%). Speech was distorted in 40% of patients using clinically inadequate dentures (22 of 50), whereas 25% ($p_K = 0,008$) of the patients with adequate denture (28 no 50) showed changes in speech production, as compared to 12% ($p_K < 0,001$) of the control group. It appeared that the presence of denture significantly alters the functional behavior of facial region muscles. 75% (n=21) patients with adequate were satisfied with the health condition of oral cavity and 36% with clinically inadequate dentures expressed satisfaction ($p_K=0,139$). Patients with adequate dentures were satisfied with their speech quality in 96% (n=27) ($p_K=0,674$) and 98% out of control group, whereas 41 % (n=9) ($p_K<0,001$) with inadequate dentures expressed satisfaction.

Conclusion. Alterations of speech quality were detected in two thirds of all patients with dentures and in one fifth of the controls group. The functional quality of prosthesis is closely related to the quality of speech production and has great impact on patient's subjective evaluation. Patients with clinically appropriate dentures perceive their oral cavity health condition as slightly worse than individuals from the control group, however almost twice as good than patients with inadequate dentures.

FREQUENCY OF OLFACTORY DISORDERS AMONG SWIMMERS INDUCED BY CHLORINATED WATER

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Key words. Sense of smell, swimmers, chlorine

Introduction. Chlorine is an irritant substance that is added to swimming pool water, it kills microorganisms. Swimming generally has a beneficial effect on the human body, however swimming in chlorinated water can have a negative impact on health. Chlorine can affect the sense of smell, causing olfactory disorders.

Aim. To assess the frequency of olfactory disorders occurrence among competitive swimmers and to rate chlorinated swimming pool water effects on swimmers' sense of smell.

Results. The study involved 43 swimmers, 35% (n = 15) women, 65% (n = 28) men. The average age was 18.4 ± 3.6 years. Swimmers were engaged in swimming for at least five years. Of the respondents, 90.7% subjectively evaluated their sense of smell as normal, 4.7% as reduced and 4.7% as increased. Comparing the olfactory test results with standardized results according to age, it was observed that 2.3% of swimmers' sense of smell corresponded to the norm, 58.1% had small olfactory disorders and 39.5% had moderate olfactory disorders. Comparing the olfactory test results before and after a workout, the sense of smell was unchanged to 46.5%, results were worse than before to 14% and results improved 39.5% of swimmers ($p = 0.01$). After swimming workout 47% of swimmers who had rhinitis at the test execution time had better results than before the workout ($p = 0.035$).

Conclusions. Long-term (> 5 years) swimming in a pool with chlorinated water has negative impact on sense of smell, causing mild to moderate olfactory disorders. One swimming pool attendance does not adversely affect the sense of smell. For those who have rhinitis, the sense of smell improves after visiting the swimming pool.

POST-TONSILLECTOMY HEMORRHAGE CASE STUDY ANALYSIS AT PAULS STRADIŅŠ CLINICAL UNIVERSITY HOSPITAL ENT CLINIC IN 2012-2014

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Key words. Tonsillectomy, complications, hemorrhage, risk factors.

Introduction. Tonsillectomy is one of the oldest and most common surgical procedure in otolaryngology. Indications are recurrent tonsillitis and peritonsillar abscess. Although tonsillectomy is relatively simple procedure, there are number of complications, such as – pain, dehydration, bleeding, sleep apnoe, swelling, infection. Post- tonsillectomy hemorrhage (PTH) remains the most serious one, occurring at a rate of 0,28% - 20%. Post-tonsillectomy hemorrhage could be classified into primary (<24h) and secondary (>24h). There have been number of risk factors for post-tonsillectomy hemorrhage documented in literature – age (> 40 years), male gender, cigarette smoking, warm seasons of the year when patient undergo their surgery, length of surgical procedure, arterial hypertension, peritonsillar abscess as indication. Even though we are considering these risk factors, it is hard to predict the outcome of the patients.

Aim. Describe the rate of secondary post-tonsillectomy hemorrhage and analyze patients clinical characteristics and potential risk factors for PTH.

Results. Retrospective chart review in Pauls Stradiņš Clinical university hospital, Latvia between January 1, 2012 and December 31, 2014 out of 725 patients undergoing tonsillectomy, secondary post-tonsillectomy hemorrhage occurred in 50 (6,9%) patients, aged 17-77 years (mean 29,5). There were 25(50%) female and 25 (50%) male in this study. Bleeding occurred between one and twenty-six day after an operation, peaking at sixth day post-operatively. Evaluating season of the year when bleeding occurs, results showed that February (16%), August (12%) and December (12%) had the most number of bleeds. Out of 50 patients with PTH, information about smoking was obtained in 24 cases, following 16 (67%) smokers, 8 (33%) non-smokers. Also out of 50 patients with PTH, data about indications for tonsillectomy, was gathered in 22 cases, following peritonsillar abscess 3 (13,6%), chronic tonsillitis 3 (13,6%), peritonsillar abscess combined with chronic tonsillitis 13 (59,1%) and chronic tonsillitis & adenotomy & nasal septum deviation & chronic rhinitis 3 (13,6%).

Statistically significant difference ($p < 0,05$) was found when comparing patient BMI (found in 17 cases of 50) and postoperative day when bleeding occurs.

Results show the higher BMI, the earlier bleeding episode happens. Also, patients who had elevated C-reactive protein (found in 20 cases of 50) significantly bled in earlier days from an operation than those who had not ($p < 0,05$).

Conclusion. The rate of secondary post-tonsillectomy hemorrhage was 6,9%. According to our study, the high-risk patient for post-tonsillectomy bleeding is one with an increased BMI and increased C-reactive protein. The most common time for the post-tonsillectomy bleeding is the sixth day after a surgery. The highest incidence of bleeding after tonsillectomy is on February.

THE ANALYSIS OF THE MOST COMMON INDICATIONS AND COMPLICATIONS OF TONSILLECTOMIES IN PAULS STRADINS CLINICAL UNIVERSITY HOSPITAL

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Key words. Tonsillectomy, indications, complications

Introduction. Tonsillectomy is a surgical procedure when the extirpation and resection of one or both tonsils are performed. The most common indication for a tonsillectomy is the necessity to avoid chronic infection, which focus is situated in the tonsils (the treatment of chronic tonsillitis). In the first stages, chronic tonsillitis could be successfully treated pharmacologically. However, the positive results cannot always be achieved, and the surgical treatment may be necessary.

Aim. The aim of the study was to summarize the most frequent indications for tonsillectomy, complications of tonsillectomy and patient profile by analysis of patient medical histories in Pauls Stradins Clinical University Hospital, Otorhinolaryngology clinic in year 2014.

Results. From 208 patients, 110 were men (53%) and 98 women (47%). Median age for women was 35,99 years, for men- 30,72 years. Median patient age was 33,19 years. Average time in the hospital- 3,13 days. The main diagnosis was chronic decompensated tonsillitis- 170 patients, chronic subcompensated tonsillitis- 17 patients, chronic tonsillitis without a

specification- 9 patient, acute tonsillitis- 8 patients, chronic tonsillopharyngitis- 3 patients and chronic compensated tonsillitis- 1 patient. Bilateral tonsillectomy was performed in 166 cases (79,8%), in one case there was only left side tonsillectomy done (0,48%). For 40 patients (40%) bilateral tonsillectomy was a planned procedure as well as the only one unilateral tonsillectomy (0,48%). As an acute procedure, the tonsillectomy was performed for 60 patients because of the unilateral peritonsillar abscess, but six patients had bilateral peritonsillar abscesses (2,9%). Postoperative complications had 170 (82%) patients. The most common complaints were following: 70 (34%) patients had dry throat, discomfort in the throat, 47 (23%) patients had pain in the throat, 51 (24%) patients had swallowing difficulties, 1 (0,48%) patient had bleeding, 1 (0,48%) patient had temperature 38,1°C.

Conclusions. Most of cases tonsillectomy were done as an acute surgery because of the complications of chronic tonsillitis. There were no significant complications after both- planned and acute surgeries. By increasing tonsillectomy rate as a planned procedure, it would be possible to avoid complications of chronic tonsillitis.

SURGICAL TREATMENT OF SECRETORY OTITIS MEDIA IN CHILDREN'S UNIVERSITY HOSPITAL 2012-2014

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Introduction. Otitis media with effusion (OME) is one of the commonest conditions of childhood. Approximately 80% of children suffer from OME at some point before reaching school age. It can lead to conductive hearing loss. While hearing loss can lead to delayed speech and language development. Many treatment options are available medical as well as surgical. Well known surgical options are - paracentesis or myringotomy, tympanostomy and their combinations with adenoidectomy.

Children in whom OME persists after 3 months may require action which include surgery.

Aim. To gather latest data of surgical manipulations in Children's University hospital, Latvia and compare it to previous statistical research data made in 2010. Also obtain differences between age groups and sexes. As well

as explore mutual dynamics of surgical manipulations used in treatment of secretory otitis media.

Results. There were collected data about 738 operations performed in Children's Clinical University Hospital during time period from 1st November of 2012 to 31st January of 2014 and compared it with 821 same operations in period of time from 31st October of 2008 to 31st December of 2009.

Results shows that there is 4,6% decrease in number of manipulations used in treatment of OME. There was also statistically significant differences between age groups ($p < 0,001$), with over 60% of all manipulations done in two age groups (3-4 and 5-6 years).

According to our data, surgical treatment of secretory otitis media is done more frequently in males (56.7%) than females (43.2%). There are no significant differences between sexes and exact manipulations performed.

Reviewing changes of number of manipulations, the most rapid decrease (28%) since 2009 is in number of myringotomies. There is also decrease in tympanostomies (25,5 %).

Considerable decrease is seen in number of myringotomies combined with adenoectomies (20,2%). The less prominent changes we can observe in combination of tympanostomies and adenoectomies (13,2%).

The latest data and analysis about year 2014 will follow in poster presentation in RSU International Student Conference 2015.

Conclusion. Surgical manipulations to treat OME are decreasing comparing with previous data. More often done in age groups of 3-4 and 5-6 years. Myringotomies has the most remarkable decrease.

Cases of surgical treatment of OME decreases due to improvement of conservative and etiological therapy.

PREVALENCE OF LARYNGOPHARYNGEAL REFLUX DISEASE BETWEEN PSCUH ENT OUTPATIENT CLINIC PATIENTS AND THERAPY EFFICIENCY

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Key words. Laryngopharyngeal reflux disease. Gastroesophageal reflux disease. Proton pump inhibitors.

Introduction. Laryngopharyngeal reflux disease (LPR) is characterized by situation when the acidic content of the stomach pass in laryngopharynx and comes in contact with tissues of the upper aerodigestive tract. The main LPR manifestation: reflux- induced cough, reflux- induced laryngitis, reflux- induced asthma and reflux- induced choking. The main symptoms are: hoarseness, throat clearing, choking sensation, dysphagia, dysphonia and excessive mucous. It is considered that LPR is defined as an extraesophageal variant of gastroesophageal reflux disease (GERD), but the recent literature shows that LPR can pass without GERD, linking the effects of various factors on vagovagal nerves irritation, contributing to the development of the symptoms. According to the statistics, LPR is diagnosed to approximately 10% of all ENT clinic patients, but overall in world prevalence varies by 10-20%, as well as 50% patients, who come to ENT clinic with complaints about voice disorders, are diagnosed LPR. Laryngopharyngeal reflux commonly affects women. The average age of onset is 57.

Aim. To find out LPR prevalence between PSCUH patients, who have visited ENT outpatient clinic in November 2014 and compare resulting data with average data in the world. Obtain information about the outpatients' complaints, the objective finding, other diagnosis, as well as the prescribed treatment and effectively.

Materials and methods. There were surveyed 355 patients' clinic cards, which have been registered in November 2014 in ENT outpatients' clinic. In addition there was collected clinical data about those patients that included information about other diagnosis and prescribed therapy. Processing and calculations of data was carried out by using *IBM SPSS Statistics 22* programme.

Results. Relying on monitored ENT outpatients clinic patients' cards, 5,9% (n = 21) of patients were diagnosed LPR. 71% (n = 15) of them were women, but 29% (n = 6) were men. The mean age of patients was $53,6 \pm 14,9$ years (women- $51,2 \pm 16,6$, men- $59,5 \pm 7,6$). 42,9% (n = 9) of patients were diagnosed GERS. 95,2% (n = 20) of patients have had appropriate medical therapy, all receiving proton pump inhibitors (PPIs). The most common patient complaints related to discomfort in throat (42,9%, n = 9) and hoarseness of voice (23,8%, n = 5).

Conclusions. Overall it can be concluded that prevalence between gender and average age do not differ significantly from average rates in the world, although the common prevalence is relatively lower than the average in the world. Relatively small proportion of patients has been diagnosed with GERS, which might suggest that the LPR manifestations may pass without the prior or existing GERS.

SESSION VIII

ANAESTHESIOLOGY, REANIMATOLOGY, TRAUMATOLOGY, ORTHOPAEDICS, RADIOLOGY

THE USE OF INOTROPIC SUPPORT AFTER OPEN CARDIAC SURGERY

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Key words. Inotropic medication, cardiac surgery, EuroSCORE II.

Introduction. According to the data of the Latvian center for cardiac surgery in the year 2014 there have been done 1089 surgical interventions (revascularizations, valvular operations) using cardiopulmonary bypass. Despite improvements in surgical technique and myocardial protection, many adult patients require temporary inotropic support for low cardiac output after open cardiac surgery.

Aim. Evaluation of the effectivity and reasonability of the use of inotropic support after open cardiac surgery.

Material and Methods. 54 patients after open cardiac surgery in the period of 26 January till 6 February 2015 were included in the investigation. Patient mean age was 65,35 years (SD 11,18), mean cardiac output was 55,98% (SD 9,89%), the median EuroSCORE II – 1,46% [0,55; 14,78]. 3 groups were organized according to application of inotropic medication and its concentration. The following indications were compared: the basic condition of patient; time of cardiopulmonary bypass (CPB) and aorta occlusion (AO); metabolic indications characteristic to hipocirculation; results of heart failure monitoring and spent time of patient in intensive care unit (ICU). Also a

control group was included with patients who did not receive the inotropic treatment.

Results. The patients of group 2 received short timed support of tiny doses noradrenalin or dobutamin. Their basic indications and analyzed data did not differ statistically relevant from the control group. Patients of group 3 who were treated with average or high doses of inotropic substitution had difficult preoperative status (EuroSCORE II (4,38% vs. 2,50% vs. 2,17%, $p=0,067$)), longer CPB (146 vs. 98 vs. 84 minutes; $p<0,001$) and AO time (100 vs. 67 vs. 60 minutes; $p<0,001$), more pronounced metabolic changes of heart failure with the following longer intubation (14h 55min vs. 5h 25min vs. 4h 1min; $p=0,106$) and ICU time (4,13 days vs. 1,00 day vs. 1,08 days; $p<0,001$). Between group 1 and group 3 a statistically relevant difference was observed regarding lactate levels 2-3 hours ($p=0,029$) and 5-6 hours ($p=0,003$) after surgery.

A statistically relevant, positive correlation was observed between patient group and CPB ($r_s = 0,513$, $p<0,001$). There was also a statistically relevant positive correlation between patient group and length of patients stay in ICU ($r_s = 0,739$, $p<0,001$).

Conclusions. The necessity for inotropic support after open cardiac surgery is determined by patient's preoperative cardiac function and accompanying diseases.

RADIOLOGICAL PROXIMAL DIAPHYSEAL FEMORAL MORPHOLOGY IN CANDIDATES FOR THE FIRST-TIME TOTAL HIP REPLACEMENT

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Key words. femoral hip morphology, radiology, replacement

Introduction. Proximal diaphyseal femoral morphology is an important factor for a choice and design of hip endoprostheses and other kinds of implants.

Aim. To study radiological proximal diaphyseal femoral morphology in preoperative patients admitted to Hospital of Traumatology and Orthopaedics (HTO) for the first-time total hip replacement (THR).

Methods. Patients (X.2014-II.2015 time period) were interviewed, informed participation consent was received. X-rays were obtained from HTO data base and analyzed in CAD software. Statistical analysis: SPSS 22; CI = 95%, 2-tailed.

Results. Statistics are displayed as median [1st quartile; 3rd quartile; min-max], median [1st quartile; 3rd quartile], % (number of cases). Population (n=37): woman 59.5%(22), man 40.5%(15); age 67[58.50; 74; 46-79], body mass 84[71; 96; 55-125]kg, height 168[165; 173.5; 155-185]cm. Man were statistically significantly younger, heavier and taller compared to woman: age 62[55; 70] vs. 71[59; 75], ($p=0.024$); body mass 94[79; 101] vs. 78[69; 87],($p=0.003$); height 175[170; 178] vs.167[164; 168], ($p<0.001$). Were studied 74 femur + hip joint RTGs in AP projection. Joints by Kellgren-Lawrence (K-L) scale (zero to 4th grade): 4.1%(3), 16.2%(12), 10.8%(8), 39.2%(29), 29.7%(22). Osteometrics 3 cm below the middle of the lesser trochanter: bone width (3BW) 29.1[27.5; 30.8; 24.1-34.3]mm, medullary cavity width (3CW) 17.2[15.8; 19.4; 12.2-23.7], lateral cortex (3LC) 5.6[4.7; 6.5; 1.4-8.2], medial cortex (3MC) 5.8[5.1; 6.9; 1.8-9.3], cortical index (3CX) 0.408[0.343; 0.456; 0.123-0.545]. And 10 cm below the middle of the lesser trochanter: 10BW 27.3[25.5; 29.1; 23.4-32.1], 10CW 12.3[10.9; 14.3; 8.3-20.9], 10LC 7.6[6.6; 8.4; 1.5-10.9], 10MC 7.1[6.3; 8.1; 1.7-9.8], 10CX 0.543[0.495; 0.592; 0.138-0.694]. Median calcar-to-calcar (CC) ratio 0.63[0.57; 0.73; 0.43-0.86]. Femora by Dorr type (A,B,C): 5.4%(4), 74.3%(55), 20.3%(15). Random errors: direct RTG measurements = 0.3 mm; CX = 0.008; CC = 0.02. THR was planned on right side in 54.1%(20) of patients, on left - in 45.9% (17). K-L grades on THR side (3rd 48.6%(18), 4th 51.4%(19)) were significantly higher ($p<0.001$) than on the contralateral side (zero grade 8.1%(3),1st 32.4%(12), 2nd 21.6%(8), 3rd 29.7%(11), 4th 8.1%(3)). No s.s. differences in osteometrics were found neither between right and left femora, nor between THR and contralateral side femora. Cortical layers were s.s. thinner in woman compared to man: 3LC 5.3[4.4; 6.2] vs. 6.1[5.3; 6.6], ($p=0.044$); 3MC 5.6[4.4; 6.4] vs. 6.7[5.6; 7.3], ($p=0.005$); 10LC 7.2[6.3; 7.7] vs. 8.1[7.6; 9.2], ($p<0.001$); 10MC 6.8[5.9; 7.3] vs. 7.9[6.9; 8.5], ($p<0.001$); 10CW 13.6[11.6; 15] vs. 11.2[10.5; 12.6], ($p<0.001$); CC 0.69[0.6; 0.78] vs.0.58[0.54; 0.63], ($p<0.001$). 10CX negatively correlated with age ($r= -0.293$; $p=0.011$), but positively with body mass ($r=0.311$; $p=0.007$) and height ($r=0.274$; $p=0.018$).

Conclusions. Proximal diaphyseal femoral morphology does not have significantly difference between individual's legs. Cortical bone thickness is lower in woman compared to man. Cortical bone index, measured 10 cm

below the middle of the lesser trochanter, negatively correlates with age, but positively with body mass and height.

INFLUENCE OF RECOMMENDATIONS FOR SEVERE ACUTE PANCREATITIS TREATMENT

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Key words. Severe acute pancreatitis, recommendations, treatment, survival.

Introduction. Acute pancreatitis is the one of frequent gastroenterological disease and severe acute pancreatitis has a potential of leading to death, no matter recent advances in diagnostic imaging and intensive care. Morbidity of acute pancreatitis in Lithuania is 113/100000. Severe acute pancreatitis develops for 10- 20 % patients and 29- 43 % of them dies. Fifty patients diagnosed with acute pancreatitis at the Republic Vilnius University Hospital from 2010 to 2013 were included in the study. 64% of them died.

Aim. Assess whether following of recommendations has an influence for severe acute pancreatitis outcome. American College of Gastroenterology released the new guideline of management of acute pancreatitis in 2013 and how it matches in clinical practise nowadays.

Results. There were 38 men (60%) and 12 women (24%). The mean age was 54 ± 17 years (20- 93 years). 22 of patients (44%) had idiopathic pancreatitis, 19 patients (38%) had alcohol-induced acute pancreatitis, 9 patients (18%) had acute pancreatitis related to gallstones. The mean APACHE II score for 24 hours was 11 ± 4 , α - amylase concentration 1400 ± 1570 U/L. Systemic Inflammation Response Syndrome first day in ICU identified for 37 patients (76%). The patients were transferred to the ICU on 1- 34 hospital days. The mean duration of treatment in ICU were 12 ± 15 days. Mechanical ventilation period for ventilated patients were 6 ± 8 days (1- 39 days). ERCP was done for 11 patients that suspected bile ducts obstruction. Enteral nutrition applied for 26 patients. With reference to recommendations: ultrasound of abdomen was done for 100% patients, CT scan at first 48- 72 hours in a hospital was done for 6/27 patients (22%), and performing CT scan regardless

the time– survival was better (16 (59%) vs. 2 (9%)), $p < 0,001$. Aggressive infusion therapy applied for 33 patients (69%), but it did not matter for outcome of disease (14 (42%) vs. 4 (27%)), $p > 0,05$. Antibiotic prophylaxis applied for 21 patients (42%). Twenty patients with infected pancreas necrosis were operated but just 4 of them had surgery later then 4 weeks of illness.

Conclusion. Patients' age, sex, etiology of disease, APACHE II scale evaluation at first day in hospital, SIRS first day in ICU, time when patients get in to ICU, treatment in ICU and mechanical ventilation times, ERCP and enteral nutrition application did not have a significant influence for outcome of disease. Received data did not approve that aggressive infusion therapy at first 12 – 24 hours in ICU, surgical treatment application not earlier then 4 weeks had a value for outcome of disease. Just CT scan was significant for survival.

SUPERIOR MESENTERIC ARTERY SYNDROME: RADIOLOGICAL IMAGING BY USING THE BARIUM RADIOGRAPHY

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Key words. Superior mesenteric artery syndrome, barium radiography, duodenal compression.

Introduction. Superior mesenteric artery (SMA) syndrome is a relatively rare gastrointestinal disease, characterized by compression of the third or transverse part of duodenum by the superior mesenteric artery. Compression results in complete, partial or intermittent duodenal transit delay. In patients with SMA syndrome at the level of duodenum the aortomesenteric distance is reduced to 2-8 mm (normally 10-28 mm) and the aortomesenteric angle is narrowed to 6-15° (normally 25-60°). Predisposing factors are mainly conditions, that are associated with a reduction in mesenteric and retroperitoneal fat tissue. The diagnosis is based on clinical symptoms and duodenal compression, confirmed by radiological imaging. Main imaging modalities are barium radiography and CT or MRI angiography. In case of the severe disease several complications can occur – dehydration, electrolyte imbalance, gastrointestinal bleeding, gastric and duodenal ulcer.

Aim. The goal of this study was to explore the use of barium radiography for the diagnosis of SMA syndrome.

Results. A retrospective review of all medical records of patients with SMA syndrome in Riga East University Hospital, Latvia, between January 2010 and December 2014 was performed. Twenty four patients, 16 female (71%) and 7 male (29%), with a mean age of 32 ± 14 years ($p < 0.05$) formed the study group. On admission all patients presented with characteristic symptoms of intermittent duodenal obstruction, 8 patients (33%) reported a significant weight loss during the last few months. In 2 cases the SMA syndrome caused the irritation of pancreas, confirmed by blood biochemistry and abdominal sonography. All 24 patients underwent a transabdominal sonography, 19 patients (79%) - a gastroduodenoscopy, in 9 patients (38%) an abdominal X-ray and in 4 patients (17%) an abdominal CT was performed. 23 patients underwent the barium radiography study, which showed dilatation of the first and second portions of the duodenum; extrinsic compression of the third part by superior mesenteric artery; retention or antiperistaltic flow of barium proximal to the compression; delayed transit through the compression site; all findings confirmed the diagnosis of the SMA syndrome. In 2 patients (8%) a sonography of the abdominal aorta and superior mesenteric artery was performed, measuring the aortomesenteric distance and angle, confirming the diagnosis. Twenty four patients were discharged after mean hospitalization duration of 5 ± 2 days ($p < 0.05$).

Conclusion. The SMA syndrome is a relatively rare condition, which nevertheless requires prompt diagnosis and management. The diagnostic work-up is complex and includes an assessment of the clinical symptoms, gastroduodenoscopic and radiological studies. Barium radiography is an effective and highly informative method for the diagnosis of SMA syndrome. Sonography of the abdominal aorta and superior mesenteric artery, as well as CT and MRA can be used as additional diagnostic methods.

MAGNETIC RESONANCE ENTEROGRAPHY AND DIFFUSION WEIGHTED WHOLE BODY IMAGING WITH BACKGROUND BODY SIGNAL SUPPRESSION (*DWIBS*) SEQUENCE IN CROHN'S DISEASE DIAGNOSTIC

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Key words. MR enterography; DWIBS MRI; Crohn's disease

Introduction. In last fifty years morbidity with Crohn's disease has increased for both adults and children. Optional method of investigation for patient with suspicion for Crohn's disease is ileocolonoscopy with morphological examination. This method allows to evaluate limited part of small bowel and to visualize only intestinal mucosa. However, Crohn's disease affects all layers of bowel wall. Relying only on results of endoscopy it is possible to hypodiagnose inflammatory process thus delaying Crohn's disease treatment. Magnetic resonance enterography (MRE) has high resolution and it allows to visualize tissues across entire intestinal wall. In recent years diffusion weighted imaging (DWI) sequence is increasingly and successfully used in Crohn's disease assessment. This sequence highlights areas with limited diffusion (including edema in bowel wall). Diffusion weighted whole body imaging with background body signal suppression (DWIBS) sequence is considered to be more sensitive than DWI in diagnosis of oncological pathologies. Nevertheless there is no data about DWIBS sensitiveness in diagnosis of inflammatory bowel disease.

Aim. The aim of study is to evaluate MRE DWIBS importance in diagnosis of Crohn's disease. Seven patients with Crohn's disease in the age from 14 to 74 years were examined by MRE (1,5-T multichannel WB-MR scanner) in time from 1th of May 2014 to 5th of February 2015. Suspicious bowel areas with features of inflammation, local high signal enhancement (SE) in DWIBS images were marked.

Results. Only for one patient with Crohn`s disease high SE was detected in loops of *jejunum* and *ileum*. High SE in terminal ileum were found in two patients, in terminal ileum and *caecum* - in 2 patients, in terminal ileum and *colon sigmoideum* - in 2 more patients.

Conclusions. The study shows that MRE with DWIBS sequence is new, sensitive and appropriate method for accurate evaluation of inflammation location and extent.

THE IMPACT OF VARIOUS MANEUVERS ON VISUALIZATION OF INTERNAL JUGULAR VEIN

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Key words. internal jugular vein, ultrasound, cross-sectional area.

Indroduction. Internal jugular vein is one of the top sites for central venous access in critical care. Ultrasound guided technique is a “gold standard” for catheterization despite of that sometimes it is still performed according only to anatomical landmarks. Larger cross-sectional area (CSA) of internal jugular vein (IJV) increases chances of successful catheterization.

Aim. The aim of this study was to identify maneuvers that give the highest increase in cross-sectional area of internal jugular veins.

Methods and results. A prospective study of 63 healthy volunteers took place from 2014 11 06 to 2015 01 21. Two-dimensional ultrasound images of right IJV (RIJV) and left IJV (LIJV) were recorded at the level of the cricoid cartilage in a supine position both - with head in neutral position and 30-degree rotation during resting inspiration hold, hold of deep breath, resting and forced expiration hold, abdominal compression of 10 kg, 30-degree bed head elevation, 45-degree leg lift and 10-degree Trendelenburg position. The CSA was measured on still images.

Mean CSA of RIJV and LIJV were $0,78\pm0,51\text{ cm}^2$ and $0,49\pm0,31\text{ cm}^2$, respectively ($p<0,001$) in supine position with head in neutral position. The CSA of RIJV and LIJV in a neutral position of head increased during deep breath ($p<0,001$ both), 45-degree leg lift ($p=0,016$, $p<0,001$ respectively) and Trendelenburg position ($p<0,001$ both) vs. no maneuvers. Abdominal compression of 10 kg showed increased CSA only in LIJV ($p=0,008$). Rotation

of head by 30 degrees gave significant differences in both RIJV and LIJV during deep breath (both $p<0,001$), and Trendelenburg position (both $p<0,001$) vs no maneuvers. The 45-degree leg lift increased the CSA only in RIJV($p=0,024$).

Conclusions. The mean CSA of RIJV is significantly larger, although both the RIJV and the LIJV are prone to CSA enlargement during deep breath, 45-degree leg lift, 10-degree Trendelenburg position even with a greater extent when head rotation of 30-degrees is achieved, thus these maneuvers can be used to facilitate IJV catheterization using both - ultrasound guided or anatomical landmark technique.

LACTATE AS A PREDICTOR IN SEVERE PNEUMONIA

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Keywords. dynamic lactate; admission lactate; intensive care unit; severe pneumonia; mortality.

Introduction. One of the mortality risk makers for patients admitted to intensive care unit (ICU) is blood lactate level, for example, admission lactate (LAC_1) level and it's changes within first 24 hours. Authors wanted to investigate whether dynamic values and LAC_1 value are significant prognostic mortality indicators in patients with severe pneumonia in first 24 hours after admission to ICU.

Objectives. To evaluate the prognostic significance of the first lactate level in patients with severe pneumonia. To compare the admission and dynamic lactate levels and they prognostic significance in the first 24 hours after admission in ICU and later comparing with other markers and scoring systems like PCT (procalcitonin), CRP (C-reactive protein), CURB-65 (pneumonia severity score), APACHEII (Acute Physiology and Chronic Health Evaluation II).

Methods. Retrospective observational study in which data were collected on all patients admitted to ICU in two major Hospitals (*Eastern Clinical university hospital* and *Pauls Stradins Clinical university hospital*)

with primary diagnosis of severe community acquired pneumonia (CAP). We compared the relationship between lactate values that were collected in 24 hour period after admission in ICU and ICU mortality.

Results. In this study we analysed data from consecutive 73 patients with severe CAP and we observed statistically reliable difference between the first lactate level (LAC_1) in survivors and non-survivors (2,7 [1,9-3,2 and 4,9 [4,3-7,5]; $p < 0,001$), time weighted lactate (LAC_{TW}) 2,3[2,0-2,5] in survivors and 4,5[3,7-5,6] in non-survivors. Patients with $LAC_1 < 3,0$ (mmol/l) mortality risk was 0%, patients with $LAC_1 3,0 - 4,0$ (mmol/l) risk was 42,1%, while patients with $LAC_1 > 4,0$ (mmol/l) mortality risk reached 89,7%. All lactate level measurements in the first 24 hours after hospitalization in ICU have high ability to stratify non-survivor patients: LAC_1 (0,96), LAC_2 (0,98), LAC_3 (0,97), LAC_4 (0,92), LAC_{TW} (0,99)(AUC). Comparing prognostic markers sensitivity and specificity following results were obtained: CRO (0,59), PCT (0,98), APACHEII(0,98), CURB-65 (0,63), LAC_1 (0,95) LAC_{TW} (0,99).

Conclusions. Summarizing the two largest hospital data in Republic of Latvia on patients with severe CAP admission lactate and LAC_{TW} levels in first 24 hours have significant independent predictive value. In the first 24 hours after admission in ICU higher mortality were observed if LAC_1 was > 3 (mmol/l). Data proves that patients with severe pneumonia LAC_1 is having similar prognostic ability like APACHEII and PCT, and better prognostic ability than CRP and CURB-65. Blood Lactate level measurements in emergency department (ED) would be helpful for risk stratification. Dynamic lactate indices which describe not only magnitude but also duration and trend over time may be even more useful in predicting outcome, but it is hard to apply this value in every day clinical practise.

DYNAMIC CHANGES OF MAGNETIC RESONANCE IMAGING IN MULTIPLE SCLEROSIS PATIENTS RECEIVING IMMUNOMODULATING TREATMENT

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Key words. Magnetic resonance imaging, multiple sclerosis, immunomodulating treatment

Introduction. Multiple sclerosis (MS) is chronic, inflammatory autoimmune demyelinating disease of central nervous system (CNS). It is the

most common CNS disease causing permanent disability in young adults. MS prevalence in Latvia is 62.7 cases per 100 000 population. Magnetic resonance imaging (MRI) is primary and leading method of investigation in case of MS. Immunomodulating treatment (IMT) is first line therapy for MS. Interferon β -1a (Avonex®, Rebif®), Interferon β -1b (Betaferon®, Extavia®), glatiramer acetate (Copaxone®), natalizumab (Tysabri®), fingolimod (Gilenya®) are commonly used IMT.

Aim. The aim of the study is to assess the effect of IMT on progression of MS based on MRI.

Material and methods. 162 MS patients, included in the study, begun treatment at Latvian Maritime medicine centre Multiple sclerosis centre (LMMC MSC) from 2010 till 2012. Medical information was gathered using medical records in LMMC MSC archive. MRI examination was performed to all patients prior receiving IMT for the first time and two years after treatment had begun. In the first MRI examination following markers of disease activity were assessed: presence of plaques in the brain and the spinal cord, their localization and contrast-enhancement. In the second MRI examination dynamic changes in markers of disease activity were assessed. Medical data were analysed using SPSS 21.

Results. Patients' aged 16-64, mean age was 40.26 ± 10.37 years. 123 of 162 were women, 39 men. 146 patients (90.1%) had cerebrospinal form, 16 - cerebral (9.9%). 148 patients had relapsing-remitting course, 9 - secondary progressive (5.6%), 4 - clinically isolated syndrome (2.5%), 1 - benign course of the disease (0.6%).

45 patients (27.8%) received Avonex®; 39 - Extavia® (24.1%), 35 - Rebif® (21.6%), 29 - Copaxone® (17.9%), 14 - Betaferon® (8.6%). Most cases with positive MR dynamics were found in Avonex® group (11.1%).

Positive dynamics in the second MRI examination were found more frequently in Interferon β -1b compared with Interferon β -1a (11.3% vs. 3.8%; $p=0.08$), though Interferon β -1a has less frequent MRI activity (38%, $n=27$ vs. 23.1%, $n=12$; $p=0.07$) 9.4% of Copaxone® group have positive dynamics in second MRI examination.

Contrast-enhanced lesions were found more frequently in interferon group compared with Copaxone® (16.3%, $n=20$ vs. 9.4%, $n=3$; $p=0.04$).

New lesions were found in 81 MRI examinations (52.3%). New lesions were found more often in Betaferon® group (71.4%, $n=10$). Contrast-enhanced lesions were found in 23 cases (14.8%). Betaferon® and Rebif®

group showed contrast-enhanced lesions more often than others (21.4%, n=3 and 22.6%, n=7). Statistical significance has not been reached.

Conclusions. Avonex® has better outcome regarding dynamic changes in second MRI examination. Copaxone® most likely prevents occurrence of contrast-enhanced lesions. Less markers of disease activity have been found in Interferon β -1a than in Interferon β -1b group.

New lesions were most often found in Betaferon® group, and contrast-enhanced lesions were most often found in Rebif® group. In order to increase statistical significance, more patients should be included in the study.

EMBEDDED DEVICES AND SOFTWARE FOR VITAL SIGNS MONITORING DURING REHABILITATION PROCESS

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Keywords. Sensor Networks, Vital Signs, Monitoring, Rehabilitation

Introduction. The knee is the largest joint in the human body and one of the most easily injured. In 2010, there were roughly 10.4 million patient visits to doctors' offices with knee injuries. Meniscus rupture is one of the most frequent injury of the knee joint. Treatment usually involves surgical procedures, such as meniscectomy or suture of meniscus. One of the most important part of the treatment process is postoperative rehabilitation – it consists of two parts: working together with a specialist and working on patients own. Because of correct and successful rehabilitation patient is able to get back to his normal life after knee surgeries.

Aim. Medical conditions affect patient as much physically as mentally. Therefore, the aim of this work is to create a solution to help patients successfully complete rehabilitation procedure after knee surgery, while doing it without help of specialists. Result will be by psychologically motivating a patient, based on analyzed vital signs data. There are clinical devices used in laboratories, which are precise, but expensive and non-mobile. During this work several devices were considered. Described devices can measure physical parameters, but do not have any communication interface developed to help patients overcome a feeling of fear and uncertainty.

Vision of solution. Implemented solution will consist of a combination of embedded device for vital signs data gathering and software for data analysis and communication with user. The wearable device includes 3-axis accelerometers, gyroscopes and magnetometers as sensors, wireless communication module (bluetooth). Device collects data from accelerometers and sends them to mobile device with an application installed. When application receives collected data, it calculates flexion/extension angle and compares it with a customizable threshold value. Patient will receive notifications aimed to help overcome a feeling of fear during rehabilitation session. User will also have an opportunity to view values collected from sensor nodes and share it with a health specialist.

Results. Work under this project is in progress - a prototype version of the device is being developed to collect vital signs data from a real person. Special emphasis should be put on data privacy problems - no one, except patient and his doctor has a right to view received medical data.

Conclusion. Based on defined problem, it was possible to describe a vision of solution. It is possible to connect other sensors to increase a number of vital signs such as heart rate, electrical activity of muscles etc. This solution has a greater potential: a modular device to help patients get through the rehabilitation process after different traumatic experiences.

A COMPREHENSIVE ANALYSIS OF FRACTURES OF SHAFT OF FEMUR IN CHILDREN

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Key words. Femur, shaft, diaphysis, fracture, pediatric.

Introduction. Femur shaft fractures in children are the less common type of fractures that constitutes only a small percentage (1.6%) of all pediatric fractures. Traditionally a significant impact is required to cause a break of this thick bone and often follows a moderate to high energy trauma, such as, but not limited to, traffic accidents, sports, playground injuries and falls. This study examines all 125 patients admitted to Riga's Children's Clinical University Hospital with a diagnosis of "S72.3 Fracture of shaft of femur" during the 5 year period (2010-2014). Along with patient medical histories, the

study analyzes all available pre-treatment (68) as well as follow-up (78) radiograms.

Aim. The main aim was to determine the age and gender structure of the patient sample, different fracture etiologies, as well as the prevalence of used treatment strategies, including perioperative antibiotics. The study further looked at bed days in specific age groups and various radiological features seen both before and after treatment. Lastly, it aimed to classify all fractures using AO/OTA Fracture and Dislocation Classification and establish prevalence of different fracture types.

Results. The study determined that males (67%) were more prevalent than females. Most of the patients were aged 2-5 (44%) and 6-11 years (30%). Children aged 2-5 years were also likely to spend more days in the hospital (mean=9.3, SD=7.54, n=55). The etiologies were divided to form two groups: high (59% of cases) and low (41%) energy trauma. Of all cases, 13 (10%) were presented with concomitant injuries. Total number of operated patients is 77 (62%), of whom 58% received perioperative antibiotics, mainly Cefazoline. The study illustrates, how treatment strategy (operative or conservative) is distributed in age groups, with operative treatment being more prevalent in older children (patients older than 6 years were treated almost exclusively operatively). Most frequent fractures were AO/OTA type A (83%), followed by B (11%) and C (6%). The available radiological data examined conveys that most fractures were dislocated (88%) at the moment of admittance, while 54% of all retained some degree of dislocation, based on roentgenograms at 6 or more weeks post trauma. Statistical analysis showed significant positive correlation between trauma energy and bone fragment axial dislocation pre-treatment ($p=0.021$).

Conclusions. The study allows a comprehensive look into patient base with fractures of shaft of femur, showing that younger children are more likely to receive conservative treatment, while older are mostly operated. Age group of pre-school children is the most prominent in both numbers of fracture and days spent in hospital. High energy trauma is the more common etiology, and concomitant injuries are rare. Dislocated and A-type simple fractures are the most frequent and axial dislocation of bone fragments correlates to high trauma energy, according to radiological data.

INCIDENCE AND PREDICTIVE VALUE OF THROMBOCYTOPENIA IN PATIENTS WITH SEVERE COMMUNITY ACQUIRED PNEUMONIA

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Key words. Thrombocytopenia, pneumonia, ICU, mortality.

Introduction. Thrombocytopenia is frequently encountered in intensive care unit (ICU) patients and is an independent risk factor for mortality. The cause of thrombocytopenia is multifactorial, it develops as a result of infection, inflammation and depletion of coagulation factors. Community acquired pneumonia (CAP) is one of the most common infectious diseases in the world and is an important cause of morbidity and mortality. In the ICU mortality from severe CAP is approximately 30%. The amount of published data on thrombocytopenia in patients with severe CAP is limited, thus it is important to determine whether the presence of thrombocytopenia has a negative impact on clinical outcome in these patients.

Aim. To determine incidence and predictive value of thrombocytopenia in ICU patients with severe CAP.

Results. A total of 98 patients were retrospectively included in this study, 58 (59.2%) men and 40 (40.8%) women. The mean (\pm standard deviation) age of patients was 60 ± 19 years, 53 patients (54%) died and 45 patients (46%) survived. The median [interquartile range (IQR)] length of stay in ICU was 7 [3-18] days.

57 patients (58%) developed thrombocytopenia (defined as platelet count $\leq 150 \times 10^9/L$), 33 of them (58%) at the admission to the ICU, 24 (42%) during their stay in the ICU. The lowest platelet count, median [IQR], in survivors was on fifth day in ICU, $171 [132.8-294.8] \times 10^9/L$, while in non-survivors on fourth day in ICU, $126 [73.5-200] \times 10^9/L$. The median [IQR] duration of thrombocytopenia was 4 [2-7] days.

Patients with thrombocytopenia had higher mortality in comparison to patients without thrombocytopenia (36 (63.1%) vs 17 (41.1%), $p=0.041$), higher Sequential Organ Failure Assessment (SOFA) score (median [IQR]: 8 [5-11] vs 4 [3-6.75], $p<0.001$), lower leukocyte count (median [IQR]: 9.1 [3.5-14.3] vs 14.6 [9.2-21.8] $\times 10^9/L$, $p=0.002$). Overall, there was no statistically significant difference in comorbidities between two groups except for the type

two diabetes, which was less frequently encountered in patients with thrombocytopenia (6 (10.5%) vs 15 (36.6%), $p=0.003$). In thrombocytopenic patients resolution of thrombocytopenia during the ICU stay was associated with lower mortality (odds ratio 5.5; 95% confidence interval, 1.6-18.7, $p=0.006$). Neither degree of thrombocytopenia, nor timing of development of thrombocytopenia had a statistically significant impact on mortality.

Conclusions. Thrombocytopenia is frequently encountered in patients with severe CAP and is associated with higher mortality. Resolution of thrombocytopenia is associated with better clinical outcome.

COMORBIDITY AND OTHER HEALTH AFFECTING RISK FACTOR INFLUENCE ON COMPLICATION DEVELOPMENT AFTER SURGICAL AMPUTATION OF A FROSTBITE AFFECTED EXTREMITY

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Key words. Frostbite, Thermic Trauma, Amputation, Complications.

Introduction. The State Burn Center is the only specialized thermic trauma-treating center in Latvia. Each year around 70 to 150 patients are treated with wide variety of frostbite trauma. Patients with necrotic frostbite lesions are treated with amputations, which can lead to complications due to certain side factors. Frostbite treatment is problematic due to the poor socioeconomic status of the patients, their unhealthy lifestyle and presence of certain comorbidities, leading to a prolonged hospitalization and increased expenses.

Aim. Acknowledge comorbidity and other health affecting risk factor influences on complication development after surgical amputation of a frostbite-affected extremity.

Results. In a retrospective analysis of medical data from the State Burn Center, within a period of 3 years 107 patients have had surgical extremity amputations after frostbite trauma. Out of this population 102 (95.4%) were men and 5 (4.6%) were women, with median age of 49,6 ($\pm 9,0$ SD). Treatment of 46 (43%) patients was presented as complicated, and therefore resulted in additional amputations, necrectomies and prolonged

healing process, which increased hospitalization on average by 32,5 (\pm 9,6 SD) days.

In analysis of comorbidity the most common comorbidities found in medical data were: diseases of circulatory system - affecting 44% of the population, complication rate 70%, ($p=0.002$); respiratory systems - affecting 23% of the population, complication rate 64%, ($p=0.004$); certain infectious diseases - affecting 16% of the population, complication rate 65%, ($p=0.004$); mental and behavioral disorders – affecting 21% of the population, complication rate 45%, ($p=0.003$).

Strong positive correlation ($r=0.956$) was observed between the count of comorbidities and the development of complications after surgical amputations. In a group with no comorbidities only 13% of cases presented complications, with one comorbidity – 43% ($p=0.031$), with two comorbidities – 74% ($p=0.002$), with three comorbidities – 69% ($p=0.003$).

In analysis of four risk factors (RF): smoking, regular use of alcohol, elevated blood pressure and atherosclerosis, statistically significant proved to be elevated blood pressure – 36% of population, complication rate 69% ($p=0,025$) and atherosclerosis – 22% of population, complication rate 75% ($p=0.017$) compared to smoking – 64% of population, complication rate 50% ($p=0.107$) and regular alcohol use – 67% of population, complication rate 51% ($p=0.953$).

Strong positive correlation ($r=0.855$) was observed between the increase of RF and increased rate of complications. Greater count of RF resulted in greater complication rate. In a group with no RF only 21% of cases presented complications, with 1 RF - 50%, with 2 RF - 31%, with 3 RF - 64%, with 4 RF then 73% of complicated cases were registered.

Conclusions. Certain comorbidities and risk factors increase the chance of complication development after surgical amputation of a frostbite-affected trauma. If comorbidities are taken into account and treated adequately, complication rate can be reduced, thus reducing hospitalization period.

2-YEAR POSTOPERATIVE MORTALITY AFTER HIP FRACTURE IN RIGA 2ND HOSPITAL

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Key words. hip fracture, mortality, outcomes

Introduction. Hip fracture is the most serious consequence of falling in older people which is also associated with increased mortality. In Latvia every year are registered about 2.5 thousand hip fractures. The rate of hip fracture increases with age, average age of the patient is 80. At least 80% of all hip fractures occur in women. Reported overall mortality rate of hip fractures is 30%. Rate of mortality is greatest in the first few months after injury and remains high for up to 1 year.

Aim. Evaluate 2-year postoperative mortality in patients with hip fracture in Riga 2nd Hospital, find differences between age groups, gender, specificate most common age for hip fracture.

Methods. A retrospective study was conducted analyzing statistical data about operated patients with proximal femur fracture in Riga 2nd hospital during year 2012, data were compared with data from Latvian Central Population Registry in November of 2014 to indicate survivals. Totally 319 patients were observed, 234 female and 84 male patients, at mean age of 80.36±10.81. People were divided into 6 groups according to age – 40-49 (n=5, 3 male vs. 2 female), 50-59 (n=12, 10 male vs. 2 female), 60-69 (n=36, 16 male vs. 20 female), 70-79 (n=66, 27 male vs. 39 female), 80-89 (n=141, 21 male vs. 120 female), 90-105 (n=59, 7 male vs. 52 female). Logistic regression was used to distinguish the effects of demographic data (age and gender) on survival.

Results. 2 year follow-up showed that postoperative mortality is 44.2%, 44.04% in men and 44.44% in women. Mostly hip fractures got people in age group 80-89 – 44.2% (n=141). Overall mortality in age groups: 40-49 – 0, 50-59 – 16.67%, 60-69 – 33.33%, 70-79 – 33.33%, 80-89 – 47.52% and 90-105 – 64.41%. Mortality in age-standardized groups showed that there is no mortality in age group 40-49, age group 50-59 20% male vs. 0% female (CI 95%, p=0.682), age group 60-69 31.25% male vs. 35% female, RR=0.844, (CI 95%, p=0.549), age group 70-79 44.4% male vs. 25.6% female, RR=2.32 (CI

95%, $p=0.092$), age group 80-89 male 71,42% vs. female 43,3%, $RR=3,269$ (CI 95%, $p=0,016$), age group 90-105 – 42.85% male vs. 67.3% female $RR=0.364$ (CI 95%, $p=0.196$).

Conclusions. Postoperative mortality after hip fracture is higher for people at the age from 80 till 89. Risk to die after hip fracture surgery for men is higher than for women in this age group. For people older than 80 years should be taken more care in preoperative and postoperative treatment, in prevention of high postoperative mortality rate.

3 YEAR RESULT AND COMPLICATION ANALYSIS OF ARTHRODESIS OF ANKLE AND SUBTALAR JOINTS

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Introduction. Ankle and subtalar joint arthrodesis is surgical procedure for patients suffering from septic or aseptic ankle and subtalar joint arthritis, which causes pain and deformity. The aim of surgery is to reduce pain by fusing the suffering joint, correcting deformity if needed.

Aim. The aim of this study was to find fixation method for ankle and subtalar joint arthrodesis that had less complications and better outcome (reduction of pain, anatomic foot position etc.) in Hospital of Traumatology and Orthopaedics, Riga, Latvia, in period from 2010. till 2013.

Results. Study group consisted of 66 patients undergone arthrodesis either isolated for ankle or subtalar joint, or combined. The causes of arthritis were trauma and other diseases, causing septic or aseptic arthritis and pain, with mean follow up time for 28.7 months. At follow up visit patients filled out the AOFAS Ankle and hindfoot score, had their foot examined and a new x-rays were made and described by independent radiologist. We divided patients in three groups – patients with isolated subtalar arthrodesis (18 cases), patients with talocrural (25 cases) and tibiototalcalcaneal (23 cases) arthrodesis. These groups were compared according to functional and radiological results and complications. The most commonly used fixation method for talocrural joint fixation was screws (15 of 25 cases), for tibiototalcalcaneal joint – intramedullary nailing (14 of 23 cases) and for subtalar joint- screw fixation (18 from 18 cases). Talocrural and subtalar arthrodesis groups had lowest complications rate and better functional results compared to tibiototalcalcaneal

arthrodesis group. The most common complications were – persisting pain, nonunion and metal hardware failure. In most case with complications joint space is still clearly visible in control X-rays.

Conclusions. Talocrural and subtalar arthrodesis group had better results comparing to tibiototalcanal arthrodesis according to AOFA score. More complications and worse functional results were observed in tibiototalcanal group. In the most of these cases lack of fusion in joint space is still clearly visible in control X-rays. Screw fixation is the method of choice when fusing isolated either talocrural (mean AOFAS 73 of 100 points) or subtalar joint (mean AOFAS 71.5 of 100 points) compared to the patients who were treated with tibiototalcanal arthrodesis with intramedullary nail (mean AOFAS score 58.7 of 100 points). In cases where good and excellent results were achieved, method used for fixation were -screws, plates or nails, that makes this treatment method fully surgeon dependent.

CONTRACTURE CORRECTION OF KNEE JOINT AFTER ARTHROPLASTY

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Key words. orthopedics, knee-joint, goniometer.

Introduction. In knee can occur degenerative processes such as osteoarthritis. In Latvia osteoarthritis diagnosis occur average for 300 000 citizens. In clinic goniometer is used to determinate range of movements. Measuring range of movements with digital goniometer is objective measurement (in that case when the goniometer is used correctly), and it can determinate the extent to which patient will be able to do leg flexion, which is important in everyday life, example, whether the patient will be able to climb the mountains, use stairs and do other activities. The study is relevant, because we will obtain results about changes in time of knee-joint range of motion, and also compared range of motions before and after surgery. The study will help to assess the practical application of digital goniometer.

Aim. Range of motion changes after total knee arthroplasty, measuring with digital goniometer.

Results. Before operation average grade of patient's active knee flexion was 104.53, passive – 105.20; Fifth day after operation average active volume of knee flexion was 49.28, passive – 60.85; Seventh day after operation

average volume of knee flexion was 63.40, passive – 70.79; Compared average grade of patient's active knee flexion before operation with average grade of patient's active knee flexion in seventh day after operation there has been 35% percentage decrease; Compared average grade of patient's pasive knee flexion before operation with average grade of patient's pasive knee flexion in seventh day after operation there has been 31% percentage decrease; Comparing fifths day and sevenths day average active knee flexion the improvement is 37%; Comparing fifths day and sevenths day average pasive knee flexion the improvement is 21%.

Conclusions. Fifth day after operation range of motion results is lower than before operation, because patients still have pain, and stiffness and some of them have edema in knee. Comparing fifths day and sevenths day results after operation the improvement of active range of movement volume is 37%, but passive improvement is 21%, which means that operation gives positive results. Total knee arthroplasty operation for patients with osteoarthritis diagnosis is more necessary to reduce symptoms like pain, stiffness, movement difficulties, than increase range of movements. Using digital goniometer to measure the range of movements for osteoarthritis patient is useful, because it gives objective results, and it's easy to use.

SPINAL CORD LESION MRI DESCRIPTION IN PATIENTS WITH MS AND CORRELATION WITH BRAIN AND OPTIC NERVE LESIONS

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Key words. Multiple sclerosis, MRI, spinal cord.

Introduction. Multiple sclerosis is most common autoimmune inflammatory disease affecting central nervous system with 2-2.5 million patients worldwide. MS target are myelin producing cells in CNS causing variety of symptoms. MS symptoms can start at any age, but usually onset is between the age of 20 and 30. Cause and risk factors are still unknown and cure is yet to be made. Today Magnetic resonance imaging (MRI) plays important role in diagnostic process of multiple sclerosis. While there are well known MRI findings in MS, relation between lesion distribution and activity in spine and brain is still unclear. In this retrospective study data of patients with cerebrospinal MS form are analyzed. Only patients with spinal lesions has

been selected. Lesions are examined in T2 FSE, STIR sagittal, T1 FLAIR post-contrast sagittal and gradient echo axial series for spinal cord lesion size, distribution and contrast enhancement activity. Spinal cord lesions are correlated with brain involvement, optic nerve involvement, and patient age.

Aim. The goal of the study is to determine spinal cord involvement, lesion distribution and activity, brain and optic nerve involvement.

Results. Out of 33 patients with multiple sclerosis 29 (88%) had lesions in spinal cord, only patients with spinal cord involvement were included in this study. Total of 108 lesions were found with average of 3.7 lesions per patient (range 1- 9). Most of lesions (89%, 96/108) had round or oval pattern while 12 had wedge shaped patterns. The majority of lesions (92%, 99/108) were less than one vertebral cartilage in longitudinal length. Five of 29 patients had optic neuritis.

Conclusions.

1. Lesions in spinal cord are found in 88% of patients with multiple sclerosis.
2. Lesion distribution along spinal cord are uneven. Usually more lesions are found in cervical part than in thoracic part.
3. Lesions in spinal cord give T1 post-contrast enhancement less frequently than lesions in brain.

EFFICIENCY OF ORGANOPROTECTIVE STRATEGIES IN OPERATIONS WITH CIRCULATORY ARREST

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Key words. organoprotective strategy, circulatory arrest, cardiopulmonary bypass, aortic dissection, chronic thromboembolic pulmonary hypertension.

Introduction. The outcomes of dissection of ascending aorta and chronic thromboembolic pulmonary hypertension can be improved if operations are performed. With improvement of diagnostics and emergency medicine, the patients are quickly admitted to hospitals for surgical help. In order to perform an operation in cases of dissection of ascending aorta and chronic thromboembolic pulmonary hypertension, a circulatory arrest is needed. After circulatory arrests the patients have postoperative complications

due to tissue ischemia and the use of cardiopulmonary bypass. To prevent these complications special organoprotective strategies are needed.

Aim. Assess the efficiency of organoprotective strategies in operations with circulatory arrest (aortic grafting and endarterectomy). To accomplish this aim, a randomised prospective - retrospective study was carried out, enrolling 22 patients admitted to the intensive care unit of cardiology of a single university hospital within the time period of 2012 to 2014. The inclusion criteria comprised all patients with either dissection of ascending aorta or chronic thromboembolic pulmonary hypertension, who had operations with circulatory arrest.

Results. The numbers and age of male and female patients lacked statistically significant differences. Average age of the patients was 53.1 ± 13.7 and body – mass index was 26.6 ± 4.9 kg/m². The most common complications were brain, kidney, heart, liver injuries and elevated thrombosis risk after the operations were performed. In first 6 hours after the operations all 22 patients had significantly elevated troponin I levels indicating an injury of cardiac muscle, but at the time of discharge from intensive care unit 40.9% [95% CI = 20.36 - 61.46] had kidney injury, 31.8% [12.36 - 51.28] - heart injury, 31.8% [12.36 - 51.28] – liver injury, 18.2% [2.06 - 34.3] - brain injury and 3 patients died from the postoperative complications. None of the patients had thrombosis risk at the time of discharge. The study also showed that the shorter is the circulatory arrest and patients' body temperature nearer to normothermia the lower is a probability of developing previously mentioned postoperative complications.

Conclusions. Operations with circulatory arrest have high rate of postoperative complications and mortality rate - 13.6% [-0.71 - 27.97], which means that organoprotective strategies are vital. Also shorter circulatory arrests and milder hypothermia are associated with lower complication rate.

**EPIDEMIOLOGY AND OUTCOME OF INVASIVE
STREPTOCOCCUS PNEUMONIAE INFECTION IN PATIENTS
ADMITTED TO RIGA EAST UNIVERSITY HOSPITAL
TOXICOLOGY AND SEPSIS CLINIC**

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Key words. Invasive pneumococcal disease, Streptococcus pneumoniae, outcome

Introduction. Streptococcus pneumoniae is a common commensal of the upper respiratory tract and through colonisation it can cause local and invasive infection. Invasive disease when S. pneumoniae is isolated from a normally sterile site, may lead to severe syndromes including meningitis, septicaemia, pneumonia/empyema, and bacteraemia and may result in serious sequelae and permanent impairment. WHO estimates about 1.6 million of annual deaths, mostly in infants, elderly and immunocompromised individuals.

In Latvia, there is high risk of pneumococcal diseases due to geografic location and climate. In the population also has increased numbers of older people with chronic diseases.

Aim. To establish epidemiology of patients with invasive pneumococcal disease admitted to Intensive Care Unit and determine risk factors associated with hospital mortality of these patients.

Results. Retrospective chart review of patients admitted to Toxicology and Sepsis Clinic in period of 01.01.2013 – 30.09.2014 was performed.

37 patients with median age 53 (44 – 68) years; 24 male (65%) and 13 female (35%) were included.

Median APACHE II on admission was 17 (13 – 25): 15,5 (11,5 – 22) in survivors and 31 (25 – 31,5) in non-survivors ($p=0,007$) and SOFA 5 (3-8): 4 (3 – 6) in survivors and 12 (8 – 13) in non-survivors ($p=0,0017$).

28 patients (75,7%) were admitted with diagnosis pneumonia, 2 (5,4%) – with meningitis, in 2 patients (5,4%) infection presented as both pneumonia and meningitis, in 3 (8,1%) – as pneumonia and empyema, and in 2 others (5,4%) as meningitis and sinusitis. Septic shock occurred in 13 patients (35%), in 7 (23%) survivors and 6 (86%) non-survivors ($p=0,002$); acute respiratory distress syndrome (ARDS) – in 18 patients (49%).

Renal replacement therapy was initiated in 4 patients (11%) and mechanical ventilation in 12 patients (32%).

Although initial antimicrobial therapy was adequate in all the patients, hospital mortality was 18,9%. In multivariate analysis, independent risk factors for death were thrombocytopenia (OR 26 (95% CI: 1,7 – 401)) and chronic heart failure (OR 19,1 (95% CI: 1,4 – 261)). Gender, age, renal replacement therapy, coagulopathy and increased lactate did not influence outcome.

Conclusions.

1.Hospital mortality of invasive pneumococcal disease remains high, despite adequate antimicrobial therapy.

2.APACHE II and SOFA scores differ strongly between the survivors and non-survivors, and can be used as a prognostic indicator for hospital mortality.

3.Chronic heart failure and thrombocytopenia have an adverse impact on outcome.

THE ASSESSMENT OF THYROID IMAGING REPORTING AND DATA SYSTEM (TIRADS) APPLICATION POTENTIALITIES

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Key words. TIRADS, Thyroid nodule, Ultrasonography, Fine-Needle Biopsy.

Introduction. Ultrasonography and fine-needle aspiration biopsy is the main method for evaluation of a thyroid nodule. Main goal is to differentiate a benign nodule from a malignant. TIRADS attempt to stratify the risk of malignancy of nodules based on the ultrasonographic features of the lesion. Differentiating nodules in this manner could decrease fine-needle biopsy amount therefore achieving better cost effectiveness. This is the first research done on this subject in Latvia and it will continue for a one year.

Aim. To establish TIRADS diagnostic accuracy and possibility to reduce fine-needle biopsy amount for thyroid nodules diagnostics.

Methods. This is prospective study carry out at three clinics. All thyroid nodules were scored based on TIRADS: TIRADS 1 serve to a normal gland; TIRADS 2 to a benign nodule and TIRADS 3 to a highly potential benign nodule. Suspicious nodules can be divided into three categories based

on high suspicious features: TIRADS 4a, 4b and TIRADS 5 correspond to a malignant nodule with more than two features. Cytologic diagnosis were reported by using Bethesda system.

Results. 228 patients underwent ultrasonography guided fine-needle biopsy, out of whom 160 (70.2%) had cytologic results of benign nodule and 11 (4.8%) had malignant results. Mean age of participants for both groups was 56.1 years (\pm 13.1 SD). The dominant category was TIRADS 3 – 52.6%. The risk of malignancy was found to increase – for TIRADS 3 it is 0%, TIRADS 4a - 10%, TIRADS 4b – 25% but for TIRADS 5 – 71% ($p < 0.001$). Five features were evaluated: marked hypoechogenity, microcalcification, lobulated or irregular margins, “taller-than-wide” shape and elastography. Elastography was positive only in one of the cases. For four other features were observed high specificity (89 – 98%), lower sensitivity – 30 % for “taller-than-wide” shape, 55% for microcalcification, 73% for marked hypoechogenity and 82% for irregular margins. All features had high negative predictive value – 95% - 99%. Odds ratio oscillate from 6.11 for microcalcification to 14.27 for “taller-than-wide” shape.

Conclusion. TIRADS classification is reliable but it is necessary to obtain greater population to increase statistic significance. Nodules with TIRADS 3 are benign but TIRADS 5 in 71% of cases is malignant. TIRADS application could lead to a significant decrease in the amount of unnecessary fine-needle aspiration biopsies.

STRONG ION DIFFERENCE RELATED ACIDOSIS AS PROGNOSTIC FACTOR OF MORTALITY IN PATIENTS WITH SEPSIS

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Key words. Sepsis, Mortality, Acidosis, Electrolytes, SID.

Introduction. Metabolic acidosis is one of the most common problems in patients admitted to hospital with diagnosis of sepsis. Although magnitude of acidosis is widely accepted as prognostic factor of worse clinical outcome it is non the less important to investigate cause of the metabolic acidosis and link it to mortality in population with sepsis.

Aim. We aim to link disbalance in strong ions composition with meabolic acidosis and associate it with mortality from sepsis.

Results and Methods. We conducted a retrospective study of laboratory data gathered upon the hospitalisation of patients diagnosed with sepsis. Disbalance of strong ion concentrations were analysed using Stewarts' electrochemical model and Standart base excess (SBE) model of acid-base analysis. We defined Strog Iond Difference (SID) as a sum of sodium and potassium ions minus a sum of chloride, phosphate and lactate ions. Non volatile weak acid component was expressed using SBE correcting it for SID. Patients were divided into two groups regarding the survival. Aforementioned variables were compared between the groups using appropriate statistical methods. We gathered data of 72 patients. Mortality rate in the group was 16,5% (n=13). Mean pH was 7,4 (SD=0,13) with mean SBE of -2,577 mEq/l (SD=4,329) and mean SID was 32,27 mmol/l (SD=10,05) indicating compensated metabolic acidosis. Magnitude of the acidosis was asociated with mortality (7,30 vs 7,43 p=0,041). Due to technical limitations only 8 of the patients were included in the next phase of the study. We report statistically significant correlation between SID and mortality related to sepsis (36,30 vs 20,19 p=0,035) but deny the correlation between unmeasured non volatile weak acids and lethal outcome (p>0,05).

Conclusions. We conclude that acid-base balance of patient with sepsis is strongly affected by electrolyte concentrations expressed as proposed model of SID. Furthermore, the SID is associated with mortality in population diagnosed with sepsis. We note the limitations of our study and need of further research with the objective to identify SID as an independent risk factor of mortality in population diagnosed with sepsis.

VALIDATION OF SEPTIC MORTALITY RISK ESTIMATION SCORES COMPARED TO INDEPENDENT BLOOD MARKERS AS A 28-DAY MORTALITY PREDICTING FACTOR

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Key words. Sepsis, MEDS, Intensive Care

Introduction. Pathophysiology and clinics of sepsis challenges health care providers with non-specific symptoms and significant mortality and morbidity. Sepsis remains the leading cause of death in critically ill patients and is considered as one of the most expensive conditions to treat in the Emergency Department. Yet clinicians often are left in doubt of how to grade severity and when to initiate treatment, urging for the need of reliable indicators and scoring systems, capacitating them with the ability to act accordingly.

Aim. It is obvious to aim for early recognition and identification of mortality risk of individuals, to initiate goal oriented and specific treatment in time, to increase chance of survival and reduce costs. The aim of this work is to validate the Mortality in Emergency Department Sepsis (MEDS) score as a 28-day mortality-predicting factor, comparing the results with common blood and serum markers individually. MEDS Score and other approaches for grading sepsis severity do not consider serum lactate levels, although there is evidence for its relevance as an independent predicting factor of mortality in septic patients.

Results. This patient history review study summarizes 125 individuals admitted to the Intensive Care Unit at Riga East University Hospital throughout the year 2013. Over all 28-day mortality was 48,8% and majority of patients were male (61,6%), over 65 years old (44,8%) and presented with initial diagnosis of pneumonia (43,2%). Average hospital stay were 10 days.

Retrospective grading of patients according to the model of MEDS score was performed and results regarding prediction of 28-day mortality were compared to admission values of serum lactate, CRP and PCT. N-score was calculated and compared to the one mentioned above.

MEDS score categorization of patients showed an AUC of 0,669 (95% CI: 0,57-0,76; $p < 0,01$). The calculated Jouden Index set the relevant cut off point at about 9,5 on the scale. (III group MEDS score, with a mean

grading of all included patients of 9,288)

Superior in predicting mortality are only increased admission serum lactate levels with an AUC 0,685 (95% CI: 0,58-0,79). Admission levels of procalcitonin, C-reactive protein and N-score on the other hand were not significantly predicting mortality in this study. (AUC 0,468; 0,498 and 0,413 respectively).

Conclusions. The MEDS score is a reliable model to predict 28-day mortality for septic patients admitted to the Intensive Care Unit at Riga East University Hospital. Hyperprolactinaemia is in direct comparison slightly more valuable as a mortality-predicting finding. Increased PCT and CRP fail to be of prognostic value. Recently discussed N-score did not show any prognostic validity. Further modification of the MEDS score, possibly under inclusion of serum lactate, could lead to a better mortality-predicting model and should be investigated in a larger study group.

EVALUATION OF ARTERIAL AND VENOUS BLOOD PARAMETERS IN CRITICALLY ILL PATIENTS

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Key words. Hemoglobin, osmolality, arterial, venous, blood

Introduction. In intensive care units (ICU) arterial blood oxygenation, electrolytes, metabolites are commonly tested and used for calculation of osmolality. Many of these parameters could be obtained from venous blood sample as well. However, there is little scientific data estimating, whether arterial and central vein blood values should be considered equal in critically ill patients.

Aim. The aim of our study is to investigate the difference of electrolytes, metabolites, haemoglobin and counted osmolality obtained from arterial and venous blood samples in a short period of time.

Results. Arterial and central vein blood samples were obtained from 30 ICU patients (50% men, 50% women), aged $60,24 \pm 14,3$ years. 11 (36%) patients were of haematological, 10 (33,3%) neurological and neurosurgical, 3 (10%) surgical and 6 (20%) unclassified. Average time between arterial and

venous samples testing was 16 ± 19 minutes. Comparing the results of arterial and venous blood we found that haemoglobin ($p = 0,038$) and chlorine ions levels ($p = 0,045$) were higher in arterial blood. Lactate, direct bilirubin, glucose, sodium, potassium and ionised calcium levels did not differ significantly. Calculating by 36 formulas, estimated for calculating plasma osmolality, we found that using formula, suggested by Snyder H, Williams D. *et al.*, values obtained from venous and arterial blood were significantly different (p value 0,08), while using formula by Wojtysiak B, Duma D, Solski J, a similar tendency may be noticed. Calculation by formula of $2Na + \text{glucose} + \text{urea}$, which is commonly used in clinical practice, did not show a significant difference in values of osmolality. However, calculated anionic gap was significantly higher in central venous blood samples ($p = 0,03$).

Conclusions. Arterial and venous blood samples should be used as equals for testing metabolites, electrolytes and calculation of osmolality with most of the estimated formulas in the intensive care units. However, difference of haemoglobin concentration may be significant in clinical decision-making and should be considered by the ICU physicians.

EFFICACY OF LOCAL INFILTRATION ANALGESIA ON POSTOPERATIVE PAIN AND KNEE REHABILITATION AFTER UNILATERAL TOTAL KNEE ARTHROPLASTY

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Key words: local infiltration analgesia, postoperative pain, total knee arthroplasty

Introduction. Total knee arthroplasty (TKA) is a common surgical procedure and is associated with severe pain after surgery and a high incidence of chronic pain. In the last decade, there has been an increasing interest in local infiltration analgesia (LIA) as a technique to control postoperative pain in orthopaedics.

Methods. We conducted a randomised clinical trial investigating LIA, femoral nerve block (FNB) and control group (CG) — spinal anaesthesia

only after total knee arthroplasty (TKA) to evaluate the analgesic efficacy of those methods for early postoperative pain treatment (60 hours). In addition, pain during movement, M. quadriceps strength and discharge time from the hospital were evaluated. Multimodal analgesic regimen was administered perioperatively. Intravenous morphine was used as rescue analgesics.

Results. Compared with femoral nerve block and CG, LIA provided similar or improved analgesia in the early postoperative period (1.38 NRS versus 2.83 8 h after surgery, 3.38 versus 3.83 POD1 morning, 1.88 versus 2.50 POD2, 1.86 versus 2.07 POD3). Pain during flexion was similar with less in FNB group (4.0 versus 3.75 POD1 morning, 3.0 versus 2.33 POD3, 2.50 versus 1.67 POD14). Pain during walking was less in FNB (4.0 versus 2.50 POD1). Overage morphine consumption was lower in LIA group 24 hours after surgery (8.57 mg of morphine in LIA versus 13 mg in FNB) and more during all observation period.

Patients in LIA group were discharged earlier. *M.quadriceps* strength was similar on POD1 in all 3 groups, but better in CG during POD2 and POD3

Conclusions. Our study shows that inclusion of LIA in a multi-modal anaesthesia regimen is effective in reducing short-term pain in patients receiving TKA and may influence the postoperative rehabilitation and discharge time.

DEXMEDETOMIDINE SEDATION DURING REGIONAL ANAESTHESIA

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Key words: Dexmedetomidine, sedation, regional anaesthesia.

Introduction. The result of surgery can be affected by fear, anxiety and discomfort from lying on the operating table. In order to reduce the stress of being awake during regional anaesthesia (RA) sedation is widely used. Dexmedetomidine is a selective α -2 receptor agonist with an anxiolytic, sedative and analgesic effect and causes the 'natural sleep' – patient is easily arousable.

Aim. To investigate Dexmedetomidine sedation efficiency, parameters of haemodynamic and breathing, and the quality of recovery during regional anaesthesia.

Results. 32 ASA I – II patients (28 elective, 4 acute; age 20 – 74) who received sedation with Dexmedetomidine during RA were assessed in the prospective study. 24 had a *plexus brachialis* block, 5 had spinal anaesthesia, 3 – spinal anaesthesia with plexus block. Duration of surgery was 89.38 ± 67.46 min. Dexmedetomidine loading dose was $1 \mu\text{g/kg}$ over 10 min followed by a continuous infusion $0.1 - 0.6 \mu\text{g/kg/h}$ until the end of the surgery according to EEG index. Standard monitoring was used. The depth of the sedation was measured with an EEG monitor *Narcotrend* (A – awake (95 – 100); B, C – light sedation (65 – 94); D – moderate sedation (37 – 64); E, F – deep sedation (< 36)). Sedation was measured by RASS (*Richmond Agitation Sedation Scale*). The quality of the sedation was assessed by answers from handed out questionnaires. Assessments were done by one person.

2/32 patients (6.3%) had a bradycardia below 50 x/min requiring a single minimum dose of Atropine, 5/32 patients (15.6%) had a temporary bradycardia that does not require treatment and 25/32 patients' (78.1%) sedation caused neither of the following: bradycardia, hypotension and the need to stop the continuous infusion.

All patients had an adequate spontaneous breathing during sedation. After the bolus dose, HR decreased by 8.44 ± 7.16 x/min ($p = 0.000$), SBP decreased by 7.31 ± 12.03 mmHg ($p = 0.002$), DBP decreased by 4.75 ± 7.15 mmHg ($p = 0.001$) compared to output values. Mean EEG index was 96.5 ± 3.8 before bolus dose and decreased by 19.72 ± 23.85 ($p = 0.000$) after. Mean EEG index was 68.53 ± 21.70 during the sedation and the lowest recorded was 53.10 ± 25.00 after 30 min. According to RASS the level of sedation was from 0 until - 3. During surgery increased noise levels raised the EEG index; the patient woke up and then fell back asleep. At the end of the surgery all patients were promptly arousable with verbal stimulation without impaired cognitive abilities and psychomotor functions. According to answers from their questionnaires all patients were satisfied with the sedation they received.

Conclusions. The loading dose of Dexmedetomidine $1 \mu\text{g/kg}$ over 10 min and continuous infusion $0.1 - 0.6 \mu\text{g/kg/h}$ provides sufficient sedation efficiency during regional anaesthesia maintaining spontaneous breathing, does not cause any significant haemodynamic instability and provides good recovery quality.

CONSERVATIVE TREATMENT EVALUATION IN CASE OF ELBOW EPICONDYLITIS TREATED IN VTOS

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Key words: Epicondylitis; treatment; conservative.

Introduction. Lateral (tennis elbow) and medial (golfer's elbow) epicondylitis of elbow are painful conditions which are due to overuse of forearm flexor or extensor muscle group tendons. In most cases epicondylitis is occupational disease, but also it is common in athletes. Pain often limits person's ability to work and overall activity.

Aim. To evaluate and compare methods of conservative treatment used for medial and lateral epicondylitis in VTOS from year 2009 to 2014.

Results. In retrospective study with additional patient interview 26 cases were analyzed. From which 17 were treated only conservatively. Results of this study are not statistically significant due to limited number of participants. Success of treatment was defined as less than 20 points obtained in The Patient-Rated Elbow Evaluation (PREE) ©. In telephone interviews was obtained information about patient's individual conservative treatment plan, and total duration of treatment. Of patients treated conservatively 58.8% cases were considered successful. Most frequently used methods were: topical therapy using various topical ointments and gels with anti-inflammatory and analgesic effects (76,5%), counterforce brace (76,5%), Corticosteroid injection (70,6%), shock wave therapy (47,1%), oral NSAIDs(non-steroid anti-inflammatory drugs) (41,2%). There are several new and more successful conservative treatment methods for treating patients with epicondylitis, but none of those were used for patients, that were researched.

When mean duration (months) of treatment for each method was analyzed the results were: with(13,7) and without(8,5) counterforce brace, with (14,5) and without (7,60) corticosteroid injections, with (15,75) and without (9,56) shock wave therapy, with (11,86) and without (12,90) oral NSAID therapy, with (11,0) and without (17,25) topical treatment ($p>0.05$).

When success rate for each method individually was analyzed, conclusion was that all methods had approximately the same success rate (50-60%). Only shock wave therapy had lower success rate (37,5%). In group, that

did not receive shock wave therapy the success rate was 77.8%. ($p>0.05$) For more accurate results a prospective study with large participant groups is needed.

Conclusions. More than half of patients treated conservatively for lateral or medial epicondylitis were cured. Methods like counterforce bracing, corticosteroid injections and shock wave therapy relatively prolong duration of treatment. Using oral NSAID's relatively shortens duration of treatment. Shock wave therapy efficiency is questioned and selective research is needed to make any further conclusions.

CLINICAL OUTCOMES OF OPEN LATARJET SURGERY FOR ANTERIOR INSTABILITY OF THE SHOULDER IN HOSPITAL OF TRAUMATOLOGY AND ORTHOPAEDICS

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Key words. Bony Bankart; Dislocation; Glenoid insufficiency; Shoulder instability

Introduction. The shoulder joint is the most mobile joint in the body. This ability to move makes the joint inherently unstable and also makes the shoulder the most often dislocated joint in the body. 95 % of shoulder dislocations are anterior dislocations. The dislocation of the humeral head to antero - inferior causes damage to the antero - inferior rim of the glenoid that can result in a Bankart fracture, which is a tear of the antero - inferior labrum. This results in instability and recurrent dislocations. The Latarjet surgery is a coracoid bone block technique to prevent anterior dislocation. It is a safe and reliable technique for treating recurrent anterior instability with associated glenoid bone loss.

Aim. Evaluate the clinical and functional results of patients who underwent open Latarjet surgery for symptomatic instability with glenoid bone loss, using Western Ontario Shoulder index (WOSI) and Constant scores. Find correlation between WOSI and Constant scores.

Results. Twenty-three patients (23 shoulders) treated with an open Latarjet surgery for recurrent anterior glenohumeral instability with significant glenoid bony deficiency were retrospectively identified from two surgeons'

practices. Thirteen patients and 13 shoulders (57%) were evaluated at a mean follow - up of 14 months (range: 6-40), whose an average age of 28.6 years (range: 18-43). Thirteen of thirteen shoulders (100%) were perceived as stable to these patients. Two of thirteen patients (15%) have developed complications. One of two has develop mild osteoarthritis (7.7%) at 40 months after their Latarjet procedures, and one patient has moderate pain syndrome (7,7%) at 7 months after surgery. Average WOSI scores for 13 shoulders were 80.1% (range: 64.3 - 93.3%, +/- 7.3%). Mean WOSI domain scores were as follows: Physical Symptoms, 85,4% +/- 5.8%; Sports/Recreation/Work, 74.8% +/- 11.6%; Lifestyle, 73.6% +/- 12.6%; and Emotions, 78.2% +/- 17.2%. Average Constant score was 87.4 (range: 71 - 98, +/- 7.24). One hundred percent (13/13) of the patients were satisfied with outcomes of surgery. Intraclass correlation coefficient (ICC) value between the WOSI and Constant scores was strong (0.740, P <0.05)

Conclusions. The open Latarjet procedure is a safe and reliable technique for treating recurrent anterior instability. It is particularly useful in the setting of anterior instability with associated glenoid bone loss or a large Hill-Sachs lesion, or both. WOSI score does not require an examination of the patient and can be administered by mail. The high ICC and sensitivity makes it able to monitor an individual patient's progress.

COMPARISON OF EARLY AND LATE ONSET HIP PROSTHETIC JOINT INFECTION

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Key words. Hip; prosthetic joint infection; revision arthroplasty.

Introduction. Infection occurs in 0,3-2,2% cases after primary hip arthroplasty. Also it is third most common preventable cause of hip revision surgery. There are two main patterns of infection according to the start of clinical symptom manifestation – ones that develop in the first year after surgery (early) and others that starts after a year (late). It is considered that early infections are acquired during an intraoperative contamination, whereas late infections are mainly acquired by hematogenous dissemination.

Aim. To compare early and late onset prosthetic joint infection manifestation between patients who underwent hip joint revision surgery due to prosthetic infection.

Results. There were 83 cases of hip revision arthroplasties performed due to prosthetic joint infection during a time period between 2011 and 2014 in Hospital of Traumatology and Orthopaedics, Riga. All cases were included in the study. Of 83 episodes, 35 (42,2 %) were classified as early infections and 48 (57,8 %) as late. The mean age of the patients in early infection group (EIG) was $65,9 \pm 15,9$ years, while in late infection group (LIG) $69,6 \pm 11,2$ years. Sex ratio – 48,2% man, 51,8% woman, without statistical significance between groups. More than a half of patients were not overweighted (54,3% ; 60,42%) in both groups. There were the same major comorbidities in both groups - arterial hypertension (66,67%; 76%), cardiovascular (54,5%; 54%) and renal (33,3%; 26%). 75,8% in EIG and 74% in LIG had multiple (two or more) comorbidities. Indications for index arthroplasty were degenerative joint disease (51,4%; 60,4%), fracture (22,9%; 16,7%), mechanical loosening of prosthesis (17,1%; 14,6%), prosthetic joint infection (2,9%; 6,2%), dysplastic arthrosis (5,71%; 0%), tumor (0%; 2.1%). The most common type of arthroplasty in EIG was uncemented THA (34,3%), followed by cemented THA (25,7%), hybrid THA (17,1%) and Austin Moore (22,9%), but in LIG - cemented THA (31,2 %), uncemented THA (27,08%), hybrid THA (25%) and Austin Moore (16,7%). The median duration between symptom onset of infection and revision surgery in EIG and LIG was 86 days (range, 3 – 300) and 175,3 days (range, 2 – 1460), respectively. In 60% of cases in EIG and 66,7% in LIG Gram-positive causative agent was isolated, in 22,9% and 18,8% Gram-negative but 17,14% and 14,6% of all cases were culture negative. The most common isolated microorganisms in EIG were coagulase-negative staphylococci (28,6%) and *Staphylococcus aureus* (27,08%) in LIG.

Conclusions. The prevalence of late prosthetic joint infection is higher compared to early infection, among patients who underwent hip revision surgery due to infected prosthetic joint. The most significant differences between both groups were in operation related factors (index arthroplasty, type of arthroplasty, time till revision surgery, causative agent) not in patient related factors. In none of cases data was statistically significant ($p > 0.05$).

COMPUTER TOMOGRAPHY FINDINGS OF ALCOHOL INTOXICATED PATIENTS WITH HEAD INJURY IN CORRELATION TO TRAUMA MECHANISM AND SERUM ETHANOL LEVEL

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Key words. Head traumatic injury, alcohol intoxication;

Introduction. Traumatic head injury in alcohol intoxicated patients represents a meaningful public health problem. Intrahospital emergency care of these patients and loss of productivity due to posttraumatic neurological deficits are extremely costly from a public health perspective.

Aim. To analyze whether severity of head trauma based on CT findings correlates with trauma mechanism and serum ethanol levels.

Material and methods. 300 patients, who were hospitalized in Riga East University Hospital and were included to this retrospective study. All of these patients had all of 3 following criteria: 1) Alcohol intoxication either proved with serum alcohol level measurement or clinical examination; 2) Clinical evidence of head trauma; 3) Head CT performed in order to establish radiological extra- or intracranial trauma signs. Patients allocated into group I - violent head trauma and group II – non-violent trauma. Age, gender, serum ethanol level, mechanism of trauma and head CT findings were analyzed. Innovative scoring system of head trauma radiological severity (HTRS) was created by author, disclosing 5 grades. In this scoring system every pathology had specific score (e.g fracture of facial bones – 2points, intracranial extracerebral haemorrhage – 10 points , contusion and intracerebral haemorrhage – 15 p etc.). Correlation of HTRS grades and ethanol level in patient's blood, using T-test/F-test, was performed, p value < 0.05 considered statistically significant.

Results. 82% (n=247) of included patients were men. The average age – women 37 years old, men -41; Group I (violent trauma) n= 87 (29%), group II (non-violent trauma) n=213 (71%). Correlating group I versus II it was found that trauma severity of grade 0 (no pathological CT-findings) was found in 31% versus 49%, grade 1 - 63,1% versus 46%, grade 2- 3,4% vs. 2,5%, grade 3- 0% vs. 2.5, grade IV 2,2% vs. 0.5% (p=0.9925). Comparing serum ethanol level and HTRS grades in group I and II revealed: grade 0 - 2,15

vs. 2,49 g/L, grade I – 2,25 vs. 2,8 g/L, grade II- 2.03 vs. 3.82 g/L, grade III – non comparable due to lack of patients in group I, grade IV – 3.8 vs. 4.08 g/L (P value 0.4398).

Conclusion. Higher serum ethanol level in all HTRS grades in group II were found, although the difference was not statistically significant. No statistically significant difference of HTRS grade was found in correlation with trauma mechanism in alcohol intoxicated patients.

THE RADIOLOGICAL DIAGNOSIS OF OSTEOPOROSIS

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Key words. Osteoporosis, radiology, treatment, DXA, BMD.

Introduction. Osteoporosis is a progressive bone disease that is characterized by a decrease in bone mass and density which can lead to an increased risk of fracture. In osteoporosis, the bone mineral density is reduced, bone microarchitecture deteriorates, and the amount and variety of proteins in bone are altered. Over the world osteoporosis is the most often metabolic disease of the bones and over 200 million people in the world have osteoporosis. According to the dates of Latvian compulsory insurances health care agency's, 50% from the all treated fractures in hospital had patients over 70 years old. From them 59% were fractures of the thighs with average length of therapy 17,5 days and 1 327 650 euro state costs.

According to USA National Osteoporosis Foundation dates, by 2020, experts predict that the count of people with diagnosed osteoporosis and reduced BMD (bone mineral density) will increase from 54 million to 64 million.

Aim. The aim of research was to analyze the osteoporosis treatment effectivity after the diagnostic of disease. To achieve the aim of the study were used quantitative, retrospective study design.

Results. 1018 medical histories with made osteodensitometry's (DXA) measurement were analyzed overall and were included in the study. From them in 914 cases were women and in 104 cases were men, but only 285 cases responded the inclusive criteria of the study. Based on the results of the study, normal BMD results had 167 (18,3%) women, osteopenia had 293 (32,1%) women, osteoporosis was diagnosed in 451 (49,3%) cases and

elevated BMD had 3 (2%) women. From 104 men case records normal BMD had 28 (26,9%) participants, osteopenia had 36 (34,6%) men, osteoporosis 39 (37,5%) and elevated BMD had 1 (1%) man. Study participants received monotherapy (36,3% women) and combined therapy (55% women and all men), but 7% of women did not receive any type of treatment. Amendment of hips and vertebrae BMD with the different medicament combination was not the same. The highest amendment of vertebrae BMD achieved osteoporosis patients, who received combined therapy with Protelos, Ca medicaments and α D3 TEVA. However the highest vertebrae BMD increase was in the age group 70-79 with bisphosphonates therapy. Relatively to hip joint, the highest amendment reached osteoporosis patients, who received combined therapy with bisphosphonates and Ca medicaments. The highest hips BMD increase was in age group 60-69 with the earlier mentioned therapy.

Conclusion. Based on the results of the study it could be concluded, that the incidence of osteoporosis is higher in female representatives and more effective treatment is Protelos in combination with Ca and α D3 TEVA medicaments. However every osteoporosis patient is individual and therapy should be chosen individually.

SESSION IX

CASE REPORT

HEMANGIOMA IN HYPOPHARYNX IN ADULT PATIENT: A CASE REPORT

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Key words. Hemangioma, hypopharynx, larynx, in adult.

Introduction. Hemangioma is a common tumor in infancy and childhood – constitute 7% of all benign tumors. Most of them are present since birth and expand along with the growth of the child, many of those lesions have tendency to regress spontaneously. Hemangiomas are solitary in 80% of cases and multiple in 20%. They are known for their rapid growth. The head and neck region is most commonly involved, followed by the trunk and extremities. However there are no epidemiological data about incidence in adults.

Treatment opportunities: embolization - there is publications that recurrences were not observed in any of the patients with soft-tissue hemangiomas, systemic use of corticosteroids or propranolol has become popular practice. There is evidence data that propranolol therapy has less side effects, a different mechanism of action, and greater efficacy than current first- line corticosteroid therapy. Although the mechanism of the therapeutic effect of propranolol is unknown theories suggest about vasoconstriction, endothelial cell apoptosis and inhibition of angiogenesis by modulating vascular endothelial growth factors. In Murthy GJ., Goswami M.

publication of year 2012 it is said that they have the first reported case of adult onset orbital hemangioma which was almost completely resolved by oral propranolol treatment.

Description of case. Patient – 50 years old man who complained about discomfort in throat. Fibrogastroscope examination demonstrated large, rough tumor in the area of hypopharynx. After magnetic resonance images

it was supposed to be a hemangioma. Conclusion of digital subtraction angiography – in *arteria carotis externa dextra* and *arteria carotis externa sinistra* and their branches is pathological vascular web, hypervascular structure in the level of larynx. Patient visited otorhinolaryngologist to consider possibility of surgical treatment. At this time surgery is denied because it could be a life threatening manipulation due to the risk of excessive bleeding.

As the next step it is planned to consult an invasive radiologist to evaluate a possibility for embolization.

There still is possibility for conservative treatment with medicines (systemic corticosteroids or propranolol). In any case the following monitoring of obstruction of airways is needed and if there is remarkable breathing disturbance, tracheostomy procedure will be considered. There is possibility of other complications, for example, bleeding.

Conclusions. Hemangioma located in larynx requires multidisciplinary evaluation. There are no definite guidelines for hemangioma treatment for adult patients.

Summary. Hemangioma for adult patients is very rare pathology. In case of localization in region of larynx, multidisciplinary evaluation is required by otorhinolaryngologist, invasive radiologist, angiosurgeon, therapist and treatment possibilities depend on character of hemangioma and should be considered individually.

HEPATOCELLULAR CARCINOMA WITH UNTYPICAL RADIOLOGICAL FINDINGS

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Key words. Hepatocellular carcinoma, CT, MR, untypical findings.

Introduction. Hepatocellular carcinoma (HCC) is the sixth most common cancer in the world and the third leading cause of cancer mortality. It is the most common type of primary liver cancer. Classic CT findings of HCC include a hypervascular pattern in arterial phase and washout in venous phase. In MR study well-differentiated tumors are more commonly hyperintense on

T1 images and isointense on T2 images, while poorly differentiated tumors tend to be hyperintense on T2 images and isointense on T1 images.

Description. Thirty seven-year-old male was seen ambulatory because of complains about stomach ache and flatulence. HCV was diagnosed in blood test, cirrhosis in ultrasound, CT revealed suspicious infiltrative process in the S5, S6, S7 of the liver, isodens in all examination phases. Contrast enhancing thrombus in left branch of portal vein was also found.

After a week patient was admitted to the hospital – anemia, pancytopenia, hypocoagulation, portal hypertension – esophageal venous varicose II-III stage, splenomegaly, AFP – 203 IU/mL. MR – in T1 and T2 liver is slightly nonhomogenous, more on T2 sequence S5, S6, where more blurry hypointens lesions are found, the biggest on S4 – 4cm, all lesions without a diffusion restriction in all B values. No hypervascularisation in arterial phase after contrast.

US guided liver biopsy was taken, no malignancy diagnosed. No malignant cells in ascitis.

Because of bleeding from oesophageal veins, 20 days after signing out, patient was hospitalized - anemia, thrombocytopenia, hypocoagulation. Ligation of oesophageal veins.

After one month admitted to the hospital because of bleeding from oesophageal veins. CT showed multiple hypodens lesions in both liver lobes without hyperdensity in arterial phase. Portal vein showed high attenuation in arterial phase and was suspicious to arteriovenous shunting via vascularized thrombus. TIPS procedure was made.

After two months patient was admitted to the hospital to perform additional examinations. MR – T2 with fat suppression – multiple, diffuse, hyperintens lesions, ~1.5x2cm. After contrast – lesions are all the same. In S6 seen bigger lesion – 7.27x6.79 nonhomogenous, nontypical HCC lesion.

After a month hospitalized in terminal stage, *exitus letalis*. Autopsy histological materials showed HCC.

Conclusions. CT examination of HCC can show untypical findings – iso- or hypodensity in all phases.

MR examination on HCC can show untypical findings – hypointens lesions in T1 and T2; without diffusion restriction; no well defined nodules in hepatospecific phase.

Biopsy of HCC cannot be the only diagnostic criteria.

Summary. Patient with gastrointestinal claims was admitted to the hospital, where blood tests were suspicious, upper endoscopy showed portal hypertension, radiological findings showed suspected liver malignancy, but no

typical findings for HCC were seen. Liver biopsy showed negative results for malignancy. Patient died 6 months after the first symptoms. Histological findings showed HCC.

SECONDARY CHYLOPERICARDIUM – A RARE PRESENTATION OF THE HIGH GRADE MALIGNANT B-CELL LYMPHOMA

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Key words. Chylopericardium, B-cell lymphoma, superior vena cava compression.

Introduction. Chylopericardium is an uncommon, rare and potentially life threatening clinic entity that is characterized by the accumulation of chylous fluid in the pericardial cavity [Goldman, et al., 2012; PubMed: 9932165] and up to 17% of the patients it can present with a cardiac tamponade [PubMed:22465579]. Causes can be injuries of the thoracic duct by chest trauma or surgery, Gorham syndrome, congenital mediastinal lymphangiectasies, subclavian vein thrombosis, tuberculosis, radiotherapy, infections, Bechet's disease and also mediastinal neoplasms [PubMed: 22465579].

Case report description. 35 years old female was hospitalized after she was having a moderate to moderately strong retrosternal pain on the evenings that had been irregular for one week and that ended spontaneously. Patient also was having a facial oedema and shortness of breath that was getting more severe on a lying position on the back. The very first episodes of the retrosternal pain and the shortness of breath were noticed a month ago before the hospitalization. There were no other significant signs in anamneses. Vital measurements: heart rate- 80 beats per minute, TA- 114/70 mm/Hg, respiratory rate- 20 breaths per minute, SpO₂= 97%. On performed auscultation- decreased breath sounds at the basal parts of both lungs, no signs of pathological heart sounds or murmurs. There were no signs of hepatomegaly or splenomegaly. On echocardiography massive circular pericardial effusion („swimming heart”) with signs of heart tamponade was

found (effusion along the left ventricle and the apex of the heart- 1-3 cm, along the right atrium and ventricle to 3,6 cm). On performed pericardiocentesis 700 ml chylous lymphocytic pericardial effusion was obtained. As tuberculosis, HIV tests were negative and esophagogastroduodenoscopy showed no signs of pathological processes in the upper gastrointestinal tract but on the next days on echocardiography recurrent moderate pericardial effusion was found so thoracic CT scan with a contrast was performed. A malignant neoplasm of the superior and anterior part of the mediastinum with superior vena cava compression, hydrothorax and hydropericardium was found. Biopsy of the neoplasm was taken and pericardial window for drainage was made by videothoracoscopy. High grade malignant B-cell lymphoma, most likely the diffuse large B-cell lymphoma (CD20+, Ki67+ (value was higher than 50%), CD3-, CD30-, CD15-,CD68-) was diagnosed and the R-CHOP-based chemotherapy treatment was started (Rituximab 700 mg x1, Cyclophosphani 1.4g x1, Doxorubicin 90 mg x1, Vincristine 2 mg x1, Medrol 500 mg i/v-> 180 mg). At the end of the hospitalization despite chemotherapy treatment patient was stable and feeling good, there were no signs of pericardial effusion, vital measurements- heart rate- 68 beats per minute, TA- 115/70 mm/Hg, respiratory rate- 15 breaths per minute.

Conclusions. In conclusion, a rare case of secondary chylopericardium and superior vena cava compression associated with a high grade malignant B-cell lymphoma was presented. Chemotherapy treatment of the lymphoma and performed videothoracoscopy with a pericardial window formation was curative for chylopericardium.

Summary. Despite high grade malignant B-cell lymphoma is a common neoplasm (B-cell lymphomas are found in 85% to 90% of all non-Hodgkin lymphomas (NHL), NHL were found in 4.3% of all new cancer cases in 2014 in the USA) [National Cancer Institute: <http://seer.cancer.gov/statfacts/html/nhl.html>; Goldman, et al., 2012] it can cause a rare entity called chylopericardium that can be diagnosed only after examination of the pericardial effusion.

CROHN'S DISEASE DIAGNOSTIC USING MAGNETIC RESONANCE ENTEROGRAPHY AND DIFFUSION WEIGHTED WHOLE BODY IMAGING WITH BACKGROUND BODY SIGNAL SUPPRESSION (*DWIBS*) SEQUENCE, FIRST EXPERIENCE

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Key words. MR enterography; DWIBS MRI; Crohn's disease

Introduction. Crohn's disease is common idiopathic and chronic inflammatory process, that affects gastrointestinal tract. In recent years morbidity with Crohn's disease has increased. Colonoscopy is gold standard for diagnosis of Crohn's disease. Ileocolonoscopy enables to see intestinal wall and to take tissue samples for examination. This method allows to visualize only intestinal mucosa, however, Crohn's disease affects all layers of bowel wall. Intestinal mucosa has capability to regenerate and visually unchanged mucosa may cover an inflamed submucosa. It is possible to hypodiagnose inflammatory process relying only on results of endoscopy thus delaying Crohn's disease treatment. In recent years magnetic resonance enterography (MRE) and diffusion weighted imaging (DWI) have been increasingly used to evaluate bowel abnormalities. Diffusion weighted whole body imaging with background body signal suppression (DWIBS) is considered to be more sensitive than DWI in diagnosis of oncological pathologies. Nevertheless there is no data about DWIBS sensitiveness in diagnosis of inflammatory bowel disease.

Case report description. Two patients with negative endoscopic findings were examined by MRE. Typical findings of inflammation in terminal ileum were detected.

Twenty-nine and thirty years old male patients were examined by MRE (1,5-T multichannel WB-MR scanner). They both had clinical history for many years and suspicious clinical presentation of inflammatory bowel disease IBD. Fecal calprotectin level was low (**18,7 µg/g and 22,6 µg/g**) and neither

capsule enteroscopy nor ileocolonoscopy showed pathological findings. Before the scan patients drank 1000 ml of mannitol (2,5%) and 1 ml butylscopolamine bromide (Buscopan) mixed with 20 ml Sol. NaCl 0,9% IV administered. MRE standard scan protocol was supplemented with DWIBS. This sequence clearly demonstrated small bowel segments with restricted diffusion i.e., high signal enhancement (SE). Circularly high SE for several cm long distance in terminal ileum and local high SE in wall of caecum in region of *valvula ileocecalis*, also several mesenteric lymph nodes (6-9 mm diameter) were found in MRE DWIBS for both patients. These changes were not completely visualized using only sequences included in MRE standard scan protocol.

Conclusions. DWIBS is valuable functional imaging technique that can be applied to MRE standard scan protocol. DWIBS is useful to diagnose inflammatory bowel disease. The benefit of this technique is lack of radiation and DWIBS may limit the necessity of gadolinium contrast enhancement, which is very important in pediatric diagnostic.

Summary. DWIBS is sensitive, perspective and appropriate MRI sequence for visualization and localization of inflamed small bowel loops and further for quick and accurate diagnostic of Crohn's disease.

CHALLENGE: MORBID OBESE PATIENTS IN THE ICU

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Key words. morbid obesity, erysipelas, transportation, pressure ulcer.

Introduction. Morbid obesity is a chronic disease which is characterised by BMI of 40 or more, or 35 or more and experiencing obesity-related health conditions. Problem of overweight is widespread in developed countries (in 2008 in the UK 24% of male and 25% of female; in Germany 23% male and 19% female were obese); Latvian medicine also faced with some difficulties in care for obese patients. In this clinical case report we present a morbid obese patient, whose transportation and intrahospital care were impaired by his weight and size and it was a real challenge for all medical staff.

Case report description. Male patient 44 y.o., approximately 300 kg according to his version (weight had been increasing recently and it was unable to give precise value), was referred to hospital on emergency with

following complaints: shortness of breath, increased temperature, weakness, painful inflamed region at right shin; these symptoms were developed in 24 h. Transportation was complicated by patient's weight so that extra emergency car was enabled. Medical emergency team brought stretcher designed for adipose persons, but it also risked to break because of size and weight of patient. First observation at hospital 11.11.14. gave following information: patient is intoxicated, but consciousness is clear; arrhythmia, TA 140/53, massive oedema; auscultative impaired breathing and percutory tympanitis in lungs basal parts, breathing rate $\times 14/\text{min}$; upper third of right shin and anterior abdominal wall above symphysis are blushed, oedematose, hot, with multiple bullas; circulation and sensitivity in right shin are compensated. No pressure ulcers was discovered. Radiologic studies had been impossible to perform because CT device has standard diameter and patient was not able to stand for taking an X-ray. Preliminary diagnosis was coronary heart disease, mixed type cardiomyopathy, chronic heart failure IV, diabetes mellitus II, adiposity IV, right shin erysipelas. It was planned to place the patient in Surgical department, but due to difficulties in transportation, he stayed in the Emergency. 12.11.14. haemodynamic instability and disturbances of consciousness rapidly progressed ($\text{pCO}_2=110 \text{ mmHg}$; respiratory acidosis) so that patient was placed in Sepsis and Toxicology clinic. There intubation was performed and artificial lung ventilation was started. 13.11.14. patient status got better; patient was extubated. According to patient claims (too small bed to turn and sleep) personnel decided to combine two mattresses on the floor as far as there was no bed applicable in size and endurance. 14.11.14. Status with positive dynamics, laboratory studies got better, erysipelas did not progress. But pressure ulcer (4x4 cm) in the gluteus region was discovered. Patient contacted adequately, was able to eat and drink without help. Consilium was summoned with aim to consider about further therapy options. Due to Consilium decision patient was discharged to ambulatory treatment wherefore intrahospital infection increased risk and inability to provide adequate care. Patient was delivered to home by fire truck. Team of 10 men with special equipment to carry heavy objects were enabled to perform transportation.

Conclusions. Emergency units and hospitals are unable to provide adequate care for morbid adipose patients because of lack of special equipment for transportation, special team for transportation and taking care in hospital, appropriate diagnostic devices. Attention should be paid to prevention of morbid obesity in aim to decrease such clinical cases frequency.

Summary. In Latvia there was 21.5% male and 21.8% female with obesity in 2009. Morbid obese patient with ordinary diagnosis suffered more

from lack of adequate care than from disease. Obesity is a risk factor for development of complications even after common diseases. Care, treatment and transportation of obese patients is real challenge to all medical staff and patient himself.

EARLY ONSET OF AA AMYLOIDOSIS ASSOCIATED WITH JUVENILE IDIOPATHIC ARTHRITIS

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Key words. Juvenile idiopathic arthritis, Chronic inflammation, AA amyloidosis, Renal involvement

Introduction. Juvenile idiopathic arthritis (JIA) is an autoimmune disease of unknown origin and one of the more common chronic illnesses of childhood [Kliegman *et al.*, 2013]. Systemic AA amyloidosis is the result of chronic inflammatory disease with frequent manifestation of renal functional impairment and with massive urinary protein excretion. Amyloidosis-associated kidney disease usually progress to end-stage-renal-disease (ESRD) and is major source of morbidity [December, 2006].

Case report description. A 26-year-old man with anamnesis of JIA since the age of 8 was admitted for the Infliximab infusion. The patient has follow-up by rheumatologist, and the use of medications due to diagnosis is regular: methotrexate once a week, folic acid, methylprednisolone, calcium and D3 vitamin every day, the course of Infliximab is received in a ward. The main complaint is diffuse morning stiffness in the backbone. Physical examination findings are unremarkable, except the Cushing syndrome due to steroid use and presentation of diminished vision in both eyes because of chronic uveitis. Proteinuria of 2.35g/day is revealed therefore the kidney biopsy is indicated. Laboratory results displays hypochromic microcytic anemia, leukocytosis. C-reactive protein (CRP) is 123.8mg/l with the previous value of 203.1mg/l one months ago. Glomerular filtration rate (GFR) is 357.7ml/min (creatinine=36μmol/l) but the previous result accounted 224ml/min (creatinine=58μmol/l), serum albumin- 27g/l.

The kidney biopsy sample contains 22 glomeruli, none of them were globally sclerotic. Congo Red stain is positive with apple green birefringence under polarized light for amyloid accumulation in the 5% of the glomerular

area, arteries and arterioles. Immunohistochemical reaction for AA protein is positive in amyloid depositions. The pathological diagnosis of a very early AA amyloidosis is established. 2 months follow-up laboratory results: hypochromic microcytic anemia, leukocytosis with neutrophilia, ESR is 65mm/h, CRP of 84.7mg/l, proteinuria of 0.75g/l and GFR 186 ml/min (creatinine=70µmol/l).

Conclusions. AA amyloidosis is the result of continuous, long term inadequate control over chronic inflammation. The early stage of renal involvement is based on absence of nephrotic syndrome, hypertension, edema and ESRD. Early diagnosis of renal AA amyloidosis and management of JIA is paramount to prevent progression of chronic kidney disease.

Summary. The case of 26-year-old man with anamnesis of JIA for 18 years is presented. During the regular follow-up and medication course due to JIA the proteinuria is observed in urine analysis. The suspicion of AA amyloidosis is proved by kidney biopsy. The early AA amyloidosis is ascertained by only 5% morphological changes and absence of the nephrotic syndrome and hypertension. Therapy to suppress the inflammatory disease is used whenever possible, and laboratory parameters during follow-up after the kidney biopsy are slightly better than before, however, the significant improvement is not observed which raises the suspicion of still present activity of JIA and ongoing chronic inflammation despite aggressive therapy and consequently AA amyloidosis.

CLINICAL CASE DEMONSTRATION: CHILD WITH ACUTE LYMPHOBLASTIC LEUKEMIA PRE-B TYPE AND TUBERCULOSIS INFECTION

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Introduction. At the end of January the year of 2015 was announced to be the Cancer Awareness Year. Accordingly, we want to emphasize the great importance of early detection and care for haematologic malignancies in children.

The childhood acute lymphoblastic leukemia (ALL) represents the largest group of pediatric malignancies with long-term survival rates. About

85% of children with ALL have B-cell ALL. Those patients with immunodeficiencies have a greater risk of progressing to tuberculosis (TB) disease once infected. It is estimated that a relative risk of TB disease in patients with haematologic malignancies is 2-40 times that of the general population.

Case report description. A patient, a 4 years old boy, was sent to Children's Clinical University Hospital (CCUH) on 4th of November from The Institute of Stomatology. Severe bleeding started while the revision of subperiosteal abscess was done and the patient was taken to CCUH. Blood tests in the Emergency Department were as follows: WBC $3.39 \times 10^3/\mu\text{L}$; RBC $2.16 \times 10^6/\mu\text{L}$; HGB 5.4 g/dL; PLT $33 \times 10^3/\mu\text{L}$; CRP 328.54 mg/L and IL-6 67.9 pg/mL. From the history it is known that starting with the 31th of October the patient had a fever up to 39 degrees Celsius. At the beginning the patient was taken to an Intensive Care Department because of his unstable state. The diagnosis of acute lymphoblastic leukemia pre-B type was confirmed and the chemotherapy was started in the Onco-hematology Department. After 33 days of therapy bone marrow remission was achieved. The patient was discharged on the 10th of December but a productive cough started and he had a febrile temperature at home. On the 19th of December the boy was taken to the local hospital where antibacterial therapy was started. The patient's condition improved but when the therapy was stopped the cough and the temperature returned. The child was taken back to CCUH and a lot of investigations were made. Just one day before the pulmonary lymph node biopsy the patient was diagnosed as tuberculosis positive that is a very severe infection for immune suppressed patients.

Conclusions. It is very important to have an early detection of ALL to avoid the life threatening bleeding connected with thrombocytopenia.

TB disease might be evaluated as an important differential diagnosis for patients with haematologic malignancies suffering from febrile neutropenia in a tuberculosis endemic area.

Summary. The case report demonstrates a 4 years old boy with acute lymphoblastic leukemia pre-B type that was discovered after life threatening bleeding. His bone marrow remission was achieved but after a severe cough and a febrile temperature that appeared at home the patient was taken back to hospital where he was diagnosed to be tuberculosis positive.

SERONEGATIVE GENERALISED MYASTHENIA GRAVIS OR CHRONIC MILLER FISHER SYNDROME?

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Keywords. Miller Fisher syndrome, anti-GQ1b antibodies, myasthenia gravis, CANOMAD

Introduction. Miller Fisher syndrome (MFS), a localized variant of Guillain-Barre syndrome (GBS) is a rare immune-mediated neuropathy that commonly manifests with the triad of ophthalmoplegia, areflexia and ataxia. The usual course of MFS results in full recovery, however, up to 6 % develop a chronic disease - chronic ataxic neuropathy, ophthalmoplegia, monoclonal Ig protein, cold Agglutinins, disialosyl antibodies (CANOMAD). The co-occurrence of MFS and myasthenia gravis (MG) is uncommon with a few reported cases in literature. Interestingly, both have remarkably similar clinical features at presentation making them noteworthy differential diagnoses.

Case report description. A 52-year-old white man presented with acute onset progressive diplopia and unstable gait. Clinical examination revealed complete bilateral external ophthalmoplegia, left-sided ptosis, generalized hyporeflexia, ataxia of limbs and gait ataxia. His limb power was full, but showed a decrease after activity. Brain MRI and chest CT were performed without any clinical findings. Cerebrospinal fluid examination revealed cytoalbuminogenic disassociation. Serum anti-GM1 and anti-GQ1b antibodies were positive, regarding what patient was diagnosed with MFS. ENG showed a positive myasthenic reaction and no data of peripheral neuropathy. Acetylcholine receptor antibodies and Musk-antibodies were negative. Patient received plasmapheresis and was treated with intravenous immunoglobulin after what diplopia and ataxia reduced, but complete ophthalmoplegia with unilateral ptosis persisted. The patient was released from the hospital for further rehabilitation. A month later the patient complained of general fatigue and diplopia appearing 20 minutes after waking up. Regarding the persisting symptoms and previous ENG findings suggesting MG, the patient was started on prednisolone and pyridostigmine, which dramatically relieved the symptoms. The patient continues therapy and is symptom-free.

Conclusions. The findings in this patient raise a discussion about the pathogenesis of MFS and MG and their possible interaction. Proposed treatment for CANOMAD and MG is alike, which makes positive reaction to therapy not conclusive for either of the diagnoses. This allows an open discussion about this case being MFS developed into to CANOMAD or MG from the start.

Summary. We report a middle-aged man with no history of autoimmune disease acutely presenting with diplopia, unilateral ptosis and ataxia, having positive anti-GQ1b antibodies diagnosed with MFS, but after persisting symptoms and a positive myaesthetic reaction in ENG later proposed to also have MG.

TREATMENT OF CHORIODAL HAEMANGIOMA

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Key words. choroidal haemangioma, plaque radiotherapy, visual acuity

Introduction. Choroidal haemangioma is rare benign vascular tumor which can be localized or diffuse. It can cause serious visual disability secondary to exudative retinal detachment. Diffuse choroidal haemangiomas have significant association with Sturge - Weber syndrome which is neurocutaneous disorder including intra and extracranial angiomas. Due to pigmented mass appearance on choriodea, haemangioma can be misdiagnosed with malignant melanoma. Plaque radiotherapy is one of preferred treatment options.

Case report description. 7 year old boy was referred to Children's Clinical University hospital in Department of Eye Diseases with complaints about rapidly decreasing visual acuity, metamorphopsia and photopsia in left eye. He presented with vision od 1.0 os 0.05 cc 0.2. In fundus examination orange choroidal thickening with peripheral pigmentation and mild retinal exudates in left temporal quadrant were found. USG examination showed prominence of optic disc and macula and exudative retinal detachment. In optical coherence tomography (OCT) macular oedema and subretinal fluid were seen. Intraocular pressure was normal. These examinations led to

diagnosis of Choroidal Haemangioma. Patient showed no association with Sturge - Weber syndrome. MRI for head was done to diagnose possible intracranial angiomas and intraocular pressure was controlled every month. Plaque radiotherapy done in Estonia in Eye Clinic of the East Tallinn Central Hospital was successfully used to reduce size of haemangioma from 2.8-13.4 mm to 2.6-2.0 mm and also lead to resolution of exudative retinal detachment. Visual acuity improved to V od 1.0 os 0.1 cc 0.7 (+2.5/+0.5/26⁰) after one year.

Conclusions. Collaboration of ophthalmologists from Latvia and Estonia led to successful treatment of rare choroidal lesion and saved child from life-long visual impairment.

Summary. Choroidal haemangiomas are rare vascular tumors, usually in association with Sturge - Weber syndrome. 7 years old boy presented with rapidly decreasing visual acuity and metamorphopsia. Detailed examination of fundus lead to diagnosis – choroidal haemangioma. Sturge – Weber syndrome association was examined carefully. Plaque radiotherapy was successfully used to reduce lesion. Patient's visual acuity improved highly.

A CASE OF CONGENITAL TOXOPLASMOSIS IN NEONATAL INTENSIVE CARE UNIT

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Key words. congenital toxoplasmosis, hydrocephaly, meningoencephalitis, uveitis.

Introduction. Toxoplasmosis is caused by a widely distributed protozoan *Toxoplasma gondii*, which usually causes an asymptomatic infection in a healthy host. In Europe the prevalence of infection is 46%. It can be acute or chronic and congenital or postnatally acquired. Congenital toxoplasmosis is the most serious manifestation of infection, resulting from the vertical transmission of *T. gondii* transplacentally from a parasystemic mother to her offspring. The most important consequences are ophthalmologic and neurologic disabilities. The incidence of congenital toxoplasmosis in Europe is 6 per 1000 births in France, 2 per 1000 births in Poland.

Case report description. The female patient was born to a 41 years old mother, from fifth pregnancy, third delivery. Childbirth at the 33 weeks of

gestation, weight 2520 g, height 46 cm, head circumference 36 cm, after Apgar scale 8/9 points. Size of the skull increases 36.0-39.0 cm, neurological symptoms appear. Examinations - after the head MRI is thought about congenital toxoplasmosis infection with massive hydrocephaly, brain developmental abnormalities. CT - encephalomalacia, secondary hydrocephaly after cytomegalovirus meningoencephalitis. Ophthalmologist found the right eye microphthalmia, chorioretinitis, uveitis in the active phase, but in the left eye chorioretinitis and uveitis. TORCH screening of blood showed positive results to IgG and IgM antibodies against *Toxoplasma gondii*. Diagnosis was approved by *T. gondii* DNA in the blood, which was also found in the cerebrospinal fluid. Cerebrospinal fluid analysis demonstrated: Total Protein, g/L 32.09; Glucose, mmol/L 0.08; White blood cell count, $\times 10^9/\text{L}$ 1963; Red blood cell count $\times 10^{12}/\text{L}$ 2.4. Specific medication therapy with sulfadiazine, pyrimethamine, locally prednisone ointment, ceftriaxone, probiotics, vitamin D. Head treatment is symptomatic. At the 11th day of life ventriculostomy was performed, repeated operations because of the shunt dysfunction.

Conclusions. This case shows that congenital toxoplasmosis is a topical issue nowadays, because consistent ophthalmologic and neurologic complications may remain and it can be life-threatening. Patient treatment is limited, because in Latvia there are no specific pharmaceutical remedies available against *Toxoplasma gondii*. This case reflects the fact that it is a serious disease and it would be necessary to make the medication available immediately in the hospital.

Summary. This case was characterized by a prematurely born child with congenital toxoplasmosis, hydrocephaly, meningoencephalitis, uveitis. The diagnosis was based on positive blood example, showing IgM and IgG antibodies against *T.gondii*, confirmed by a *T.gondii* DNA in blood and cerebrospinal fluid. Treatment included specific medication therapy and due to complications head surgical operations were performed.

MARFAN SYNDROME WITH DISSECTION OF THE ASCENDING AORTA

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Key words. Marfan syndrome, Dissecting Aorta, Fibrillin

Introduction. Marfan syndrome is a rare connective tissue disorder that raised attention due to the concomitant danger of developing severe cardiovascular pathologies. The disease results due to a mutation in FBN1 gene (15th chromosome), a subtype of the syndrome is caused by an anomaly of TGBR-2 gene (3rd chromosome). The defective gene fails to produce a building component of the glycoprotein Fibrillin-1, essential for diverse elastic structures in the body. In 85 % of cases, the disorder is transmitted by autosomal dominant inheritance. The unique symptomatic profile manifests itself in individuals with elongated extremities, ocular defects and vascular malformations. Especially aortic vessels with high elastic content in their wall structure are impaired in their functional architecture. The defective layers may dissect and develop saccular aneurysms. Diagnostic approaches and therapeutic practice are challenged by the onset and variable expression of severity. (L.Mimoun, 2010; M.Aubart, 2015)

Case report description. The following two cases represent a fatal outcome of Marfan syndrome. In our research, we have analyzed pathology records and clinical data. The first case shows a twenty year old man who died at home before being admitted to the hospital. In order to find the cause of his sudden death, an examination of the body was performed. The patient was described being tall with long hands, legs and arachnodactyly. Further inspection of internal organs showed diverse complications due to an aortic dissection with hemopericardium. It led to lung edema and venous congestion of parenchymal organs. The external appearance of the young man and pathologic findings matched the classical Marfan syndrome picture.

The second case is an acute crisis of a 34 year old man in Riga Eastern Clinical university hospital (Gailezers). The patient seemed to have had pre-existing cardiomyopathy, with initial atherosclerosis of the aorta, and psoriasis. During therapy management he showed low vital signs and his condition was worsening over hours. Several diagnostic approaches were carried out, and during coronary angiography a dissected aortic aneurysm was found. The dissection of the aorta led to acute cardiovascular failure and death, with

complications of edema in lungs and brain, as well as congestion of parenchymal organs. Further morphological examinations proved medial necrosis of aorta.

Conclusions. 1. Both analyzed cases with Marfan syndrome were similar and lead to death of young males. 2. Marfan syndrome appears in 1 to 3000-5000 citizens and has to be taken into consideration by cardiologists, ophthalmologists and other doctors as cardiovascular manifestations of the disease. Treatment approaches are ensured by cardiac surgery and mutation screening.

Summary. We have analyzed two fatal Marfan syndrome cases of 20 and 34 years old males. Both died from dissection of ascending aorta and acute cardiovascular failure. Aortic monitoring and diagnosis of vascular lesions is necessary and can help to delay or prevent complications. It is important to consider infants as possible patients, too, as the risk of inheriting Marfan syndrome is 50 %.

TAKOTSUBO SYNDROME

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Key words. Takotsubo, apical ballooning, stress.

Introduction. Takotsubo syndrome is an increasingly recognized acute cardiac affliction which is characterized by severe regional left ventricular dysfunction that cannot be explained by one or more occlusive culprit lesions of a coronary artery. A preceding somatic and/or emotional stressor can be identified in a majority of these patients.

TCM patients present with symptoms of chest pain, electrocardiograph (ECG) ST-segment elevation, and cardiac markers consistent with an acute coronary syndrome (ACS). However, angiography finds no significant coronary stenosis, and there is as widespread akinesia in the apical segments with hyperkinesia of basal segments, so called “apical ballooning” but other patterns of cardiac dysfunction exist and are being reported with increasing frequency. Takotsubo may lead to lethal complications, including malignant arrhythmias, cardiogenic shock and ventricular rupture. However, organ dysfunction is typically reversible if the patient survives the acute phase.

Case report description. A 53-year-old Caucasian female was found lying on the floor at home unconscious. When the ambulance arrived, she presented with Jackson type seizures and signs of aspiration, she was intubated and received artificial lung ventilation.

In the ED, vital signs were: BP of 116/90 mm Hg, pulse of 107 beats/min, O₂ saturation of 97% with ALV, temperature of 36.8°C.

Initial ECG showed normal sinus rhythm, rate of 133 beats/min; ST elevation in the anterior, lateral, inferior wall. Lab results were troponin I of 20,98 ng/ml (normal <0.78 ng/ml), creatinine kinase of 37, (normal <5.0 ng/ml).

The patient had immediate cardiac catheterization that revealed no source of cardiac ischemia. Echocardiography revealed significant apical segment dyskinesia with EF of 35%. Follow-up echocardiogram seven days later showed normal normal apical wall motion with LV ejection fraction (EF) of 50%.

During the hospitalization patient presented with acute kidney failure, multiple lacunar brain infarction, underwent cardiac shock with catecholamine dependency. By the time of discharge, the patient had only some neurological deficit.

Conclusions. The EP should consider the diagnosis in patients with chest pain and a recent stressful event, especially elderly females.

Summary. Takotsubo syndrome is a complex clinical condition in which emotional or physical stressors are believed to precipitate an episode.

5 YEAR SURVIVAL IN PATIENT TREATED WITH CYTOREDUCTIVE SURGERY AND HIPEC (HYPERTHERMIC INTRAPERITONEAL CHEMOTHERAPY) DUE TO PSEUDOMYXOMA PERITONEI

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Key words. HIPEC, mucinous cystadenocarcinoma, pseudomyxoma peritonei

Introduction. Pseudomyxoma peritonei (PMP) is a rare neoplastic condition, commonly presenting with mucinous ascites and diffuse peritoneal

deposits. The exact incidence is unknown but has been estimated to be around 1- 3/1 million per year. PMP is invariably fatal if not optimally treated. Combination of cytoreductive surgery (CRS) and hyperthermic intraperitoneal chemotherapy (HIPEC) now considered the optimal treatment for PMP. (1) The intention of CRS is to remove all macroscopic tumor and then deliver HIPEC for the treatment of microscopic residual disease, as initially proposed by Sugarbaker. With CRS and HIPEC, several centers report a 5-year survival of 75% and even up to as much as 95%. (2)

Case report description. In 2010 PSCUH approached 45 Year old man complaining of discomfort on left hypochondrium. CT is performed in the abdominal cavity, FNA, colonoscopy, diagnostic laparotomy, during which a biopsy is taken of omentum and peritonei. It is diagnosed: appendix vermiformis mucinous cystadenocarcinoma, pseudomyxoma peritonei IV stage, mucinous ascitis. The patient requires extensive cytoreductive surgery with HIPEC according to the latest scientific evidence it is the standard treatment for these rare tumors. No such treatment is possible in Latvia. On 26 July 2010 the patient is hospitalized in Siena University Hospital Italy. Performs CRS with right hemicolectomy, splenectomy, omentectomy, complete pelvic, left iliac fossa and right hypochondriac peritonectomy. Using HIPEC during the surgery.

October 3, 2011 patient turns to PSCUH Oncology clinic for MRI examination, findings: multiple hypodense peritoneal structures to 1.3 cm. From 15 December to 25 January 2012, patient is undergoing systemic chemotherapy 3 courses. January 23, 2012 control MRI shows progression of the process, mainly in the ileocecal region replaced chemotherapy for Irinotecan monotherapy 3 courses. April 12, 2012 control MRI shows progression of process. Decides to re-CRS with HIPEC at Siena University Hospital. 2013 and 2014 control MRI does not reveal the process of progression or other abnormal changes.

Conclusions. In two years since diagnosis adequate treatment is carried out using CRS and HIPEC. Effectiveness of this method of treatment confirms control MRI, no abnormalities detected. With adequate patient's treatment the predicted survival has increased. It is not possible to carry out this treatment in Latvia right now, but there are several European clinics specializing in this type of treatment. CRS and HIPEC can be done on the Latvian government funding means.

Summary. Pseudomyxoma peritonei is a rare disease that progresses slowly and for a long time can be asymptomatic. Actually the only effective method of treatment is combination of CRS and HIPEC, so extending the

patient's survival. This treatment is heavy and expensive, and often it is necessary to repeat it. In Latvia this method of treatment is not available because doctors are not experienced in a wide range of CRS and HIPEC of these rare tumors. There are several clinics in Europe offering this treatment. After treatment, it is important to take control MRI once a year.

PARENTAL ANALYSIS OF *JAG1* GENE IN ALAGILLE SYNDROME

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Key words. Alagille syndrome, genetics, congenital cholestasis

Introduction. Alagille syndrome (AS) or arteriohepatic dysplasia is an autosomal dominant (AD) hereditary disorder caused by defects in the components of the Notch signaling pathway, most commonly due to mutations in the *JAG1* gene (~97%) or the *NOTCH2* gene (~1%). It is a multisystem disorder that primarily affects intrahepatic bile ducts, the pulmonary artery, the heart, the retina, kidneys and has characteristic facial features, but has marked intrafamilial clinical variability. AS has variable expressivity and reduced penetrance (60-96% in various publications). 30-50% of AS patients have an affected parent with mild clinical symptoms, who is referred to as healthy.

Aim. The aim of the study was to analyze *JAG1* gene mutations in apparently un-affected parents to exclude case of the reduced penetrance, thus, ensuring correct genetic counseling for the family.

Case description. A one month old boy with persisting jaundice, pulmonary stenosis, renal dysplasia and retinal hypopigmentation was consulted at Children's Clinical University Hospital. Sequencing of the *JAG1* gene was requested due to clinical signs of AS. The results showed an unpublished potentially deleterious sequence variant - an in-frame deletion c.53_73del (p.Leu18_Leu24del) in a heterozygous state.

Sanger sequencing of exon I and flanking regions in the *JAG1* gene was performed for both parents, but the in-frame deletion c.53_73del (p.Leu18_Leu24del) presented in proband was not found. The mutation was

attributed as *de novo*, providing information for the genetic counseling with slight theoretical probability of gonadal mosaicism.

Conclusions. Autosomal dominant diseases with reduced penetrance have to be evaluated and consulted with caution, due to the possible mutation carriers that are clinically unaffected and whose offspring will have a 50% chance of inheriting the mutation. Here we present a case report, where we addressed this problem and obtained information about *de novo* mutation case.

Summary. Alagille syndrome (AS) is an autosomal dominant hereditary multisystem disorder due to defects in the Notch signaling pathway. AS has variable expressivity and reduced penetrance (60-96% in various publications). A one month old boy was referred to genetic counseling because of suspected AS due to characteristic clinical signs - jaundice (bile duct paucity), pulmonary stenosis, renal dysplasia, retinal hypopigmentation. Genetic sequencing showed an in-frame deletion c.53_73del (p.Leu18_Leu24del) in the *JAG1* gene in a heterozygous state. *Sanger* sequencing of exon I and flanking regions in the *JAG1* gene was performed for both parents, but the in-frame deletion presented in proband was not found. The mutation was attributed as *de novo*, providing information for the genetic counseling with slight theoretical probability of gonadal mosaicism. It is important to carefully evaluate AD diseases with reduced penetrance and consult patients with caution due to possible clinically unaffected mutation carriers whose offspring will have a 50% chance of mutation inheritance.

A PATIENT WITH A FOREIGN BODY IN THE VAGINA AND COMPLICATED POSTOPERATIVE PERIOD

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Key words. Foreign body, Gynaecology, Vesicovaginal fistula

Introduction. 17,6% of children presenting with vaginal discharge, have a history of a foreign body in the vagina. Diagnosing a vaginal foreign body in children is challenging because the symptoms are nonspecific and the visual inspection requires general anaesthesia. After the evacuation of the foreign body, up to 30% of patients develop a complication – vesicovaginal fistula (VVF). The aim of this report is to present a girl with vaginal foreign body and

multiple congenital anomalies, which has undergone a complicated postoperative period.

Case report description. The patient, 12 years old, electively hospitalized for the sanation of sacral pressure ulcers. In addition the patient has complaints of episodic rust-coloured vaginal discharge and constipation. Due to multiple congenital abnormalities the patient has psychomotor development retardation and is taken care of in a social care centre. To exclude chronic osteomyelitis, pelvic CT was done, which verified a calcification with cervix-like imprint of 30x47x59mm in the projection site of the vagina. After gynaecological examination, under general anaesthesia, a foreign body was evacuated from the vagina using piecemeal evacuation with additional episiotomy. In the early postoperative period, despite antimicrobial therapy suture insufficiency was observed. On the sixth postoperative day purulent discharge was acquired from the urinary catheter, suggesting formation of VVF. On the nineteenth postoperative day the patient was discharged from the hospital. On a control visit after one month urine discharge from the vagina was observed, which is a sign of a formed VVF. VVF surgery was not performed.

Conclusions. Vaginal foreign body can present with diverse symptoms. It should be considered in a young female patient presenting with persistent or recurrent vaginal discharge. The evacuation of a foreign body from a vagina has high risk for both early and late complications. Treatment of patients with vesicovaginal fistula should be considered individually, taking into account both the mental state, social conditions, as well as quality of life.

Summary. Foreign bodies in the vagina are a common cause of vaginal discharge. Vaginal foreign bodies in children are more often evacuated under general anaesthesia. In post-operative period, there is a risk of a VVF development. There are only a few published reports of VVF formation in children after foreign body evacuation from the vagina. We present you a clinical case - a girl with a large foreign body in the vagina and the formation of VVF in the postoperative period.

OPSOCLONUS-MYOCLONUS SYNDROME ASSOCIATED WITH VARICELLA-ZOSTER VIRUS

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Keywords. Opsoclonus-myoelonus syndrome (OMS), varicella-zoster virus (VZV), central nervous system (CNS)

Introduction. OMS is seen in 1 in 10,000,000 persons per year. It is well recognized as a paraneoplastic syndrome in children with neuroblastoma and affects about 50% of pediatric cases with it. It may also occur in association with various CNS infections, so this syndrome may have a paraneoplastic, parainfectious or idiopathic origin. OMS typically occurs between 1 and 3 years of age, it is characterized by opsoclonus, myoclonus, ataxia, irritability and sleep disturbance. The clinical course may be monophasic or chronic relapsing. Treatment regimens have not been standardized but may include corticosteroids, adrenocorticotropin hormone, cyclophosphamide, intravenous immunoglobulin, rituximab. In association with VZV – clonazepam, if active virus infection – aciclovir.

Case report description. A 1-year-11-months-old girl presented (14.05.14.) with a history of acute onset of gait ataxia, possible nystagmus and irritability. First diagnose – acute post-viral cerebellar ataxia. Between January and April 2014 were two episodes of upper respiratory tract viral infection symptoms. September 2013 patient was vaccinated against VZV but later there is no explanation for absent IgG antibodies for VZV. In neurological ward patient clinical features progressed with new symptoms - myoclonus (28.05.14.), also not nystagmus but opsoclonus, and third – pronounced irritability and mood swings. Diagnose – acute post-viral cerebellar ataxia was changed to opsoclonus-myoelonus syndrome. Magnetic resonance, X-ray of the chest, ultrasound abdomen revealed no abnormality. She was treated with pulse glucocorticoid therapy and intravenous immunoglobulin. Because of VZV IgM antibody titers were positive in the CSF she also had aciclovir in therapy. The opsoclonus and myoclonus completely disappeared over the next 14-16 days, mild ataxia persisted.

Conclusions. This is one of the first cases of OMS in pediatric neurology in Latvia, that is treated and controlled by doctors. Studies with OMS associations with VZV in publications also are rare, but for now we have our own experience in possibilities of treating OMS.

Summary. 1. Acute post-viral cerebellar ataxia is much more common than opsoclonus-myoclonus syndrome, this may cause misdiagnosis. 2. Treatment regimens have not been standardized because of OMS rarity, it is complicated to make randomized double-blind studies where incidence is 1 in 10,000,000 persons per year. That is why treatment is based on clinical observations. 3. In patients with idiopathic OMS have to continue paraneoplastic screening and other controls in some time period.

A NEONATE WITH DI GEORGE SYNDROME, BORN TO A MOTHER WITH AN ENDOGENOUS DISORDER

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Key words. DiGeorge, syndrome, NICU, schizophrenia.

Introduction. DiGeorge syndrome is a rare condition caused by a microdeletion in chromosome 22q11.2. The prevalence of this syndrome is between 1 in 2000 and 1 in 4000 live births. Most of the cases are *de novo*, although about 7% have inherited the 22q11.2 deletion from a parent. The number and severity of symptoms associated with DiGeorge syndrome can greatly vary. Often it includes heart defects, cleft palate, immune deficiency, renal, pulmonary, gastrointestinal, skeletal and ophthalmologic abnormalities. The patients also have a high rate of psychotic disorders, e.g. schizophrenia.

Case report description. A male neonate was born at 40 weeks of gestation to a 28-year-old gravida 1, para 1 mother. The mother of the patient had been previously diagnosed with schizophrenia. After the first 20 weeks of gestation the mother had stopped attending routine prenatal ultrasound due to the outburst of her endogenous disorder. The birth weight was 2490g and small for the gestational age, length – 47cm and Apgar score – 8/9. On the next day the overall physical condition of the neonate became more complicated and a systolic murmur was observed. This caused a suspicion that a congenital heart disorder might be present therefore the patient was hospitalized in Neonatal intensive care unit (NICU). During the first check-up after the hospitalization the following symptoms were observed: pale skin, acrocyanosis, faint peripheral pulse, BP 50/30 mmHg (37), adduction of both feet and rough systolic murmur. The echocardiogram and diagnostic angiography confirmed VCC including common arterial trunk type I, ventricular septal defect, atrial

septal defect, cardiac failure II (NYHA). Arterial blood gas test results: glucose 3,0 mmol/L, ctCO₂ 15,2 mmol/L, BE(efc) 11,2 mmol/L, BE(B) -9,4 mmol/L, HCO₃-std 16,7 mmol/L, HCO₃-act 14,4 mmol/L, pO₂ 45,8 mmHg, pCO₂ 26,9 mmHg, pH 7,348. Genetic test results: karyotype 46, XY del 22q11.2 – indicates previously suspected DiGeorge syndrome. At the age of five days – pulmonary artery banding (PAB) was performed. Nine days after birth a laparotomy was performed to reestablish gastrointestinal tract patency, caused by intestinal malrotation (Ladd's bands). After one and a half weeks the patient's condition suddenly worsened – he had bile reflux, CRP up to 50mg/l, IL-6 over 1000. At the age of 1 month and 3 days another laparotomy was performed combined with *laesio adhaesionibus*, *resection ilei* and *ileostomy*. A week after the surgery the patient's physical condition stabilized and shortly after he was discharged.

Conclusions. The patient has multiple anomalies and a karyotype that confirms DiGeorge syndrome. The patient's condition and diagnosis of DiGeorge syndrome could have been confirmed in the antenatal period if the mother of the patient would have continued the routine pregnancy ultrasound. That would help to provide immediate medical help for the neonate right after birth and later on in the postnatal period.

Summary. In this case the DiGeorge syndrome was characterized by a complex congenital heart disease and club foot. The patient was too small for gestational age, therefore some complications, e.g. intestinal malrotation, reflux esophagitis and late neonatal sepsis were present. Although there is no cure for this syndrome, with adequate symptomatic medical care it is likely that the patient will have a normal life expectancy.

RADIOLOGICAL FINDINGS IN A PATIENT WITH NEUROCYSTICERCOSIS, A CASE REPORT

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Key words. Neurocysticercosis, radiology, *Taenia solium*, MRI

Introduction. Neurocysticercosis is helminthic disease that affects the central nervous system by the larvae of the pork tapeworm *Taenia solium*. *T. solium* can cause two types of diseases- taeniasis which is intestinal disease and cysticercosis, which is caused by the dissemination of the larval form of

pork tapeworm. Neurocysticercosis is the most common parasitic disease of nervous system. Humans can become infected by fecal-oral contamination. Neurocysticercosis is endemic in many low-income countries, but in Eastern and Central Europe this disease is rare.

Case report description. 12-year-old girl was admitted to the hospital in July 2013 because of progressive left side hemiparesis in past 3 years. During the last month she had severe headaches and weakness in the left side limbs. Brain CT scan showed a calcified lesion and perifocal edema in right hemisphere. Brain MRI showed small cysts in right hemisphere. Conclusion of MRI: chronic infection, which is need to be differential diagnosed with other diseases. Blood investigation and lumbar puncture results were normal. Serological tests for other infections including cysticercosis were negative. Girl was discharged by hospital to be treated with Albendazole.

After clinical or radiological improvement, she was hospitalized again. MRI showed progressive lesion in left hemisphere, so there was indication for biopsy witch showed typical case of neurocysticercosis. Patient took a treatment with albendazole and praziquantel, and steroids.

Four month later patient got a seizure attack and after that MRI shows improvement and pronounced scarring.

Conclusions. Neurocysticercosis is rare disease in Latvia. The case report shows that diagnosis of neurocysticercosis is difficult. Always need to consider the diagnosis of the neurocysticercosis in differential diagnosis of variety neurological symptoms, especially in children. In early diagnosis it can prevent from severe forms.

Radiological examinations are one of the most important examinations of diagnosis of the disease, CT and MRI is the leading role to determine the stage of neurocysticercosis.

Summary. Neurocysticercosis develops when the larvae of *T. solium* disseminate with blood to the central nervous system. Clinical presentation may be variable because it depends on the location of the lesion, number of parasties and the host's immune response. Radiological examination (CT and MRI scan) is very important diagnostic methods for imaging the damage of brain and the stage of neurocysticercosis. The treatment of neurocysticercosis include antihelminthic medication- albendazole and/or praziquantel. To minimize the spread of the disease, it is necessary to find and treat people with teniosis and therefore avoid chances of transmission. Prevention of *T. solium* infection also includes education of society about hygiene standards and cooking pork kills the pork tapeworm.

THE CASE REPORT OF THE ACUTE TONSILLITIS WHEN MICROBIOLOGICAL TESTING FOR GROUP A STREPTOCOCCUS AND CORYNEBACTERIUM DIPHTHERIAE WAS PERFORMED

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Key words. acute tonsillitis, diagnosis, microbiology, *Corynebacterium diphtheriae*

Introduction. The most common causes of pharyngitis are viral agents. Bacteria cause 15-30% of cases of pharyngotonsillitis in children. Most cases of bacterial tonsillitis are caused by group A beta-hemolytic *Streptococcus pyogenes* (GABHS). Anaerobic bacteria (*Fusobacterium necrophorum*) play an important role in necrotizing oropharyngeal disease. *Corynebacterium diphtheria* rarely cause acute pharyngitis.

Case report description. 20.08.14 (23:50) the 16 years old teenager came to the reception ward of Children's Clinical University hospital in Riga at the third day of the disease with exudative tonsillitis, elevated submandibular lymph nodes, elevated body temperature, weakness. He was admitted in the department of observation with the yellow priority level. Diagnosis made by paediatric: acute pharyngotonsillitis and differential diagnosis: Diphtheria. Paratonsillar abscess. The blood samples (blood count, CRP, ASLO), microbiological samples (to test for LB, streptococcus) were taken and rapid strep test was performed (it was negative). Symptomatic and empiric antibacterial treatment with penicillin was begun. 21.08.14 (12:30) penicillin was replaced with clindamycin after the consultation of the otorhinolaryngologist. Then patient was discharged from the hospital with diagnosis of acute necrotic tonsillitis and recommendations for further treatment. 22.08.2014.(17:40) the teenager was asked to return to the hospital because of the positive both microbiological cultures – β haemolytic streptococcus, group C, 3+, and non-toxigenic *C. diphtheriae* was isolated. He was hospitalized to receive diphtheria antitoxin and 26.08.14 he was discharged from the hospital at satisfactory condition.

Conclusions. Acute bacterial tonsillitis may be polymicrobial. Rapid strep test may be false negative. That is why it is necessary to take microbiologic samples before starting empiric antibiotic treatment. It provides prompt treatment and avoids complications.

Summary. The study investigates successful paediatric tactic in the case of the acute bacterial tonsillitis. Because of the taking microbiological samples before empiric antibacterial treatment the non-toxicogenic diphtheria vaccinated carrier was discovered and adequately treated.

MULTIDISCIPLINARY APPROACH TO NEUROENDOCRINE TUMOR WITH LIVER METASTASES AND MASSIVE WEIGHT LOSS

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Key words. Neuroendocrine tumor, weight loss, surgical treatment, multidisciplinary team

Introduction. The neuroendocrine cells of the gastrointestinal tract collectively form the largest endocrine organ in the body. Gastrointestinal neuroendocrine tumors (NETs) represent a heterogenous group of neoplasms arising from these cells. The growing incidence and prevalence of NETs is now estimated as 5.25 and 35/100 000, respectively [Oberg *et al.*, 2012]. Therefore our awareness of the complex diagnostic and therapeutic approaches should increase as well. The following case report illustrates the difficulties in the management of such patients and the necessity for a multidisciplinary team.

Case report description. A 43-year-old male visited his family physician with complaints of persistent diarrhea and weight loss of 70 kg within the preceding year. The doctor noticed hepatomegaly and weight loss so the possibility of an oncologic disease involving liver was considered. Blood tests revealed normochromic normocytic anemia, hypoproteinemia, elevated levels of liver transaminases and cholestatic enzymes, and high ferritin. Computed tomography (CT) imaging disclosed multiple hepatic lesions, but the primary focus of disease could not be identified. Colonoscopy and upper endoscopy with biopsies failed to demonstrate any tumor. Liver biopsy was performed under ultrasonography guidance and revealed a low grade NET. In the efforts to show the primary tumor, the patient underwent combined single photon emission CT (SPECT-CT), which demonstrated a lesion in the caecal area. The primary tumor was resected along with a part of ileum, caecum and transverse colon, and was found to be located in the ileum. The liver involvement was considered too extensive for surgical treatment. Therefore the

next step in the management of this patient is medical therapy in order to reduce the symptoms of hormonal hypersecretion and suppress tumor growth if possible. Somatostatin analogs, interferon alpha, mTOR inhibitors or tyrosine kinase inhibitors can be considered. The final diagnosis was small intestinal NET, pT4N1M1(HEP)G2R0, exhibiting moderate proliferation fraction of 3% by Ki-67 analysis.

Conclusions. Despite their typically indolent nature, well or moderately differentiated NETs can yield significant burden of metastases and limit the possibilities of surgical treatment, illustrating the evidence that all NETs have malignant potential. The pathophysiology, prognosis and treatment of cancer cachexia and serotonin-induced chronic diarrhea differ, thus not all oncologic patients with weight loss should be perceived uniformly. The broad spectrum of diagnostic modalities utilized in this case exemplifies the challenges these tumors present both from the examination and financial standpoint. Multidisciplinary team of specialists is essential for proper diagnostic and therapeutic management of NET patients.

Summary. Neuroendocrine tumors (NETs) are more common than previously thought and represent a group of malignancies that need special consideration regarding diagnostic and therapeutic approach. These neoplasms differ in their biologic behavior and prognosis. High level of suspicion is required to diagnose these tumors, thus delayed recognition and metastases are common. The case report presents a 43-year-old male patient with a small intestinal NET and multiple liver metastases, pT4N1M1G2R0, massive weight loss due to chronic diarrhea and difficulties in localizing the primary tumor. Vast options for surgical and nonsurgical treatment of NET with liver metastases exist, including liver transplantation in highly selected cases, thus individual and multidisciplinary approach is required to improve outcome. Numerous changes in the classification and treatment options of NETs have occurred during the previous years indicating continuous progress and a need for further research.

REPEATED OCULAR TOXOPLASMOSIS DURING REMISSION OF ACUTE LEUKEMIA

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Introduction. Toxoplasmosis is caused by infection with the obligate intracellular parasite *Toxoplasma gondii*. Usually humans become infected by digesting oocysts from the cat feces. Worldwide, it has been shown that 10 – 90% of some populations have been infected with *Toxoplasma* (*P. R Torgerson et al, 2013*), but clinically manifest disease develops usually in immunosuppressed patients (*Hökelek et al. 2014*). Ocular disease is responsible for 2 – 20% of toxoplasmosis manifestations (*Holland et al, 2003*).

Case report description. We present a case of 23-year-old Caucasian women with two episodes of acute ocular toxoplasmosis. At age of 17 diagnosed with acute lymphoblastic leukemia, in remission since 2007. During haematological therapy she had complaints of blurred vision in the left eye. Objectively, during the first episode vision OD 1, OS 0.5 By ophthalmoscopy, the left eye showed signs of inflammation, Large, white peripapillary locus with blurred edges was seen. No abnormality in the OD. Serologically, IgM against *Toxoplasma gondii* was increased to 9.9 AU/ mL. The patient denied direct contact with cats. After specific treatment the complaints disappeared and the vision objectively improved to OD 1.0; OS 1.0. Anti-*Toxoplasma gondii* IgM decreased to 8.9 AU/ mL and IgG was 20 AU/ mL (Negative<8.5 U/Positive>11.5 U). The patient underwent regular health check-ups and remained in good health status. In control performed 9 months before the present episode and disclosed no new pathological findings. In November 2013 during second episode-ophthalmologically - similar findings. There was new, whitish, exudative locus in the superior retinal quadrant. The previous lesion was seen as dark and pigmented focus, and the distance between the new and previous focus averaged to optic disc diameter. Serologically, anti-*Toxoplasma gondii* IgM level reached 9.3 AU/ mL and IgG was 49.0 AU/ mL. By OCT (Optical coherence tomography) old, pigmented scar with sharp borders was seen.

Conclusions. 1. Toxoplasmosis can present as a rare eye disease affecting patients with history of haematological tumor despite stable oncological remission. 2. Ophthalmoscopy has high diagnostic value and can identify the repeated event as recurrence or reinfection.

Summary. Introduction-Ocular disease is responsible for 2 – 20% of toxoplasmosis manifestations, but clinically disease develops usually in immunosuppressed patients. Case presentation A 23-year-old women with history of acute lymphoblastic leukemia, diagnosed at the age of 17 years. At present, stable remission has been achieved. Six years ago, she complained of blurred vision with the left eye. Serologic investigation for *Toxoplasma gondii* showed elevated IgM, and ophthalmoscopy disclosed large white vague peripapillary focus in the left eye. Specific treatment yielded subjective, objective and serologic improvement. At present, shortly after unspecified acute respiratory virus infection, the patient has similar complaints and positive serology. Notably, she had had no contacts with cats. Conclusion 1. Toxoplasmosis can present as a rare eye disease affecting patients with history of haematological tumor despite stable oncological remission. Awareness of the disease is necessary for efficient diagnostics. 2. Ophthalmoscopy has high diagnostic value and can identify the repeated event as recurrence or reinfection.

ASPERGILLUS FUMIGATUS KERATITIS

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Key words. fungal keratitis, aspergillus fumigatus, penetrating keratoplasty

Background. Fungal keratitis is one of the most difficult forms of microbial keratitis for an ophthalmologist to diagnose and treat.

Case report. A 31-year-old female soft contact lens wearer presented to our ophthalmology clinic ("Bikernieki") on September 5, 2014 with history of pain, redness, watering, foreign body sensation and gradual but progressive loss of vision of both eyes for one week.

Ocular exam: Visual acuity OD 20/ 100 , OS 20/ 60. Intraocular pressure normal, both eyes. External examination both eyes lower and upper eyelid with minimal erythema. Slit lamp examination: deep conjunctival injection in both eyes. Corneal ulcers with feathery margins, rough texture,

raised borders, stromal infiltrates. Anterior chambers deep and quiet. Lenses of both eyes clear .

Immediately after she was admitted to our clinic, materials of corneal tissues of both eyes were sent to the microbiology department for analysis. Confocal microscopy was used as well. Patient was put on topical Natamycin, Fluconazole and systemic Fluconazole.

Cultures were positive for *Aspergillus fumigatus*, so was started specific antifungal therapy - Amphotericin B(0,15%) eye drops, Amphotericin B(200mgx1) intravenous systems for two weeks, then Varikonazole 200mg twice a day, as well as Amphotericin B (0,1%) intracameral injections.

On general physical examination was detected fungal ball in the sinus maxillaris dextra, which was excised (in a biopsy pathological changes was not confirmed).

All routine biochemical and hematological investigations were within normal limits. In opposition to intensive topical and systemic therapy corneal infection continued to penetrate, therefore therapeutic penetrating keratoplasty (PK) was performed.

3 months after PK Visual acuity OD 20/ 32, OS 20/ 25. Patient is on corticosteroid therapy at present.

Conclusion. Penetrating keratoplasty (PK) is an effective treatment for fungal keratitis that does not respond to antifungal medication. In those cases PK should be performed sooner rather than later.

Summary. Fungal keratitis is an infection of the cornea that can lead to severe visual loss and even loss of the eye. Contact lenses and their solutions are often known as a risk factor for fungal keratitis. The commonly available antifungal agents are natamycin, amphotericin B, fluconazole, itraconazole, and voriconazole. Poor ocular penetrations, especially in deeper lesions, are the main limitations of the antifungal agents. It is very important for an ophthalmologist to determine if PK is the correct approach to insure good visual acuity without resulting in difficult to manage surgical complication.

USE OF MICROPERIMETRY IN ADULT VITELLIFORM MACULAR DYSTROPHY

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Keywords. Vitelliform macular dystrophy, OCT, microperimetry.

Introduction. Adult-onset foveomacular vitelliform dystrophy (AOFVD) is a relatively uncommon, heterogeneous macular disease, presented in the fourth to sixth decade of life. Most often, AOFVD is misdiagnosed as age-related macular degeneration. The visual prognosis is generally favorable, but visual loss can occur from chorioretinal atrophy and choroidal neovascularization (*Grob, 2014*).

Case report description. A 76-year-old male presented with bilateral visual impairment during last 6 months. The patient had hyperopia since early adolescence. The patient had history of cerebral insult in 2009, surgery of prostate adenoma, renal cyst.

Examination determined best corrected visual acuity (BVA) $V_{OD}=0.1cc+2.0Dsph=0.4/0.5$, $V_{OS}=0.15cc+1.5Dsph=0.5/0.6$. Intraocular pressure (IOP) in both eyes was 13 mmHg.

Slit-lamp biomicroscopy revealed anterior chamber- normal depth with clear aqueous humor. Pupils were centrally located, isocoria was seen. Lens opacity was observed, stating diagnosis of cataract. Optic nerve head was seen without pathological changes. Prominent macula with circular, yellowish lesion was noticed during examination.

Optical Coherence Tomography (OCT) demonstrated the vitelliform material as a highly reflective dome-shaped lesion located in the retinal pigment epithelium (RPE) of macular region. Ultrasonoscopy showed bilateral dystrophic changes in vitreous body.

The following diagnosis for both eyes were applied - dystrophia retinae centralis pseudovitelliformis, cataracta senilis centralis, PES, hyperopia I.

On follow-up visit: BVA $V_{OD}=0.1cc+2.5Dsph=0.4$, $V_{OS}=0.1cc+1.5Dsph=0.6$. IOP in both eyes was 18 mmHg. OCT showed status without progression. Microperimetry for macular region was made - loss of macular integrity in both eyes, abnormal average threshold was seen in right (OD=26dB) and left eye (OS=20.3dB). In addition, relatively unstable fixation stability in OD (P1=67%, P2=84%) and stable fixation stability in OS (P1=86%, P2=95%) was noticed.

Conclusions. Microperimetry assesses the visual function of a specific area of the retina and fovea, and correlates to the OCT structural changes.

Summary. A 76-year-old male presented with bilateral visual impairment during last 6 months. Slit lamp biomicroscopy revealed prominent macula with circular, yellowish lesion. OCT demonstrated the vitelliform material as a highly reflective dome-shaped lesion located in RPE. Microperimetry assesses the visual function of a specific area of the retina and fovea, and correlates to the OCT structural changes.

URGENT BILATERAL UTERINE ARTERY EMBOLIZATION DUE TO REOCCURRING PROFUSE VAGINAL BLEEDING IN A PATIENT WITH CERVICAL CANCER IVB

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Latvia

Key words. bilateral uterine artery embolization, profuse vaginal bleeding, cervical cancer IVB.

Introduction. Cervical cancer is second most common cancer type after breast cancer, which affects women in ages of 15-44 in the EU. Intermittent bleeding from genital tract is an early sign of this disease, which after genital tract manipulations can complicate into a strong metrorrhagy. Uterine arterial embolization (UAE) has recently emerged as a highly effective percutaneous technique for controlling acute and chronic genital bleeding in gynecologic disorders. Benefits for the patient include low complication rates, avoidance of surgical risks, fertility preservation, and shorter hospitalizations. However, in Latvia it's mostly used in treatment of fibroids and heavy bleeding after childbirth, and we present the first case of uterine artery embolization in the management of a patient with massive vaginal bleeding associated with cervical cancer IVB.

Case report description. 32 year old patient was admitted to REUH „Oncology Centre of Latvia ” electively for diagnostic and treatment plan formation due to diagnosis of squamous cell cervical cancer IVB (T3bN1M1). She had complaints of intermittent bloody discharge from the genital tract with first incidence 2 years prior, 2 months ago due to a sudden heavy metrorrhagy she was admitted to a hospital, abrasion and histology was done, and she was

diagnosed with squamous cell cervical cancer. On admittance she is hemodynamically stable, has secondary anemia (Hb 7, 30 g/dL), bloody discharge is present. Laparotomy and lymph node biopsy is done. On the next day the patient has strong bleeding with clots from the genital tract. Vaginal tamponade is done, conservative therapy started. Following two days the bleeding continues, conservative therapy and tamponade is ineffective; a decision is made to perform a bilateral a. uterina embolization due to vital indications. Patient is transported to REUH "Gailezers" where a bilateral endovasal embolization of a. uterina is done in a combined technique with coils and microbeads, using *Embozene 700* μm 2ml, *Embozene 900* μm 2ml, two *Nester* and two *Tornado* embolization coils. Postoperative period is satisfactory, no pain or bleeding from genital tract is noted, and the patient is transferred to the clinical department of radiation therapy for further treatment. Late postoperative period of 35 days is satisfactory; no reoccurring genital bleeding is noted.

Conclusion. UAE is a safe and effective alternative method to surgical intervention for patients with reoccurring and profuse genital tract bleeding due to cervical cancer, who do not respond to conservative treatment. It provides a stable, long lasting and durable control of bleeding. Considering that UAE is minimally invasive and has a low complication and reoccurrence risk, it benefits patient quality of life and is economically beneficial for both the patient and the health care system.

Summary. Cervical hemorrhage in patients with cervical cancer can be a serious symptom which may require an emergency intervention. When conservative therapy is ineffective, bleeding can be stopped by using uterine artery embolization, which is a minimally invasive, superselective target blood vessel embolization, using various embolic agents to block off the blood supply. This is the first case in Latvia where UAE is successfully used as a therapeutic procedure for a patient with cervical cancer IVB associated with massive vaginal bleeding. End result is satisfactory; no reoccurring bleeding is noted in the early and late postoperative period of 35 days.

FAINTING MATTERS: A CASE OF AN AUTOIMMUNE POLYGLANDULAR SYNDROME (APS) WITH AN ATYPICAL INVOLVEMENT OF THE PARATHYROID GLAND

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Key words. Autoimmune polyglandular syndrome, fainting

Introduction. The autoimmune polyglandular syndrome (APS) is characterized by the coexistence of at least two glandular autoimmune mediated diseases. We report a combination of an autoimmune thyroid disease, Addison's disease and an atypical involvement of the parathyroid gland.

Case report description. A 73-years old white woman was admitted to the clinic for evaluation due to recurrent syncopes during the previous 3 years, along with vertigo, cold sweats, and general fatigue, associated with prolonged standing. 3 months ago she was diagnosed with chronic autoimmune thyroiditis and primary hypothyroidism, a parathyroid gland adenoma was detected as well. Head CT scan revealed basal ganglia calcinosis. The patient had lost 15 kg within the past year, during investigation orthostatic hypotension was detected, no skin colour changes. Biochemical tests revealed low aldosterone, renin, calcium, free T4 and mildly elevated creatinine serum levels. TSH was elevated, ACTH was high normal. She had low levels of cortisol in 24h urine and also in serum after insulin stress test. PTH level was normal, but the coexistence of hypocalcaemia and parathyroid gland adenoma must be taken into consideration. Antibody screen (ANA, thyroid peroxidase, transglutaminase) was negative. No substantial changes in other tests. No data on diabetes mellitus or malignancy was found. Diagnosis of primary adrenal insufficiency with glucocorticoid and mineralocorticoid deficiency, chronic autoimmune thyroiditis with primary hypothyroidism, hypocalcemia, calcinosis of basal ganglia (possible Fahr's syndrome), parathyroid gland adenoma, secondary osteoporosis due to malabsorption, chronic kidney disease was made. Based on these findings we suggest the final diagnosis of type 2 autoimmune polyglandular syndrome. Treatment was continued with L-Thyroxine and oral calcium, started with alphacalcidol, hydrocortisone, fludrocortisone. A substantial improvement of symptoms was seen in a control visit after 3 months.

Conclusion. We would like to stress the importance of investigation for autoimmune glandular diseases and electrolyte levels in case of unexplained syncope.

Summary. A 73-years old white woman was admitted to our clinic for evaluation due to recurrent syncope during the previous 3 years, along with vertigo, cold sweats, and general fatigue, associated with prolonged standing. 3 months ago she was diagnosed with chronic autoimmune thyroiditis and primary hypothyroidism, a parathyroid gland adenoma was detected as well. The fainting had been explained with the finding of orthostatic hypotension. Head CT scan revealed basal ganglia calcinosis. Biochemical tests revealed low aldosterone, renin, calcium, free T4 and mildly elevated creatinine serum levels. TSH was elevated, ACTH was high normal. She had low levels of cortisol in 24h urine and also in serum after insulin stress test. PTH level was normal, but the coexistence of hypocalcaemia and parathyroid gland adenoma must be taken into consideration. Based on these findings we suggest the final diagnosis of type 2 autoimmune polyglandular syndrome.

PANCREATIC NEUROENDOCRINE TUMORS: TWO CASE REPORTS OF INSULINOMAS

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Key words. Pancreatic neuroendocrine tumours; insulinomas.

Introduction. Pancreatic neuroendocrine tumors (pancreatic NETs), also known as islet cell tumors, are rare neoplasms that arise in the endocrine tissues of the pancreas. Insulinomas typically present with episodic hypoglycemia, which may cause confusion, blurred vision, unusual behavior, palpitations, diaphoresis, and tremulousness. Altogether two cases of insulinomas were treated at Riga East University Hospital during the last 14 years.

Description of case 1. An insulinoma was finally diagnosed in 2000 in a 46 years old woman after 3 years of inexplicable episodes of hypoglycaemia. Surgery revealed highly differentiated carcinoid of the head of the pancreas. Five months after surgery the episodes of hypoglycaemia came back together with episodic loss of consciousness and blurred vision. The

recurrence of the disease was detected in 2002 (1,9x1,1cm tumour on CT) followed by repeated excision of the tumour. Patient was recommended to control glucose level, to follow the diet, and to have regular check-ups by family physician and oncologist. Four years later in 2006 patient started complaining on periodical discomfort in stomach. A 0,7x0,5cm nodular formation in the head of pancreas was founded on CT that was collecting contrast media during arterial phase more than other structures. Laboratory analysis showed elevated glucose 6,2 mmol/L. Bilirubin, alpha amylase, haemoglobin, urea, alkaline phosphatase, total protein, ALT, AST, calcium were within normal range. Patient was discharged from hospital with a diagnosis of recurrent insulinomas.

Description of case 2. A 54-year-old man complains of long lasting (7 to 10 years) episodes of hypoglycaemia that occurred 3 times a day after physical exertion or in the mornings and late afternoons accompanied with blurred vision, loss of consciousness, mood swings, disorientation in time and space, weakness, sometimes - cramps. In October, 2014 patient was hospitalized for thorough investigations due the of episode of hypoglycaemia (3,1 mmol/L). Patient was treated with i/v 80ml 40% glucose. Physical exam revealed a healthy-appearing middle-aged man with BMI of 22,5. Patient smokes since adolescence about 8 cigarettes per day, he has primary arterial hypertension since 2009 that has been controlled by indapamide and ramipril. Laboratory analysis showed normal glucose (4,35 mmol/l), C-peptide (0,94 ng/ml), calcium, TSH, FT4 PTH, calcitonin, cortisol, ACTH, ALAT, APTL levels. Glucose level in the morning on an empty stomach was low (2,84mmol/L) but C-peptide - elevated (2,85mmol/L), only with normal glucose level C peptide stayed normal. Postprandial hyperglycaemia was observed after breakfast. USG did not reveal any pathology but CT showed a 1,2cm hyper-vascular formation in the pancreatic body. Patient was operated and the tumour was extirpated. Histologically it was proven as pancreatic neuroendocrine tumour - insulinoma. After surgery patient was recommended to follow the diet and to control sugar level.

Conclusions. Pancreatic neuroendocrine tumours are very rare and patients may present with episodes of hypoglycaemia for several years until the diagnosis is verified.

Summary. Although insulinomas are considered to be the most common pancreatic neuroendocrine tumours their incidence in Latvia is very low.

NEONATAL HERPES SIMPLEX VIRUS INFECTION: A CASE REPORT

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Key words. Newborn, herpes simplex virus, central nervous system, treatment

Introduction. Neonatal herpes is an infection of the newborn, acquired either *in utero* or in the perinatal period, caused by the DNS virus HSV-1 or HSV-2. This condition remains rare in neonates despite the relatively high seroprevalence for both HSV-1 and HSV-2 with incidence in Europe being approximately 1.65/100000 live births. Nevertheless neonatal herpes is a serious life threatening condition associated with severe complications, particularly of the central nervous system. A particular problem is the clinical recognition of an infected neonate as the symptoms are often non-specific, including lethargy, poor feeding, irritability, in some cases fever being the sole symptom.

Description of case. A 38-39-week female was born to a primigravida mother by caesarean section due to abnormality of force of labor. During the last two weeks of pregnancy the mother experienced an itching and pressure feeling on her genitalia. At birth the child suffered a wound on her scalp where during the subsequent days a herpetiform rash appeared. The child received local therapy with Fucidin cream, fuchsin solution in the birthing facility and was discharged on day seven. The rash progressed and the neonate was admitted to a NICU on day 12 where she received intravenous acyclovir 20 mg/kg/d for 5 days for HSV-2 infection, as well as local acyclovir and was discharged on the 18th day of life. On the 26th day of life the patient presented with generalized seizures and a fever and was admitted to a NICU where she received IV acyclovir 20 mg/kg/d for 40 days until the 66th day of life when IV therapy was substituted with PO acyclovir 300 mg/m²/d. An MRI was performed on the 45th day of life, which revealed vast regions of encephalomalacia. The patient was discharged on the 69th day of life in a serious condition with neurological impairment and was appointed palliative care.

Conclusions. HSV infection must be suspected in all neonates with nonspecific signs of serious illness, including fever, with a high degree of suspicion for newborns with any kind of skin lesions.

Immediate parenteral acyclovir is crucial for best possible outcome in neonates with both suspected and confirmed HSV infection. Recommended dose of acyclovir is 20 mg/kg/d for 14 days for skin, eye, mouth disease and additional 7 days for CNS or disseminated disease. Viral load in CSF must be evaluated every 7 days. Some institutions recommend a high-dose acyclovir therapy – 60 mg/kg/d. In case of central nervous system involvement there is a high possibility of neurologic impairment and outcomes tend to be worse with HSV-2 infection.

Summary. Neonatal herpes, although relatively rare, may be a debilitating infection of the newborn, particularly if not treated adequately. Parenteral acyclovir is the treatment of choice, but length of therapy depends on the type of the disease. In cases of central nervous system involvement there is a high rate of neurologic disability.

SOLID PSEUDOPAPILLARY NEOPLASM OF PANCREAS: A RARE TUMOR WITH AN UNUSUAL PRESENTATION. TO TREAT OR NOT TO TREAT?

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Key words. Solid pseudopapillary neoplasm, pancreas, pancreatic tumour, extended pancreatic resection

Introduction. Solid pseudopapillary neoplasms (SPN) are rare pancreatic tumours of unknown histogenesis mostly affecting young females. More than 1/3 of cases are diagnosed incidentally. If symptoms are present, abdominal pain is most characteristic (Law *et al.*, 2014). In comparison to pancreatic ductal adenocarcinoma, the prognosis of SPN is reported as excellent, with 5-year survival of 94 – 97% (Reddy *et al.*, 2009; Papavramidis *et al.*, 2005). Pancreatic resection is the standard treatment modality. According to the largest systematic review by Law *et al.*, SPN remains a rare entity in elderly male patients (Law *et al.*, 2014).

Case report description. An 86-year-old man presented with history of epigastric pain, lasting more than 1 month. Computed tomography (CT) revealed large retroperitoneal mass. Surgical tumour removal was scheduled. In addition to the *en block* extirpation of tumour, pancreatic corpus, portal vein and transverse colon was resected. Pancreatojejunal anastomosis, end-to-end anastomosis of the transverse colon and enteral anastomosis were created. The tumour, measuring 20x17x10 cm, showed solid and papillary architecture as well as necrosis. The involvement of transverse colon and pancreas was confirmed by pathology investigation. The SPN diagnosis was proved by immunohistochemical expression of vimentin, CD56, CD99, cyclin D1 and CD10. Ki-67 expression revealed low proliferative activity (4.2%). The tumour removal was assumed to be complete, with no involvement of resection lines and no metastatic spread based on imaging finding. However, the extensive operation was followed by multiple complications, including arterial hypotension and bloody discharge through the drainage from 2nd and 7th postoperative day (POD), respectively. Necrotic pancreatitis was detected on 8th POD. Spiral CT showed exudate in peripancreatic tissues, right kidney and right lung, pleural and peritoneal cavities. Relaparotomy was performed on 17th POD, as small bowel fistula was suspected; intraoperative findings confirmed the suggestion. On 24th POD, patient's condition deteriorated further due to the bleeding from pancreatoduodenal artery. Cessation of

bleeding was achieved by embolization of lower and upper pancreatoduodenal arteries. However, the therapeutic measures were insufficient to limit repeated bleeding from necrotic pancreatic tissue. Severe systemic inflammatory reaction (SIRS) developed, and the patient died on the 27th POD. During the postoperative period, biochemical laboratory findings were consistent with development of complications: elevated levels of alpha amylase, C-reactive protein and D-dimers were found.

Conclusions. The presented case shows evidence of a rare pancreatic tumour – solid pseudopapillary neoplasm – in a highly atypical age and gender group. According to Pubmed search (31.01.2015.) our case represents the oldest male patient with SPN in the world. The case history also emphasizes, that risks and benefits must be carefully evaluated when planning major surgery in octogenarians with slowly progressing tumour.

Summary. Solid pseudopapillary neoplasm (SPN) is a slowly growing pancreatic tumour that mostly develops in young females and carries good prognosis when treated surgically. Here we present SPN in an 86-year old symptomatic male with extensive local intra-abdominal spread of SPN, requiring multi-organ resection for curative intention. Although complete tumour removal was achieved, multiple postoperative complications developed, finally leading to necrotic pancreatitis, uncontrollable pancreatic bleeding and SIRS. Patient died on 27th postoperative day due to these complications. Our case demonstrates both unusual presentation of a rare tumour and the clinical dilemma considering extensive surgery in elderly patient due to slowly growing but symptomatic tumour.

HYPONATREMIA IN PATIENT WITH NEUROLOGIC DISORDERS

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Key words. hyponatremia, antidiuretic hormone, osmolality.

Introduction. Hyponatremia is decrease in serum Na concentration < 136 mEq/L caused by an excess of water relative to solute. Clinical manifestations are primarily neurologic (due to an osmotic shift of water into brain cells causing edema), especially in acute hyponatremia, and include headache, confusion, and stupor; seizures and coma may occur. Serum and urine electrolytes and osmolality help determine the cause. The syndromes

of inappropriate antidiuretic hormone secretion (SIADH) and cerebral salt wasting (CSW) are two potential causes of hyponatremia in patients with disorders of the central nervous system.

Case report description. 52 years old woman, transported to the hospital with complaints of prolonged and excessive vomiting. In lab dates: hyponatremia, hypocalcemia. Patient was discharged from the hospital with a diagnosis of acute gastroenteritis after infused therapy with saline solution. On admission to the hospital secondly because of subfebrile temperature, appetite loss, nausea, *frequent* urination, nausea and dizziness, patient was found to be profoundly hyponatremic, with sodium concentration in the blood 113 mmol/l, blood osmolality 226 mosm/l, sodium concentration in urine 58 mEq/l.

Head MRI and lumbar puncture showed serous encephalitis. There was no evidence of chronic or recurrent infection, malignant neoplasm, head trauma or autoimmune disorder. A clinical diagnosis of encephalitis of unknown etiology, hypoosmolar hyponatremia was made. Treatment was initiated with lactated Ringer's solution.

On the third admission to the hospital with excessive vomiting, dizziness, was initiated treatment with corticosteroids. The patient remained symptom-free after corticosteroids and was discharged from the hospital with diagnosis of encephalitis of unknown etiology, cerebral salt wasting, hypoosmolar hyponatremia.

Conclusion. Clinical picture of the patient and lab dates shows a differential diagnosis between the syndrome of inappropriate antidiuretic hormone (ADH) secretion (SIADH) and cerebral salt wasting. Making an accurate diagnosis is important because the treatment of each condition is quite different.

Summary. Hyponatremia is occasionally suspected in patients who have neurologic abnormalities and are at risk. However, because findings are nonspecific, hyponatremia is often recognized only after serum electrolyte measurement. Identifying the cause should be complex. Laboratory tests should include serum and urine osmolality and electrolytes.

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