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Preface

Dear students!

It is my great honour and pleasure to welcome you all to the 10th "International Student Conference in Health and Social Sciences" on behalf of Rīga Stradiņš University. As the host of this event, we take great pride in the fact that this conference has grown to become the largest student conference in the Baltics.

This year, as we celebrate the conference's remarkable tenth anniversary, we reflect not only on how much it has grown, but also on the incredible contributions and achievements of the students who have made this event what it is today. The conference stands as a testament to your dedication, intellect, and passion for advancing knowledge in health and social sciences.

There are about 3,000 international students from 75 countries studying medicine and dentistry as well as social sciences and healthcare at RSU. The largest share of our international student community comprises German and Scandinavian students, but our cooperation with our international partners is expanding and developing.

The conference will be opened by two keynote speakers – Prof. Flemming Dela from University of Copenhagen, Denmark, and Mihails Kozlovs member of the European court audithors. We are welcoming lecturers also from UK, Italy, Greece and Germany.

Today, almost 200 students from 17 different countries will present their scientific achievements, from amongst others Germany, UK, Sweden, Lithuania and Ireland. We also welcome participants from Ukraine. More than 360 participants will present their research that will be evaluated by over 180 jury members. Additionally, more than 3,000 passive participants will attend the conference's diverse programme that includes two plenary sessions, 23 workshops, 10 social programme activities, and various excursions.

As we gather here, united in our pursuit of academic excellence, let us embrace the spirit of collaboration and exploration that defines this conference. I am confident that over the next few days, the exchange of ideas and the presentation of ground-breaking research will inspire us all.

Once again, welcome to the 10th International Student Conference at Rīga Stradiņš University. May this event be a source of inspiration, learning, and meaningful connections.

Thank you,

Professor **Aigars Pētersons**
RECTOR OF RĪGA STRADIŅŠ UNIVERSITY

Dear friends and esteemed guests of Rīga Stradiņš University,

In Latvian literature and folklore, the symbol of a "castle of light" metaphorically represents regained wisdom, which can be adapted to demonstrate the idea that precise research forms an essential foundation for individuals to progress from the shadows of ignorance towards the illumination of knowledge. This serves as a reminder to every student that knowledge and research are the sources of power that cannot be stripped away from us.

I am delighted to welcome each of you in this scientific gathering, as we collectively commemorate our dedication to science. Our solidarity among students, bound together by our shared passion for scientific inquiry, is truly admirable.

I trust that you will find inspiration in our distinguished keynote speakers, engaging plenary sessions, and enriching workshops, all of which promise to broaden the horizons of knowledge for each participant. Let us embark upon this two-day journey with boundless enthusiasm and an never-ending thirst for discovery! And always remember, just as science knows no bounds, neither do your potential nor your creativity.

Līga Pūsepa
CHAIR OF RSU INTERNATIONAL STUDENT CONFERENCE 2024

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ANAESTHESIOLOGY, REANIMATOLOGY, EMERGENCY MEDICINE

EFFECT OF NOREPINEPHRINE INFUSION ON EARLY MYOCARDIAL LESION AFTER CARDIOPULMONARY BYPASS

Authors: ***Edgars Fišermans*** [1], ***Anastasija Jurčenko*** [1], ***Dāniels Urbanovičs*** [1]
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Keywords. Cardiopulmonary bypass; Norepinephrine; Troponin

Objectives. Cardiopulmonary bypass is associated with many post-operative complications including hypotension and vasoplegic syndrome. To address such complications, vasopressors are frequently employed, with one of the most common options being norepinephrine. We hypothesized that, among other factors, both norepinephrine dose and infusion length may contribute to myocardial injury. The goal of this study was to determine whether norepinephrine infusion has an effect on early myocardial lesion after cardiopulmonary bypass.

Materials and methods. A retrospective, single-center, observational study was performed. We analyzed patients undergoing elective open heart surgery under cardiopulmonary bypass (valve repair or replacement, aortic arch surgery, atrial myxoma excision). Patients with reduced ejection fraction (EF<50%) and those who underwent coronary artery bypass grafting were excluded. Troponin was measured 12 hours after surgery. Norepinephrine dose and infusion duration were recorded.

Results. Of 160 screened patients, 81 patients were analyzed, predominantly males (N=41 (50,6%)). The mean age was 63,4 (SD 14,0 years). Among them, 30 (37.0%) were treated with norepinephrine following cardiac surgery, and in 7 (8.6%) cases other inotropes were used. In the patient group that received postoperative norepinephrine infusion, a median troponin level of 3934.0 (IQR 2657.8–10269.7) was recorded, while those who did not receive it had a troponin level of 3722.5 (IQR 2238.0–6766.5), no significant difference was observed (U=785.0, p<0.376). In this study statistically significant correlation between postoperative norepinephrine dose and 12 hour troponin was found (r=0,380; p=0,046) with median norepinephrine dose of 0,05 μg/kg/min (IQR 0,04–0,07) and mean infusion time of 483,1 minutes (SD 355,3).

Conclusions. Norepinephrine is an often used vasopressor after cardiac surgery but for a short duration with a low dose and it does not cause a significant rise in troponin. A significant relationship between the norepinephrine dose and troponin level was observed in our study.

TOTAL SPINAL BLOCK IN POSTERIOR INTERSCALENE SINGLE SHOT BLOCK PROCEDURE: A CLINICAL CASE REPORT

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Keywords. Interscalene block; Posterior aproach

Objectives. The interscalene block is used to anesthetize the brachial plexus, frequently applied during surgeries involving the upper extremities. It block can be performed using anterior and posterior approaches.

Materials and methods. 49-year-old patient was chosen for pain analgesia elective left shoulder acromioplasty. Posterior interscalene block chosen for anesthesia. Anatomical landmarks and electrical stimulator were used to define the injection site and depth. After the needle reached required depth, aspiration test was performed with no blood and 40 ml of 1.5% Lidocaine and 10 ml of 0.5% Bupivacaine were administered. After a few minutes, the patient complained of weakness and lost consciousness. Arterial hypotension (70/40 mmHg) and respiratory failure were observed. The patient was intubated, and mechanical ventilation was initiated. The decision was made to perform surgery under endotracheal anesthesia with sevoflurane ma maintanance (MAC=1). After surgery, the patient was transferred to the Intensive Care Unit (ICU) where persistent arterial hypotension (85/46 mmHg), bradycardia (49 bpm), a Glasgow Coma Scale (GCS) score of 3, dilated pupils, and negative photoreaction were observed. Acute cerebral circulation disorder and hypoglycemic coma were ruled out. The complication of interscalene block—total spinal block—was considered. In the absence of an antidote for local anesthetics, it was decided to monitor the patient's condition and provide symptomatic treatment with analgesics, low molecular weight heparin, H2 blockers, crystalloids, and sedation with propofol. The patient's condition improved over time. After 2.5 hours, the patient regained normal vital functions and consciousness, achieving a GCS score of 15, and was successfully extubated.

Results. The procedure of posterior interscalene block for a 49-year-old male resulted in a total spinal block.

Conclusions. Performance of interscalene block using the posterior approach and nerve stimulator without ultrasound can lead to a life-threatening complication known as total spinal block.

EFFECTIVENESS OF SIMULATION-BASED EDUCATIONAL METHODS FOR OBTAINING MILITARY MEDICINE SKILLS

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Keywords. Military medicine; Simulation; Immersive room

Objectives. Military medicine fundamentals (MF_052) is a brand-new course that is being taught to the 4th year medical students in Rīga Stradiņš University. It consists of two parts – theoretical and practical. During the practical part of the course students master life-saving algorithms and skills using task trainers and, in the end, they participate in a simulated scenario in the immersive room. Immersive rooms are used to simulate different environments where students will potentially have to use their medical knowledge. The study aimed to determine students' evaluation of their skill performance and confidence if they had to use these skills in real life before the course, after learning and practicing on task trainers and after participating in a simulated scenario in the immersive room.

Materials and methods. 18 students from the Faculty of Medicine who participated in the course "Military medicine fundamentals" filled in a questionnaire about their experience. They were asked to evaluate their performance of each skill and their confidence if they had to use that skill in real life before the course, after learning and practicing and after participating in simulated scenarios from 1 to 5. After evaluation there were 11 questions about their experience and opinion on simulation and immersive rooms.

Results. There were 21 skills that needed to be acquired. After calculating the sum of students' ratings for all skills, average rating for skill performance before the course was 47.6 (SD 14.1), skill performance after learning and practicing 94.1 (SD 9.2), confidence after practicing 89.4 (SD 9.8), skill performance after simulation 91.6 (SD 10.3), confidence after simulation 90.5 (SD 12.5).

Conclusions. Students gained new knowledge during the course. Simulation in the immersive room provided a more realistic scenario and made students realize how they would perform in real life and that they need more practice and realistic simulations.

EXPERIMENTAL EVALUATION OF STABILITY IN DIFFERENT CENTRAL VENOUS CATHETER FIXATION TECHNIQUES

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Keywords. Central venous catheters (CVCs); Suture Techniques

Objectives. Good fixation of CVCs is an important safety measure to avoid catheter slippage or dislodgement for intensive care (ICU) patients. For this purpose, fixation with sutures is widely used. The primary objective of this study was to determine the most effective suture technique for the fixation of CVCs.

Materials and methods. In this bench test study, we selected three-lumen CVCs from a single manufacturer and included six different fixation methods for experimental evaluation: A-"clamp only", B-"clamp-compression suture", C-"finger trap", D-"complete" (meaning "clamp + compression + finger trap"), E-"clamp-wing" and F-"clamp-compression and wing". Pigskin was attached to a board with screws and construction clamps. CVCs were placed in pigskin and fixed by surgical silk suture. Peak axial pull test was used to measure the force and time to dislodge the catheter from insertion site. Each method was tested ten times.

Results. Catheters slipped with the same force (12.7 N), during methods "A" and "B", but the start of slippage time was different ($p=0.004$, 2 vs 8 s). When "E" and "F" techniques were applied, we observed improved stability (diff= 10N, $p<0.047$) and delayed dislodgement time (diff= 5 s; $p<0.002$). Different forces were needed to slip the catheter ($p=0.005$, 35.6 vs 62.8 N) using methods "C" and "D", but the time was the same. Catheter slipped only after the thread rupture. Method "D", compared to "F", took more time to dislodge (diff= -6 s; $p<0,0001$) and greater force (diff= -22 N; $p<0.001$).

Conclusions. CVCs are often fixed using "clamp only", which is the least secure method. Any extra fixation extends time to catheter dislodgement and significantly improves stability. The most reliable methods were "Clamp-Compression wing" and "complete", which we recommend for ICU patients.

COMPARISON IN POSTOPERATIVE PAIN MANAGEMENT – EPIDURAL BLOCK VERSUS FEMORAL NERVE BLOCK FOR UNILATERAL TOTAL KNEE REPLACEMENT SURGERY

Authors: ***Līva Kuzmane*** [1], ***Klāvs Putenis*** [1], ***Frederika Bērziņa*** [1]
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Keywords. Total Knee Replacement Surgery; Spinal anaesthesia; Epidural anaesthesia; Femoral nerve block; Analgesia

Objectives. Total knee replacement surgery is associated with moderate to severe postoperative pain. The purpose of this study was to determine if spinal anaesthesia (SA) combined with epidural anaesthesia (EA) is superior to SA combined with femoral nerve block (FNB) in postoperative pain management after unilateral total knee replacement surgery (TKRS).

Materials and methods. The randomised prospective observational study includes patients undergoing TKRS. Patients were divided into 2 groups - 1st group received SA + EA but the 2nd group SA+ FNB. Standardised anaesthesia and analgesia protocol was used in all patients. Numeric rating score (NRS) of pain was obtained 6h, 12h and 24h postoperatively. Statistical significance was determined by Mann-Whitney U Test. The level of statistical significance was considered $p<0.05$.

Results. In total 31 patients (61.29% females) 57 – 77 years old were randomly included in the study. 15 (48.39%) patients in 1st group (SA+EA) and 16 (51,61%) patients in 2nd group (SA+FNB). 1st groups median NRS after surgery was 7 (6h), 3 (12h), 2 (24h). 2nd groups median NRS after surgery was 6.5 (6h), 5 (12h), 2 (24h). When comparing NRS between the two groups 6h and 24h after surgery no statistical significance was discovered ($p>0.05$). Comparing 1st and 2nd group NRS scores 12h after surgery there was statistically significantly lower ($p<0.001$) NRS in the SA+EA group.

Conclusions. Patients who received SA+FNB had a lower NRS 6 hours postoperatively. Combining SA+EA showed better results in postoperative pain management in the 12h period than SA+FNB group. Further research must be done to determine which is a better analgesia method for TKRS.

THE IMPACT OF PREOPERATIVE PULMONARY LESIONS ON POSTOPERATIVE OUTCOMES IN CARDIAC SURGERY PATIENTS FOLLOWING CARDIOPULMONARY BYPASS

Authors: ***Anastasija Jurčenko*** [1], ***Edgars Fišermans*** [1]
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Keywords. Preoperative pulmonary lesions; Cardiac surgery; Preoperative factors; Intraoperative factors

Objectives. The presence of preoperative pulmonary lesions (PPL) may be associated with adverse outcomes and long-term scenarios. The aim of this study was to analyse the relationship between the presence of PPL prior to elective open-heart surgery in cardiopulmonary bypass (CPB) and determine subsequent outcomes.

Materials and methods. Study was done in Pauls Stradiņš Clinical University Hospital, Center of Cardiac Surgery from January 2023 to April 2023, 286 patients were included. The demographic, clinical, laboratory, chest radiograph data were collected from patient's files. Data was analyzed using Microsoft Excel16.56 and IBM SPSS Statistics 28.

Results. Of the 286 patients, 28 (9.79%) had pulmonary pathological findings prior to the surgery. Pleural effusion (PE) was prevalent in 14 (4.89%) patients, 8 (2.79%) patients had one-sided PE, 6 (2.10%) patients had bilateral PE. Preoperative atelectasis was identified in 5 patients (1.74%), while preoperative pulmonary congestion was observed in 12 (4.19%) patients. Patients with PPL showed higher instances of intraoperative vasopressor usage 13 (52%) vs 67 (26%); (p=0.006), and postoperative vasopressor usage 16 (57.1%) vs. 96 (36.6%); (p=0.006). Statistically significant correlation was observed between the presence of PPL and the duration of ICU and hospital stay. Patients with PPL had a median hospital stay of 15 days (11-23) compared to patients without PPL 10 days (8-13);(r = 0.241, p = 0.001). The median ICU stay for patients with PPL was 1 day (1- 3), in contrast to a median of 1 day (1-1);(r = 0.168, p = 0.005).

Conclusions. Patients with PPI experience higher requirement of increased vasopressor support. Notably, PPC is linked to longer hospital and ICU stays, indicating its significant influence on post-surgical recovery.

FREQUENCY, RISK FACTORS AND TYPES OF POSTOPERATIVE PULMONARY COMPLICATIONS FOLLOWING CARDIAC SURGERY WITH CARDIOPULMONARY BYPASS

Authors: ***Anastasija Jurčenko*** [1], ***Klaudija Aišpure*** [1]
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Keywords. Cardiopulmonary bypass; Postoperative pulmonary complications

Objectives. Postoperative Pulmonary Complications (PPC) are a common and serious consequence following cardiac surgery involving cardiopulmonary bypass (CPB). This study aimed to quantify the prevalence and types of PPC and identify risk factors contributing to PPC after cardiac surgery following CPB.

Materials and methods. Data of 323 patients who were admitted to Pauls Stradins Clinical University Hospital, Center of Cardiac Surgery for elective open-heart surgery with CPB from January 2023 to April 2023 were retrospectively analysed. Patient's data were collected from medical history, frequency of chest radiograph findings (pleural effusion, atelectasis, pulmonary congestion, and pneumothorax) were registered. For statistical analysis, IBM SPSS Statistics 28 was used.

Results. 314 patients (after excluding 9 for incomplete data) were included (61.2% men), median (Q_1-Q_2) age 68 years (61.00-74.00). 132 patients (42%) developed PPCs within 12 hours. Pleural effusion (PE) was prevalent in 89 (28.3%) patients: 55 (17.5%) patients had one-sided PE, bilateral PE was identified in 34 (10.8%) patients. Risk factors for PE included reduced EF prior to surgery (55%(48-60), p=0.037), prolonged CPB time (142 min(110-180), p=0.016), higher CPB priming volume (1250 mL(1200-1550), p=0.045), decreased serum albumin level in 6-postoperative-hours (35g/L(33-37), p=0.021) . Atelectasis occurred in 44 patients (14%), predominantly in females (n=24, p=0.015). Pulmonary congestion occurred in 25 (8%) cases, associated with lower BMI (25.30 kg/m2 (23.42-28.50) (r=-0.222,p=0.01) and decreased serum albumin level in 6-postoperative-hours (34g/L(32-37)(r-.155,p=0.08). Pneumothorax occurred in 9 patients (2.9%).

Conclusions. Our study data shows that PPC is a common problem after CPB. The most frequent complication being pleural effusion. We identified crucial risk factors for PPC development such as reduced EF, prolonged CPB and serum albumin level. These findings emphasize the need for targeted interventions based on individual risk profiles to minimize PPC occurrence after heart surgery.

COMPARISON OF AWAKENING TIME USING PROPOFOL ALONE OR A COMBINATION OF PROPOFOL AND REMIMAZOLAM SEDATION IN ENDOSCOPIC PROCEDURES

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Keywords. Remimazolam; Propofol administration; Endoscopic sedation

Objectives. Remimazolam (R) is new ultra-short acting benzodiazepine which has been used for safe sedation. Due to unique pharmacological profile, it has rapid onset and predictive duration. There is still high usage of opiods and propofol (P) in Europe. The primary goal of the study is to compare awakening time after sedation with P and with combination of PR. Secondary goal is to investigate the possibility to reduce usage of propofol.

Materials and methods. This clinical study included patients with ASA score 2 or less, who underwent endoscopy, colonoscopy, or both. The main sections of data were BMI, ASA score, medication doses and time, duration of manipulation, vital signs (HR, BP, SpO_2). Patients were divided into 2 groups. First group received propofol and remimazolam (PR) (n=16) and second only propofol (P) (n=22). Data was analyzed using SPSS and Mann–Whitney U test.

Results. Patient comfort was indicated by heart rate (HR) changes (beats/min) and median arterial pressure (MAP) changes (%) before and during procedure. Comparing both groups data showed no statistically significant changes in HR [p=0,326] and MAP [p=0,312]. In PR group the time after the last dose of propofol was administrated to reaction to stimuli was 5,0 (IQR 4,8;7,8) min and full consciousness in 10 (IQR 7,75;12,00) min, while in P group reaction to stimuli was 11 (IQR 5,50;13,00) min and time to full consciousness was 18 (IQR 12,25;20,00) min. Using Mann Whitney test, the difference was statistically significant [p=0,002, p=0,001]. Comparing propofol amount data showed statistically significant difference [p=0,009].

Conclusions. After sedation patients respond to stimuli and regain full consciousness faster if the combination of PR is used. In PR group there are no hemodynamic changes that would indicate that the patient is in discomfort. There is less amount of P used in PR group.

CHANGES IN SKIN TEMPERATURE IN PATIENTS AFTER SPINAL ANESTHESIA ADMINISTRATION MEASURED USING AN INFRARED THERMOGRAPHY CAMERA

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Keywords. Cutaneous temperature; Dermatome levels; Spinal anesthesia; Infrared thermography

Objectives. Evaluating the level of spinal anesthesia primarily relies on assessing cold sensation or performing a pinprick test. An alternative method for evaluating the level of spinal anesthesia could be the use of a thermography camera, which is a non-invasive imaging method that detects temperature changes. The aim of this study was to assess whether spinal anesthesia causes significant and persistent changes in skin temperature using objective assessment method such as infrared thermography.

Materials and methods. Prior to the administration of spinal anesthesia and after the administration, thermographic images were captured of various body regions, including the feet, knees, groin, hypogastric region, umbilical region, epigastric region, and the lower one-third of the sternum. In addition, all participants underwent subjective assessment, checking patient responses to cold touch. The Rīga Stradiņš University Research Ethics Committee approved this prospective observational study.

Results. A total of 31 patients participated in the study, 35.5% females (n=11) and 64.5% males (n=20) . The mean age of the patients was 64 years (range: 38-92). Notably, statistically significant differences were observed in measurements in the Feet region (approximately corresponding to dermatome level L4-S1) (p=0.007), where the average temperature increased by 0.66°C, and in Groin region (L1-L2 dermatome level) (p=0.027), where the average temperature decreased by 0.7°C. For the other dermatome levels, no statistically significant changes were observed ($p > 0.05$).

Conclusions. Study results show that there are statistically significant changes in feet and groin temperature after spinal anesthesia conduction, however no changes are observed at other dermatome levels. The application of infrared thermography for evaluating spinal anesthesia levels may pose difficulties because of the modest variations in skin temperature, thereby limiting its effectiveness in clinical settings.

PRESSURE ALGOMETRY DATA AS PREDICTOR FOR PAIN CHRONIFICATION

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Keywords. Pressure algometry; Pain chronification; Algometry

Objectives. Pressure algometry is a method used to rate pain. In this method pressure is applied to part of the body meanwhile the patient is instructed to say "stop" at the moment when pain level is at previously agreed level of pain scale(VAS scale). Lower pain threshold on algometry may be used as an early biological marker of antinociceptive mechanism exhaustion and pain chronification. Main goal of this study is to perform a pressure algometry method - conditional pain modulation(CMP) and rate its ability to foresee pain chronification. In addition it is important to understand how different risk factors influence pain chronification and CPM results.

Materials and methods. This is an ongoing study from November 2022. Data is gained from patients using questionnaires. Patient data is analysed using patient medical parameters but not personal data. Pressure algometry was performed using "Medoc AlgoMed". The data were processed using IBM SPSS Statistics-29. Pain intensity and disability was repeatedly measured by questionnaires.

Results. This study involves 20 patients with subacute musculoskeletal pain. CPM values are positive($p=0.001$), with tendency to decrease after month($p=0.006$). Such risk factors as age($p=0.62$) and education level($p=0.14$) does not show significant effect on chronicity risk and CPM. However, a significant effect on chronificationt was detected in smoking($p=0.001$) and physical activity level($p=0.009$).

Conclusions. Results show that CPM is effective and the patient profile is antinociceptive. Results decrease after a month and it is explained by exhaustion of pain relief mechanisms. Such risk factors as younger age, smoking and lower physical activity level correlate with risk of pain chronification. Education level does not show an effect on pain chronification.

BLEEDING AND TRANSFUSION CHARACTERISTICS IN BLOOD CULTURE POSITIVE AND NEGATIVE BACTERIAL ENDOCARDITIS

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Keywords. Endocarditis; Bleeding

Objectives. Progressing coagulopathy from immunothrombosis to platelet deficit is one of key hallmarks of blood culture negative(BCNE) and positive(BCPE) endocarditis, especially in post-surgery patients with high reported transfusion incidence. Research shows worse prognosis for BCNE than BCPE, but reports comparing bleeding characteristics which might uncover coagulopathy pathophysiology differences are lacking. Therefore the aim of research was comparing bleeding (total surgical drain volume(SDV) in ICU, preoperative INR, days in ICU) and transfusion (packed red blood cells(PRBC), fresh frozen plasma(FFP), cryoprecipitate, platelets) characteristics between BCNE and BCPE.

Materials and methods. 196 patients - 89 BCNE, 107 BCPE - undergoing cardiac surgery at Pauls Stradiņš Clinical University Hospital between 2014 and 2021 were retrospectively analyzed by measuring mean SDV, transfusion volumes, ICU days, intrahospital mortality. Data normality was assessed using Shapiro-Wilk test. INR and ICU day relationship was assessed using Spearman's rho. P-values<0.05 were considered statistically significant. Analysis was performed using IBM SPSS version 29.

Results. In BCNE group 80.9% received transfusions, in BCPE 81.3%. BCNE, BCPE patients spent 3.91±6.07, 5.24±7.50 days on average in ICU. Mean SDV in BCNE patients was 864.26±843.27mL, in BCPE 1049.26±1732.53mL. Mean PRBC, FFP, cryoprecipitate, platelet total transfusion volume in ICU in BCNE patients: 769.63±800.19mL, 605.07±551.55mL, 230.11±181.64mL, 137.28±266.70mL; in BCPE patients: 1135.33±1576.48mL, 860.44±1471.89mL, 291.70±286.96mL, 270.37±657.61mL respectively. Intrahospital mortality in BCPE-14.0%, in BCNE-5.6%. Positive correlations in BCNE($r(87)=.274, p<.05$) and BCPE($r(101)=.251, p<.05$) were found between INR and days in ICU.

Conclusions. Transfusion incidence, days in ICU were similar between groups. Higher mean SDV and blood component transfusion volumes suggest higher postoperative bleeding in BCPE patients. Higher INR predicts longer ICU stay. Our research showed higher mortality in BCPE patients.

PULSED RADIOFREQUENCY FOR TREATING N.CLUNEUS NEURALGIA: A CASE REPORT

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Keywords. Cluneal neuralgia; Pulsed Radiofrequency Neuromodulation; Lower Back Pain

Objectives. The etiology of lower back pain is a heterogeneous issue of which the exact cause can not always be found. One of the lesser-known causes is cluneal neuralgia, which is typically linked to injury or entrapment of the cluneal nerves. Pulsed Radiofrequency Stimulation (PRF) has been safely and effectively applied to manage patients' peripheral neuropathic pain.

Materials and methods. We report a case of a 49-year-old male patient, who presented with lower back pain caused by cluneal neuralgia. In 2019 the patient developed pain in the lower back that radiated to the region of the right gluteus and thigh possibly due to uneven distribution of muscle strength after the patient underwent right knee arthroscopy in 2015. In July 2023, an infiltrating blockade around the right n.cluneus was performed using S.Dexoni 16mg and S.Lidocaini 1%-10ml in the area of pain. In a follow-up after two weeks, the pain persisted and Pulsed Radiofrequency Stimulation (PRF) was performed for 7 minutes together with infiltration of S.Dexoni 8mg and S.Lidocaini 1%-5ml. One week after PRF the patient reported an 80% decrease in pain in the gluteus region. Some pain remained in the center of the right gluteal muscle. The pain also had changed, now being more intense if the patient was lying down, radiating down the thigh. In December 2023 the patient came in for another PRF session, and after two weeks the patient reported a 100% loss of pain in the region deeming the PRF treatment successful.

Results. This case report shows the success of using PRF treatment for peripheral neuropathic pain.

Conclusions. It is important to identify the exact cause of lower back pain and treat it accordingly. PRF has shown success in cases of chronic neuralgia.

COMPARATIVE ANALYSIS OF SYMPTOM CHECKERS, AI, AND CLINICIANS IN MEDICAL DIAGNOSIS IN EMERGENCY DEPARTMENT: A PROSPECTIVE OBSERVATIONAL STUDY

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Keywords. Symptom Checker (SC); Artificial Intelligence (AI); Emergency Medical Service (EMS); Emergency Room (ER)

Objectives. Literature data suggests that about 89% of diagnostic errors are related to a human factor. To address this issue, specialized applications are designed to improve accurate patient complaints interpretation. The remaining question is whether it is reasonable to rely on these tools? The primary objective of this study was to compare diagnostic accuracy among SCs, AI and medical professionals.

Materials and methods. This prospective cohort study, conducted in December 2023 at Pauls Stradiņš Clinical University Hospital, involved 50 randomly selected ER-admitted patients. 3 applications were used to evaluate patients' symptoms – "Medical SC", "Symptomate" and ChatGPT 3.5. If patient underwent imaging study, "ChatGPT+R" additionally analyzed imaging reports. Suggested diagnoses matching discharge diagnoses were considered correct. Additionally, we requested AI's imaging study suggestions, comparing them with studies performed in ER. Microsoft Excel was used to store the data, IBM SPSS – to conduct statistical analysis.

Results. EM clinicians demonstrated an 88% (n=44) diagnostic alignment with discharge diagnoses, with no statistically significant difference observed when compared to other results ($p>0.05$). "Medical SC", "ChatGPT" and "ChatGPT+R" diagnostic accuracy comparing to EMS professionals was 60% (n=30; $p=0.035$), 66% (n=33, $p<0.01$) and 78% (n=39, $p=0.036$) respectively compared to 58% (n=29). "Symptomate" diagnoses were correct in 56% of cases (n=26). There were no statistically significant links between age, gender, reported symptoms, and diagnostic accuracy. Discharge diagnoses were considerably variable – the most common were atrial fibrillation, nephrolithiasis, acute cholecystitis. ChatGPT accurately suggested required imaging studies in 72% of cases.

Conclusions. The study revealed no statistically significant differences in diagnostic accuracy between ER professionals and artificial programs. On the prehospital stage – AI proved to be more accurate than EMS professionals. Results emphasize the potential of AI as supplementary tool to assist medical professionals.

COMPARATIVE ANALYSIS OF ACUTE ABDOMINAL PAIN DIFFERENTIAL DIAGNOSIS IN EMERGENCY MEDICINE: A STUDY ON PREHOSPITAL AND EMERGENCY ROOM ASSESSMENTS

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Keywords. Acute Abdominal Pain (AAP); Emergency Room (ER); Emergency Medical Service (EMS)

Objectives. Acute abdominal pain – pain of a nontraumatic origin lasting from several hours to 5-7 days, represents one of the foremost reason patients seek urgent medical help – literature suggests ~10% of all cases. Precise evaluation is challenging with literature indicating misdiagnosis rates of about 31% for AAP in the prehospital setting and 7.1% in the ER, raising concerns about the AAP diagnoses accuracy in Latvia. The aim of this study was to compare the accuracy of diagnoses for AAP in the prehospital stage and in the ER and seek for most misdiagnosed conditions.

Materials and methods. This retrospective cohort study, conducted in October 2023, summarizes data about all patients admitted to the Pauls Stradiņš Clinical University Hospital by EMS. We compared diagnoses provided by EMS medical professionals and EM doctors with discharge diagnoses. Microsoft Excel was used for data storage. Statistical analysis was performed using IBM SPSS.

Results. During October 2023 a total of 1195 patients were admitted to the PSCUH ER. 13,3% patients (n=159), aged from 19 to 95 years, presented with AAP, 40.3% (n=64) were male. The median hospital stay time was 96 h. EMS diagnoses in 48% of all AAP cases corresponded to discharge diagnosis, ER diagnoses – 78%. This difference was found to be statistically significant ($p<0.001$). Age significantly affects diagnosis accuracy only in the EMS ($p<0.003$). Chronic pancreatitis and UTI were the most commonly misdiagnosed conditions, with correct diagnoses in 20% and 42% of cases respectively. The most common discharge diagnosis was acute appendicitis – 13.2% (n=21): accuracy in EMS – 70%, in ER – 95%.

Conclusions. AAP is common reason for seeking medical assistance among Latvian citizens, frequently leading to prolonged hospitalization. EMS professionals demonstrated significantly lower accuracy in interpreting AAP.

SELF-ADMINISTERED PRE-ANESTHETIC QUESTIONNAIRE VERSUS PERSONAL INTERVIEW. DO PATIENT RESPONSES TO PREOPERATIVE HEALTH QUESTIONS DIFFER?

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Keywords. Pre-anesthetic assessment; Questionnaire; History taking methods

Objectives. Preoperative assessments by anesthetists are integral to evaluating surgical risks and clinical optimization. This study examines the reliability of patient-administered questionnaires for ASA physical status, data accuracy, and patient acceptability in comparison to traditional face-to-face assessments at the Hospital of Traumatology and Orthopaedics.

Materials and methods. The study was conducted at the outpatient department of the Hospital of Traumatology and Orthopaedics between September and November 2023. We utilized a newly developed Pre-Anesthetic Questionnaire, created by the Ministry of Health of the Republic of Latvia in 2023. We enrolled 165 patients, aged 18 and older, scheduled for elective surgery. After questionnaire completion, patients were assessed by an anesthetist. Data included accuracy in identifying key medical conditions (antihypertensive medication use, anticoagulants, and diabetes history) through test-retest analysis, ASA physical status inter-rater comparison and patient value and burden assessment.

Results. 91% of patients found the questions easily answerable, with 14% experiencing difficulties due to language barrier or visual impairment. Key question reliability, as measured by Cronbach's alpha (0.85), demonstrated strong internal consistency when evaluating antihypertensive medication use, anticoagulants use and diabetes history, compared to face-to-face assessments. Among patients assessed, 13% (n=22) were ASA-1, 65% (n=107) ASA-2 and 22% (n=36) ASA-3. In 65% (n=108) cases, agreement was found between questionnaire-derived ASA scores and anesthetist assessments. However, in 11% instances (n=18), the questionnaire underestimated ASA scores, mainly due to diabetes history. For patients categorized as ASA-3 by anesthetists, the questionnaire accurately identified 50%, while achieving a 92% accuracy in excluding non-ASA-3 patients.

Conclusions. Our findings suggest that self-administered Pre-Anesthetic Questionnaire, while reliable and consistent, may benefit from refinement, particularly in cases where it underestimates ASA scores.

INFLUENCE OF THE CHRONIC PAIN INTENSITY ON THE POSTOPERATIVE PAIN INTENSITY IN THE ORTHOPAEDIC PATIENTS: OUTCOME FROM THE INTERNATIONAL PROJECT PAIN - OUT

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Keywords. Analgesia; Postoperative pain; Chronic pain; PAIN - OUT

Objectives. This research explores the relationship between chronic pain intensity experienced by patients prior to surgery and the intensity of pain they encounter postoperatively. Primary objectives are to determine how chronic pain levels influence post-surgical pain perception.

Materials and methods. Altogether 258 patients were enrolled in this prospective cohort study, conducted at the Hospital of Traumatology and Orthopaedics in Riga, Latvia from November 2022 up to December 2023. On the first post-operative day, eligible patients, who had been in the ward for at least 6 hours, were randomly selected. They were administered a questionnaire, utilizing a rating scale from 0 to 10 to assess the intensity of their worst and least pain. Additionally, the patient was asked to evaluate the chronic pain they experienced before the surgery. This study was conducted as part of an international project "PAIN OUT".

Results. According to the study results, 67.4% (174) of patients noted that they experienced chronic pain before surgery. The median for chronic pain intensity score is 7 [IR; 5;8]. For patients without chronic pain, worst pain median score since surgery is 5 [IR: 3;7.5] and for patients with chronic pain, worst pain median score is 6 [IR: 3;8], (p = 0.297). For patients without chronic pain, least pain median score since surgery is 1 [IR: 0;2], for patients with chronic pain, least pain median score is 2 [IR: 1;3], (p = 0.008.). Women had a worst pain 8 [IR: 5;9], men 7 [IR: 4;8], (p=0.009).

Conclusions. Patients with chronic pain report higher levels of the least pain since the surgery compared to those without chronic pain. Women with a chronic pain report higher level of worst pain since surgery.

PHARMACOKINETIC EVALUATION OF CEFAZOLIN ANTIMICROBIAL PROPHYLAXIS IN SPINAL SURGERY

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Keywords. Cefazolin; Surgery; Spine; Antibacterial prophylaxis; Pharmacokinetics

Objectives. Surgical site infections (SSI) following spine surgery significantly impact patient morbidity and mortality. Antibacterial prophylaxis (AP) using cefazolin is a key strategy for preventing SSI. This observational study aimed to examine the pharmacokinetics of guideline-recommended cefazolin AP in spine surgery.

Materials and methods. Nine patients (aged 50 ± 14 years, renal function 99 ± 30 mL/min/72kg) undergoing spine surgery received AP with 2 g cefazolin. Blood samples were collected at 5, 10, 30, 60 and 90 minutes intraoperatively for measuring total cefazolin concentrations by high performance liquid chromatography. Patients were monitored for SSI during and post-hospitalization. Total cefazolin concentrations at wound closure were compared to the target concentrations of ≥ 40 mg/L.

Results. The interval between cefazolin administration and wound closure ranged between 40 and 190 minutes. Total plasma cefazolin concentrations peaked at 214 ± 35 mg/L −1 within 15 minutes following cefazolin dose. Total plasma cefazolin concentrations at wound closure were 68 ± 30 mg/L −1. 12.5 % of cefazolin concentrations at wound closure were < 40 mg/L. Longer surgery duration was associated with below-target concentrations. None of the patients in the study developed SSI.

Conclusions. The study demonstrates that current intraoperative AP with cefazolin achieves target plasma concentrations in the majority of patients. Duration of surgery is a critical factor in considering alternative dosing regimens.

KNOWLEDGE AND PERCEPTION OF MEDICAL STUDENTS ABOUT THE SPECIALTY OF ANESTHESIOLOGY IN LATVIA

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Keywords. Anesthesiology; Survey**;** Medical students; Perception

Objectives. The aim of this study is to investigate the knowledge, attitude and perception of medical students about the specialty of anesthesiology in Latvia. The results of the research will make it possible to understand what are the current views of students about the specialty of anesthesiology, whether there are any intellectual or emotional barriers that limit students' interest in this specialty, as well as what steps can be taken to promote better understanding and awareness of anesthesiology.

Materials and methods. Cross-sectional, quantitative, non-experimental. Research instrument: survey questionnaire. The questionnaire can be filled out in Latvian, online on the Facebook page via Google Forms. Sixty medical students were surveyed. All participants received the same survey instrument, which employed a 5-point Rating Scale to rate the appropriateness of several descriptive terms as they apply to anesthesiology.

Results. The primary source of information about anesthesiology for the students was their university course. The basic knowledge of where anesthesiologists work in Latvia varied significantly, ranging from being highly accurate in certain areas to notably lacking in others. Overall, 86.3% of the students expressed an interest in learning more about anesthesiology (17.6% were very interested, and 68.6% were somewhat interested), while 13.7% either did not respond or reported no interest. When asked in which year they would be most interested in learning about anesthesiology, the most common response was the fourth year. Mandatory rotations and practical classes were the preferred methods for learning more about anesthesiology.

Conclusions. Our survey reveals that medical students in Latvia possess a reasonable general knowledge of anesthesiology. They also hold overall positive perceptions of anesthesiologists' financial compensation and relative workload. The majority of the students reported an interest in learning more about anesthesiology.

BASIC & PRECLINICAL SCIENCE (MORPHOLOGY, PATHOLOGY, GENETICS)

MORPHOMETRICAL ANALYSIS OF THE DISTANCES BETWEEN FORAMINA AND SELLA TURCICA IN MIDDLE CRANIAL FOSSA

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Objectives. The knowledge regarding the distances between foramen rotundum (FR), ovale (FO), spinosum (FS), and sella turcica (ST) might benefit clinical specialists during several procedures in the middle cranial fossa (MCF). This study aims to determine the distances between the foramina of the great wing of the sphenoid bone and ST in the MCF.

Materials and methods. Fifteen ossified adult and dry skull base sides were utilized for this observational study. All materials were provided by the Laboratory of Anatomy of the Department of Morphology of the Institute of Anatomy and Anthropology, Rīga Stradiņš University. Each measurement was performed three times by using a screw-adjusted compass, ruler, and Vernier caliper, and the mean was recorded. The data were entered into Excel and tabulated, and the means, min/max values, and differences were calculated.

Results. FR was shown to be closer on the right side (R) to the ST due to shorter ST midpoint (STm) and lateral border (Bdr) distances compared to the left side (L), i.e., 19.7 mm (STm-FR), 14.7 mm (Bdr-FR) and 21.5 mm (STm-FR), 15.2 mm (Bdr-FR), accordingly. FO and FS were closer to ST on the left side. On the right side, the distances of the foramina on each other were also further. The most significant differences between sides were seen in STm-FR (L>R; 1.8 mm), FR-FO (R>L; 0.9 mm), FR-FS (R>L; 0.8 mm), and STm-FS (R>L; 0.7 mm), while the smallest ones were noticed in FO-FS (R>L; 0.08 mm), STm-FO (R>L; 0.1 mm), and Bdr-FO (R>L; 0.2 mm).

Conclusions. The analyzed data of the distances showed more extended sizes on the right side, except the FR-ST distance, which was longer on the left side. Knowledge, visualization, and understanding of the anatomy of the distances are essential in several diagnostic, therapeutic, and surgical procedures.

COMPARATIVE ANALYSIS OF BLOOD VESSEL DENSITY IN UNCHANGED BONE MARROW, ACUTE AND CHRONIC MYELOID LEUKEMIA

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Keywords. Bone marrow; Blood vessels; Acute myeloid leukemia; Chronic myeloid leukemia

Objectives. Acute and chronic myeloid leukemia are malignant neoplasms of blood cells, which are characterized by an increased process of angiogenesis. Measuring the density of bone marrow blood vessels in acute and chronic myeloid leukemia and investigating the existence of a significant difference between the control group.

Materials and methods. The conducted study is of retrospective character. 90 bone marrow biopsies were analyzed, and divided into three equal groups: a control group, a group diagnosed with acute leukemia and chronic myeloid leukemia. Pathohistological diagnosis were determined by using documents from the Center for pathology and histology of Clinical center Vojvodina. Samples were processed by the standard pathohistological procedure, stained by the HE method and additional immunohistochemical methods, examined under a microscope and photographed. Microphotographs were analyzed in *Image* J program. The results were statistically processed, graphically and tabularly presented.

Results. The average density of blood vessels in subjects in the control group is 1.85% (±0.56%), in the group of acute myeloid leukemia 3.72 (±1.67%), while in the group of chronic myeloid leukemia it is 5.42% (±2.28%). Increase in the density of blood vessels in the bone marrow was observed in patients with a confirmed diagnosis of these diseases, as well as a difference in the density of blood vessels between the group diagnosed with AML and CML.

Conclusions. The existence of a statistically significant difference in the density of blood vessels between the examined groups indicates the potential importance of the analysis of this parameter in the approach to the diagnosis and therapy of acute and chronic myeloid leukemia.

IMMUNOHISTOCHEMICAL EXPRESSION OF TENSIN-1 IN PANCREATIC DUCTAL CANCER IN CORRELATION WITH SELECTED CLINICOPATHOLOGICAL PARAMETERS

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Keywords. Ductal pancreatic cancer; Tensin-1; Intraductal secretion

Objectives. Pancreatic cancer is a significant clinical problem due to its severe, rapid course and very high mortality rate. Tensin-1 is a focal adhesion bridges-forming protein which ensure integrity of cytoskeleton and has its role in migration and proliferation process. The study aims to investigate expression of Tensin-1 in histopathological specimens from patients diagnosed with pancreatic ductal cancer and its correlation with clinicopathological parameters.

Materials and methods. The study was performed on group of 22 patients diagnosed with ductal pancreatic cancer in the Medical University of Bialystok Clinical Hospital. The expression of Tensin-1 was evaluated in tissue samples using immunohistochemical method. The analysis of clinicopathological parameters was performed in correlation with Tensin-1 protein expression.

Results. Tensin-1 expression was observed in cancer cells' cytoplasm and secreted into cancer glands in 15/22 cases (68.2%). There was no Tensin-1 expression observed in normal pancreatic tissue. The Tensin-1 intraductal secretion occurred more frequently among patients with tumor diameter ≥2cm (81.2%) (p=0.023). Moreover, the expression of Tensin-1 was observed less often with presence of necrosis in tumor and its medium and strong advancement level (20% and 0%, respectively) (p=0.042). Furthermore, the secretion of Tensin-1 in cancerous ducts decreases in cases which presented haemorrhages in tumor (33.3%) (p=0.024). There were no statistically significant correlations in reference to other clinicopathological parameters.

Conclusions. The presence of Tensin-1 in ductal pancreatic cancer indicates its involvement in development of cancer cells. This is also confirmed by increased Tensin-1 expression as the tumor grows. However, changes in expression of Tensin-1 do not affect stage or histological type of pancreatic cancer. The fact that cancer cells secrete Tensin-1 may be useful in further studies to assess its presence, for example in blood.

ALPHA 1 ANTITRYPSIN DEFICIENCY IN A ROMANIAN PATIENT WITH A RARE COMBINATION OF PATHOGENIC MUTATIONS

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Keywords. Alpha 1 anti-trypsin deficiency; SERPINA1; Sequencing, null; Chronic obstructive pulmonary disease

Objectives. Alpha-1 antitrypsin (AAT) deficiency is an autosomal co-dominant disorder characterized by decreased serum A1AT levels and deposition of abnormal A1AT protein in the liver, that leads to chronic obstructive pulmonary disease and/or liver disease. It affects one in 1,500 to 3,500 individuals with European ancestry. AAT is caused by mutations in the SERPINA1 gene (14q32.13). Over 150 different mutations have been identified, with the most common termed S and Z, whereas the normal allele is termed M. Other rare variants, called null, are associated with the absence of A1AT in the bloodstream.

Materials and methods. This is the case of a 42-year-old male patient, with a severe decrease in the respiratory function (FVC < 35%), without liver damage, and non-detectable serum A1AT. The initial genetic testing revealed the absence of the Z and S alleles, which ensured a follow-up genetic testing. The SERPINA1 sequencing identified three mutations in 3 of the 4 sequenced exons: c.552C>G (p.Tyr184*) in exon 2; c.905_906insA (p.Asn302Lysfs*2) in exon 3; c.1177C>T (p.Pro369Ser) in exon 5.

Results. The peculiarity of this case lies in the fact that the patient has 3 pathogenic and heterozygous mutations: two null mutations (causing the premature termination of the protein synthesis) and a missense mutation (causing an abnormal A1AT protein). Due to non-detectable levels of A1AT, there is a high probability that the null mutations are located in trans. The mutation in exon 3 was not identified in the available databases.

Conclusions. Individuals with the null genotype are the least common and are at high risk for developing the most severe form of associated lung disease. Until further testing on next-of-kin and segregation analysis, we cannot precisely locate the missense mutation in exon 3 to establish the patient's genotype.

THE ROLE OF FAMILY ONCOLOGICAL ANAMNESIS IN DETERMINING BRCA1/2 GENE MUTATION STATUS

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Keywords. Breast/Ovarian cancer; BRCA1/2; Familial oncological anamnesis

Objectives. Breast cancer is the most common malignancy in women in Latvia - one in nine women will be diagnosed with breast cancer. Around 10% of cases are hereditary. The purpose of this study is to determine whether familial oncological history can predict BRCA1/2 status and whether it can be used as basis for population wide genetic screening for the most common BRCA1/2 mutations.

Materials and methods. Data from Paula Stradiņa Clinical University Hospital about BRCA1/2 negative breast/ovarian cancer patients' and BRCA1/2 positive patients' familial oncological history was gathered. Data was analysed using IBM SPSS27 program. Pierson's Chi test was used to determine association between BRCA1/2 status and familial oncological history. If a statistically significant association was found Cramer's V test was used to determine the strength of association.

Results. 10 876 participants were included. 10 162 were BRCA1/2 negative breast or ovarian cancer patients, 677 were BRCA1 positive and 37 were BRCA2 positive. A statistically significant association was found between BRCA1/2 status and breast (p-value<0,001) and ovarian cancer (p-value<0,001) in familial history overall, breast (p-value<0,001 in first-degree relatives, p-value<0,001 in second-degree relatives) and ovarian (p-value<0,001 in first-degree relatives, p-value<0,001 in second-degree relatives) cancer in first- and second-degree relatives, negative familial oncological history (p-value<0,001), gastric cancer (p-value<0,001), colorectal cancer (p-value<0,001), lung cancer (p-value0,001), hematological malignancies (p-value0,016), malignancies of unknown primary origin (p-value<0,001), prostate cancer in family history overall (p-value<0,001), pancreatic cancer in family history overall (p-value0,013). No association was found between BRCA1/2 status and prostate cancer (p-value0,062) and pancreatic cancer (p-value0,125) in first-degree relatives.

Conclusions. There is a statistically significant association between BRCA1/2 status and breast and ovarian cancer in familial history, and malignancies not associated with HBOC syndrome. Familial oncological history can serve as a predictor of BRCA mutation status.

THE APOPTOSIS, GENES AND GENE PROTEINS IN HUMAN RIGHT AURICULAR TISSUE AFFECTED BY CORONARY HEART DISEASE AND AORTIC VALVE STENOSIS

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Keywords. Gene proteins; Genes; Heart; Human; Diseases

Objectives. The anti-apoptotic genes DAD-1 and HAX-1, and pro-apoptotic GZMB plays a crucial role in regulation of apoptosis in heart tissue. Still there are limited number of research in these genes/their proteins in pathogenesis of cardiovascular diseases. The aim was to elucidate the association between the appearance and distribution of these genes/their proteins in right auricula affected by the coronary heart disease (CHD) and aortic valve stenosis (AoV), and to compare with control group.

Materials and methods. Tissue was obtained from the right auricula of 15 patients with CHD and AoV. Control was collected from the 5 pediatric individuals of the archive material in the historical anatomy collection. Tissue was stained with haematoxylin-eosin. Gene proteins were detected by immunohistochemistry for HAX-1 and GZMB. The tissue In Situ Hybridization method (CISH) was used for the detection of HAX-1, GZMB and DAD-1 genes. The results were evaluated semi-quantitatively. The data were analysed by Mann-Whitney U test and the Spearman's correlation coefficient.

Results. The patients showed moderate number of HAX-1 and GZMB positive cardiomyocytes, while control displayed numerous to abundance of positive cells. DAD1 gene was equally expressed in control and patients, while HAX-1 and GZMB positive cells dominated into the control tissue. A statistically significant difference of positive HAX-1 gene cardiomyocytes was observed between the patients and controls only. A positive correlation was detected between the expression of the HAX-1 gene and the corresponding HAX-1 protein.

Conclusions. The decreased expression of the HAX-1 and GZMB proteins in patient tissue suggests the affection of both- pro- and anti-apoptotic activities in cellular level in case of CHD and AoS. The significant decrease of HAX-1 gene with a correlation between the gene and its protein proves points out the significance of this specific anti-apoptotic gene in diseased heart.

INVESTIGATING THE IMPACT OF CHRONIC ALCOHOL CONSUMPTION ON NF-KB PATHWAY ACTIVATION IN DIFFERENT AGE GROUPS

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Keywords. NF-kB; Chronic alcoholism; Liver; Immunohistochemistry

Objectives. Hyperactivation of inflammatory signaling circuits in the liver triggers an immune response. One of the main routes that can be activated is the nuclear factor kappa beta (NF-kB) cascade. It is believed that chronic exposure to alcohol is one of the factors that can trigger this pathway and eventually lead to liver tissue damage. Thus, the aim of this research was to investigate whether the relationship between alcohol consumption and NF-kB activation in liver tissue differs in various age groups.

Materials and methods. Liver autopsy specimens from 55 individuals (11 young non-alcoholics, 15 alcohol-dependent young adults and 29 chronic alcohol users) were immunohistochemically stained with anti-NF-kB antibody and analysed using a light microscope. Activation of the NF-kB pathway was determined by evaluating intensity of NF-kB expression using a scale from 0 to 3. Additionally, the percentage of tissue stained in a visual field using a scale from 0 to 3 in the lobular and interlobular areas was detected. SPSS 28.0 program was used for data analysis.

Results. There was a statistically significant ($p<0.05$) increase in both intensity and distribution of NF-kB immunoexpression in both the age-matched group as well as the chronic alcohol user group in comparison to the control group in both lobular and interlobular tissues. Further, comparing the age-matched and chronic alcohol users groups revealed an increase in expression intensity in interlobular tissue area ($p=0.011$) but no other statistically significant changes. In all groups, immunoexpression intensity and distribution were greater in lobular compared to interlobular tissues.

Conclusions. Results indicate that alcohol consumption leads to hyperactivation of the NF-kB pathway early and significantly confirming the idea that liver's immune response to alcohol exposure does not just start with chronic alcohol use. It begins in young alcohol-dependent adults and could result in alcoholic liver disease.

LOCAL DEFENSE FACTORS IN CLEFT-AFFECTED PALATE IN CHILDREN BEFORE AND DURING MILK DENTITION AGE: A PILOT STUDY

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Keywords. Cleft palate; Tissue defense factors; Milk dentition; HBD; LL-37; IL-10; CD-163

Objectives. Cleft lip and palate is one of the most prevalent congenital orofacial defects observed in newborns. It often presents with impaired nutrition and orofacial development, aesthetic issues, increased prevalence of infectious diseases and presence of chronic inflammation. Local tissue defense factors are crucial in regulation of immune response, inflammatory and healing processes of cleft-affected tissue. These factors have only been previously researched in children during mixed dentition, therefore, the aim of this study is to assess the distribution of LL-37, CD-163, IL-10, HBD-2, HBD-3 and HBD-4 in younger children before and during milk dentition.

Materials and methods. During the time span of 20 years, the unique material of palate tissue was obtained from 13 patients during veloplastic surgeries – 6 boys, 7 girls, 8 – 12 months old. For comparison 5 control samples without any pathologies were used – 4 newborns and one 24 weeks old. Immunohistochemical staining, light microscopy, semi-quantitative evaluation (from 0 to ++++), and non-parametric statistical analysis (Mann-Whitney U test, Spearman's rank correlation) were used to evaluate the distribution of factors in both groups.

Results. A statistically significant decrease of HBD-3 and HBD-4 positive structures in connective tissue was found. Spearman's rank correlation revealed several significant strong and moderate mutual correlations between HBD-2, HBD-3, HBD-4 and LL-37 positive structures of epithelium and connective tissue. No changes were observed in the distribution of IL-10.

Conclusions. Deficiency of HBD-3 and HBD-4 suggests promotion of chronic inflammation and prolonged immune response. Almost absence of HBD-4 indicates a possibly increased susceptibility to infections of cleft-affected tissue. Difference of HBD-4 levels in younger children could be connected to signaling pathways specific to dental pulp cells. Mutually strong correlations in epithelium imply changes in epithelial barrier, amplified healing and increased antibacterial defense.

CHARACTERIZATION OF ANGIOGENIC, MATRIX REMODELING AND ANTIMICROBIAL FACTORS IN PRETERM AND FULL-TERM HUMAN UMBILICAL CORDS

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Keywords. MMP2; TIMP2; VEGF; CD34; HBD2; Umbilical cord

Objectives. Little is known about morphogenetic changes in umbilical cord during maturation process. Specific markers represent extracellular matrix remodeling, angiogenesis, progenitor activity, and immunomodulation, therefore, the aim of the study was to determine the expression of matrix metalloproteinase-2 (MMP2), tissue inhibitor of metalloproteinases-2 (TIMP2), CD34, vascular endothelial growth factor (VEGF) and human β-defensin 2 (HBD2) in preterm and full-term human umbilical cord tissue.

Materials and methods. Samples of umbilical cord tissue were obtained from 17 patients and divided into two groups: very preterm and moderate preterm birth umbilical cords; late preterm birth and full-term birth umbilical cords. Routine histology examination was done. Marker-positive cells were detected by immunohistochemistry method. Number of positive structures was counted semi-quantitatively by microscopy. Statistical analysis was carried out using program SPSS Statistics 29.

Results. Cells of extraembryonic mesenchyme are the most active producers, expressing MMP2, TIMP2, VEGF and HBD2 at notable levels in preterm and full-term umbilical cord tissue. Statistically significant differences in expression of CD34, MMP2 and TIMP2 between the two patient groups were found. Expression of VEGF was similar in both patient groups, with the highest number of VEGF-positive cells seen in extraembryonic mesenchyme. Expression of HBD2 was the highest in extraembryonic mesenchyme and amniotic epithelium – mostly moderate number of HBD2-positive cells was detected.

Conclusions. Extracellular matrix remodeling in preterm and term umbilical cords is strongly regulated, and tissue factors MMP2 and TIMP2 take part in this process. Expression of VEGF is not changed by umbilical cord's age, however, individual patient factors can affect production of VEGF. Numerous CD34-positive cells in endothelium of umbilical arteries suggest a significant role of progenitor cells in very preterm and moderate preterm birth umbilical cords. Antimicrobial activity provided by HBD2 is essential and constant in preterm and full-term umbilical cords.

IMMUNOHISTOCHEMICAL DETECTION OF CANDIDATE GENE PROTEINS IN ADHESIONS OF NEONATES: A PILOT STUDY

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Keywords. Gene proteins; Immunohistochemistry; Adhesions; Neonates

Objectives. Newborns' intestinal adhesions have been reported in 4.7% infants who underwent a laparotomy, but they can also appear idiopathically. The etiology and pathogenesis of adhesions is still discutable, but some evidence shows relation to inflammation, formation of fibrin bands, hypoxia and tissue remodelation. Multiple candidate genes have been associated with adhesion development. This study evaluates the immunoreactivity of Sonic Hedgehog (SHH), Indian Hedgehog (IHH), Forkhead-box F1 (FOXF1), caudal type homeobox 1 (CDX1), HCLS1-associated protein X-1 (HAX-1), GATA Binding Protein 4 (GATA4) and Granzyme-B (GZMB) proteins in adhesions and describes correlations between immunopositive structures.

Materials and methods. Adhesion affected tissue samples were collected from 14 patients under one year of age that underwent abdominal surgery to treat partial or complete intestinal obstruction. The control group consisted of 6 individuals that had surgical repairment of inguinal hernia. Routine staining and immunohistochemistry were performed. Data were evaluated semiquantitatively. Statistical analysis was done using non-parametric tests and correlations were calculated based on Spearman's correlation analysis.

Results. Intra-abdominal adhesions were characterized by decreased SHH, IHH, FOXF1, HAX-1, GATA4 and GZMB immunopositive structures. A strong positive correlation was seen between the number of FOXF1 and GATA4 positive endotheliocytes; between FOXF1 and GZMB/CDX1 positive cells in blood vessels; between SHH/IHH/GATA4/GZMB/CDX1 positive fibroblasts and macrophages; between SHH positive endotheliocytes and blood vessels; between GATA4 positive fibroblasts and HAX-1 macrophages; between GATA4 and CDX1 positive endotheliocytes; between the GATA4 positive endotheliocytes and blood vessels; between the number of GZMB and CDX1 positive endotheliocytes.

Conclusions. The decrease of candidate gene proteins proves their involvement into the intra-abdominal adhesion morphopathogenesis. Abundance of correlations in gene protein appearance between the structures indicate the affected endothelium, blood vessels, fibroblasts and macrophages, and generally the involvement of the mesenchymal origin tissue into the postnatal intra-abdominal adhesions.

PREDICTIVE VALUE OF HISTOPATHOLOGICAL CHARACTERISTICS OF THE MUCOSA OF THE TERMINAL ILEUM AND RECTUM FOR THE PHENOTYPIC FORM OF CROHN'S DISEASE IN CHILDREN

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Keywords. Crohn's disease; Terminal ileum; Rectum; Children; Predictive factor

Objectives. Crohn's disease belongs to inflammatory bowel diseases that represent chronic, relapsing idiopathic inflammations of the bowel, whose etiology consists of a complex interaction between several factors, where an inappropriate immune response plays a key role. When diagnosing children, it primarily relies on the pathohistological findings of endoscopically obtained biopsies. The aim of this study is to determine the existence of predictive values of histopathological characteristics of the terminal ileum and rectum mucosa for phenotypic forms of Crohn's disease in the pediatric population.

Materials and methods. The study included all pediatric patients who were diagnosed with Crohn's disease based on endoscopic biopsies of the mucosa of the terminal ileum and rectum, with subsequent clinical follow-up of the disease for at least 5 years after the diagnosis.

Results. Data on 84 pediatric patients were analyzed. The average age of boys was significantly higher than that of girls. Mucin depletion in biopsies from the terminal ileum was a significant predictive factor for a stricturing phenotype, while aggregates of lymphoid follicles in biopsies from the terminal ileum were a predictive factor for a penetrating phenotype. Changes in the mucosal surface and the presence of granulomas within biopsies from the rectum were significant predictive factors for a penetrating type.

Conclusions. Certain parameters in the pathohistological report of biopsies taken from the terminal ileum and rectum can be used as predictive factors for determining the phenotype of Crohn's disease in children.

PULMONARY ARTERIES, TOPOGRAPHY, COURSE AND BRANCHING VARIANT IN ANATOMICALLY-CLINICAL SIGNIFICANCE

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Keywords. Pulmonary arteries; Branching pattern; Morphology

Objectives. Anatomical variations of pulmonary arteries are crucial during invasive treatment and surgical procedures of chronic thromboembolic pulmonary hypertension. This study aimed to determine and evaluate the pulmonary arteries' branching pattern and variant in both human lungs, to compare to other possible variants in the literature, as well as to determine outer morphological measurements of the arteries, comparing them between branching generations in different pulmonary segments, available digital materials and other studies.

Materials and methods. One human embalmed cadaver and three digital cadavers from the virtual dissection table "Anatomage" provided by the Laboratory of Anatomy and the Department of Morphology of the Institute of Anatomy and Anthropology were used for measurements. Lung dissection was performed, removing parenchyma, nerves, and veins and preserving arteries. Vernier digital caliper was used to measure arteries' lengths and diameters. Data from scientific literature (PubMed, Scopus) were used and analyzed for pulmonary arteries' branching pattern and measurement comparisons.

Results. The lower lobe of the right lung revealed a rare (under 10%) case in the dissected material, i.e., three end branches supplying the basilar bronchopulmonary segments instead of two. This lung also had an accessory artery supplying the anterior segment. The left lung showed an interesting pattern in the upper lobe, i.e., multiple branches instead of two supplying the two segments. Outer dissected morphological data matched the range of measures described in literature, based on Strahler order numbers, but the diameters of segmental arteries were very variable (3,04–9.29 mm). The data obtained from the digital material were not as thorough as from scientific publications; the branching of the pulmonary artery tree was not extensive.

Conclusions. The differences in segmental arteries' morphology can be explained by variability in branching Strahler order number, and understanding arteries' generation and order differences is crucial in clinical diagnostics.

GENETIC INACTIVATION OF THE SIGMA-1 RECEPTOR INDUCES SEX-SPECIFIC DIFFERENCES IN HEART FUNCTION

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Keywords. Sigma-1-receptor; Knock-out; Heart; Ejection fraction; Fractional shortening

Objectives. Sigma-1 receptor(Sig1R) is a chaperone in endoplasmatic reticulum membrane, and its action is modulated by sex hormones. Most studies about Sig1R are dedicated to its role in brain, however, Sig1R is also expressed in heart tissues, where its role remains unknown. This study was undertaken to assess the effects of Sig1R-coding gene inactivation on heart function and myocardial morphology in mice of both sexes.

Materials and methods. Heart function was assessed in 12-and 20-week-old wild type(WT), heterozygous(Sig1R-/+), and Sig1R knock-out(Sig1R-/-) male and female CD1-background mice using echocardiography. M-mode-tracings of the left ventricle were recorded at papillary muscle level from a parasternal short-axis view. To characterize fibrosis, 10µm-thick short-axis sections at the mid-ventricular plane from WT and Sig1R-/- mice hearts were prepared, and afterwards stained for collagen using Sirius-red method.

Results. The analysis of echocardiographic data revealed that male Sig1R-/- mice had significantly lower ejection fraction(EF) and fractional shortening(FS) compared with WT mice at both experimental time points: the EF in 12-week-old Sig1R-/-, Sig1R+/- and WT mice were 74±1.5%, 78±0.8% and 80±1.3% respectively, and 73±1.9%, 78±1.5%, 79±1.7% in 20-week-old; FS in 12-week-old Sig1R-/-, Sig1R+/- and WT mice were 38±1.3%, 41±0.7% and 43±1.3%, and in 20-week-old 37±1.5%, 41±1.3% and 42±1.6%, respectively. No differences between functional or anatomical parameters of the hearts of female WT and Sig1R-/- mice was observed. Computerized planimetric analysis of the stained heart sections showed that the amount of connective tissue was similar in the hearts of Sig1R-/- and WT mice of both sexes.

Conclusions. Current research demonstrates that absence of Sig1R leads to a reduced EF and FS in male mice, not in Sig1R-/- females. Differences in heart echocardiographyc parameters were not induced by myocardial morphological changes. Our findings indicate that Sig1R may become a sex-specific target in heart failure treatment.

DECODING THE LINK BETWEEN NF-KB IMMUNOEXPRESSION AND NEUROINFLAMMATION

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Keywords. Nuclear factor kappa beta activity; Striatum; Immunohistochemistry

Objectives. Nuclear factor kappa beta (NF-κB) expression varies in brain cell types; it is activated by various stimuli including alcohol use. Glial cells' NF-κB roles are inactive under physiological conditions, but studies explore their functions in inflammation, injury or disease. This study aims to assess NF-κB expression related to immune responses across age groups.

Materials and methods. The study included 44 striatal autopsies divided in control, young alcohol (YA), and chronic alcohol (CA) users' groups. Anti-Iba-1 and anti-GFAP antibodies were used to detect microglia and astrocytes, the intensity of the NF-κB reaction was evaluated semi-quantitatively. Neurons and glia were counted quantitatively. SPSS 29.0 was used for data statistical analysis.

Results. In the YA group and controls, there was negative NF-κB immunoexpression in the GM in comparison to the CA group. The most intense NF-κB activity was noticed in the WM of the CA group when compared to other groups' WM and GM immunostaining. Significantly more Iba-1-positive cells were observed in the WM of the CA and YA groups compared to controls. Significantly more GFAP-positive astrocytes were found in the WM of the CA group in comparison with the GM and WM of other groups. We found statistically significant decrease in number of neurons in both YA and CA groups comparing to controls.

Conclusions. Increased expression of NF-κB and larger number of astrocytes and microglial cells in the WM of CA group comparing to YA group and controls suggest striatal WM sensitivity to long-term alcohol use. Alcohol use potentially decreases the number of neurons in the striatum. Elucidating the disparities in the capacity of healthy and alcohol-dependent striatal cells to adapt to toxicity through the NF-κB pathway provides valuable insights into the molecular mechanisms governing cellular responses in the context of alcohol dependence.

POTENTIAL BIOMARKERS FOR DISEASE SEVERITY IN CHARCOT-MARIE-TOOTH DISEASE: A COMPARATIVE STUDY OF NFL, GFAP, FGF-21, AND GDF-15 CONCENTRATIONS

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Keywords. Charcot-Marie-Tooth disease; Biomarkers; Comparative study

Objectives. Charcot-Marie-Tooth disease (CMT) is the most prevalent inherited neuropathy, it is currently lacking molecular markers for evaluating disease progression. However, there is promise in the potential use of neurofilament light (NfL), glial fibrillary acidic protein (GFAP), and fibroblast growth factor 21 (FGF-21) as biomarkers for assessing nerve damage, but growth differentiation factor 15 (GDF-15) has been proposed as a biomarker for muscle mass reduction in CMT. The study aimed to compare NfL, GFAP, FGF-21, GDF-15 concentrations between a control group and a CMT group, examining their correlation with disease severity, to assess the reliability of these biomarkers for future research.

Materials and methods. 43 CMT patients and 43 healthy controls were enrolled in the study. Disease severity was assessed using CMT Neuropathy Score version 2 (CMTNSv2). Neurofilament light (NfL) and glial fibrillary acidic protein (GFAP) were measured with single molecule array (Simoa), fibroblast growth factor 21 (FGF-21), and growth differentiation factor 15 (GDF-15) with an enzyme-linked immunosorbent assay.

Results. The GDF15, FGF21, NfL and GFAP concentrations were significantly higher in the CMT patient group than in the controls ($p<0,05$). The GDF15 concentration had a statistically significant correlation with patients age and NfL level ($rs=0.57$, $p<0.001$; $rs=0.34$, $p<0.027$;), NfL and GFAP correlated with the CMTNSv2 ($rs=0.46$, $p=0.002$; $rs=0.31$, $p=0.04$).

Conclusions. Our study has provided confirmation that plasma concentrations of NfL, GFAP, GDF15, and FGF21 are significantly elevated in CMT patients compared to controls. Moreover, NfL and GFAP levels were correlated with the clinical severity of CMT. These findings suggest that NfL and GFAP can be reliable disease indicators in future research.

HUMAN DEFENCE FACTOR EXPRESSION AND THEIR POSSIBLE ROLE IN DIFFERENT GESTATIONAL WEEK PLACENTAL TISSUE

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Keywords. Placenta; Gestational week; Defence factors; Immunohistochemistry

Objectives. Flawed placental development is the main cause of frequent disorders of pregnancy. Studies have shown multiple defence factors' presence in placental tissue, although their role is not fully understood. This study evaluates expression of nuclear factor-kappa B (NF-κB), human beta defensin 2, 3 and 4 (HBD- 2,3,4), cathelicidine (LL-37), heat-shock protein 60 (HSP60), interleukin 10 (IL-10) in different gestational week placental tissue samples and illustrates correlations between immunopositive cells.

Materials and methods. 15 human placental tissue samples were obtained from mothers with different gestational week respectively: week 28, 31 and 40. Routine staining and immunohistochemistry for samples were performed. Evaluation of data was achieved with semi quantitative methods and statistical analysis done using Kruskal- Wallis test, correlations were calculated using Spearman's rank correlation.

Results. NF-κB, HBD- 2,3,4, HSP60, IL-10 expression was found in every inspected placental tissue cell type. LL-37 expression was discovered only in Hofbauer cells. An increase of expression as higher the gestational week was noted in LL-37 positive Hofbauer cells ($p = 0.03$), HBD-3 positive cytotrophoblasts ($p = 0.007$), endothelial cells ($p = 0.024$), extra embryonic mesodermal cells ($p = 0.004$) and HBD-4 containing endothelial cells ($p = 0.001$). Multiple statistically significant moderate and strong positive correlations between defence factors were observed, notably a very strong positive correlation ($\rho = 0.854$; $p = <.001$) between HBD-3 positive cytotrophoblast cells and HBD-3 positive extra embryonic mesodermal cells was found.

Conclusions. Positive defence factors' expression and an increase in expression especially in HBD-3 positive cells in later gestational week placenta may indicate HBD-3 and other factors' role in protective mechanisms in placenta. High number of strong correlations between factors in immunopositive cells show its possible cooperation in sustaining healthy placenta growth.

DEVELOPMENT OF NEURAL NETWORK BASED MODELS FOR PREDICTION OF GENETIC VARIANTS IN PATIENTS WITH FAMILIAL HYPERCHOLESTEROLEMIA

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Keywords. Familial hypercholesterolemia; Genetics; Two-layer neural network

Objectives. Familial hypercholesterolemia (FH) is an autosomal semidominant inherited disorder characterized by significant elevation of low-density lipoprotein cholesterol (LDL-C), which causes early atherosclerosis. Patients included in the Latvian Registry of FH have previously been tested for pathogenic (P) or likely pathogenic (LP) genetic variants, but the majority of patients had no causal variant identified. These patients may have previously unrecognized genetic variants. Deep-learning neural network based model may help prioritize patients for further genetic analysis. The aim of this study was to create a deep-learning neural network based model and test its abilities to predict P/LP genetic variants in subset with already known results.

Materials and methods. It was the retrospective study, in which data from the Latvian Registry of FH (LRFH) and the Genome Database of Latvian Population (GDLP) was analyzed with double-layer Python based neural network which includes TensorFlow, NumPy, Pandas, sklearn and MatPlotLib machine learning libraries and also self-check sensitivity and specificity interface. Neural-network was specially modified to provide deep-learn based on information exclusively from the LRFH and the GDLP. The model was trained on randomly selected approximately half of cases and tested on the remaining cases.

Results. Among 163 patients with known genetic status, 21% (n=35) were positive for P/LP variant. The model was trained on randomly selected 82 cases (P/LP positive in 21 cases) and tested on the remaining 81 cases (P/LP positive in 14 cases). The performance of the developed model to predict P/LP variants was the following: sensitivity 0.68, specificity 0.68 and accuracy 0.81.

Conclusions. Self-analyzing deep-learn neural model may be useful to predict P/LP genetic variants in FH patients, may improve diagnostic yield of genetic testing and may guide further genetic evaluation in patients without P/LP variants.

BIOCHEMISTRY, PHYSIOLOGY, PHARMACY, PHARMACOLOGY

SEX-DEPENDENT IMPACT OF SIGMA-1 RECEPTOR ABLATION ON HIGH-FAT DIET-INDUCED METABOLIC SYNDROME IN MICE

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Keywords. Sigma-1 receptor; Metabolic Syndrome; High-fat Diet

Objectives. Sigma-1 receptor (Sig1R) is a multifunctional endoplasmic reticulum protein, that emerges as a compelling target for drug development. The receptor has been extensively studied in various diseases, from neurogenerative to cardiovascular conditions, and prior research highlights its role in lipid metabolism. This prompts an exploration of its involvement in the development of obesity and associated detrimental changes in related metabolic pathways. The main objective of this study was to investigate the impact of Sig1R ablation on high-fat diet-induced metabolic syndrome characteristics in male and female mice.

Materials and methods. Eight-week-old CD-1 background male and female Sig1R knock-out (KO), heterozygous (Het), and wild-type (WT) mice were fed a high-fat diet (HFD) for 20 weeks. During the experiment, tissue insulin resistance assessment (guanabenz test) and glucose tolerance test were performed at 6 and 16 weeks following HFD initiation. Effects on body weight were monitored during the experiment in all experimental groups.

Results. In males, ablation of Sig1R significantly hindered the HFD-induced weight gain compared to the WT group, with similar trends in Het mice. Moreover, male Sig1R KO and Het mice displayed significantly reduced glucose levels after HFD compared to WT mice both in glucose tolerance and tissue insulin resistance tests. Female Sig1R KO and Het groups exhibited no significant difference in body weight, glucose tolerance and tissue insulin resistance tests over the 20 weeks on the HFD, compared to WT mice.

Conclusions. Surprisingly, male Sig1R KO and Het mice were less susceptible to developing HFD-induced metabolic syndrome than WT mice, while no such trends were evident in female mice. This research illuminates the sex-dependent role of Sig1R, potentially paving the way for novel precision treatments for metabolic syndrome.

IN VITRO EVALUATION OF PONALRESTAT INHIBITORY PROFILE ON HUMAN RECOMBINANT AKR1C3 ENZYME

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Keywords. Resistance; Ponalrestat; Anthracycline antibiotics

Objectives. Anthracycline antibiotics (ANTs), such as daunorubicin (DAUN), persist as efficient and widely used anti-cancer agents. DAUN is metabolised by enzymes from aldo-keto reductase and short-chain dehydrogenase/reductase superfamilies to its less potent and more toxic metabolite, daunorubicinol. That results in the development of resistance to ANTs followed by manifestation of adverse effects and eventual chemotherapy failure. Ponalrestat (PON) is a known inhibitor of AKR1B1 enzyme (Ki=7.7 nM), while its interactions with other reductases remain unclear. This study aimed to characterize the inhibitory profile of PON on selected recombinant reductases, especially AKR1C3, with a confirmed role in ANT resistance.

Materials and methods. AKR1A1, AKR1B1, AKR1B10, AKR1C3, and CBR1 were used to test the inhibitory effect of PON. Enzyme activity was determined by measuring the concentration of DAUN metabolite, daunorubicinol, by ultra-high-performance liquid chromatography (Agilent 1290 Infinity, Agilent 1260 Infinity II) system. In screening experiments, enzymes were treated with 10 µM and 50 µM concentrations of PON. To assess half maximal inhibitory concentration (IC50), inhibition type, and inhibitory constant (Ki) values, enzyme activity assays were performed in the presence of PON (0.01-10 µM) and DAUN (200-2000 µM).

Results. In the screening experiments with 10 µM concentration of PON, the inhibition rate of enzymes decreased in the following order: AKR1B1 ≈ AKR1C3 > CBR1 > AKR1B10 > AKR1A1. We discovered a similar inhibitory effect of PON on AKR1B1 and AKR1C3, while IC50 values for CBR1, AKR1B10, and AKR1A1 remained above 50 µM. The inhibitory activity of PON for AKR1C3 was low micromolar (IC50=1.79 µM, 95% CI=1.61-2.0) and the Lineweaver-Burk analysis provided evidence for a non-competitive inhibition mode (Ki=1.96±0.87 µM, α>1).

Conclusions. Based on our findings, AKR1C3 inhibition by combinatory therapy of PON and ANTs might be suggested for a better clinical outcome in cancer treatment.

OXIDATIVE-ANTIOXIDANTIVE BALANCE MARKERS ARE ASSOCIATED WITH PRESENT OF HYPERTROPHIC CARDIOMYOPATHY

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Keywords. Markers; Stress oxidative; Hypertrophic cardiomyopathy

Objectives. Oxidative stress reflects an imbalance between the systemic manifestation of reactive oxygen species and cells' ability to remove or neutralize them by antioxidant systems. Oxidative stress is a component of many cardiovascular diseases. However, the role of oxidative stress in hypertrophic cardiomyopathy (HCM) is not fully understood. The aim of the study was to examine oxidative-antioxidant disturbances in patients with HCM.

Materials and methods. We enrolled 52 consecutive HCM patients and 97 controls without HCM. The groups were matched for age, body mass index, and sex. All HCM patients underwent a physical examination, a panel of laboratory tests, an echocardiographic examination, and a 6-min walk test. An additional 10 ml of peripheral blood was collected for each patient to assess the oxidative-antioxidative balance markers. Oxidative-antioxidative balance markers included superoxide dismutase (SOD), ceruloplasmin (CER), sulfhydryl groups (SH-), and lipofuscin (LPS).

Results. The median age of the HCM patients was 52 years, and 58.4% were female. HCM patients compared to the control ones had significantly increased levels of -SH, CER, LPS and SOD. The area under the receiver operating characteristics curves (AUC) indicated an excellent discriminatory power of -SH and CER [AUC 0.901 (0.854-0.949), p<0.001, sensitivity of 94%, specificity of 78% and AUC 0.967 (0.942-0.992), p<0.001, sensitivity of 94%, specificity of 88%, respectively], an acceptable discriminatory power of LPS [AUC 0.732 (0.652-0.812), p<0.001, sensitivity of 71%, specificity of 69%], and poor discriminatory power of SOD [AUC 0.684 (0.600-0.768), p<0.001, sensitivity of 94%, specificity of 39%] for HCM detection.

Conclusions. -SH and CER with excellent predictive strength, as well as LPS with acceptable predictive power allows for HCM detection. The performance of SOD in assessment of HCM detection is limited.

UNLOCKING THE POTENTIAL OF X-RAY DIFFRACTION ANALYSIS (XRD) AND COMMERCIAL DATABASES FOR DRUG DOSAGE FORM IDENTIFICATION

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Keywords. Solid drug dosage forms; X-ray powder diffractometry; Qualitative analysis; API; Excipient; Identification

Objectives. Most drug dosage forms consist of dry mixes of crystalline and amorphous substances, which are challenging when full chemical analysis is necessary. Usually, the only way to identify active pharmaceutical ingredients (APIs) and respective excipients is time-consuming and, importantly – destructive. The primary objective of this research is to investigate the effectiveness of X-ray Diffraction Analysis (XRD) in conjunction with commercial databases for the identification of ingredients in conventional drug tablets and capsules.

Materials and methods. Rigaku Miniflex benchtop diffractometer and quartz glass sample holders were used to analyze 13 gently grounded drug powders. Furthermore, we conducted analyses on several pure APIs and excipients as part of the initial steps in establishing a localized database for future applications. XRD patterns were processed and analyzed using the following programs: Profex, MS Excel and Rigaku SmartLab studio. The last one was also used to do search-match analysis with the assistance of PDF4+ database.

Results. Major crystalline ingredients were identified in drug dosage forms with highest sensitivity of 9.1% w/w. The trial and error approach proved valuable in determining optimal measurement settings, as literature on XRD use in drug dosage forms is scarce. Data analysis provided insight into potential adjustments that could improve sensitivity and automation possibilities. Although current commercial databases have extensive libraries of APIs and excipients, continuous updates are needed for future use. Sixteen different pure ingredient XRD patterns were made during this study.

Conclusions. The XRD method shows potential in qualitative analysis of drug dosage forms. Currently identified shortcomings mark clear improvements that could be made in future studies. As literature suggests, considerably higher sensitivity can be achieved under optimal conditions. Future research should investigate the potential utility of XRD in the analysis of unknown drug dosage forms.

ENHANCING THE HIGH HYDROSTATIC PRESSURE (HHP) STERILIZATION PROCESS THROUGH MACHINE LEARNING OPTIMIZATION

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Keywords. Machine Learning (ML); High hydrostatic pressure (HHP); Bacteria; Sterilization; Process modelling; Genetic Algorithms (GA); Random Forest (RF); Monte Carlo simulations (MCS)

Objectives. Fabricating contemporary 3D biomaterials and drug delivery systems requires advanced sterilization techniques. High Hydrostatic Pressure (HHP) is an efficient alternative to traditional sterilization techniques (high-temperature thermal processing, steam-based methods, gamma irradiation and chemical agents). Optimizing HHP parameters requires a multifaceted approach, considering pressure, time, and the number of pressure cycles. This study aimed to evaluate the HHP sterilization parameters (pressure, time, cycle oscillation, volume) and their interaction by combining Machine Learning and statistical methods to optimize process efficiency, reduce resource utilization and minimize environmental impact.

Materials and methods. The study integrates Machine Learning (ML) algorithms, with a particular emphasis on Genetic Algorithms (GAs) and Random Forests (RFs), to enhance both experimental design and data analysis. This study employed High Hydrostatic Pressure (HHP) sterilization under varied conditions. Qualitative and quantitative microbiological testing assessed the sterilization efficiency against E. coli.

Results. Using the integrated ML and experiment approach, this study defined input (pressure, time, cycle oscillation, volume) and output (effort, colonies) parameters and determined their impact on the experiment. An experimental procedure confirmed the algorithms created, and successful experiments with less effort were selected for future research.

Conclusions. Our research presents a simple and cost-effective green chemistry approach for regenerative medicine. Furthermore, the applied approach shows potential in tackling various design challenges, aligning with the Quality by Design concept to establish goals and emphasize understanding of both the product and the process.

SYNTHESIS OF 3,4,5-TRIMETHOXYSTYRYLPYRIDINIUM AND ANTHRACENYLVINYLPYRIDINIUM DYES, EVALUATION THEIR PHYSICO-CHEMICAL AND SELF-ASSEMBLING PROPERTIES

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Keywords. Fluorescent dyes; Self-assembling properties; Nanoparticles; Dynamic light scattering

Objectives. Due to fluorescent properties styrylpyridinium salts are broadly investigated as imaging agents for biochemical, biophysical, molecular biology applications [Dubur et al., 1984, Saady et al., 2019]. Studies of biological properties of styrylpyridinium salts, for example antimicrobial activity have been also reported [Vaitkiene et al., 2020]. Developing of new compounds with desirable photophysical properties is the core challenge for the researchers from this field. The aim of the study was synthesis and evaluation of physico-chemical and self-assembling properties of new 3,4,5-trimethoxystyryl- and anthracenylvinylpyridinium dyes.

Materials and methods. Fluorescent dyes were synthesized from the appropriate aldehydes and 4-picolinium salts according to Vaitkiene et al [Vaitkiene et al., 2020]. Self-assembling properties of dyes were studied by dynamic light scattering method; samples were prepared as aqueous solutions by ethanol injection method [Putralis et al., 2023]. The UV/Vis spectra in ethanol solution were reordered with a UV/Vis spectrophotometer; the fluorescence spectra were measured using a spectrophotometer multiplate reader [Putralis et al., 2023].

Results. Sets of original fluorescent dyes with structure variations were obtained from of 3,4,5-trimethoxybenzaldehyde or anthracene-9-carbaldehyde with variation of different 4-methylpyridinium salts in 60-91% yield. The first experiments show that in the freshly prepared samples liposomes have the average diameter size around 300 nm. Physico-chemical, self-assembling, fluorescent properties of dyes and structure-activity relationships will be discussed.

Conclusions. Properties of the synthesized dyes strongly depend from their structure. The development of new fluorescent dyes may involve the design of theranostic formulations including targeted drug delivery and molecular tracking properties.

OPTIMIZATION OF DRUG DELIVERY SYSTEMS BY MODELING DISSOLUTION PROCESSES

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Keywords. Paracetamol; Solubility; USP Apparatus 2; UV-VIS Spectrophotometry; Rotations per minute (rpm); Tablet; Compression; Paddle

Objectives. Dissolution studies are among the most common techniques in developing, characterizing, and utilizing pharmaceutical dosage forms. Executing a dissolution test for oral dosage forms, such as tablets, is imperative as it provides valuable insights into drug release under in vitro conditions. This information is the foundation for predicting drug release behavior in in vivo conditions. The main objective of this study was to analyze and compare the dissolution profiles of commercially manufactured paracetamol tablet formulations and laboratory-made samples and to assess the impact of in vitro parameters for future investigations in computer-based modelling.

Materials and methods. The dissolution profiles of commercially manufactured and laboratory-made paracetamol tablets were assessed using the USP Apparatus 2. This study examined the prediction that dissolution process is affected by various physical parameters and mass transfer processes (diffusion, solubility, disintegration, etc.). In addition, the surface of tablets was studied by scanning electron microscopy (SEM). UV-VIS spectrophotometry was used to determine the quantitative content of paracetamol in the dissolution process.

Results. To evaluate the individual effects of each dissolution factor on the dissolution process, we created the following factor combinations - diffusion without mass transfer processes, swelling and disintegration by excluding excipients, mass transfer processes were done by changing the vessel's paddle rotation speed and tablet position.

Conclusions. The study proved the complex nature of the dissolution process. The results provide essential information for further development of hydrodynamic computer models, which will be done in FLPP project No. lzp-2023/1-0078.

EFFECTS OF POLYPHENOLS IN A SIMULATED INFLAMMATION MODEL: AN IN VITRO STUDY

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Keywords. Polyphenols; Pro-inflammatory; Antioxidant; Toxicity

Objectives. Polyphenols found in plants, such as blueberries, blackberries, and cranberries, are often used to alleviate inflammation and oxidative stress. The aim of the study was to investigate the impact of chlorogenic, cryptochlorogenic, rosmarinic, and caffeic acids on inflammation in vitro, for use as natural pro-inflammatory agents and to determine their therapeutic range.

Materials and methods. The pro-inflammatory effects of polyphenols were tested on murine RAW 264.7 cell line. Cells were stimulated with 10 ng/mL of LPS for macrophage polarization towards the M1 phenotype and incubated for 24h with polyphenol standards (concentration 10–100 μM). The expression of surface markers (CD80 and CD86) was assessed using flow cytometry. The MTT assay was used to measure cell viability. The free radical scavenging (antioxidant) properties of polyphenols were tested with the DPPH assay.

Results. Polyphenols were not toxic to murine RAW 264.7 cells when applied for 24h at concentrations of 10-100 μM. The percentage of CD80+ and CD86+ cells incubated with LPS was 28.01±1.78%. At a concentration of 100 μM, both rosmarinic and caffeic acids significantly ($p<0.05$) reduced the population of M1 macrophages after 24h to 20.34±2.19% and 19.91±1.96%, respectively. Chlorogenic and cryptochlorogenic acids did not affect the percentage of CD80+ and CD86+ cells. The EC50 values for all tested polyphenols ranged from 10.03 to 19.96 μM, with the lowest for rosmarinic acid.

Conclusions. All tested polyphenols show strong antioxidant capabilities. Rosmarinic acid, with the lowest EC50, is the most efficient antioxidant. Rosmarinic and caffeic acids exhibited significant pro-inflammatory effects at 100 μM, while chlorogenic and cryptochlorogenic acids did not show an impact on the expression of the surface marker M1.

THE PARADOX RELATIONSHIP OF SENSORIMOTOR DEFICIT AND INFARCT SIZE IN ACUTE ISCHEMIC STROKE

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Objectives. Infarct sizes usually correlate with the degree of neurological deficit in acute ischemic stroke (AIS) patients. In concert, experimental AIS research of the last decades aims to develop neuroprotective therapies to reduce infarct size. In our pre-clinical stroke research, we create AIS in mice. We have recently identified select cases in which significant neurological outcome paradoxically showed no correlation with small infarct size.

Materials and methods. Male C57BL/6 (n=13) mice were anesthetized with isoflurane (0.8-1%). AIS was induced by the transient (60 min) intraluminal microfilament occlusion of the middle cerebral artery (MCAO). Total recanalization was achieved by the removal of the microfilament. The AIS-caused sensorimotor deficit of mice was evaluated on the Composite Garcia Neuroscore Scale (GNS, maximum: 21 points) repeated daily during the 72-hour survival period. Infarct size and brain edema was estimated 72 hours after AIS by a small animal MRI system capturing T2, DWI sequences and derived ADC maps.

Results. The infarct sizes showed variations between 7.32-52.35% of the affected hemisphere (hemispheric lesion volume, %HLV T2). In 3/13 mice (atypical cases: infarcts <15%HLV and GNS <11, n=3) the measured small infarcts (14.6±6 vs. 53.1±22 %HLV; atypical vs. typical) were associated with an unexpected profound neurological deficit (9±1 vs. 11±2 GNS points; atypical vs. typical). Consequently, we found no correlation between GNS points and infarct sizes in our AIS model (Pearson: R=0.06). The exclusion of atypical cases strengthened the correlation of infarct size and neurological deficit (Pearson: R=0.629).

Conclusions. The "translational gap" in AIS research means the unsuccessful adaptation of experimentally neuroprotective drugs and therapies into routine stroke care. To bridge the translational gap, we need reproducible animal experiments. Based on our results, we propose the inclusion and analysis of special cases for the future translational stroke studies.

GENERAL PRACTICE & FAMILY MEDICINE, PRIMARY AND PALLIATIVE CARE

PHYSICIANS KNOWLEDGE OF DIABETES MELLITUS (DM) AND SAFE DRIVING IN LATVIA (DRIVELAT 2): A SURVEY (PART 1)

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Keywords. Hypoglycemia; Traffic accidents; Driving; Diabetes

Objectives. Hypoglycemia is when the blood glucose level drops below 4.0 mmol/L; in these cases, a DM patient can feel dizzy and confused. However, in more severe hypoglycaemia, the patient may have impaired vision and start having seizures and cognitive impairment. Such a mental state is not considered safe to drive any vehicle. It is essential to have properly educated healthcare practitioners – HCPs (e.g., general practitioners (GP), endocrinologists) who can educate their patients about the possible risks of driving a vehicle while hypoglycemic.

Methods. An anonymous questionnaire with 17 original questions was given to the HCP in Latvia. Results were analyzed using IBM SPSS 29.0.

Results. 100% (n=140) of HCP with a mean age of 48.1 ±15.4 years returned questionnaires. 86.4% (n=121) of the respondents were females, of whom 9.3%(n=13) were endocrinologists, 90.7% (n=127) were internists or general practitioners. HCPs work experience ranged from 1 to 55 years. 15% (n=21) did not believe that DM is a risk factor for traffic accidents. Of those 85% (n=119) who believed that DM is a risk factor, 66.4% (n=79) talked to their DM patient about safe driving. 97% (n=136) consider frequent and severe episodes of hypoglycemia to be a contraindication for driving, but only 39% (n=53) of them had advised their DM patients not to drive. 88.6% (n=124) believed that not recognizing hypoglycemia is a contraindication for driving, but only 38.7%(n=48) recommended their DM patients to measure their blood glucose levels before driving. Only 33.6%(n=38) of respondents knew that not a safe glucose level for driving is below 4mmol/L.

Conclusions. Most HCPs believe that DM is a risk factor for traffic accidents, but less than half give advice to their patients to avoid such cases. HCPs need to obtain additional knowledge on DM and safe driving.

MEN'S KNOWLEDGE AND RESPONSIVENESS TO PROSTATE CANCER SCREENING

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Keywords. Prostate cancer; Screening; Knowledge; Responsiveness; Men

Objectives. Prostate cancer screening has been available in Latvia since 2021.The purpose of the study is to analyze data on men's knowledge and responsiveness in prostate cancer screening and the role of the family doctor in it.Men's age, place of residence, level of education and type of occupation are evaluated as influencing factors.

Methods. Retrospective cross-sectional study using questionnaires. Questionnaires were distributed on the internet and in 2 family doctors' practices (one in Riga,the other in Talsi district).No identifiable patient data was used.Data processing and statistical analysis were performed using SPSS version 29.0 and Microsoft Excel (2021).

Results. There are 172 respondents. 30-40% of men know prostate and PSA. 58.1% know the screening target group, 38.9% the period of performance, 28.5% the organization and 34.1% the method. 22.3% consider themselves to be well informed, while 41.3% have heard a little something.The best informed are those aged over 65 (52.9%),those living in Zemgale and Latgale (45.5%),those in the higher education group (31.5%),pensioners (61.1%).The majority (51.7%) did not get information from the family doctor.However, 64.7% of men over 65 and 66.6% of pensioners are informed by family doctors. Participation in screening is 39.0% at the age of 45-64 and 58.8% at the age of over 65.The highest participation rates are in Zemgale and Latgale (36.4%),in the higher education group (27.4%),among pensioners (66.7%).

Conclusions. The response to screening in the target age groups can be assessed as moderately high. The most knowledgeable are men aged over 65, living in Zemgale and Latgale, representatives of higher education and pensioners, while the youngest age groups (16-34 years), living in Riga and its surroundings, representatives of secondary education and students are less knowledgeable. Only men over 45 and pensioners are the groups best informed by a family doctor.

HUMAN PAPILLOMA VIRUS KNOWLEDGE AND VACCINE ATTITUDES AMONG YOUNG MEN: INFLUENCE OF HEALTHCARE WORK OR STUDY EXPERIENCE AND COST CONSIDERATIONS

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Keywords. Human Papilloma Virus; HPV Vaccine; Young Men; Awareness; Sweden; Public Health; Cancer prevention

Objectives. This ongoing study aims to assess the level of knowledge and attitudes towards the Human Papilloma Virus (HPV) and HPV vaccine among young men in Sweden. Given the role of HPV in causing oral and genital cancers and the lower rates of vaccine uptake among men, this research seeks to identify gaps in awareness and factors influencing vaccine acceptance.

Methods. A questionnaire-based survey was conducted among male participants in Sweden aged 18-26 during November-December 2023. The survey was distributed through social media and emails. The questionnaire was developed following focus group discussions and a pilot survey of 40 medical students. The questionnaire included in total 16 questions about knowledge and attitudes towards HPV and HPV vaccine.

Results. The number of respondents so far is 93 of which 13% had received at least a single dose of the HPV vaccine. Knowledge of HPV related cancer and potential preventive effects of the HPV vaccine against different types of cancer was low with a notable exception: knowledge was significantly higher among participants with healthcare work or study experience - median score 13 versus 5 ($p<0.001$). Willingness to pay the current price (370-550 euros) for the vaccine expressed by 5% of the respondents.

Conclusions. The study highlights a significant gap in HPV and HPV vaccine knowledge among young men in Sweden. It suggests a need to enhance knowledge and address barriers to vaccination. The findings emphasize the role of cost in influencing vaccine acceptance, pointing towards the potential benefits of subsidized vaccination programs. More responses will be collected in the next phase of the study to draw more accurate and additional conclusions.

KNOWLEDGE AND ATTITUDE TOWARDS TESTICULAR CANCER AND SELF EXAMINATION AMONG MALE POPULATION IN LATVIA

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Keywords. Testicular cancer; Self-examination; Knowledge and attitude

Objectives. Testicular cancer, although rare, is the most common cancer in young men. Regular testicular self-examination is crucial for early detection. Studying men's knowledge and attitudes on this topic is vital to identify potential improvements in education and family practitioners' involvement.

Materials and Methods. A cross-sectional study on men 18 years and older was conducted online. 100 participants completed anonymous questionnaires in Google Forms. Data was analysed with IBM SPSS.

Results. Overall, 100 men were surveyed. The majority of respondents were in the age group of 18-29 years (34%). 86% of respondents had never independently explored the topic of testicular cancer and testicular self-examination. Only 4% (n=4) of men knew that testicular cancer is the most common malignancy among young men, and only 10% (n=10) correctly identified the age group at risk. Among those respondents (n=52) who were considered part of the at-risk age group, only 7 correctly identified themselves as part of the risk group. The majority of respondents (78%) claimed that they don't perform testicular self-examinations. A strong correlation was found between the performance of testicular self-examination and men's knowledge about it's importance ($p<0.001$). Only 23% correctly answered that testicular self-examination should be performed monthly. The most commonly noted symptom of testicular cancer was painless swelling of the testicle (61%). Only 21% identified cryptorchidism as a risk factor. Analyzing men's attitude toward discussing the topic of testicular cancer with their family doctor, the majority (71%) would have a positive attitude, and attitudes are strongly correlated with respondents' age ($p=0.005$). 80% of respondents believe that family doctors should educate men about testicular self-examination and its importance.

Conclusions. Study shows low knowledge of the risk factors and age of testicular cancer. The majority do not perform testicular self-examination. Men's knowledge is associated with the performance of testicular self-examination.

GYNAECOLOGY, GYNAECOLOGICAL SURGERY, OBSTETRICS, PERINATOLOGY

BODY MASS INDEX IMPACT ON ECTOPIC PREGNANCY

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Keywords. Ectopic pregnancy; Body mass index; Risk factors

Objectives. About 2% of all pregnancies are ectopic. The most common localization for it is the fallopian tube. Risk factors include fallopian tube pathology, more than one sexual partner, pelvic inflammatory disease, the usage of intrauterine device during consumption and sexually transmitted diseases. Other risk factors, such as large or small body mass index (BMI), impact on ectopic pregnancy are still unknown. The objective of our study was to assess women's body mass index impact on the incidence of ectopic pregnancy.

Materials and methods. A retrospective analysis in Lithuanian university of health sciences hospital, Kaunas clinics data register of medical histories was made. Ectopic pregnancy group included 174 cases of women who were diagnosed with ectopic pregnancy during 2019 - 2021 years of time. Control group consisted of 160 cases where pregnancy was diagnosed in the uterus. The control group involved women with intrauterine pregnancies and whose obstetrical anamnesis was similar to women's from the ectopic pregnancy group. Statistical analysis was done with "IBM SPSS Statistics 29.0.0.0".

Results. Almost all (95,4%) cases of ectopic pregnancy were diagnosed in the fallopian tube. BMI was statistically significantly lower in ectopic pregnancy group compared to the control group (p=0,031). Previous ectopic pregnancy and pelvic organ pathology were more often in ectopic pregnancy group (p=0,001). Previous ectopic pregnancy increased the recurrence of ectopic pregnancy by 4 times (p=0,002). One unit increase in BMI was associated with a 1.053-fold reduction in the odds of ectopic pregnancy (p=0,016).

Conclusions. The biggest impact on reoccurrence of ectopic pregnancy was previous ectopic pregnancy. Lower BMI increased the probability of women to have ectopic pregnancy, while increased BMI – reduced.

NULLIPARUOS WOMEN BLOOD LOSS IN CHILDBIRTH IN RELATION TO DEMOGRAPHIC, OBSTETRIC RELATED FACTORS

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Keywords. Pospartum hemorrhage; Childbirth; Nulliparuos; Demographicfactors; Obstetric factors

Objectives. Postpartum hemorrhage is one of the most important postpartum complications. Every year, approximately 14 million women worldwide experience postpartum hemorrhage, resulting in 70,000 maternal deaths (WHO, 2023). In Latvia 2015, pathological blood loss during childbirth was 2.2% in women. From 2013 to 2015, bleeding was the direct cause of maternal death in 25% of the total number of dead mothers, where the direct causes were also preeclampsia/ eclampsia and venous thromboembolism (SPKC, 2015). From 2017 to 2022, in 4 cases out of 26 cases, the cause of maternal death was bleeding, including uterine rupture, placental abruption (Health Statistics Database, n.d.). Research in this area is extremely important in order to understand and identify risk factors and to be able to develop additional effective preventive measures. The aim of the study is to determine nulliparous women's blood loss in childbirth in relation to demographic and obstetric related-factors.

Materials and methods. A quantitative non-experimental comparative cross-sectional study research method was used in the study. The protocol created by the author was utilized for the selection, grouping of the data. A total of 360 mother birth documents from maternity ward X were included. The mothers were divided into two groups based on blood loss during birth: >500ml and <500ml. Factors such as BMI, age, pregnancy/birth history, and early postpartum period were analyzed in relation to blood loss.

Results. The results of the study provide information about factors that affect blood loss in primiparous women during childbirth, indicating a statistically significant connection with demographic and obstetric-related factors. Furthermore, the results will be discussed in the conference.

Conclusions. Postpartum hemorrhage is one of the most frequent and serious complications of childbirth. Demographic and obstetrical factors play important role in birth blood loss in primiparous mothers.

EFFECTS OF MOTHER` S CARDIOVASCULAR DISEASE ON SINGLETON PREGNANCY AND DELIVERY

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Keywords. Singleton pregnancy; Delivery; Cardiovascular disease; Complications

Objectives. The precise epidemiology of heart disease in pregnancy is not thoroughly established or clearly defined. 1-3 % of all pregnancies are complicated by cardiovascular disease in Western countries, emphasizing the need for knowing more in-depth about it. The aim of this study is to assess the impact of maternal cardiovascular disease on singleton pregnancy and delivery.

Materials and methods. We enrolled 97 consecutive pregnant women with an ICD-10 code of I00-I09, I20-I59 and Q20-Q28 who gave birth at Pauls Stradiņš Clinical University Hospital in Riga, Latvia, between January 2020 and December 2022. We described data regarding pregnancy and delivery, and compared rates of obstetric, cardiovascular, and fetal events between women with different cardiovascular disease diagnosis.

Results. The mean age of participants was 30,8 years. The prevalence of cardiovascular disease among participants was 49,5% for arrythmia, 42,3% for congenital heart disease, 11,3 % for heart failure, 9,3% for cardiomyopathy, 7,2% for valvular heart disease, 4,1% for pulmonary heart disease and diseases of pulmonary circulation, and only 1% for other acquired heart disease. According to the WHO cardiovascular risk score, 17,5% were in class I, 68% in class II, 10,3% in class III and 4,1% in class IV. The incidence of complications during pregnancy, such as gestational diabetes and worsening of cardiac symptoms, was estimated at 60,8%, whereas the rate of complications during delivery, such as uterine dysfunction, premature rupture of membranes, preterm delivery, was 42,3%. These women also face a higher likelihood of requiring interventions such as cesarean section and induction of labor.

Conclusions. The research highlights the impact of maternal cardiovascular disease on pregnancy and delivery outcomes. We found that underlying cardiac conditions increase risk of complications. Healthcare providers should closely monitor these women to improve outcomes of both mother and the fetus.

"KNOWLADGE ABOUT PREMENSTRUAL SYNDROME AND ITS TREATMENT OPTIONS AMONG LATVIAN OBSTETRICIANS AND GYNAECOLOGISTS"

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Keywords. PMS; Gynecologists

Objectives. Up to 90% of women in reproductive age will experience symptoms of PMS and 20% will be diagnosed with PMS. The aim of this study is to analyze gynaecologists knowladge about PMS and its treatment and to evaluate whether it is up to date with current recommendations.

Materials and methods. A multi-choice questionnaire was developed and distributed among gynaecologists. Answers regarding the treatment were compared to recommendations made by ROCG and UpToDate.

Results. 57 participants were included. 4 of 55 (7,0%) answered the question about percentage of women that will experience PMS symptoms at least once correctly. 34 of 55 (61,8%) answered the question regarding number of menstrual cycles that must be affected to estabilsh PMS diagnosis correctly. 32 of 55 (58,2%) answered the question regarding whether symptoms need to affect a person's relationships, academic/work performance to establish PMS diagnosis correctly. 29 of 55 (52,7%) answered the question regarding the difference between PMDD and PMS correctly. 22 of 56 (39,3%) answered the question regarding exclusion criteria for PMS correctly. 29 of 56 (51,8%) answered the question regarding the most effective SSRI protocol for reducing somatic symptoms of PMS correctly. 8 of 56 (14,3%) answered the question regarding preconditions for surgical treatment of PMS correctly. 28 of 56 (50,0%) answered the question regarding first-line of treatment of PMS correctly. 50 of 56 (89,3%) answered the question regarding treatment of patients with minor PMS symptoms correctly. 51 of 56 (91,1%) answered the question regarding treatment of patients with moderate/severe PMS symptoms correctly. 25 of 55 (44,6%) answered the question regarding the most effective COC protocol for treating PMS symptoms correctly. 21 of 55 (38,2%) answered the question regarding second-line treatment of PMS correctly and 9 of 54 (16,7%) - regarding third-line treatment.

Conclusions. Overall knowladge about diagnosis and treatment of PMS was inconsistent among gyaecologists.

NEONATAL MORBIDITY OF MONOAMNIOTIC TWIN PREGNANCIES- REVIEW OF LITERATURE

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Keywords. Monochorionic monoamniotic twin; Morbidity

Objectives. MCMA twins occur in one of 10,000 pregnancies. This study aimed to report the incidence of neonatal morbidity rates according to gestational age at birth. Inclusion criteria were nonanomalous MCMA twins. The causes of neonatal morbidity were classified: respiratory, neurological, infectious.

Materials and methods. Clinical data was collected from National Library of Medicine systematic reviews Neonatal Morbidity of Monoamniotic Twin Pregnancies, that included 14 studies, 685 MCMA twin pregnancies without fetal anomalies. Mortality was classified by gestation age at birth in four groups- 24-30, 31-32, 33-34, 35-36.

Results. The rate of composite morbidity in group 24-30 weeks was 75.4%, 31-32 weeks 65.5%, 33-34 weeks 37.6%, and 35-36 weeks 18.5%. The rate of respiratory morbidity was 74.2%, 59.1%, 35.5%, and 12.2%. Neurological morbidity occurred in 15.3%, 10.2%, 4.3%, and 0% of the cases. Infectious morbidity complicated 13%, 4.2%, 3.1%, and 0% of newborns.

Conclusions. MCMA pregnancies are at high risk of composite neonatal morbidity, mainly respiratory morbidity that gradually decreases with increasing gestational age at delivery with a significant reduction for pregnancies delivered between 33 and 36 weeks.

ANXIETY AND DEPRESSION FOLLOWING MISCARRIAGE

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Keywords. Miscarriage; Depression; Anxiety; Mental health

Objectives. Miscarriage, occurring in 10-20% of known cases, is a common reproductive pathology that has a profound effect on women's mental health. Psychological consequences, including increased levels of anxiety and depression, have attracted attention in foreign studies. Studying this issue among Latvian women is important for a comprehensive understanding. Aim to study the impact of miscarriage on women's mental health by investigating the frequency and severity of anxiety and depression following a spontaneous abortion.

Materials and methods. This is a cross-sectional survey study recruiting patients hospitalized with the diagnosis of miscarriage at the Gynecology Clinic of Riga East Clinical University Hospital. The survey is based on Patient Health Status Questionnaire-9 (PHQ-9) and General Anxiety disorder-7 (GAD-7) questionnaire. Data processing was carried out with Microsoft Excel and IBM SPSS Statistics software.

Results. A total of 50 patients were enrolled in the study; depression and/or anxiety was found to be prevalent in more than three-quarters of the study participants. Depression was discovered in 80% of women – of whom 46% demonstrated mild form of the pathology, 28% – moderate, while criteria for severe depression were met in 6% of cases. Furthermore, spontaneously conceived pregnancies were associated with lower depression rates than IVF pregnancies (p=0.006), and desired pregnancy cases showed higher depression rates than unwanted ones (p=0.012). Anxiety was present in 78% of cases – 44% of study participants exhibited mild form of anxiety, 22% – moderate, while 12% of women met criteria for severe anxiety.

Conclusions. This research demonstrates that most women, having experienced a spontaneous abortion, encounter mental health challenges in the form of anxiety and depression. The study findings highlight the critical importance of comprehensive care of women recovering from a miscarriage – addressing not only the physical but also the mental well-being of the affected individuals.

ANTICIPATED ACCEPTABILITY OF PERSONALIZED CERVICAL CANCER SCREENING IN LATVIA - RESULTS FROM A QUALITATIVE STUDY

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Keywords. Personalized cervical cancer screening; Anticipated acceptability

Objectives. The coverage level of cervical cancer screening in Latvia is not optimal (46.7% in 2022). The availability of technology provides an opportunity to move from a "one size fits all" screening approach to a "personalized" screening program. The aim of this qualitative study was to realize the anticipated acceptability of personalized cervical cancer screening in Latvia.

Materials and Methods. A qualitative descriptive study was conducted by semi-structured interviews face to face or online, focusing on the anticipated acceptability of personalized cervical cancer screening among women living in Latvia. In total, 19 interviews were carried out from April to June of 2023. Interview guide was based on the Theoretical Framework of Acceptability of Healthcare interventions. Purposeful selection of study participants was performed using the maximum variation sampling method. The data were analyzed according to the principles of inductive content analysis.

Results. Six main categories were identified: (1) "Science-based medicine" describes trust in evidence-based medicine; (2) "Health literacy" describes the needs to promote health literacy among healthcare professionals, women, organizations; (3) "Emotions and feelings" in relation to risk and frequency of check-ups; (4) "Resources to invest" describes the time, financial, and personal resources that must be invested to perform the screening; (5) "Technical solutions" describes the need for technological innovation and the use of data in personalized screening, the most appropriate format for reporting screening results; (6) "10-year period" describes that 10-year interval is too long period between screenings.

Conclusions. There is a positive attitude towards a personalized cervical cancer screening approach, however, a 10-year interval between screenings in low-risk cases seems too long for women. It is necessary to promote the health literacy of women and healthcare specialists about personalized screening concepts.

INDUCTION OF LABOUR OUTCOME DEPENDING ON A WOMAN'S BMI AND NUMBER OF BIRTHS

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Keywords. Induced labour; BMI; Number of births

Objectives. The practice of induced labour has risen to approximately 33% of all pregnancies. It is essential to know what the outcome will be for patients with higher BMI, as it is a high-risk pregnancy, and this would help avoid surgical interventions and related complications in the future. This study aimed to see how a woman's BMI affects the outcome of induced labour.

Materials and methods. This retrospective study used data from Riga Maternity Hospital and included 8759 women presenting with induced labour from 2016 to 2022. The data was processed using IBM SPSS Statistics version 28, comparing induction outcomes in two main groups: first-primiparas and second-multiparas. Next, these two groups were divided by BMI and studied separately — category A or control group- with BMI <25, B – BMI 25-29, C – BMI 30-39, D – BMI>39.

Results. Primiparas with normal BMI (<25) in 23% had a CS, and in 77% had a vaginal birth. Group B primiparas in 31% had a CS, so OR to have a CS is 1.5 (95% CI 1.3-1.8). Group C primiparas in 41% had a CS, so OR is 2.3 (95% CI 1.8-2.8). Group D primiparas in 43% had a CS, so OR to have a CS is 2.6 (95% CI 1.5-4.6). Multiparas with a normal BMI in 7% had a CS, and 93% had a vaginal birth. Group B multiparas in 11% had a CS, so OR is 1.8 (95% Ci 1.4-2.4) Group C multiparas had CS in 13%, so OR is 2.1 (95% CI 1,5-3). Almost all group D multiparas had vaginal birth (95% CI 0.3-2.7).

Conclusion. Primiparas with obesity have high CS rate. CS risk increases with the primipara BMI. Multiparas with obesity despite the BMI have high chance to deliver vaginally.

FACTORS THAT HAVE AN IMPACT ON WOMENS' SATISFACTION ON THE MODE OF DELIVERY

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Keywords. Caesarean section; Childbirth; Choice

Introduction. According to the World Health Organization, more than 1 in 5 of all child births are caesarean section (CS). It is estimated that this rate will reach 29,0 % by 2030.

Aims. To discover how women with different modes of delivery evaluated their child births and what is the influence of emotions for the evaluation.

Materials and methods. Women who have had a CS earlier and gave birth at the Hospital of the Lithuanian University of Health Sciences in 2023 were invited to participate in a survey which included questions about sociodemographic factors, obstetric anamnesis, medical facts about previous and later labours, womens' opinion about the mode of delivery they had. IBM SPSS Statistics 29.0 was used. Chi-Square, one-way ANOVA, Cramer's V test and p-value criteria were used (statistically significant if $p<0.05$).

Results. In total, 52 questionnaires were included in our study. Women who gave birth naturally evaluated their labour experience with a mean of 8.61 (SD-1.614) on a scale of 1-10 and those who underwent an emergency CS-7.15 (SD-2.609), a planned CS – 8.81 (SD-1.537). After comparing all 3 groups by one-way ANOVA ($F=3.428$, $p=0.04$) the emergency CS was rated lower (with natural birth $p=0.016$, with planned CS $p=0.038$). The evaluation of labour 9-10 (on a scale 1-10) had statistically significant correlation with happiness/sensitivity ($p<0.001$, $chi2=13.333$, Cramer's $V=0.506$) and <7 with sadness/grief ($p<0.001$, $chi2=13.371$, Cramer's $V=0.507$) and anger/frustration ($p<0.012$, $chi2=8.811$, Cramer's $V=0.412$) felt during the labour.

Conclusions. A statistically significant difference was found in the estimation of childbirth between 3 groups. Women who had different modes of labour evaluated the emergency CS significantly lower compared to planned CS and natural birth. Joyful, sadness/grief and anger/frustration were statistically significant in the assessment of childbirth.

ROLE OF BIOMARKERS IN PREDICTING LABOUR PROGRESSION IN PRIMIPAROUS WOMEN WITH TERM SINGLETON CEPHALIC PREGNANCY WITH SPONTANEOUS ONSET OF LABOUR

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Keywords. Spontaneous labour; Biomarkers; Uterine dysfunction

Objectives. Childbirth is a complex physiological process involving a cascade of biomarkers, whose function is not entirely clear. Our objective is to determine association of certain biomarkers with uterine dysfunction and labour progression.

Materials and methods. A prospective study was carried out in Riga Maternity Hospital April-December, 2023. 32 healthy primiparas with spontaneous onset of labour, singleton term pregnancy, cephalic presentation and intact membranes were included. Blood and saliva samples were obtained during the latent phase of the first stage of labour to test estradiol, progesterone, 17OH-progesterone, DHEA-SO4, free estradiol in blood serum and cortisol level in saliva. Information about labour outcomes was collected after childbirth. Uterine dysfunction was diagnosed according to the guidelines and treated with oxytocine. Data was analysed with IBM SPSS Statistics-29.0.

Results. There were 13 patients in the dysfunction group and 19 patients in the group without uterine dysfunction. Median age of participants was 28.5 years (IQR:26.0-31.8), median gestational age 40+0 (IQR:39+2-40+3) weeks. Ratios were computed between variables. Statistically significant differences between groups were found in estradiol levels (24959.4 (IQR:21472.1-33114.2) vs 37304.4 (IQR:2603.3-47793.1) pg/ml; p=0.04), estradiol/progesterone ratio (52.73 (IQR:47.68-62.61) vs 81.53 (IQR:59.12-100.09) g/mol; p=0.009) and estradiol/free estradiol ratio (2047.29 (IQR:159.33-2532.47) vs 3627.55 (IQR:244.18-4731.99) pg/ng; p=0.006). Statistically significant moderate negative correlation was found between free estradiol/cortisol ratio and free estradiol/17OH-progesterone with length of first stage of labour (r=-404, p=0.036 and r=0.438, p=0.02). No biomarker showed statistically significant correlation with the second stage of labour. Cortisol in saliva showed no statistically significant correlation with uterine dysfunction.

Conclusions. Our study concludes that estradiol level, estradiol/progesterone ratio and estradiol/free estradiol ratio may have a role in the development of uterine dysfunction, and estradiol/cortisol ratio and free estradiol/17OH-progesterone ratio correlate with the length of first stage of labour in primiparous women with spontaneous onset of labour.

PERINEAL INJURY AND ITS ASSOCIATION WITH POSTPARTUM SEXUAL DYSFUNCTION AFTER VAGINAL DELIVERY

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Keywords. Perineal tear; Postpartum female sexual dysfunction; Vaginal delivery; Episiotomy

Objectives. During post-partum period one quarter of women report decreased sexual satisfaction, sexual interest, and ability to reach orgasm. Every year in Latvia, an average one third of births results in perineal injury. The research aim was to find out the prevalence of postpartum sexual dysfunction among women, who delivered vaginally.

Materials and methods. A total of 73 patients were enrolled in this retrospective study. Postpartum women were asked to complete Female Sexual Function Index (FSFI) questionnaire in Google Forms for two time periods – 6 and 12 months after giving birth. Survey was translated into Latvian and Russian. This research was approved by the Ethics Committee of RSU. For statistical analysis, IBM SPSS Statistics 29.0 was used.

Results. Average patients age group was 28-32 years. 31 (42.4%) of respondents were multiparous women, 42 (57.5%) were primiparous women. From all respondents 41 (56.2%) had perineal tears, 20 (27.4%) had episiotomy and 12 (16,4%) had intact perineum. At 6 months postpartum 34.4% (n=21) of women with any type of perineal injury had female sexual dysfunction (FSD), at 12 months postpartum 60.7% (n=37) of women had FSD. Perineal tears were associated with FSD in 36,6% of cases, but episiotomy – 30% of cases at 6 months postpartum. At 12 months postpartum perineal tears were associated with FSD in 58.5% of cases, and episiotomy – 65% of cases.

Conclusions. Our study results show that FSD is a widespread problem among women after vaginal delivery. FSD were more common at 6 months postpartum with perineal injuries than episiotomy and at 12 months postpartum more than a half had FSD in both groups, respectively episiotomy - 65% and perineal injuries - 58.5%.

PERTUSSIS, INFLUENZA, COVID-19 VACCINATION COVERAGE DURING PREGNANCY

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Keywords. Pertussis; Influenza; COVID-19; Vaccination; Pregnancy

Objectives. This study aims to assess pertussis, influenza, and COVID-19 vaccination coverage among postpartum women in Riga's maternity hospital. Additionally, this study seeks to determine whether antenatal care providers apprised expectant mothers of the opportunity to vaccinate during pregnancy and to acknowledge the most effective methods to inform pregnant women about vaccination.

Matherials and methods. From 06.01.2024 till 17.02.2024 a survey was conducted among postpartum women. The survey was conducted online and made available through social media channels and distributed directly. The collected data was processed using IBM SPSS.

Results. Out of 105 women, 77.1% know that it is recommended to vaccinate against pertussis, COVID-19, and influenza. 64.2% of those who were aware of the opportunity to vaccinate against pertussis had opted to receive the vaccine ($p<0.001$). Similarly, 52.4% of women who knew about the availability of influenza vaccination had opted to receive it ($p<0,001$). However, only 16.1% of women who were aware of the opportunity to vaccinate against COVID-19 had opted to do so ($p=0.530$). Out of the 105 women, 93.3% received antenatal care from gynecologists, and 65.3% of women received information about the availability of vaccinations against pertussis, influenza, and COVID-19 from their gynecologist during pregnancy. 42.9% suggest that information about vaccination during pregnancy is insufficient. The most effective methods to apprise women about vaccination are during health care specialist consultations (89.5%), new mother schools (36.2%), and reliable source publications on social platforms (34.3%).

Conclusions. Gynecologists are the primary care providers for most pregnant women. Although the majority of women (65.3%) were informed by their gynecologists about the importance of vaccination against pertussis, influenza, and COVID-19, awareness still is insufficient. Of these diseases, pertussis has the highest vaccination coverage, followed by influenza and COVID-19. Information about vaccination during pregnancy is insufficient.

HYPEREMESIS GRAVIDARUM IN THE FIRST TRIMESTER AND PREGNANCY OUTCOMES

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Keywords. Hyperemesis gravidarum; Pregnancy; Nausea; Vomiting; Outcomes

Objectives. Hyperemesis gravidarum (HG) is a syndrome, which is characterized by severe nausea and vomiting in pregnancy (NVP). Some studies have shown that pregnancies with NVP are not associated with an adverse outcome. Others have demonstrated the association of HG with an increased risk of preterm labour, low birth weight, and a higher rate of neonatal hospitalization to NICU.

Materials and methods. A retrospective cohort study was conducted in Riga Maternity Hospital from March 1 to September 1, 2023. Respondents in early postpartum period were asked to answer a multiple choice survey and a retrospective analysis of available data from medical records was performed. The prevalence of adverse pregnancy outcomes was assessed. Data analysis was performed in IBM SPSS Statistics.

Results. A total of 175 patients were included in the study, of which 59 did not have NVP (33.7%), 50 had mild NVP (28.6%), 49 had moderate NVP (28.0%), and 17 had severe NVP or HG (9.7%). In younger women with lower BMI the symptoms of NVP were more severe (p=0.012). Multiparous women with NVP have previously encountered it in only 46.7%. Women with moderate and severe NVP reported higher levels of stress (in the moderate NVP group the median stress level was 3 (Q1;Q3, 2 to 3) and in the HG group it was 4 (Q1;Q3, 3 to 4).). The study found no statistically significant association of NVP or HG with adverse pregnancy outcomes. Among all hospitalisations only two 2 were due to HG.

Conclusions. Women who are younger than 24 years of age with low BMI are more likely to experience HG. Among other NVP risk factors high stress levels during early pregnancy corelates with NVP. Advice on lifestyle may be effective to reduce the risk of NVP in target groups.

WHY DO SOME WOMEN TEAR DURING CHILDBIRTH MORE THAN OTHERS? - A RETROSPECTIVE CROSS-SECTIONAL STUDY ON PERINEAL LACERATIONS AND RISK FACTORS

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Keywords. Perineal laceration; Obstetric-anal-sphincter injury; Vaginal delivery

Objectives. Perineal laceration (PL) is a genital injury during childbirth. Grade 1-2 are more common, superficial, less complicated; grade 3-4, obstetric anal sphincter injury (OASI) – rare, extensive, more complex. OASI can result in short and long-term morbidity, leaving traumatic labor experience. There are risk factors contributing to OASI development. Research aims to determine the incidence of PL among PSCUH patients and OASI risk factors between groups.

Materials and methods. A retrospective cross-sectional study was performed at P.Stradiņš Clinical University Hospital (PSCUH), delivery unit. Data was collected from the patients` records. 150 women were assessed from January 2020 to May 2023. Including criteria were singleton, term vaginal birth. The study group included 47 patients with grade 3-4 PL and randomly selected control group of 103 women with grade 1-2. Both groups were demographically comparable based on age (t=1.095,p=0.275). Data was analysed in IBM SPSS Statistics 29.0 using descriptive and inferential statistics. P-value ≤0.05 was considered statistically significant.

Results. During the study period, there were 4526 deliveries, 2731 vaginal, 1016 resulted in PL. The incidence of PL was 35-39.2%, OASI – 1.18-2.05%. A statistically significant association exists between the number of births and the severity of PL (p=0.05). Grade 3 PL are most probable to occur in primiparous women (35.7%), grade 2 – during the 3rd delivery (60%). Prolonged labor time (p=0.035) and the length of 2nd stage in primiparous women (p=0.015) are statistically significant risk factors for OASI. The association between labor stimulation with oxytocin and the severity of PL in primiparous women is statistically significant ($X2=5.76$,p=0.016). There is a statistically significant difference in the fetal weight (t=-2.83,p=0.005), length (t=-2.71,p=0.008), chest circumference (p=0.006) between the groups.

Conclusions. Research identified risk factors are maternal, fetal, intrapartum, which can be used as early identifiers for preventative measures.

CAESAREAN VS VAGINAL BIRTHS: PREFERENCES OF LATVIAN WOMEN

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Keywords. Caesarean section; Vaginal birth

Objectives. The mode of delivery is vital to the health of mother and child, affects mental and physical well-being. It is important to identify women's preferences for mode of delivery and the associated factors that influence their choice.

Materials and methods. An online questionnaire was managed from December 2023 to January 2024 for women who gave birth in Latvian hospitals from 2020 to 2023. The questionnaire included questions to assess their satisfaction with work of medical staff, the experience of childbirth, the type of birth women prefer and why. Data were summarized and analyzed using MS Excel and SPSS program.

Results. The study involved 1092 women living in Latvia, of whom 800 delivered vaginally and 292 by Caesarean section. Basically, 87% respondents prefer to deliver vaginally, only 13% would choose Caesarean section, mainly due to fear or bad experience of vaginal delivery in the past. At the same time, 63% of women who had a Caesarean section earlier, would prefer it in the future as well. Some of them had a traumatic birth experience previously. 73% believe that women have rights to decide by themselves how to give birth . And 35% of all respondents were not informed by their doctors about the possibility of choosing Caesarean section as a method of childbirth at all.

Conclusions. The majority of pregnant patients would choose the trial of vaginal birth and would succeed with it. A few patients would choose the Cesarean section as a mode of delivery, primarily due to previous traumatic birth delivery. There is an urgent need for antenatal caregivers' education on the choice of delivery mode to avoid the miss-consultation of pregnant patients. We need further studies to understand the aetiology of traumatic birth experiences.

PREGNANCY INDUCED HYPERTENSION AND ITS ASSOCIATED FACTORS AMONG WOMEN ATTENDING DELIVERY SERVICE

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Keywords. Pregnancy induced hypertension; Associated factors; Pregnancy

Objectives. A serious issue that can occur during pregnancy is pregnancy-induced hypertension (PIH), which has been linked to several unfavorable consequences for both the mother and the Fetus. The World Health Organization (WHO) estimates that at least one woman dies every seven minutes from the consequences of hypertensive disorders of pregnancy. The purpose of this study is to evaluate pregnancy-induced hypertension and risk factors related to it in women undergoing antenatal care at Jalalabad Hospital.

Materials and methods. A cross-sectional study was conducted from October 01 to November 30/2023 from maternity hospitals in Jalalabad for two months. The total sample size (620) was proportionally allocated from the hospital. A systematic sampling technique was used to select study participants. A P-value less than 0.05 was considered statistically significant.

Results. Out of a total of 620 pregnant women, only 8% (50/620) of pregnant women had Hypertensive Disorders in Pregnancy (HDP). The average age of the respondent who visited the outpatient department of a maternity hospital in Jalalabad was 27.5± 2 years with the majority 42% in years 25-30 years. The findings from our study indicate that hypertensive disorder in pregnancy has a significant relationship with risk factors such as increasing maternal age ($p<0.041$), body mass index (BMI) ($P<0.007$), and family history of hypertension in pregnancy ($p<0.026$). Other risk factors assessed in our study had no significant association with HDP.

Conclusions. The result of our study emphasizes factors like obesity, increasing age of pregnant women, and family history of hypertension as risk factors for developing Hypertensive Disorder in Pregnancy (HDP). It highlights the need for a reduction in body weight and proper control and early treatment of hypertension during pregnancy to reduce the morbidity and mortality of pregnant mothers.

NAVIGATING OBSTETRIC CHALLENGES - A STUDY OF OBSTETRICIANS' AND MIDWIVES' EXPERIENCES, WORK ENVIRONMENT AND SUPPORT SYSTEM AFTER INVOLVEMENT IN TRAUMATIC CHILDBIRTH

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Keywords. Midwives; Obstetricians; Traumatic childbirth

Objectives. When childbirth leads to severe or potentially fatal complications for the infant or mother, guilt and responsibility weigh heavily on healthcare professionals (HCPs) involved. This study aimed to describe the impact of traumatic childbirth on relationships and the personal and professional identity of obstetricians (O) and midwives (M); as well as identify the support mechanisms after a traumatic birth event.

Materials and methods. From February 2023 to January 2024, a cross-sectional study was conducted with obstetricians (n=69) and midwives (n=87) in Latvia. The survey included: a) socio-demographics, b) psychosocial work environment and job satisfaction, and c) experiences with traumatic childbirth. Surveys were distributed both electronically and in person in labor wards throughout Latvia. Data analysis was conducted using MS Excel and IBM SPSS.

Results. Most HCPs reported a positive workplace atmosphere (67.3%), good collaboration (67.3%), and colleague support (65.4%). However, only 27% of supervisors discuss job performance. After traumatic childbirth, 68.1% of O and 78.1% of M were troubled by memories from the event. Around half felt guilty (O – 52.2%; M – 48.2%), worried about complaints (O – 46.4%; M – 52.9%), and had difficulty in clinical practice (O – 52.2%; M – 51.7%). Many disagreed on receiving enough information on what to do after a traumatic birth (O – 68.1%; M – 64.4%), psychological support options (O – 58%; M – 48.2%), and clear adverse event reporting procedures (O – 57.9%; M – 52.8%). The majority of HCPs (84,9%) spoke to a colleague in the department about their experience with traumatic birth.

Conclusions. Study findings reveal positive work dynamics but limited supervisor engagement, with obstetricians and midwives experiencing distress and guilt after traumatic events. Challenges include insufficient post-trauma support and unclear reporting procedures, underscoring the need for enhanced support systems.

THE ACCURACY OF ULTRASOUND EXAMINATION IN ASSESING THE LOCAL SPREAD OF ENDOMETRIAL CANCER

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Keywords. Endometrial cancer; Ultrasound

Objectives. Endometrial cancer (EC) is the fifth most diagnosed cancer among women. The most common histological type is endometrioid adenocarcinoma. Ultrasound exam (US) is one of the tools that allows evaluation of local spread of the disease. The aim of our study was to assess the accuracy of US evaluating the spread of the endometrial cancer in the uterus.

Materials and methods. This is a retrospective study performed at the Hospital of Lithuanian University of Health Sciences. Women diagnosed with histologically confirmed EC undergoing surgical treatment from January to December 2022 were included into the study. All patients underwent US exam before the surgery to evaluate the myometrial and possible cervical stroma invasion. The results of US exam were compared with final histological exam of the uterus as the gold standard. Stastistical analysis of data was done with IBM SPSS statistics version 29.

Results. 112 patients (mean age 66.3± 10.02) were included. 98 (87.5%) patients were postmenopausal, 101 (90.2%) were diagnosed with endometrioid adenocarcinoma. The 40 (35.7%) of women had grade 1 (G1) differentiated tumours, 55 (49.1%) G2 and 17 (15.2%) G3 tumours. On the US the superficial (less than 50%) myometrial invasion was found in 60 (53.6%) and deep (>50%) in 52 (46.4%) patients. The invasion of cervical stroma was diagnosed in 7 (6.3%) of patients on the US. The final histology diagnosed 43 (38.4%) patients with superficial myometrial invasion, 69 (61.6%) with deep invasion to the myometrium and 18 (16.1%) with invasion to the cervical stroma. The accuracy of US to diagnose the deep myometrial invasion was 65.18%, and 81.3% to the cervical stroma.

Conclusions. The US has good accuracy to evaluate the endometrial cancer invasion to the cervical stroma, but accuracy to evaluate the deep myometrial invasion is moderate.

INFECTIOUS DISEASES, DERMATOVENEROLOGY, MICROBIOLOGY, IMMUNOLOGY, ALLERGOLOGY

FACTORS AFFECTING COVID-19 OUTCOMES IN HEMATOONCOLOGY PATIENTS: AN EMPIRICAL STUDY FROM RIGA EAST UNIVERSITY HOSPITAL IN LATVIA

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Keywords. COVID-19 mortality; COVID-19 risk factors; Hematological malignancies

Objectives. This study aimed to determine the clinical outcomes and risk factors affecting mortality in patients with HM and COVID-19.

Materials and methods. In this retrospective non-interventional cohort study, we included adult patients treated in hospital with ongoing HM and laboratory-confirmed COVID-19 observed between February 2020 and February 2023. All data were analyzed using descriptive statistics Binary Logistic regression, Univariable Cox regression model and other methods.

Results. We registered 156 patients with 11 hematological diagnoses- multiple myeloma, Non-Hodgkin lymphoma and acute myeloid leukemia being the most common. COVID19 mortality rate was 19,9% (31/156). Asymptomatic SARS-CoV-2 infection had 72 (46,2%) patients. The overall mortality rate in acute myeloid leukemia and acute lymphoblastic leukemia patients (17/29 [58,6%]) was significantly higher comparing to multiple myeloma (10/45[22,2%]) (p=0,004) and other HM (10/41[24,4%]) (p=0,015). Factors increasing the risk of death include severity of COVID-19 (p<0,001), accession of bacterial infection (p<0,001), longer hospital stay (p=0,037), neutrophils ≤ 0.5 × 109/mm3 (p=0,014), fever (p=0,039) and acute myeloid leukemia (p=0,002). We also confirmed that mortality in third pandemic wave was significantly lower than in second wave (p=0,003). Although vaccination seemed to be a risk mitigating factor (58,8% [10/17] who died from COVID-19 were not vaccinated) no statistically important correlation was found (p=0,281).

Conclusions. This survey confirms that patients with HM have higher COVID-19 mortality rate 19,9% (31/156) than population. Neutrophils count, severity of COVID-19, accession of bacterial infection, hospital stay, fever, acute myeloid leukemia are the factors affecting mortality in HM patients.

PREVALENCE AND CHARACTERISTICS OF COMORBIDITIES IN ADULT PATIENTS WITH CHRONIC SPONTANEOUS URTICARIA IN LATVIA

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Keywords. Chronic spontaneous urticaria; Comorbidities; Quality of life

Objectives. Chronic Spontaneous Urticaria (CSU) is associated with various comorbidities, lowering the quality of life. Research demonstrates that multimorbidity exacerbates these challenges, resulting in poorer clinical outcomes. This study aims to delineate a comorbidity profile of CSU patients in Latvia.

Materials and methods. A retrospective review was performed, incorporating patient interviews and electronic records from Pauls Stradins Clinical University Hospital and Center for Diagnosis and Treatment of Allergic Diseases in Riga, Latvia. Comorbidities were categorized into 12 groups (allergic diseases, chronic inflammations and infections, psychiatric diseases, gastrointestinal tract diseases, cardiometabolic diseases, neoplasms, autoimmune diseases, diseases of the thyroid gland, diseases of the musculoskeletal system, gynecological diseases, skin diseases, and others). Statistical analysis was performed using Jamovi v. 2.3.28. Descriptive statistics were employed for demographic data and CSU characteristics, as well as the prevalence of disease groups. Chi-square test was used to determine the association between the comorbidities and gender.

Results. 140 adult CSU patients participated, with 76.4% females and 23.6% males, mean age 41.3 years (SD 14.9). Common comorbidities included allergic diseases (55.7%), cardiometabolic diseases (37.9%), autoimmune diseases (29.3%), chronic inflammation and infections, and thyroid diseases (both 27.9%). Least prevalent were psychiatric diseases and neoplasms (both 3.6%). Evaluating accompanying diseases separately, the most common comorbidities were obesity (25.7%), house dust mite allergy (20.7%), food allergy, and hypertension (both 20.0%). We found a statistically significant association between gender and allergic comorbidities ($p=0.031$). 60.7% of women and 39.4% of men having at least one comorbidity in this category.

Conclusions. Among Latvian CSU patients, common comorbidities include allergic diseases, specifically house dust mite allergy and food allergy, cardiometabolic diseases, specifically obesity and hypertension, autoimmune disorders, chronic inflammation, infections, and thyroid diseases. Association between gender and presence of allergic diseases reveals a higher prevalence among female CSU patients.

IMMUNOLOGICAL AND CLINICAL CHARACTERISTICS OF 22Q11. 2 DELETION SYNDROME IN PEDIATRIC PATIENTS AT THE CHILDREN'S CLINICAL UNIVERSITY HOSPITAL, LATVIA: A RETROSPECTIVE STUDY

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Keywords. 22q11.2 deletion syndrome; Immunological profile

Objectives. 22q11.2 deletion syndrome is a genetic disorder caused by a deletion of chromosome 22, specifically at the q11.2region. It's prevalence: 1-2 cases per 10,000 live births. This syndrome is marked by a wide range of clinical features that can vary significantly in severity among affected individuals. Common characteristics of this syndrome include congenital heart defects, immunodeficiency, distinctive facial features, speech problems endocrine disorders.The aim of this study is to select patients with 22q11.2 deletion syndrome in Latvia, describe their clinical diversity and its association with immunological profiles.

Materials and methods. A retrospective examination of patient records was conducted at the Children's Clinical University Hospital, covering the period 01.01.2009-01.10.2023. The SPSS software was employed for the statistical analysis of the collected data.

Results. A total 43 patients with 22q11.2 deletion syndrome were identified, comprising 25 girls and 18 boys. There was one instance of autosomal dominant inheritance and one neonatal mortality. Low birth weight was observed in 9 out of 37 cases. Diagnosis was primarily established within the first year of life for 29 patients, with 65.5% of these cases presenting with congenital heart disease. Immunological tests revealed decreased white blood cells and lymphocytes in 19.5%(8/41) of cases, reduced T cells in 22.9%(8/35), T cytotoxic cells in 25.7%(9/35), as well as decreased T helper cells in 28.6%(10/35). Moreover, level of IgA, IgG and IgM were mostly found to be normal. Clinically frequent respiratory infections were noted in 78.6% of the children. Overall, 74.4% had heart defects, 7.1% hypoplastic thymus, 76.5% speech disorders, 58.5% musculoskeletal anomalies, 37.5% gait disturbances.

Conclusions. Approximately 25% of patients exhibited a reduced number of T cells. Other children, despite experiencing recurrent infections, showed no significant changes in their T cell count. To confirm thymic dysfunction, proliferation tests of T cells are required to assess their function.

INTERACTION BETWEEN TUBERCULOSIS AND COVID-19

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Keywords. Tuberculosis; COVID-19

Objectives. Until the COVID-19 pandemic, tuberculosis (TB) was the world's leading cause of death from a single infectious agent. Both infections mainly affect the lungs, reducing functionality and causing complications not only in the lungs, but also in the liver, kidneys and other organs. The aim of the study was to investigate how TB affects the severity of COVID-19.

Materials and methods. A retrospective study was conducted on patients diagnosed with pulmonary TB, treated at the Riga East University Hospital "Centre of Tuberculosis and Lung Diseases"(CTLD) from 02.03.2020. until 31.12.2022., and who have been diagnosed with COVID-19 infection while in hospital. Data were obtained from CTLD electronic databases and patient medical records and then entered into a Microsoft Excel table. The statistical analysis was conducted using IBM SPSS. COVID-19 was classified as asymptomatic or symptomatic. COVID-19 severity was categorized as mild, moderate, or severe. TB-induced lung damage was categorized as either moderate or severe.

Results. A total of 46 patients were included in the study. Severe TB-induced lung damage and asymptomatic course of COVID-19 were present in 27/39 patients, while 12/39 were symptomatic. Moderate TB-induced lung injury and asymptomatic course of COVID-19 was diagnosed in 1/7 patients but symptomatic in 6/7 patients. The negative association between the severity of TB-induced lung damage and the symptomaticity of COVID-19 is statistically significant, Fisher's exact test,$\chi 2(4,N=46)=11,878,p=0,007$. In cases of severe TB-induced lung damage, mild COVID-19 was observed in 36/39 patients, moderate COVID-19 in 2/39 patients, and severe COVID-19 was observed in only 1/39 patient. The negative association between TB-induced lung damage and the severity of COVID-19 is statistically significant, Fisher's exact test,$\chi 2(4, N=46)=17,616,p<0,001$.

Conclusions. In cases of severe lung damage caused by TB, COVID-19 more frequently manifested as asymptomatic and mild; however, with moderately severe TB-induced lung damage- symptomatic.

CRYPTOSPORIDIUM SPP. AND GIARDIA SP. PRESENCE IN WASTEWATER OF LATVIA, PRELIMINARY RESULTS

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Keywords. *Cryptosporidium; Giardia*; Wastewater

Objectives. *Cryptosporidium* spp. and *Giardia* sp. are protozoan parasites that cause enteric diseases such as diarrhea, abdominal cramps and vomiting. The disease can be fatal for immunosuppressed patients. These parasites are highly contagious since the infectious minimum is just one oocyst for *Cryptosporidium* and five for *Giardia*. Main infection pathway for humans is faecal – oral. The aim of this study is to determine the prevalence of *Cryptosporidium* spp. and *Giardia* sp. cysts in wastewater in Riga, Latvia.

Materials and methods. Samples were collected from three wastewater treatment plants in Riga, Latvia from January 2022 till June 2023. Samples were stored at +4°C. Further samples were concentrated, purified and the concentrated material was prepared for fluorescent microscopy via Aqua-Glo™ kit (Waterborne, USA). Enumeration was conducted, positive results were oocysts with typical morphology (*Cryptosporidia* – 4.5×5.5µm Ø and *Giardia* – 7×10µm Ø) in size found, calculated, and counted in one gram of concentrated material.

Results. The *Cryptosporidium* and *Giardia* prevalence in wastewater samples (n=361) varied. The *Cryptosporidium* spp. prevalence was 12.7% (95% CI 9.5-16.6), but *Giardia* sp. -48.2% (95% CI 43.1-53.4), while mix infections were found in 9.1% (95% CI 6.4-12.6). The mean number of *Cryptosporidium* and *Giardia* (oo)cysts in infected samples were 1.57/100ml and 3.47/100ml, ranging from 0.17/100ml – 0.25/100ml and 0.91/100ml – 3.05/100ml, respectively. Samples collected in winter had a prevalence 5.4% (95% CI 1.8-12.1) and 34.4% (95% CI 24.9-45.0), respectively. Summer samples prevalence was 10.1% (95% CI 4.95-17.79) and 56.57% (95% CI 46.74-65.9).

Conclusions. The results of the study showed that *Cryptosporidium* and *Giardia* may pose a potential threat to human health throughout the year, while being more active in the summer. This research was funded by the Fundamental and applied research "Transmission of Foodborne Parasitic pathogen from animals to humans: TRANSPAR" (lzp-2021/1-0055)

ANTIBACTERIAL AND ANTIFUNGAL ACTIVITY OF ESSENTIAL OILS IN VITRO

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Keywords. Essential oil; Agar diffusion test; Antibacterial activity; Antifungal activity

Objectives. Essential oils gained prominence in alternative medicine, proving vital in aromatherapy and showcasing significant bactericidal, anti-inflammatory, and fungicidal effects. This has spurred the pharmaceutical industry's growing interest in substituting synthetic chemicals with naturally occurring compounds possessing inherent bioactive properties. The study investigates bactericidal and fungicidal properties of fifteen essential oils, specifically focusing on optimal concentrations to inhibit bacterial strains and yeast isolates using agar diffusion test.

Materials and methods. Fifteen essential oils were tested for antibacterial and antifungal activity against *E.coli* ATCC 25922*, S.aureus* ATCC 25923, *P.aeruginosa* ATCC 27853; 14209, *K.pneumoniae* ATCC 13883 and *C.albicans* ATCC 10231. Microorganism suspensions were inoculated onto Mueller Hinton and Sabouraud agar plates using the Kirby–Bauer method. Sterile filter discs with 10 μg/disc of compounds were placed, and after 22 hours at 37°C, antibacterial and antifungal efficacy was assessed by measuring inhibition zones. All tests were done in triplicate for each essential oil at concentrations of 100%, 50%, 25%, and 12.5%.

Results. Effective inhibitors for microbial growth were observed as follows: *E.coli*: cinnamon (100%, 50%, 25%), tea tree (100%, 25%), *S.aureus:* cinnamon (100%, 50%, 25%, 12.5%), lemongrass, rosemary (100%, 50%, 25%), tea tree, eucalyptus (100%, 50%); *P.aeruginosa* (strains 1 and 2): cinnamon (100%); *K.pneumoniae:* cinnamon, tea tree, peppermint, lavender (100%, 50%, 25%), rose (100%, 50%), lemongrass (100%, 50%, 25%, 12.5%), jasmine (100%, 50%); *C.albicans*: peppermint, cinnamon, lemongrass (100%, 50%, 25%, 12.5%), tea tree (100%, 50%, 25%), jasmine, rose, rosemary, lavender (100%, 50%).

Conclusions. This study significantly contributes to combating antibiotic resistance by identifying optimal concentrations for enhanced efficacy of essential oils against bacterial and fungal strains. Future research should explore the mechanisms, synergies, clinical efficacy, and safety considerations of essential oils, including tea tree, cinnamon, lemongrass, eucalyptus, and rose, as alternative antimicrobial agents.

TOTAL SERUM IMMUNOGLOBULIN E LEVEL – GENDER AND AGE DIFFERENCES IN PSORIASIS

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Keywords. Psoriasis; Immunoglobulin E; Gender, Age

Objectives. Psoriasis is a common chronic inflammatory skin disorder characterized by sharply demarcated erythematous, scaly, and pruritic plaques. It is known to exhibit gender-specific variations in clinical presentation. While previous studies have explored clinical or psychosocial characteristics, a focused investigation into Immunoglobulin E (IgE) levels and their gender-specific patterns remains warranted. This study aimed to compare the total serum IgE levels between male and female patients with psoriasis and between different age groups.

Materials and methods. Age, gender, and total serum IgE level of 401 adult patients with psoriasis treated at Riga 1st Hospital between 2015 and 2022 were retrospectively examined. To evaluate statistical differences between individuals of the male and female genders, the Mann-Whitney U-test was conducted. Additionally, to examine variations between age groups within each gender, the Kruskal-Wallis test was used. Spearman's rank correlation coefficient was used to analyze the correlation between IgE and age. The significance level was determined at $p<0.05$.

Results. The total serum IgE levels were considerably higher in men than in women. Significant statistical differences were also observed among the age groups of 18-30 years, 31-40 years, and 51-60 years, and when the total serum IgE level was compared across the different age groups between the female gender. A weak positive correlation was observed between age and IgE level in the female group. Nevertheless, no other statistically significant differences were observed between genders.

Conclusions. Based on these findings, there are gender-specific differences in total serum IgE levels in psoriasis between males and females. Furthermore, the study revealed that the disparities were more pronounced when examining gender differences within the younger age groups. Future studies should integrate healthy control groups to contribute to a more comprehensive understanding of the observed differences and to provide a baseline for comparison.

RETROSPECTIVE ANALYSIS OF HIGH-SENSITIVITY CARDIAC TROPONIN T AND COVID-19 SEVERITY

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Keywords. Troponin; hs-cTnT; COVID-19; Inflammation; Cardiovascular diseases

Objectives. The elevation of high-sensitivity cardiac troponin T (hs-cTnT) is among the markers of myocardial injury that helps diagnose heart attack. In COVID-19, the mechanism of hs-cTnT elevation in these patients has not been fully understood. Based on previous research, the elevation of hs-cTnT reflects a cardio-inflammatory response, and the marker can be used as a predictor of COVID-19 severity and poor outcomes regardless of cardiovascular diseases in anamnesis. This study investigated the association between hs-cTnT, indicators of COVID-19 severity, and cardiovascular comorbidities in patients hospitalized with COVID-19 in a Latvian cohort in Spring 2020.

Materials and methods. The retrospective analysis was performed using a database collected during the State Research Programme on COVID-19. It included data on 100 patients with COVID-19 who were hospitalized from March to May 2020 (https://doi.org/10.25143/FK2/HNMLHH). Data of hs-cTnT had 39 patients. Statistical analysis used Mann-Whitney tests and Spearman's rank correlation coefficient.

Results. The study included 20 females and 19 males (mean age was 63 ± 20 years). Arterial hypertension, chronic heart failure, and arrhythmias were reported in 24 patients. At admission to the hospital, the hs-cTnT level varied between 4.09 ng/l and 384.7 ng/l. A higher level of hs-cTnT was observed in acute respiratory failure and associated with a lethal outcome. There were no significant associations between hs-cTnT and cardiovascular diseases in anamnesis. High-sensitive cTnT correlated with C-reactive protein (r_s=0.68, $p<0.001$), erythrocyte sedimentation rate (r_s=0.41, $p<0.05$), D-dimers (r_s=0.34, $p<0.05$), and age (r_s=0.52, $p<0.01$).

Conclusions. In the study group, the elevated level of hs-cTnT reflected COVID-19 severity and systemic inflammation rather than cardiovascular comorbidities.

ASSESSMENT OF AWARENESS OF SUN PROTECTION AND UNDERSTANDING OF THE USE OF SUN PROTECTION CREAMS BETWEEN YOUNG ADULTS

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Keywords. Sun protection; Sunscreens; Young adults

Objectives. Sun protection benefits is a very discussed topic, sunscreens are highlighted the most *(Skin Cancer Foundation, 2022)*. Sun protection can reduce skin cancer risks and slowdown photoaging. Young adults(18-25 years) are the most active group, consequently they're most exposed to the sun*(D. Holman, 2018)*. To achieve sun protection benefits, it's necessary to start prevention earlier. The main aim of this research was to evaluate how educated young adults are about sun protection and its benefits, and what their habits are.

Materials and methods. We used an electronic Google forms survey during 23.12.2023.-10.01.2024. It contained questions about behaviour in the sun, skin cancers, sunscreens, and benefits. Obtained data was analysed using IBM SPSS program.

Results. In the survey participated 263 young adults, 240(92%) females and 23(18%) males. Most of the participants(n=137;52,7%) are more inclined to spend 3-5 days a week in the sun, and there's no significant association between genders(p=0,564). The most chosen protection methods are sunglasses(n=201;p=0,004), sunscreens(n=199;p=0,00) and headdress(n=155;p=0,5). Participants are more inclined to not wear protective clothing(n=156) and there's no significant association between genders(p=0,5). The most chosen sunscreens were 50 SPF(n=134;p=0,04) and 30 SPF(n=106;p=0,44). The majority doesn't use sunscreens daily(n=218;p=0,14), mostly uses it at summertime (n=94;p=0,9) and when sunbathing(n=73;p=0,4). Participants' knowledge about skin cancers, protection methods, sunscreens and correct use differed. Data about sunscreen benefits(n=253;p=0,007), minimal SPF value for outdoors(n=134;p=0,04) and sunscreen reapplication(n=125;p=0,006) was significant.

Conclusions. The results showed that the majority of young adults spend a great amount of time(3-5 days a week) in the sun in summer, excluding sunbathing. The most chosen sun protection methods are sunglasses, sunscreens, and headdress. Participants chose 50 SPF and 30 SPF as the most used sunscreens. The majority doesn't use sunscreen daily, mostly on purpose. Knowledge level is not as high as predicted and it needs improvements.

KNOWLEDGE AND HABITS OF SUN EXPOSURE IN YOUNG ADULTS

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Keywords. Sun exposure habits; Young adults; Sunburn; Sun protection

Objectives. The incidence of skin cancer, for which the main risk factor is exposure to ultraviolet radiation, has risen worldwide. Young adults are considered a risk group for the development of skin cancer in later life due to their high rates of sunburn. Sun exposure behavior is the major focus for prevention of this disease, since it is potentially modifiable. Increasing knowledge on sun related habits is fundamental in the development of preventive programs, especially to young people. The aim of this study is to assess the photoprotection habits and the knowledge about skin cancer in young adults.

Materials and methods. A cross-sectional study was conducted among adults aged 18 - 26 years in Lithuania. Data were collected through an anonymous online self-administered questionnaire from 20 September 2023 to 20 November 2023. Data were analysed using IBM SPSS, $p<0.05$ was considered statistically significant.

Results. A total of 405 young people responded. The respondents demonstrated a high level of knowledge about skin cancer and its risk factors, but the percentage who experienced a sunburn was high: 62,5% of people reported sunburn the previous summer of whom 28,0% indicated sunburn on more than one occasion. Proper use of sunscreen was referred by only 35,0% of individuals. Young people who reported having received education about photoprotection in school were associated with a more consistent use of sunscreen and fewer sunburn incidence.

Conclusions. Young adults' level of knowledge about risk factors of skin melanoma is high but their knowledge is not reflected in their behavior and in the frequency of sunburns. The sun exposure has shown to be excessive in most of the young people, which makes this population a target for education.

INTERNAL MEDICINE I: CARDIOLOGY, PULMONOLOGY

TENASCIN-C AND SIMPLE LABORATORY PARAMETERS ARE ASSOCIATED WITH ONE YEAR MORTALITY IN PATIENTS WITH ADVANCED HEART FAILURE

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Keywords. Markers; Prognosis; Heart failure

Objectives. Heart failure (HF) is a complex clinical syndrome involving different pathophysiological pathways that can manifest in circulation as biomarkers. The aim of the study was to assess the factors associated with a one-year mortality in patients with advanced HF.

Materials and methods. We conducted a prospective analysis of 200 patients with advanced HF hospitalized in Cardiology Department between 2018-2019. At the time of enrollment to the study, the routine laboratory tests of peripheral blood samples, echocardiography, ergospirometric exercise test, and right heart catheterization were performed in all included patients. Tenascin-C (TNC) was measured by sandwich enzyme-linked immunosorbent assay (Human TNC, SunRedBio Technology, Shanghai, China). The endpoint of the study was defined as all-cause mortality during a one-year follow-up.

Results. The median age of the patients was 58 (51–64) years; 89.5% were male. During a one-year follow-up, 60 (30%) patients died. The multivariable Cox proportional hazard analysis showed that TNC (HR 1.00062 (1.00036-1.00088), p<.0001), bilirubin (HR 1.05983 (1.02988-1.09065), p<0.0001), Estimated Sedimentation Rate (ESR) (HR =1.05695 (1.01961-1.09565), p=0.0025), the platelet-to-lymphocyte ratio (PLR) (HR = 1.00403 (1.00219-1.00588), p<.0001), and sodium (HR =0.88752 (0.82303-0.95707), p=0.0019),were independently associated with one-year mortality in the patients with advanced HF.

Conclusions. Higher TNC and bilirubin concentrations, as well as lower sodium concentration and higher ESR and PLR are independently associated with a higher risk of one-year mortality in patients with advanced HF.

DIAGNOSTIC VALUE OF TRANSTHORACIC IMPEDANCE CARDIOGRAPHY IN PATIENTS HOSPITALIZED FOR CHRONIC HEART FAILURE

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Keywords. Chronic heart failure; Diagnostic markers

Objectives. To compare the diagnostic value of transthoracic impedance cardiography (ICG) with other non-invasive diagnostic tests in the assessment of the diagnosis of chronic heart failure (CHF).

Materials and methods. An observational prospective study was conducted in Lithuania, in 2019–2022. The study was approved by the Kaunas Regional Biomedical Research Ethics Committee (permission No. BE-2-17). The study included 87 patients (49 men and 38 women) hospitalized for exacerbations of CHF. In this study, we analyzed serum amino-terminal pro-B-type natriuretic peptide (NT-proBNP), transthoracic echocardiography, total 6-min walk distance (6MWD), and ICG data. The following parameters were recorded during the ICG test: stroke volume (SV), stroke index, thoracic fluid content (TFC), TFC index (TFCI), cardiac output, systolic time ratio (STR), pre-ejection period (PEP), left ventricular ejection time, left cardiac work (LCW), and LCW index (LCWI). Statistical analysis was performed using IBM SPSS Statistics 29.0. Results were considered statistically significant when the p-value was <0.05.

Results. In our study, we found a weak to moderate correlation between the baseline ICG parameters and other non-invasive CHF diagnostic markers. Associations between NT-proBNP and TFCI (r=0.408); 6MWD and PEP (r=0.465), LCW (r=0.427), LCWI (r=0.422); left ventricular ejection fraction (LVEF) and TFC (r=-0.479); left atrial dimension in the parasternal long axis view (LAD) and TFC (r=0.488), TFCI (r=0.446), SV (r=-0.421); NYHA functional class and TFC (r=0.471), TFCI (r=0.434), SV (r=-0.437), STR (r=0.493), PEP (r=0.412) were weak, but approached to moderate strength, all p<0.001. Moderate correlations were found between LVEF and STR (r=-0.589), PEP (r=-0.517); LAD and STR (r=-0.582), PEP (r=0.535), all p<0.001.

Conclusions. ICG had a weak to moderate correlation with other diagnostic CHF markers in a cohort of patients hospitalized for CHF and may therefore be of value in the assessment of the diagnosis in this patient group.

ECHOCARDIOGRAPHIC DETERMINATION OF LEFT VENTRICULAR END-DIASTOLIC PRESSURE WITH E/E' – CORRELATION WITH ELECTROCARDIOGRAM PQ INTERVAL

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Keywords. Diastolic function; End-diastolic pressure; Echocardiogram; Electrocardiogram

Objectives. Both methods - electrocardiography and echocardiography – clinically are often viewed separately. Researchers have already established some correlations, for example, the correlation of QRS interval with ejection fraction. The aim of our work was to determine the correlation of the echocardiographic left ventricular end-diastolic pressure E/E' with the PQ interval of the electrocardiogram.

Materials and methods. We use data from patients' medical histories to perform a retrospective analysis of the correlation of left ventricular end-diastolic pressure E/E' with the PQ interval, looking at echocardiography and electrocardiography protocols of patients who were examined at the Daugavpils Regional Hospital in the period from 01.01.2022. until 31.12.2022. Protocols of 76 patients were selected using inclusion criteria such as full echocardiography protocol, 12-lead electrocardiography protocol and sinus rhythm. Data were analyzed by IBM SPSS Statistics with descriptive statistics methods, non-parametric Mann-Whitney U test and correlation analysis.

Results. The mean patient age is 65.5 years (SD 11.4 years). The mean E/E' score is 11.75 (SD 5.86) and the mean PQ interval is 163.83 ms (SD 24.83 ms). The correlation between PQ interval and E/E' is negligible (correlation coefficient 0.244, p=0.034). However, using the Mann-Whitney U test it was concluded that there is statistically significant difference for the PQ interval between gender groups (p=0.031).

Conclusions. Based on the results of the study, we can say that to determine the end-diastolic pressure, echocardiography is the main method without which, using only electrocardiography, it is impossible to fully assess the diastolic function.

ASSOCIATION BETWEEN PERCUTANEOUS CORONARY INTERVENTION (PCI) AND TROPONIN (CTNT) LEVELS IN MYOCARDIAL INFARCTION (MI) PATIENTS AT A MODEL-3 HOSPITAL

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Keywords. STEMI; NSTEMI; Troponin; PCI

Objectives. PCI treats around 5 million patients with MI globally. cTnT works as biomarker of myocardial necrosis, demonstrating superior sensitivity and specificity in the diagnosis. Our aim is to explore the prognostic value of cTn-T as a risk factor for PCI pre-angiogram and even the correlation with major occlusions of different coronary arteries.

Materials and methods. We designed a retrospective clinical study in a model 3 hospital at Ireland, of 6 months from July to December 2023, involving electronic medical records and laboratory data and divided all troponin samples above 100ng/L into three Groups. Group 1 - 100 ng/l - 500 ng/l, Group 2 - 500 ng/l -1000 ng/l and Group 3 - 1000 ng/l or more and compared the results with MI, excluding CKD (CrCl < 30), pulmonary embolism (PE with confirmatory CT scan) and sepsis (qSOFA > 2) and compared to the sort of intervention and the coronary artery involved.

Results. There were 100 patients having troponin levels above 100ng/l ((62% (n=62) male and 38% (n=38) female and mean age of 72.59 years)). From 100 patients with raised cTnT, 48% had cTnT levels 100-500 ng/l, 15% had cTnT levels 500-1000 ng/l and 37% had cTnT levels >1000 ng/L. 43% patients underwent PCI, 36% patients underwent angiogram without PCI and 21% had no procedures done. From 43 patients requiring PCI, 60.5% (n= 26) needed stenting to LAD. 50% of them (n=13) had extremely high cTnT of 1000 ng/l or more, followed by 34.6% (n=9) with cTnT between 100-500 ng/l. Finally, 15.4% (n=4) patients had cTnT 500-1000 ng/l. The two patients who had triple stenting, presented with cTnT > 1000 ng/l.

Conclusions. There is a remarkable pre-test correlation between cTnT levels and PCI. In addition, overwhelming cTnT levels were more commonly related to LAD interventions.

ENHANCING PERSONALIZED MEDICINE: BLOOD ANALYSIS-BASED PREDICTIVE MODELING OF MEDICATION ADHERENCE USING NEURAL NETWORKS

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Keywords. Medication Adherence; Neural Network Prediction; Patient Blood Profiles; Treatment Efficacy; Medication Use

Objectives. As patient populations grow and medical needs evolve, healthcare providers are increasingly relying on patient medication adherence to deliver successful treatment. To maximize healthcare accessibility and ensure treatment success, growing patient population necessitates using novel solutions. One such solution is using data-driven predictive models to identify patients who are at risk of non-adherence. The objective of this study was to develop a neural network prediction model for medication adherence using patient blood profiles to improve patient outcomes and treatment efficacy.

Materials and methods. A cross-sectional study of patients with cardiovascular diseases hospitalized in Riga, Latvia was conducted. Data was collected on patient blood profiles, gender, and medication use. A multilayer perceptron neural network was used to predict medication adherence based on this data. In order to evaluate NN model and prevent overfitting the patients were divided into 2 subsets - train and test with a ratio of 70:30.

Results. In this study 950 patients blood profiles were analyzed, and the median age was 67 years [59-73]. Based on the available data, the most precise (100%) neural network prediction was that the patients were on the following medications: aspirin, anticoagulants, statins, calcium channel blockers (CCB), angiotensin II receptor blockers (ARB), nitrates, antiarrhythmics, antidiabetics, and anticonvulsants. The model was also able to identify the blood test indicators that were most important for predicting medication adherence.

Conclusions. The study demonstrates that a neural network prediction model can be used to accurately predict medication adherence based on patient blood profiles. This information can be used to develop more personalized and effective treatment plans for patients with cardiovascular diseases.

EXAMINATION METHODS USED IN THE DIAGNOSIS OF MYOCARDITIS DEPENDING ON THE SEVERITY OF THE DISEASE

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Keywords. Myocarditis; Cardiology; Diagnostics

Objectives. Acute myocarditis, an inflammation of the heart muscle, poses diagnostic challenges. While qualitative diagnostic methods such as endomyocardial biopsy (EMB) and cardiac magnetic resonance imaging (C-MRI) exist, their limited usage is attributed to the diverse clinical presentations and associated costs. Consequently, clinical diagnosis based on symptoms, blood tests, electrocardiography, and echocardiography remains common. This study aims to elucidate the clinical criteria guiding Latvian doctors in the decision to perform C-MRI and EMB on myocarditis patients.

Materials and methods. A retrospective analysis involved 123 myocarditis patients from Riga East Clinical University Hospital and Pauls Stradins Clinical University Hospital between 2018 and 2022. Data on diagnostic methods were extracted from medical records and digital databases. Data analysis was done with Microsoft Excel and IBM SPSS.

Results. The study involved 123 patients, with 81.3% being male and a median age of 36 ± 16.02 (SD). 22 (17.8%) patients underwent C-MRI imaging in the hospital and 24 (19.5%) ambulatory. A weak yet positive and statistically significant correlation was found between troponin levels on admission and the decision to undergo magnetic resonance imaging (Spearman's correlation - r=0.296; p=0.001). EMB was conducted only once in a severe patient with an ambiguous clinical presentation. Echocardiography was performed on 93.5% of patients, with 56% having reasonable suspicion of myocarditis.

Conclusions. For most patients, the diagnosis is established based on clinical criteria and echocardiography. The study demonstrates a statistically significant relationship between troponin levels on admission and the decision to perform C-MRI in the hospital. These findings highlight the need for further research to refine diagnostic approaches and encourage the use of advanced imaging techniques.

VIROLOGICAL EXAMINATION OF ENDOMIOCARDIAL BIOPSIES – HOW TRESHOLD VALUE IMPACTS CLINICAL MANAGEMENT?

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Keywords. Myocarditis; Endomiocardial biopsies; Virological examination

Objectives. Endomyocardial biopsy is important for the diagnosis of myocarditis. The European Society of Cardiology recommends the use of real-time PCR for virological examination of biopsies, allowing the development of treatment strategies based on the presence of the virus in the biopsy sections. This study aims how variable threshold values influence eligibility for different clinical management strategies.

Materials and methods. Thirty-two endomyocardial biopsy samples were prospectively studied for virological presence using real time PCR. Adenoviruses, Enteroviruses, Influenza A, CMV, EBV, HSV-1, HSV-2, HHV-6, Parvovirus B19, HCV, SARS-CoV-2 were identified in the study. GAPDH gene was used as an isolation control. Two approach strategies were applied: (1) the first qualifies only samples with amplification before the 36th cycle of the reaction (Cq<36), as positive; (2) while the second recognizes positive those with a specific reaction product, regardless of the number of cycles.

Results. Using the first approach strategy we quantified only 2 patients (6,3%) as positive, while the second approach strategy increased the number of positive samples to 21 (65.6%) (p< 0,00001). Viruses identified in the first group included EBV (1) and HHV-6 (1). In contrast, the second strategy resulted in 46 positive reactions: EBV (16), HCV (7), HSV-1 (6), HSV-2 (6), Enteroviruses (3), Adenoviruses (3), HHV-6 (2), CMV (2), Parvovirus B19 (2), SARS-CoV-2 (1), Influenza (1), and indicated 12 patients with co-infection with at least two viruses.

Conclusions. Most samples contained viral nucleic acids, especially from the latent viruses. The threshold value variations significantly influenced on the number of positive patients. Further studies are needed to understand viral roles in myocarditis and treatment implications.

THE PREVALENCE OF HYPERTENSIVE RESPONSE TO EXERCISE AMONG MASTER ATHLETES AND ASSOCIATION WITH MODIFIABLE CARDIOVASCULAR RISK FACTORS

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Keywords. Hypertensive response to exercise; Master athletes; Cardiovascular risk factors

Objectives. Identify the most common cardiovascular risk factors (RF) among master-level athletes, experiencing hypertensive response to exercise (HRE).

Materials and methods. A cross-sectional study was carried out to identify HRE association with cardiovascular risk factors, such as arterial hypertension, diabetes or dyslipidemia in anamnesis, increased waist circumference and smoking among master-level basketball players in Latvia. The study was conducted from May 2022 to December 2023. After a signed consent form participants answered survey about demographic data, medical history, lifestyle, and body measurements were collected. Vital trends, such as heart rate, blood pressure was collected before physical activity, during peak of physical activity and after physical activity. Data was analysed using IBM SPSS 27.0.

Results. Study evaluated 72 master-level men's basketball team players. Mean age 59.36 (40-85 years). At peak exercise 6.9% (5) of participants had hypertensive response. From athletes without HRE 16.4% (11) did not have any RF, 40.3% (27) had 1 RF, 22.4% (15) had 2 RF, 10.4% (7) had 3 RF, and 10.4% (7) had 4 RF. However, of participants with HRE, 40% (2) did not have any RF, 20% (1) had 1 RF, 20% (1) had 2 RF, and 20% (1) had 3 RF. From participants with HRE, 0% (0) had increased waist circumference, 20% (1) had arterial hypertension in anamnesis, 20% (1) had diabetes as well as dyslipidemia. Of players without HRE, 19.4% (13) currently smoke and 79.1% (53) do not smoke, of which 37.3% (25) smoked previously. Of players with HRE 40% (2) smoke, 20% (1) smoked previously, and 40% (2) have never smoked.

Conclusions. Smoking has an association with increased risk for hypertensive response to exercise. Smoking should be discouraged among master-level athletes, as hypertensive response might increase the risk of sudden cardiovascular events.

CHARACTERISTIC FEATURES AND GENDER DISPARITIES AMONG ACUTE PULMONARY EMBOLISM PATIENTS IN LATVIA.

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Keywords. Venous thromboembolism; Gender differences; Risk factors; Anticoagulants; Outcomes

Objectives. Biological sex has been observed as a determinant of differences in incidence and presentation of cardiovascular diseases. The aim of the study is to identify gender disparities in characteristic features of acute pulmonary embolism (PE) patients in a tertiary care clinical university hospital.

Materials and methods. The prospective computerized registry based cohort study included 636 acute PE patients from a single university hospital from year's 2014 to 2022. Patient general characteristics, comorbidities, risk factors, treatment, and outcomes were analyzed. Statistical analysis was performed using IBM SPSS statistics 26.

Results. From 636 patients 41.8% (n=266) were male, median age 65 (IQR=19) and 58.2% (n=370) were female, median age 74 (IQR=17), p<0.001. Median BMI was 27.2 (IQR=6.5) for men and 29.4 (IQR=8.4) for women, p<0.001. Risk factors such as arterial hypertension (56.9% in men vs 68.8% in women; p=0.002), chronic heart failure (32.7% vs 45.0%; p=0.002) and diabetes (17.1% vs 23.9%; p=0.039) were more common among women. Smoking was more common among males (23.5% vs 6.6%; p<0.001).No statistically significant gender disparities were observed in choice of anticoagulants, early discontinuation of anticoagulants, mortality and development of CTEPH. Mostly patients were prescribed Rivaroxaban (56.8% men vs 57.7% women) for ≥ 3 month anticoagulant therapy, followed by Warfarin (18.8% vs 13.0%). One year all-cause mortality after acute PE was 27.8% for men and 26.8% for women. CTEPH was confirmed to 1.1% (n=3) of men and 3.2% (n=12) of women.

Conclusions. Acute PE typically affected older adults with high BMI and comorbidities. Women were more affected by cardiovascular comorbidities but men were more likely to smoke and suffer PE at younger age.

EFFECT OF CATHETER ABLATION ON QUALITY OF LIFE IN PATIENTS WITH ATRIAL FIBRILLATION

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Keywords. Atrial fibrillation; Pulmonary vein isolation; Ablation; Quality of life

Objectives. Atrial fibrillation (AF) significantly impacts the quality of life (QoL) of affected individuals. Pulmonary vein isolation (PVI) is a specific type of ablation procedure commonly used to treat AF and improve QoL. This study aimed to assess the QoL in patients with AF undergoing PVI.

Materials and methods. This longitudinal study was conducted year-round at Pauls Stradins Clinical University Hospital, Riga, Latvia, from July 2022. The study included 97 AF patients undergoing PVI - radiofrequency (52.60%) or cryoablation (47.40%). QoL was assessed with a 36-Item Short Form Survey (SF-36) prior PVI and during follow-up 7.98 ± 1.97 months. Data was analyzed with IBM SPSS Statistics 27.0.

Results. The study consisted of 59 (60.80%) males, patients mean age was 60.06 ± 11.61 years. 65 (67.0 %) patients had paroxysmal and 32 (33.0 %) persistent AF. The SF-36 questionnaire revealed significant improvements across multiple domains post-PVI. Physical functioning indices significantly increased (63.35 ± 23.94 vs. 82.98 ± 21.03, $p < 0.01$). Role enhancements due to physical health (36.05 ± 40.07 vs. 75.29 ± 38.31) and emotional well-being (53.26 ± 43.74 vs. 82.13 ± 32.65) demonstrated substantial enhancement ($p < 0.01$). Energy/fatigue (52.88 ± 17.99 vs. 70.10 ± 13.10) experienced positive change, whereas emotional distress (63.21 ± 18.16 vs. 54.43 ± 20.64) showed a negative trend ($p < 0.01$). General health displayed notable improvements (48.91 ± 17.14 vs. 60.30 ± 15.52, $p < 0.01$). Health change perception underwent a significant positive shift (44.32 ± 21.50 vs. 76.28 ± 18.53, $p < 0.01$).

Conclusions. PVI in patients with AF demonstrates a positive impact on various aspects of Quality of Life (QoL), substantiated by notable enhancements across numerous SF-36 domains. These results underscore the compromised QoL experienced by AF patients and underscore the potential advantages of PVI enhancing overall well-being.

THE LONG-TERM EFFICACY OF COMBINED LIPID-LOWERING THERAPY IN VERY HIGH CARDIOVASCULAR RISK PATIENTS

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Keywords. Combined lipid-lowering therapy; $PCSK_9$ inhibitors; Low-density lipoprotein cholesterol; Very high cardiovascular risk patients

Objectives. Elevated level of low-density lipoprotein cholesterol (LDLC) in blood is recognized as a significant factor in the development and progression of coronary artery disease. According to the guidelines of the European Society of Cardiology (ESC), the target level of LDLC for very high risk patients is <1.4 mmol/L. To achieve that, both lifestyle and pharmacological therapy are recommended. If maximum statin and ezetimibe doses are insufficient, it is recommended to add a protein convertase subtilisin-kexin type 9 ($PCSK_9$) inhibitors.

Materials and methods. 36 patients, who maintained LDLC levels above 3.0 mmol/L despite treatment with statin and/or ezetimibe therapy on maximal tolerable dose, were enrolled into study. Patients received $PCSK_9$ inhibitor alirocumab as add-on treatment. Follow-up (FU) visits were done at 1, 3, 6 and 12 months after the first injection of alirocumab.

Results. Mean LDLC before receiving alirocumab was 4.28 mmol/L. After the first FU mean LDLC level decreased by 56.04%; 15 patients reached the ESC target <1.4 mmol/L, of which 53.33% received triple therapy (statin, ezetimibe, alirocumab), 33.33% - double therapy (statin/ezetimibe and alirocumab) and 13.33% - alirocumab monotherapy. After 3 months, compared to the baseline LDLC level, it decreased by 55.35%; 15 patients reached the ESC target <1.4 mmol/L. After 6 months, 17 patients with available data had 61.68% reduction in LDLC, 11 patients reached the ESC target <1.4 mmol/L. After 12 months, 7 patients with available data had 40.70% decrease in LDLC; 2 patients reached the ESC target <1.4 mmol/L. No patient reported side effects.

Conclusions. Initiation of alirocumab monotherapy in case of statin and ezetimibe intolerance or its addition to the existing therapy reduced the LDLC level by 56.04% in the first month and remained significant for all observation time.

THE MOST COMMON CAUSES OF MYOCARDITIS AND THEIR CLINICAL MANIFESTATIONS IN THE LATVIAN POPULATION

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Keywords. Myocarditis; Causes

Objectives. Myocarditis exhibits a spectrum of symptoms like chest pain, heart failure signs, arrhythmias, etc. While the causes range from viral infections like COVID-19 to cardiotoxin exposure a substantial number of cases remain of unknown origin. Due to symptom nonspecificity, diagnosing myocarditis is often challenging. This study targets a nuanced exploration of acute myocarditis within the Latvian population. Objectives encompass identifying prevalent causes, scrutinizing clinical symptoms, and contrasting our findings with global data. The aim is to improve diagnostics and provide valuable insights into this cardiac condition more broadly.

Materials and methods. This retrospective study, from 2018 to 2022, will focus on myocarditis patients at Pauls Stradiņš Clinical University Hospital and Riga East Clinical University Hospital. The data on potential disease triggers, clinical symptoms were extracted from medical records. The obtained data were analysed by IBM SPSS.

Results. The study involved 123 patients. 64 (52%) patients had the possible cause of the disease determined solely based on anamnesis and clinical presentation; 31 (25.2%) underwent specific laboratory tests. The most common causes were viral infections (46,3%), from which COVID-19 was cause in 7,3%. Unspecified infection (11.4%), streptoccocal infection (4.1%), unknown etiology (22.8%), COVID-19 vaccine - 4.1% (2 cases in 2021; 3 in 2022) and other triggers such as Hantavirus, pembrolizumab and chemotherapy etc. (11.4%). The most common symptoms were chest pain in 78.1% patients, elevated body temperature - 48.8%, shortness of breath – 26,8%, fatigue – 19,5%, sweating - 6.5%, etc. 14 (11,4%) patients were admitted to the hospital in an unstable/shock condition. ST elevations were present in 25.9% of patients with acute myocarditis.

Conclusions. It is observed that the obtained results align with global data. It can be observed that myocarditis caused by COVID-19 and its vaccine are more frequently encountered in Latvia compared to other countries.

HYPERTROPHIC CARDIOMYOPATHY IN PEDIATRICS POPULATION: CASE ANALYSIS OF TWENTY-TWO PEDIATRIC PATIENTS FROM LATVIA. 10-YEAR COHORT. 2012-2021

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Keywords. Hypertrophic cardiomyopathy (HCM); Children's Clinical University hospital (CCUH)

Objectives. This cohort study from 2012-2021 investigates 22 pediatric patients from Latvia with HCMP. Objectives analyze all pediatric patients with hypertrophic cardiomyopathy (genetical background, treatment and outcome)

Methods and results. All pediatric patients with HCMP in Latvia are examined in CCUH. During this ten-year period, we enrolled all 22 patients with HCMP from CCUH database. Secondary causes (hypertension, coarctation, children of mothers with diabetes) were excluded. Patients were diagnosed due to family history, onset of symptoms, antenatal screening, physical abnormalities, ECG changes and echocardiography showing left ventricular hypertrophy. Of the 22 patients 3 (13,6%) were diagnosed by age 1, with a median age of diagnosis at 10,5 years. Three patients had Danon disease, one Pompe and one had Noonan. Genetic testing was performed on 21 patients (95,4%) with 10 of them (47,6%) confirming a positive family history (indicating the presence of symptoms related to metabolic or genetic diseases or early death among close relatives). Amongst those with positive family history, 80% had a confirmed genetic mutation. Instead, 11 patients (52,3%) did not have a positive family history and out of them 8 (72,7%) had a positive genetic testing. Twelve patients (54,5%) underwent cardiac MRI and 9 (40,9%) had late gadolinium enhancement. Two patients died, one due to stroke and the other from severe pneumonia with hypoxic brain damage. Left ventricular hypertrophy on ECG was observed in 12 (54,5%) and only three patients (13,6%) had a rhythm disorder on Holter monitoring (premature ventricular contractions). Four patients (18,2%) required ICD-implant.

Conclusions. This study includes all pediatric HCMP patients in Latvia from 2012-2021 emphasizing the equal significance of family history and genetic testing. Regardless of a positive family history, patients undergoing genetic testing showed comparable rates of genetic mutations. Left ventricular hypertrophy predominated in electrocardiography diagnosis.

INTERNAL MEDICINE II: GASTROENTEROLOGY, NEPHROLOGY, ENDOCRINOLOGY, RHEUMATOLOGY

DIABETIC KETOACIDOSIS MANAGEMENT: UNRAVELING HYPOGLYCEMIA INCIDENCE AND RAPID SERUM GLUCOSE DECLINE IN THE FIRST 24 HOURS

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Keywords. Diabetic ketoacidosis; Diabetes mellitus; Low-dose insulin therapy

Objectives. Diabetic ketoacidosis (DKA) still is a challenging diabetic emergency that requires continuous monitoring and patient-specific treatment. Although most guidelines suggest intravenous insulin infusion of 0.1 unit/kg, it may result in overly rapid serum glucose decrease and even hypoglycemia. Therefore we used German guidelines that propose lower insulin dosage of 0.05 unit/kg. The objective was to evaluate the occurrence of hypoglycemia and overall decrease of plasma glucose in the first 24 hours after diagnosing DKA.

Materials and methods. A retrospective data analysis was made including 143 patients diagnosed with diabetic ketoacidosis and hospitalized in Rīga East University hospital Intensive care unit in 2015-2022. Serum pH, glucose and potassium were measured during the 24h period as well as insulin therapy. The data were analysed using IBM SPSS Statistics.

Results. From 143 patients 11% (n=16) had hypoglycemia episode (serum glucose≦ 3.9 mmol/L). 91.6% of patients had mean initial insulin infusion rate 5 ml/h and below, yet mean serum glucose decrease was 70.4% from the baseline. None of the patients was reported to have cerebral edema. Among hypoglycemia patients 13.2% had type 1 diabetes mellitus (DM) and 9.4% had type 2 DM. Nevertheless there was no association between the occurrence of hypoglycemia and diabetes type (p=0.491) as well as with the patient's age (p=0.923).

Conclusions. Even with low-dose insulin therapy there is a risk of hypoglycemia and current treatment recommendation should be used with caution.

EDUCATION AND FATIGUE IN PATIENTS WITH TYPE 2 DIABETES MELLITUS

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Keywords. Type 2 Diabetes Mellitus; Education; Fatigue

Objectives. Education is linked to fatigue in patients with type 2 diabetes mellitus (T2DM) [1]. The patient's education level affects their understanding of the disease and their engagement in managing it [2]. Higher education is associated with better employment opportunities and health benefits, influencing diabetes-related fatigue [3]. The aim of the study was to compare the differences in perceived fatigue between T2DM patients with different levels of education.

Materials and methods. Approved by the Bioethics Center of the Lithuanian University of Health Sciences (LUHS) (No. BEC-MF-273), this study sourced data from anonymous interviews with T2DM patients at the Clinic of Endocrinology of the Hospital of LUHS Kaunas Clinics. Fatigue was assessed using the Multidimensional Fatigue Inventory [4], yielding 5 scales: general fatigue, physical fatigue, decreased activity, decreased motivation, mental fatigue. IBM SPSS Statistics 27.0 analyzed the data, presenting results as mean ± standard deviation. The Mann-Whitney test compared non-parametric values ($p<0.05$ considered statistically significant).

Results. Thirty T2DM patients (16 male, 14 female) aged 64.3 ± 9.9 years participated. Body mass index of the participants was 32.4 ± 5.1 kg/m² and duration of diabetes was 15.4 ± 6.1 (median 15.0) years. Treatment included oral therapy only (16.7%), insulin injections only (20%), and both (63.3%). Education levels: lower than university (56.7%), university (43.3%). Patients with lower education had significantly higher scores in general fatigue ($p=0.020$), physical fatigue ($p=0.022$), decreased activity ($p=0.003$), and decreased motivation ($p=0.014$) compared to university-educated patients. In the scale of mental fatigue, no significant differences were found between patients with university education and lower than university education.

Conclusions. Patients with type 2 diabetes with lower than university education have higher levels of general fatigue, physical fatigue, decreased activity and decreased motivation than patients with university education.

ASSESSMENT OF COGNITIVE FUNCTION IN PATIENTS WITH STAGE 5 CHRONIC KIDNEY DISEASE RECEIVING HEMODIALYSIS

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Keywords. Cognitive function; Hemodialysis; Chronic kidney disease

Objectives. The aim is to evaluate the cognitive function of patients with stage 5 chronic kidney disease (CKD5) on hemodialysis depending on co-morbidities, lifestyle and duration of hemodialysis.

Materials and methods. This cross-sectional study includes 26 patients with CKD5 ongoing hemodialysis at Pauls Stradiņš' Clinical University Hospital or Ogre Regional Hospital. Data about participants' lifestyles are collected by interview. The level of depression and anxiety are evaluated using the Depression Anxiety Stress scale 21 (DASS21), cognitive functions are determined using the Montreal Cognitive Assessment (MoCA). Medical history, comorbidities, duration of hemodialysis, last performed analysis were collected and analyzed by IBM SPSS Statistic v29.0.

Results. 26 patients (58% males, 42% females), mean age 54.5 (+/-SD 11.947) were able to participate. Median duration of hemodialysis was 24.5 months and mean score of the MoCA was 25.31 (+/-SD 2.695). 65.4% have a normal MoCA score (26 or higher). There is no significance between physical activity level and MoCA score (p=0.125), but it is observed that the more physically active participants have a higher score than the inactive ones (26.29 +/-SD 2.69, 23.83 +/-SD3.189). Alcohol consumption has a significant association with higher MoCA score (p=0.007), mean score 24.25 (+/-SD 2.795) for non-drinkers, 26.67 (+/-SD 1.211) for rare consumption less than 1 unit, 27.50 (+/-SD 1.732) for consumption few times a month more than 1 unit. That could be explained with better health conditions and ability of fluid intake.

Conclusions. Most participants have normal MoCA scores but the mean score is lower compared to the rest of the population. There is no statistically significant association between cognitive function and hemodialysis duration, age, education, depression, anxiety, stress levels. Greater overall condition and activeness of patients with CKD5 and hemodialysis might have better cognitive function but further evaluation is needed.

INITIAL ASSESSMENT OF IDIOPATHIC ACUTE PANCREATITIS IN KAUNAS CLINICS

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Keywords. Idiopathic pancreatitis; Diagnosis

Objectives. In acute pancreatitis, recurrent episodes leading to the development of chronic pancreatitis is common. The underlying cause of pancreatitis remains unclear in 10-30% of patients and is classified as idiopathic. Identifying the cause is important to prevent the development of chronic pancreatitis[1]. Our aim is to investigate diagnostic features of idiopathic acute pancreatitis at Kaunas Clinics.

Materials and methods. The study included patients above 18 years, admitted to Kaunas Clinics Gastroenterology department because of the first episode of acute pancreatitis between 2016-2018. All medical records of ICD-10-AM code K85 were reviewed and patients with idiopathic acute pancreatitis were included. Risk factors and diagnostic data was collected. Data analysis was performed using IBM SPSS Statistics 27.0 and MS Excel 2016, statistical significance was considered as $p<0.05$.

Results. The study included 63 patients, 36.5% were under 50 years old. Charlson comorbidity index (CCI) was calculated, majority (28.6%) had no comorbidities (CCI=0). On admission systemic inflammatory response syndrome (SIRS) was assessed. 13 (20.6 %) showed mild, 32 (50.8%) moderate and 18 (28.6%) severe symptoms. Statistically significant association between CCI and SIRS was observed ($p=0.003$). 12 (19.1%) patients were treated in the ICU. Computer tomography was performed for 41 (65.5%), abdominal ultrasound for 53 (84.1%), endoscopic ultrasound for 9 (14.3%) and magnetic resonance imaging for 3 (4.8%) patients. The radiological findings were compared, including assessments of tumours, biliary issues (stones, stasis, sludge, dilatation), and morphological anomalies (such as Pancreas divisum and annular variations). There was no statistically significant difference in diagnostic findings between procedures ($p>0.05$). 31.7% of patients developed systemic (pulmonary, renal, hemorrhagic, thrombotic, etc.) or local (peripancreatic fluid, acute necrotic collections, pseudocysts, etc.) complications.

Conclusions. There was an association between CCI score and SIRS. Radiological findings showed no differences between procedures. Approximately every third patient develops systemic or local complications.

EDUCATION AND DIABETES DISTRESS IN PATIENTS WITH TYPE 2 DIABETES MELLITUS

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Keywords. Education; Diabetes Distress; Type 2 Diabetes Mellitus

Objectives. Education plays a crucial role in influencing diabetes distress [1]. Education shapes a patient's understanding of type 2 diabetes mellitus (T2DM), covering the disease, dietary habits, medication use, and self-management. This knowledge is crucial for effective disease management and coping with diabetes-related changes and complications [2,3]. The study aimed to evaluate diabetes distress based on education levels in individuals with type 2 diabetes.

Materials and methods. Study approval was granted by the Bioethics Center of the Lithuanian University of Health Sciences (LUHS) (BEC-MF-146). Thirty randomly selected T2DM patients from the Clinic of Endocrinology at LUHS Kaunas Clinics completed anonymous questionnaires. Diabetes distress was evaluated using the Diabetes Distress Scale, covering 4 subscales: emotional burden, physician-related distress, regimen-related distress, and interpersonal distress [4]. IBM SPSS Statistics 27.0 analyzed the data, presenting values as mean ± standard deviation and median. Due to non-normal distribution, the non-parametric Mann-Whitney test compared data, and correlations were determined using Spearman's coefficient. Significance was set at a two-sided p-value below 0.05.

Results. The study included 30 adult T2DM patients (16 male, 14 female) with an average age of 64.3 ± 9.9 (median 67.0) years, body mass index averaged 32.4 ± 5.1 (median 31.6) kg/m^2, and diabetes duration was 15.4 ± 6.1 (median 15.0) years. Treatment distribution was as follows: 5 (16.7%) oral medications, 6 (20%) insulin injections, and 19 (63.3%) both. Regarding education, 17 (56.7%) had education below university, and 13 (43.3%) had university education. Patients with lower education had significantly higher regimen-related distress (17.6 ± 3.8, median 18.0 vs. 13.9 ± 3.8, median 14.0, p=0.020). A positive correlation existed between age and emotional burden (r=0.455, p=0.012).

Conclusions. Patients with type 2 diabetes and lower education levels experience greater regimen-related distress than those with university education.

DO ENDOCRINE DISORDERS PREDISPOSE TO DEVELOPING SECONDARY IMMUNODEFICIENCIES?

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Keywords. Endocrinology; SID; ACTH; CH50

Objectives. Secondary immunodeficiencies (SID) are prevalent immune disorders of various etiologies. There are connections between immunodeficiency and hormonal imbalance, including their higher occurrence in patients treated for HIV infection. Some hormonal treatments have an immunosuppressive effect that can also develop into SID. This study aimed to evaluate if patients with endocrine disorders are more prone to developing SID than patients without them.

Materials and methods. In this retrospective study, we compared the laboratory results of hospital patients. The analyzed parameters were adrenocorticotropic hormone levels (ACTH) and complement hemolytic activity (CH50). The ACTH levels were measured using the electrochemiluminescence immunoassay. For the CH50 activity, the turbidimetric assay was done.

Results. The statistical analysis was performed with STATISTICA software. The results for ACTH for both groups and CH50 for the second group had a non-normal distribution according to the Shapiro-Wilk test ($p=0.00$). The median(Q1-Q3) results for ACTH were 17,70(10,10-30,40)pg/ml for the first group and 124,50(82,00-260,00)pg/ml for the second group. The results for CH50 for the first group had normal distribution according to those tests ($p=0.69$), with median(Q1-Q3) results of 55,37(48,01-68,41)U/ml. The CH50 results for second group had a median(Q1-Q3) of 50,96(13,87-75,89)U/ml. The Mann-Whitney U test showed a statistically significant difference between groups for ACTH results ($p=0.00$), with the probability value $p<0.05$ established as statistically significant. However, for CH50 results it showed no statistically significant difference ($p=0.25$). The Spearman's rank correlation was performed between parameters in both groups, with the correlation coefficient being 0,22 for the first group and 0,19 for the second group. The R2 value was 0,049 and 0,037 respectively for those groups.

Conclusions. No significant differences in complement activity between endocrine and non-endocrine units were detected. The weak correlation between ACTH levels and CH50 activity in both groups signifies little impact on the results.

ORAL GLUCOSE TOLERANCE TEST IN RELATION WITH PREPREGNANCY BODY MASS INDEX IN PREGNANT WOMEN

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Keywords. Oral glucose tolerance test (OGTT); Prepregnancy body mass index (BMI); Pregnancy

Objectives. The prevalence of impaired glucose tolerance and gestational diabetes mellitus (GBM) is increasing possibly due to the upwards trends in maternal age and BMI. Overweight or obese women have a higher risk for impaired glucose tolerance. The objective of this study was to analyse the prevalence of abnormal OGTT results in Latvian pregnant women and assess association between prepregnancy BMI, maternal age.

Materials and methods. The study has been implemented within the frame of the project LZP Nr. lzp-2019/1-0335 funded by Latvian Council of Science. A cross-sectional survey of 650 women with singleton birth until 7th day postpartum and pregnant women in the 3rd trimester. Data collected from medical records (July 2020-December 2022) were analysed, applying WHO criteria for BMI classification and OGTT thresholds, using IBM SPSS 26.0.

Results. All together 19.1% (n=124) of participants had abnormal OGTT results. Impaired glucose tolerance, as determined by OGTT, was observed in 22.6% (n=7) of underweight women (BMI<18.5 kg/m2), 13.4% (n=53) with normal BMI (15.5-24.9 kg/m2), 25.5% (n=40) in overweight women (BMI 25.5 kg/m2), and 36.4% (n=24) in obese women (BMI 30.0 kg/m2). Association was found between prepregnancy BMI and abnormal glucose tolerance (p<0.001). Participants aged ≥35 showed significantly increased odds of abnormal glucose tolerance (OR 1.8, 95% CI 1.2-2.6), compared to those aged <35.

Conclusions. The prevalence of abnormal OGTT results in Latvian pregnant women is 19.1%. Higher BMI and maternal age are associated with impaired glucose tolerance. There should be more focus on achieving normal BMI before pregnancy for the prevention of abnormal glucose tolerance during pregnancy and lowering the risk of GDM.

GLUCOSE VARIABILITY AND RECOGNITION OF HYPOGLYCAEMIA IN PATIENTS WITH TYPE 1 DIABETES AND DIFFERENT DIABETIC KIDNEY DISEASE PROGRESSION RATE

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Keywords. Diabetic kidney disease; Diabetes; Continuous glucose monitoring; Hypoglycaemia

Objectives. The aim was to evaluate the association between continuous glucose monitoring (CGM) indicators and DKD progression rate in T1D.

Materials and methods. Sample consists of 78 patients. FreeStyle Libre ProiQ sensors were used for CGM. During the sensor wear, patients were asked to monitor their insulin dosing, carbohydrate consumption and capillary glucose levels.

Results. Prevalence of DKD progression was 35,9% (n=28). Mean recognized hypoglycaemia in the cohort was 50.60±32.06% of all hypoglycaemia cases registered in the sensor. 32 (43.24%) of study subjects detected hypoglycaemia in less than 50% of the cases, while 22 subjects (29.73%) detected it between 50-70%, and 20 subjects (27.03%) detected it between 70-100%. Patients with overnight hypoglycaemia irrespective of the DKD status had a higher mean coefficient of variance (CV) (p=0.001) but did not differ in hypoglycaemia recognition. There was a statistically significant correlation between the CV and hypoglycaemia events registered in the sensor (p<0.001). % of time in range (TIR) was lower in progressive DKD versus non-progressive DKD (43.00(29.75-55.50)% vs 56.00(37.00-70.00)%, p=0.03). In addition, subjects with progressive DKD had higher average glucose median (10.50(8.82-13.10) mmol/l vs 8.90(7.60-10.70) mmol/l, p=0.03), glucose management indicator (7.85(7.10-8.90) vs 7.10(6.60-7.90), p=0.03), % time above target (53.00(35.50-68.75) % vs 37.00(25.00-53.00, p=0.05), estimated A1C (8.20(7.20-9.90)% vs 7.20(6.30-8.40)%, p=0.02). Duration of low glucose events was longer in progressive DKD group: 117.50(87.25-171.75) min vs 95.00(74.00-125.00), p=0.03. Finally, low glucose events were less frequent in progressive DKD at the significance level of 0.09 (6.00(4.00-14.00) events vs 11.00(6.00-17.00) events).

Conclusions. Hypoglycaemia recognition was poor in most participants and overnight hypoglycaemia was related to higher CV. Patients with progressive DKD had lower TIR versus group with stable DKD mainly due to higher median glucose level.

SELENIUM INTAKE AND RELATED MARKERS IN TREATMENT-NAIVE PATIENTS WITH AUTOIMMUNE THYROID DISEASE

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Keywords. Selenium; Selenium intake score (SIS); Hashimoto thyroiditis (HT); Graves' disease (GD)

Objectives. Selenium, a crucial micronutrient and antioxidant available from dietary sources, affects various cellular processes, including regulation of thyroid function. This study aims to determine the selenium intake score (SIS), the serum selenium concentration, and functional markers related to selenium in the blood of individuals diagnosed with autoimmune thyroid disease (AITD).

Methods. A total of 109 participants (16 men and 93 women) were enrolled in the study and classified into three groups: HT (n=47) and GD (n=13), each with associated antibody and hormone profile, and a control group of healthy individuals (n=49) without other illnesses or specific dietary restrictions. Before starting the study, all participants gave their informed consent and had blood tests drawn.

Results. The median weekly SIS for the study population was 175 µg, equivalent to 25 µg per day. No significant differences were observed between the groups (p=0.995). SIS showed a positive correlation with serum selenium concentration (r_s=0.313, p=0.001). The median serum selenium concentration for the study population was 89.3 (68.9-117.7) µg/L. While the GD group showed numerically lower levels of selenium, selenoprotein P (SeP) and glutathione peroxidase activity (GPx) compared to other groups, no statistically significant differences were detected between the HT, GD, and control groups. In HT group, a positive correlation was identified between selenium and SeP (r_s=0.0392, p=0.007), while in GD, a negative correlation was found between GPx and TSH receptor antibodies (r_s= -0.727, p=0.007).

Conclusions. The daily intake of selenium is below adequate intake set at 70 µg/day, which is also highlighted by the correlation between blood selenium concentration and selenoprotein P in HT patients; therefore, more products containing selenium should be consumed daily. It also suggests that patients with HT or GD could benefit from selenium supplementation.

HYPOGLYCEMIA AND FATIGUE IN PATIENTS WITH TYPE 2 DIABETES MELLITUS

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Keywords. Hypoglycemia; Fatigue; Type 2 Diabetes Mellitus

Objectives. Hypoglycemia, a common side effect of diabetes treatment, causes a burden on patients [1]. As the frequency of hypoglycemia increases, the cells receive insufficient energy supply [2]. Therefore, hypoglycemia may contribute to fatigue in type 2 diabetes mellitus (T2DM) patients [3]. The study aimed to identify associations between fatigue and hypoglycemic episodes in T2DM patients.

Methods. The study included 30 randomly selected T2DM patients from the Clinic of Endocrinology of the Hospital of Lithuanian University of Health Sciences (LUHS) Kaunas Clinics. Hypoglycemic episodes were determined using a survey questionnaire. Fatigue was assessed using the Multidimensional Fatigue Inventory, measuring 5 scales: general fatigue, physical fatigue, decreased activity, decreased motivation, mental fatigue [4]. IBM SPSS Statistics 27.0 software was used for statistical analysis. The analyzed values were non-normally distributed, so the data were compared using the Mann-Whitney test, and the values are presented as median (25th–75th percentiles). Spearman's correlation coefficient was used to determine correlations. Statistically significant differences were considered when $p<0.05$. The study was conducted with Bioethics Center of LUHS approval (No. BEC-MF-273).

Results. The study included 30 T2DM patients (16 male, 14 female), median age 67,0 (56,0–72,0) years, T2DM duration 15,0 (9,7–20,0) years, and BMI 31,6 (28,6–35,2) kg/m^2. Treatment: 16.7% oral medications, 20% insulin therapy, and 63.3% both. Twelve (40%) patients experienced hypoglycemia in the last 12 months. Those with hypoglycemia had significantly higher general fatigue scores than those without (10,5 (65,0–14,5) vs. 6,0 (5,0–10,5), $p=0.039$). No significant differences were found in other fatigue scales. Age, T2DM duration, and BMI were not associated with the frequency of hypoglycemic episodes. Positive correlations existed between age and various fatigue scores ($p<0.05$).

Conclusions. Patients with T2DM with recent hypoglycemic episodes exhibit higher general fatigue compared to those without such episodes.

DEPRESSION, ANXIETY AND STRESS LEVELS AMONG PATIENTS WITH STAGE 5 CHRONIC KIDNEY DISEASE AND HEMODIALYSIS

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Keywords. Hemodialysis; Chronic kidney disease; DASS21

Objectives. It is known that stage 5 chronic kidney disease (CKD5) patients are frequently affected by depression and have reduced life quality. In this study the correlation between hemodialysis with related factors and depression, anxiety, stress levels are evaluated.

Materials and methods. 26 CKD5 patients receiving hemodialysis at two hemodialysis centers (Pauls Stradiņš Clinical University Hospital, Ogre Regional Hospital) were included in the study. Data about participants` lifestyle, education, social status are collected by interview. The level of depression, anxiety, stress are evaluated using the Depression Anxiety Stress scale 21 (DASS21). Data from medical history were collected and analyzed by IBM SPSS Statistic v29.0.

Results. Study includes 26 patients (58% males, 42% females), mean age 54.5 (+/-SD 11.947). 52% of all participants have a normal range of DASS21 depression level, 42.9% low anxiety level, 75% low stress level. All participants with severe to extremely severe depression levels showed a tendency to have high anxiety levels (p=0.079). Participants in the high depression range have severe stress levels (p=0.003). Although data are not statistically significant (p=0.111) in 70% of patients who live alone have mild to extremely severe depression levels compared to 33.3% patients who live with a partner. Significance is observed between physical activeness and depression (p=0.004), only 8.3% of patients with mild to extremely severe depression levels claim to be physically active, 41.7% minimally active and 50% are inactive.

Conclusions. Almost half of the patients have mild to extremely severe depression levels. Correlation observed between participants of high depression, anxiety and stress levels. There is a significant association between patient activity level and depression. No significance observed between DASS21 results and hemodialysis duration, sleeping problems, education, employment. Patients who live alone might have a higher depression rate but more data is needed.

PREVALENCE OF EXTRAINTESTINAL MANIFESTATIONS IN PATIENTS WITH INFLAMMATORY BOWEL DISEASE

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Keywords. Inflammatory bowel disease; Extraintestinal manifestations

Objectives. Inflammatory bowel disease (IBD) frequently presents with extraintestinal manifestations (EIMs), which can cause significant challenges for physicians treating these patients. This study aimed to evaluate the prevalence of EIMs in patients with IBD in 2013-2023 and compare it with the data from European hospitals.

Methods. Electronic health records of Vilnius University Hospital Santaros Klinikos were retrospectively analysed. This study included patients 18 years of age or older with IBD treated at the hospital during the period of 2013-2023. Patient observation duration was defined from the first recorded diagnosis to the last recorded diagnosis during this period and only patients with an observation duration of one year or longer were included in this study.

Results. During the period of 2013-2023 a total of 1806 adults were diagnosed with IBD. Of those, 1092 (60,5%) exhibited at least one EIM. Patients with one type of manifestation prevailed, accounting for 33.7%, respectively. 16.6% of patients included in the study had two types of EIMs, 7.5% - three types, 2.1% - four, and 0.6% - five types. The most common EIMs were joint manifestations (29%), followed by cutaneous (25,9%) and hepatic (15.3%) manifestations. The most rarely found EIMs were other respiratory diseases, accounting for only 0.8%. The most common combination of EIMs was joint and cutaneous manifestations (4.1%), hereinafter – joint and ophthalmologic manifestations (3.4%). Our findings were compared to similar data from the hospitals in Europe, however no discernible differences were found.

Conclusion. More than half of IBD patients in this study suffered from EIMs. Joint and cutaneous manifestations were the most common EIMs. A multidisciplinary approach should be used to improve the diagnosis of both IBD and EIMs and provide appropriate and prompt treatment to these complex patients.

ASSESSMENT OF THE PREVALENCE OF PARANEOPLASTIC ENDOCRINE SYNDROMES

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Keywords. Endocrine paraneoplastic syndrome; Multiple myeloma (MM); Small cell lung cancer (SCLC); Antidiuretic hormone (ADH)

Objectives. Neoplasms exhibit various mechanisms to avoid the immune response and invade healthy tissues, usually causing symptoms not related to the tumor itself and causing disorders called paraneoplastic syndromes. Their pathogenesis includes secretion of molecules that influence the metabolic or immune functions, e.g. hormones. This disrupts the endocrine balance, causing paraneoplastic endocrine syndromes. We aimed to assess the prevalence of paraneoplastic endocrine syndromes.

Materials and methods. We included 120 patients with multiple myeloma (MM) or small cell lung cancer (SCLC) and divided them by gender and neoplasm type. We analyzed 9 parameters: plasma osmolality, sodium excretion in urine, eGFR CKD-EPI, and sodium, creatinine, ACTH, total calcium, glucose, and cortisol concentrations. We assessed the significance of differences with a Student's t-test.

Results. The results of plasma osmolality, sodium excretion in urine, eGFR CKD-EPI and concentrations of sodium, creatinine, ACTH, total calcium, fasting glucose and cortisol were in females and males with MM respectively: 268±2, 260±1[mOsm/kg]; 39±2, 40±4[mmol/l]; 48±6, 55±7[ml/min/1.76m2]; 128±2.2, 130±2.7[mmol/l]; 2.0±0.4, 3.2±0.9[mg/dl]; 14±7, 22±0.2[pmol/l]; 3.09±0.25, 3.22±0.31[mmol/l]; 110±8, 111±5[mg/dl]; 15±1.5, 12±3.2[µg/dl]. We found significant differences between genders among MM patients considering plasma osmolality ($p<0.0001$). In the group of females and males with SCLC the results were respectively: 278±2, 276±8[mOsm/kg]; 22±4, 48±3[mmol/l]; 55±7, 55±8[ml/min/1.76m2]; 135±2.7, 131±2.8[mmol/l]; 1.9±0.5, 1.7±0.5[mg/dl]; 42.0±7, 49.0±5[pmol/l]; 1.8±0.3, 1.5±0.9[mmol/l]; 81±5, 71±9[mg/dl]; 69±4.0, 78.5±3.4[µg/dl]. We found significant differences between genders among SCLC patients considering sodium concentrations ($p<0.0300$) and sodium excretion in urine ($p<0.0200$).

Conclusions. In conclusion, we found indicators of antidiuretic hormone (ADH) imbalance, including hyponatremia, a main symptom of ADH disturbances, commonly occurring in SCLC due to a paraneoplastic syndrome. The decreased plasma osmolality in MM group might be associated with hypotonic hyponatremia, caused by paraneoplastic ADH secretion, the presence of paraproteins or renal damage.

MANIFESTATIONS OF TUBEROUS SCLEROSIS AND ORGAN DAMAGE

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Keywords. Tuberous sclerosis (TS); TS associated organ damage

Objectives. Tuberous sclerosis (TS) is a rare genetic disease affecting multiple organ systems. According to worldwide statistics prevalence of the TS is 1:5000. TS can affect skin, central nervous system, kidneys, heart, lungs, eyes. TS clinical presentation is heterogenous therefore the correct diagnosis often could be missed. Aim was to describe the profile of a TS patient in Latvia, evaluate organ damage and therapy.

Materials and methods. This was a retrospective case series study of six adult patients who attended and were followed up Pauls Stradins Clinical University Hospital Cabinet of Rare diseases. Patient ambulatory cards, clinical, follow-up data, blood sample results and radiographic data were reviewed.

Results. Overall, six patients, all women, with mean age 36 years (20 – 47 years) were selected with the definite Tuberous sclerosis diagnosis. Calculated prevalence in Latvia is about 3:1000000. All patients had met the clinical diagnostic criteria for definite TS diagnosis, where four of the patients had confirmed genetic tests. All patients presented with the cortical dysplasia, subependymal calcinates, renal angiomyolipoma (AML), multiple renal cysts, dermatologic lesions. Only three patients had TSC associated epilepsy and documented TS associated neuropsychiatric disorders. Lung lymphangiomyomatosis was reported in four patients. Chronic kidney disease was developed in all patients, where mean baseline GFR was 83,4 (18,4 SD) mL/min/1.73 m^2 (CKD-EPI equation), only one patient developed end stage renal disease. Since 2021 five patients receive targeted therapy with Everolimus 10 mg per day and only one person had to reduce the dosage due to absolute moderate leukopenia and trombocytopenia.

Conclusions. Calculated prevalence of Tuberous sclerosis in Latvia is smaller than worldwide, therefore there could be far more people with TS being undiagnosed. All patients had typical TS manifestations. There is 100% reimbursed targeted therapy, which is well tolerated among patients.

EXPLORING THE IMPACT OF THROMBOTIC MICROANGIOPATHIES (TMA) ON END-STAGE KIDNEY DISEASE (ESKD): AN ANALYSIS OF KIDNEY TRANSPLANTATION OUTCOMES

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Keywords. Kidney transplantation; Thrombotic microangiopathy

Objectives. TMA encompass a group of rare but severe disorders characterized by microvascular thrombosis and organ damage. This study aims to investigate the association between TMAs and terminal kidney failure, focusing on outcomes post-kidney transplantation. This research addresses the need for comprehensive insights into the prognosis and challenges associated with kidney transplantation in TMAs patients, paving the way for improved clinical management and long-term outcomes.

Materials and methods. A retrospective case–control study of 6 kidney transplant recipients patients with ESKD due to TMA was conducted at Pauls Stradiņš Clinical University Hospital (2015–2023). Clinical and demographic data were analyzed, and statistical methods applied.

Results. This study involved six patients (50% males, 50% females). Genetic testing for ADAMTS13 gene mutations for 3 patients revealed one alteration. Native kidney biopsies in 5 patients (83.3%) confirmed TMA. One patient during acute kidney transplantation rejection underwent biopsy, confirming TMA. All patients initially presented with kidney failure of unknown etiology, emphasizing the elusive nature of the underlying pathology. TMA showed no active clinical signs before transplantation. While five patients observed no TMA recurrence, one without an initial TMA diagnosis experienced acute rejection, with manifestations including acute kidney failure, hemolytic anemia, thrombocytopenia, and biopsy-confirmed TMA. Presently, three transplanted kidneys show no active pathology , with one displaying IgA nephropathy, another acute cellular rejection, and a third BK nephropathy. All patients continue to undergo regular follow-ups with a nephrologist.

Conclusion. In conclusion, our study establishes a significant association between TMA and kidney failure of unknown etiology. The prevalence of ADAMTS13 gene mutations and consistent TMA presence in native and transplanted kidneys underscore the complexity of this link. These results call for increased clinical awareness in unexplained kidney failure cases and prompt further research to uncover TMA genetic mechanisms in renal disorders.

PREVALENCE OF HELICOBACTER PYLORI IN PATIENTS UNDERGOING UPPER DIGESTIVE TRACT ENDOSCOPY

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Keywords. Helicobacter pylori; Gastroenterology

Objectives. *H.pylori* is a pathogenic microorganism that has been proven to be an important risk factor in the development of gastric ulcer and chronic gastritis. Studies on the prevalence of *H.pylori* help to identify risk groups with further planning of preventive measures to reduce the spread of infection and the risk factors of related diseases. Available data on the prevalence of *H.pylori* in Latvia are limited. The aim of the study is to develop a set of statistical data on the prevalence of *H.pylori* infection in upper digestive tract endoscopy examinations.

Materials and methods. The study included 1017 patients who underwent an upper digestive tract endoscopy (EGD) examination with biopsy material taken at the Endoscopy Department of Pauls Stradiņš Clinical University Hospital in 2023.

Results. The study included data of 438 men (43.1%) and 579 women (56.9%) with a mean age of 59.91 (SD 16.39) years. *H.pylori* infection was confirmed in 16.9% of all EGD examinations performed, excluding examinations in which biopsy material was taken from structures outside the stomach or testing for *H.pylori* was not performed. *H.pylori* was confirmed in 18% of patients with active gastritis, 15.28% of patients with gastric atrophy and in 13.83% of patients with intestinal metaplasia in the stomach. The highest prevalence of *H.pylori* was in the age group 61–70 years.

Conclusions. The prevalence of *H.pylori* is 16.9% of EGD examinations performed, excluding examinations in which biopsy material was taken from structures outside the stomach or testing for *H.pylori* was not performed, although according to the literature data, 30–67% of EGD examinations are *H.pylori* positive. 14–18% of patients with *H.pylori* infection have been diagnosed with at least one pathology of the gastric mucosa. The highest prevalence of *H.pylori* is in the age group 61–70 years.

NEUROLOGY

SURGICAL OUTCOME AND SURVIVAL OF PATIENTS WITH NEWLY DIAGNOSED HIGH-GRADE GLIOMA UNDERGOING SURGERY ASSISTED BY 5-AMINOLEVULINIC ACID GUIDED RESECTION

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Keywords. 5-aminolevulinic acid; Fluorescence-guided surgery; Glioblastoma; High-grade glioma; Gross total resection; Survival; Surgical outcome

Objectives. High-grade glioma (HGG) is associated with dismal prognosis, extent of resection remains the most significant prognostic factor for overall survival (OS). 5-aminolevulinic acid (5-ALA) is used to improve gross-total resection (GTR), it remains the only FDA-approved intaraoperative adjunctive for fluorescence-guided surgical resection of gliomas, clear picture regarding how it affects patient survival is not available. Our goal was to evaluate surgical outcomes, OS of patients with newly-diagnosed HGG undergoing 5-ALA assisted surgery.

Materials and methods. Retrospective study (July 2023 – November 2023) included patients with newly-diagnosed HGG, who underwent 5-ALA assisted surgery from November 2009, to November 2023. Analysis included identification of patient, tumor characteristics, evaluation of postoperative results, GTR (resection of >95%), complications, OS, functional outcome (based on Modified-rankin-score, Karnofsky-performance-status). Statistical analysis was performed using IBM SPSS 29.0.

Results. Final sample consisted of 80 patients (39 male, 41 female). Median age was 58,9 years (IQR 15). In all cases tumor tissues were fluorescence-positive, 5-ALA related toxicity was not seen. Histopathological results indicated 82,50% cases were glioblastoma, 17,50% anaplastic astrocytoma, with 9% of cases multifocal disease. In 34% of cases tumor tissue involved an eloquent zone. GTR was achieved in 86,25% of cases, with new neurological deficits, surgical complications seen only in 3 cases. GTR was achieved more frequently when the tumor was not in the eloquent zone ($p < 0.024$). Patients with neurological deficits pre-operatively showed worse functional outcome ($p < 0.001$). Median OS was 13 months (95% CI: 9.84-16.16), younger age (<60) and shorter hospital stay (<11 days) was associated with better prognosis ($p < 0.003$), showing better OS.

Conclusions. 5-ALA is safe, effective intraoperative adjunctive - indicating increase in GTR and OS in newly-diagnosed high-grade glioma cases. 5-ALA should be implemented whenever possible to achieve better outcomes.

THE USE OF POLYGRAPH IN THE NEUROLOGY DEPARTMENT

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Keywords. Neurology; Polygraph; Sleep medicine

Objectives. Polygraph(PG) is widely used to identify respiratory sleep disturbances. By conducting PG in Neurology Department, respiratory sleep disorders in neurological patients may be identified. The study aims to summarize key findings and provide evidence for PG usefulness in hospitalized neurological patients.

Materials and methods. PG protocols, demographic and clinical data of 49 patients hospitalized in the Riga East University Hospital Neurology Department were collected, reviewed and retrospectively-statistically analyzed. The analysis of the results was carried out using IBM-SPSS software.

Results. Out of 49 patients, 36.73% were females and 63.27% were males, with the mean age being 53(SD16.185). The mean BMI was 34.19 kg/m². The severity of sleep apnea was classified accordingly: no apnea detected(26.5%), mild(28.6%), moderate(16.3%), and severe(28.6%). Following diagnoses were present: neuropathies(10.2%), radiculopathies(4%), cardiovascular disease(10.2%), myofascial pain syndrome(20.4%), orthostatic intolerance syndrome(4%), headache/migraine(10.2%), myopathy(6%), epilepsy(4%), amyotrophic lateral sclerosis(6%), unclassified(24.5%). There was no statistically significant distribution of Apnea-Hypopnea Index (AHI) in different BMI groups (Kruskal-Wallis test,H=25.089,p=0.243), of AHI in two sex groups (Mann-Whitney U test,U=216,p=0.191), of desaturation index in BMI groups (Kruskal-Wallis test, H=26.299, p=0.195), and of supine-non-supine apnea index (Kruskal-Wallis test,H=20.197,p=0.686). Further analysis of correlation showed that there was a statistically significant correlation between the following: longest apnea-AHI(r(49)=0,686; p<0,001), longest hypopnea-AHI (r(49)=0,483; p<0,001), mean saturation-desaturation index (r(49)=-0.595; p<0,001), minimal saturation-desaturation index(r(49)=-0.683; p<0,001), BMI-desaturation index (r(49)=0,696; p<0,001), STOPBANG scale-AHI(r(49)=0,696; p<0,001), STOPBANG-apnea severity (r(49)=0,606; p<0,001). Correlation between EPWORTH scale result and AHI was not statistically significant, r(49)=0,215; p<0,138.

Conclusions. Analysis of the polygraph results proved that it is a useful tool that provides wide range of data in accordance with medical perspective and statistical laws. Only 26% of analyzed patients had no sleep apnea detected. The results of correlation and distribution analysis are an input for professionals to use in diagnostics of sleep disorders, especially sleep apnea.

ASSOCIATION BETWEEN ROUTINE BLOOD TESTS AND PROGRESSION OF RELAPSING-REMITTING MULTIPLE SCLEROSIS

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Keywords. Multiple sclerosis; Relapsing-remitting MS; Expanded Disability Status Scale; Neutrophil to lymphocyte ratio

Objectives. Multiple sclerosis (MS) is the most common cause of neurological disability in young adults due to inflammation and degeneration in the central nervous system (CNS). Relapsing-remitting MS (RRMS) is the most common subtype of MS that can progress with frequent relapses and accumulated disability despite treatment. The identification of routine tests associated with MS progression can help for stratification of patients for earlier treatment correction. The aim of this study was to analyze the association between routine blood tests and increasing of Expanded Disability Status Scale (EDSS) as a marker of MS severity during the five years.

Materials and methods. The retrospective study included longitudinal analysis of medical records of patients with RRMS treated in Riga East University Hospital from 2017 to 2023. The inclusion criterion was EDSS < 4.0 at the beginning of the observation. For analysis, data of hematological routine tests, and inflammation-related markers were included at the beginning of the observation. EDSS was assessed at the beginning and after five years. Neutrophil to lymphocyte ratio (NLR) was calculated. For statistical analysis, the Spearman correlation and Mann-Witney tests were performed.

Results. The study included data from 74 patients (mean age 43± 22 years, 42 females). EDSS increased in 40% of patients, decreased in 20% of patients, and 40% of patients had unchanged EDSS. Among all blood clinical tests, NLR was positively associated with EDSS change (r_s=0.24, $p<0.05$). In the group with increasing EDSS, NLR was 3.8 indicating subclinical systemic inflammation at the beginning of the observation.

Conclusions. Among routine blood tests, increased NLR was associated with RRMS progression during five years, which points to the possible predictive effect of this marker for the stratification of patients.

POLYNEUROPATHY IN PATIENTS WITH MULTIPLE SCLEROSIS IN LATVIA: A CLINICAL AND ELECTROPHYSIOLOGICAL STUDY

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Keywords. Multiple Sclerosis; Polyneuropathy; Electrophysiology

Objectives. Although multiple sclerosis (MS) is typically considered as a CNS disease restricted, several studies have reported involvement of peripheral nervous system causing peripheral nerve lesions resulting in polyneuropathy (PNP). However, the prevalence of PNP and its relationship with disease severity remains unclear. The study aims to determine the prevalence of PNP in MS patients and to analyze its association with the severity of the disease based on Expanded Disability Status Scale (EDSS).

Materials and methods. 149 patients with MS according to the McDonald criteria: males (n=54, 36.2%) and females (n=95, 63.8%). Patients were classified into relapsing-remitting MS (RR MS, n=130), secondary progressive MS (SPMS, n=14) and primary progressive MS (PPMS, n=5). The neurological status of patients was assessed using the EDSS. Nerve conduction studies (NCS) were performed on both motor and sensory conduction according to the PNP examination protocol (bilateral upper and lower extremities). Those participants who had abnormal NCS (according to the normal values in Latvian clinical practice) in more than one attribute in two separate nerves were diagnosed as having large fiber PNP.

Results. Polyneuropathy was diagnosed in 24 participants, from whom 13 (24.1%) were males and 11 (11.1%) females. Mean age in MS PNP group was 50.3 years, MS without PNP was 40.6 years. Pateints aged over 40 had a higher than 50% chance of developing PNP. Notably, females with MS were at a 68% lower risk of polyneuropathy compared to their male counterparts. Patients with an EDSS of 6.0 or higher exhibited a remarkable 20.3-fold increased likelihood of developing polyneuropathy compared to those with a low score of 0 to 2.

Conclusions. According to our study the prevalence of the polyneuropathy in MS patients was 16% (n=24) and a high EDSS score dramatically increases the likelihood of developing polyneuropathy.

INVESTIGATING ELECTROPHYSIOLOGICAL PROFILES OF POLYNEUROPATHY IN MULTIPLE SCLEROSIS

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Keywords. Multiple Sclerosis; Polyneuropathy; Electrophysyology

Objectives. Multiple Sclerosis (MS) is a complex autoimmune disease characterized by the immune system attacking the central nervous system, leading to various neurological symptoms. Peripheral nerve abnormalities are uncommon in multiple sclerosis (MS). However, the prevalence of polyneuropathy (PNP) in the context of MS varies and is not as widely reported. This study aims to identify the prevalence of the electrodiagnostic abnormalities in patients with MS and provide an electrophysiological characterization of the group with multiple sclerosis and polyneuropathy.

Materials and methods. The study included 150 patients diagnosed with MS according to the McDonald criteria. All enrolled subjects were examined using nerve conduction studies (NCS) by a certified neurophysiologist. NCS were performed according to the polyneuropathic examination protocol.

Results. Twenty-four patients (16%) of the 150 MS patients exhibited abnormal NCS findings, consistent with polyneuropathy. The analysis of electrophysiological parameters in both leg nerves and the arms (n.ulnaris) demonstrated statistically significant differences, with latency and velocity decreases falling within the normal range. Amplitude values in leg nerves were significantly higher in the MS group without PNP ($p<0.05$), even remained within the normal range. There were significant differences observed in the n.ulnaris sensory and motor studies between the two groups ($p < 0.05$), even though the values for both groups were within the normal range.

Conclusions. Our findings suggest a notable prevalence of sensory motor polyneuropathy in MS patients group.The predominant form of polyneuropathy observed was demyelination in the leg nerves; however, axonal damage appears to be frequently underdiagnosed.

POTENTIAL BIOMARKERS FOR PERIPHERAL NERVOUS SYSTEM (PNS) DAMAGE IN PATIENTS DIAGNOSED WITH SYSTEMIC SCLEROSIS

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Keywords. Biomarkers; Systemic sclerosis; Polyneuropathy

Objectives. Systemic sclerosis (SSc) is a rare, chronic rheumatic disease affecting various organ systems, including the peripheral nervous system. Research in the context of systemic sclerosis and its association with polyneuropathies, as well as the exploration of potential biomarkers for assessing PNS damage, remains limited. Our goal was to analyze potential biomarkers for PNS damage in patients diagnosed with systemic sclerosis.

Materials and methods. 68 SSc patients and 37 controls were enrolled in the original study. Plasma NfL concentration was measured using highly sensitive Single molecule array (Simoa) NfL assay. Antibodies against gangliosides and growth differentiation factor 15 (GDF-15) were analyzed using an enzyme-linked immunosorbent assay.All participants were tested with nerve conduction studies (NCS) conducted by a certified neurophysiologist.

Results. Of the 68 patients enrolled in the study, 80.9% (55) were female, 19.1% (13) were male with mean age of 61.16 (SD ± 12.66) years. Polyneuropathy (large and small fibers) was detected in 86.76% of the subjects, or 59 out of 68 individuals. It was observed that the positivity of antiganglioside antibodies did not show any significant difference between the group with polyneuropathy and SSc and the control group. The NfL and GDF -15 concentration was significantly higher in the SSc group with polyneuropathy than in the controls ($p<0,05$).

Conclusions. Polyneuropathy (PNP) is significantly more prevalent in individuals with SSc than previously thought. NFL and GDF15 show promise as valuable markers for evaluating the peripheral nervous system in SSc patients.

CLINICAL CHARACTERISTICS OF BLEPHAROSPASM AND EFFECTIVENESS OF BoNT (PATIENT SELF-ASSESSMENT) AT THE PAULS STRADIŅŠ CLINICAL UNIVERSITY HOSPITAL

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Keywords. Blepharospasms; Botulin neurotoxin injection treatment (BoNT)

Objectives. Blepharospasm is a focal dystonia that manifests in adulthood and causes abnormal contraction of periorbicular muscles.The vision is not affected, but forced closure of the eyelids may cause functional blindness. First line treatment is botulinum neurotoxin (BoNT) injection treatment which effectiveness may vary. The aim of this study is to clarify whether the patients are satisfied with BoNT injection treatment.

Materials and methods. The patients with blepharospasm who have received BoNT injection Pauls Stradiņš Clinical University Hospital were studied.This registry contains 80 patients' clinical data and 56 of them were interviewed by phone. Interviewed patients were included in the study and collected data were further analysed.

Results. Out of all patients 71.4% (n=40) were female and the mean age was 70.9 (±10.9; 44 – 93). The mean disease manifestation age was 56.1 years (±11.8; 23 - 80) and the mean time till treatment with BoNT was 5.5 years (±7.7 years; 0 - 49). Clinically blepharospasm manifested as excessive blinking – 21.4 % (n=12); eyes closure – 59 % (n=33) or both – 19.6 % (n=11). The mean time till effect after injections was 6.5 days (±10.2; 0-60), and according to patients – effect lasted for 3.5 months (±3.2; 0-24). Side effects never experienced 39.2 % (n=22), but 28.6 % (n=16) after every injection. Reported adverse effects were: ptosis – 41.1 % (n=23), dry eye – 5.4 % (n=3), double vision – 3.6 % (n=2), eyelid swelling after injection – 3.6 %(n=2). Most of the patients the effect of BoNT rated as good. Patients evaluation of BoNT treatment effectiveness – good 83.9% (n=47); suboptimal 5.4% (n=3); formerly good, now suboptimal 5.4% (n=3); ineffective 3.6% (n=2).

Conclusions. Overall patients are satisfied with the BoNT injection treatment despite commonly experienced side effects.

POTENTIAL METABOLITE BIOMARKERS IN CHARCOT-MARIE-TOOTH DISEASE

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Keywords. Charcot-Marie-Tooth; Metabolome; Biomarker

Objectives. Charcot-Marie-Tooth (CMT) disease is genetically and clinically heterogeneous motor and sensory neuropathy, affecting the peripheral nerves. CMT is the most common hereditary neuromuscular disorder with a worldwide prevalence of 1 in 2,500–3000. There is no effective treatment available nowadays. Biomarkers are critical for the development of effective treatments and assessment of the therapeutical efficiency. The aim of this study was to analyse selected 33 plasma metabolites in CMT patients and compare them to control group.

Materials and methods. The study included 84 patients diagnosed with CMT and 34 healthy controls. All CMT individuals underwent genetic testing. Targeted plasma metabolic analysis was performed by ultrahigh performance liquid chromatography mass spectrometry (UHPLC-MS) to determine plasma levels of 33 selected metabolites. Statistical analysis was performed using SPSS, including independent sample T test, chi-square test and Mann–Whitney U test.

Results. We analysed 84 CMTA patients (46 female) with mean age 39,01 (SD±17,025) and 34 healthy individuals (17 females) with mean age 39,53 (SD±19,73). The mean values of age were not significantly different between the groups; $t(116) = 0{,}143$, $p = .877$, neither the mean values of gender - X^2 (1, N = 118) = 0,2205, p = 0.6386 Plasma ratio of L-Acetylcarnitine was elevated and plasma ratio of Glycine was decreased in the CMT compared with controls (Mann–Whitney U test, U = 1773.000, p = 0.04; U = 1018.000, p = 0.15, respectively).

Conclusions. L Acetylcarnitine and glycine plasma levels are significantly different between CMT and control group. Further studies with CMT patients should be performed to evaluate both metabolite biomarker potential.

ONCOLOGY, HEMATOLOGY

INTRAVENOUS HIGH DOSE IRON MEDICATION INFUSION PROTOCOL SAFETY AND EFFICACY EVALUATION IN PATIENTS WITH ANAEMIA

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Keywords. Anaemia; Haemoglobin; Iron; Treatment; Infusion

Objectives. In patients with anaemia, appropriate therapy is needed to restore haemoglobin (Hb). Anaemia with a very low Hb (<70g/L) requires blood transfusion to stabilize hemodynamics and increase Hb. In case of iron deficiency anaemia (IDA), oral iron therapy and intravenous iron infusion is accepted treatment. Iron infusion therapy is preferred, if a patient does not tolerate oral iron therapy due to gastrointestinal side effects, has malabsorption or inflammatory bowel disease. The goal of the study is to ensure that high dose intravenous iron infusion therapy is an effective and safe therapy in patients with anaemia.

Materials and methods. Study was performed in Pauls Stradiņš Clinical University Hospital, the Centre of Gastroenterology, Hepatology and Nutrition Therapy from May 2023 until January 2024. 78 patients - 43 men and 35 women (age range 25 – 95 years) with anaemia of different etiology were enrolled. All of the patients received an iron infusion high dose therapy (up to 1000 mg of iron dextran) according to the study protocol. Study endpoints - Hb level after iron infusion as well as adverse drug reaction documentation. A written consent was obtained from the patients. The data was analysed using Microsoft Excel and IBM SPSS Statistics.

Results. Mean Hb levels before intravenous iron infusion therapy were *90,08 ± 13,63 g/L*, after transfusion *95,88 ± 12,64 g/L* with a mean change of *5,81 ± 11,89 g/L*. 2 people (3%) suffered from minor side effects during therapy.

Conclusions. To consolidate the results, intravenous high dose iron infusion therapy is an effective and safe way (in 76 patients (97%) Hb increased on average for 5,81 ± 11,89 g/L) to treat patients with anaemia with Hb levels above 70g/L with minimal risk of adverse drug reactions.

SIGNIFICANCE OF SENTINEL LYMPH NODE BIOPSY IN CUTANOEUS MELANOMA

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Keywords. Melanoma; Sentinel lymph node biopsy; Distant metastases

Objectives. Melanoma is the deadliest form of skin cancer due to its ability to metastasize, with the regional lymph nodes as the most likely initial metastatic site. To evaluate the correlation between tumour thickness and sentinel lymph node biopsy results and to analyze the distribution of patients based on their regional lymph node involvement and the occurrence of distant metastases in cutaneous melanoma.

Materials and methods. A retrospective study included patients aged 18 and older diagnosed with invasive cutaneous melanoma, having undergone relevant surgical interventions at the Plastic and Reconstructive surgery Department of Kaunas Clinics from January 1, 2018, to December 31, 2022.

Results. During the study, data from 527 patients were analysed. The participants' ages ranged from 28 to 95 years, with an average age of 65.8 years (SD 15.2). Among patients, 329 (62.4%) were women and 198 (37.6%) were men. Patients were categorized into four groups according to Breslow thickness: 0.01-1 mm, 1.01-2.00 mm, 2.01-4.00 mm, and >4.00 mm. Among the 359 (79.7%) patients, who underwent sentinel lymph node (SLN) biopsy, 107 (20.3%) were diagnosed with SLN metastases. The findings indicated correlation between increasing tumor thickness and a higher incidence of SLN metastases ($p < 0.001$, $x2 = 252.071$). The 107 patients with SLN metastases were categorized into three groups: N1a-c, N2a-c and N3a-c based on regional lymph node involvement. For the N1 group, 83 patients had regional lymph node metastases, with 11 cases progressing to distant metastases. As for the N2 and N3 groups, 18 and 6 patients, respectively, exhibited pathological lymph nodes, leading to IV stage melanoma in 7 and 2 cases.

Conclusions. The SNB positivity rate grows with increasing tumor thickness. Increasing regional lymph nodes metastases correlate with a higher likelihood of distant metastases.

FACTORS THAT AFFECT THE TREATMENT EFFECT OF PEMBROLIZUMAB IN STAGE III-IV NON-SMALL CELL LUNG CANCER PATIENTS IN 2022-2023 AT PSKUS HOSPITAL

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Keywords. Non-small cell lung cancer (NSCLC); Pembrolizumab; Immunotherapy

Objectives. NSCLC remains one of the most lethal malignancies in humans. Pembrolizumab is a common immunotherapy for NSCLC patients. This study was aimed at studying the factors that can affect the treatment effect of pembrolizumab.

Materials and methods. This is a retrospective study conducted through the analysis of the medical records of 85 patients who were first diagnosed with stage III-IV NSCLC in 2022-2023 at PSKUS Hospital. 20 patients were treated with pembrolizumab, and 17 patients received immunotherapy with other medications. 48 patients did not receive immunotherapy. Valid patient data was collected, arranged, and analyzed with Microsoft Excel and IBM SPSS Statistics.

Results. In this study, the average age of patients is 67.506 years old. The association between disease progression and pembrolizumab treatment type was statistically significant (p=0.041). The association between disease progression and NSCLC type was not statistically significant (p=0.779). The association between disease progression and surgery history was not statistically significant (p=1.000). The association between cancer progression and PD-L1 expression was not statistically significant (p=0.765). The median age of patients with disease progression was lower than that of other patients. The median time from the date first diagnosed to the date of disease progression was greatest in the nonoperative group (9 months, 95% CI 3.2-14.9), the adenocarcinoma group (9 months, 95% CI 5.8-12.2), and the PD-L1>50% group (9 months, 95% CI 6.1-11.9). The average time from the date first diagnosed to the date of disease progression was greatest in the pembrolizumab monotherapy program (14 months, 95% CI 7.9–20.2).

Conclusions. Patients with pembrolizumab monotherapy, adenocarcinoma NSCLC, TPS > 50%, and no surgery history had better treatment effects with pembrolizumab in stage III-IV NSCLC patients. More patients are needed to confirm the conclusions.

CLINICAL–PATHOLOGICAL CHARACTERISTICS OF PATIENTS WITH SQUAMOUS CELL LUNG CANCER AND PD–L1 EXPRESSION

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Keywords. Squamous cell lung cancer; PD-L1 expression; Predictive biomarker; Clinical-pathological characteristics

Objectives. Squamous cell lung cancer does not always respond to standard therapy. Most of researches are based on immunotherapy that targets immune checkpoints. Assessment of PD-L1 expression level is necessary prerequisite for making a decision on potential treatment with monoclonal antibodies that inhibit PD-1/PD-L1 signaling pathway. The aim was to determine the association of PD-L1 expression in squamous cell lung cancer with clinical-pathological characteristics such as gender, age, smoking status, tumor localization, TNM stage and ECOG Performance status scale in patients treated at the Institute for Pulmonary Diseases of Vojvodina.

Materials and methods. The retrospective study included 94 subjects of both sexes, in the time span from January 1 to December 31, 2021, who were diagnosed with squamous cell lung cancer, based on pathohistological analysis and additionally was performed an immunohistochemical assessment of PD-L1 expression.

Results. Positive PD-L1 expression (>1%) was detected in 78.7% of subjects, and 52.1% of them showed high expression (>50%). Multivariate analysis found no statistically significant association of the percentage of tumor cell positivity in relation to gender (p=0.845), localization (p=0.670), smoking status (p=0.323) and TNM stage (p=0.603). A statistically significant association was demonstrated between ECOG Performance Status scale and PD-L1 expression <1% (p=0.035), while a marginal association exists between PD-L1 expression percentage >50% and age (p=0.058).

Conclusions. The expression of PD-L1 in patients with squamous cell lung cancer is not related to the clinical characteristics of the disease and the pathohistological findings. Patient age and performance status may suggest PD-L1 expression. Other examined clinical-pathological characteristics are not significant. Further research on a larger sample of patients is necessary to make adequate conclusions.

TUMOR LYSIS SYNDROME - PREVALENCE AND RISK FACTORS - FOR PAEDIATRIC PATIENTS DIAGNOSED WITH ACUTE LEUKEMIA AND LYMPHOMA IN LATVIA

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Keywords. Hyperuricemia; Electrolyte disturbances; Hematological malignancies

Objectives. Tumor lysis syndrome (TLS) is one of the most common emergent complications that develop in paediatric patients diagnosed with conditions such as acute lymphoblastic leukemia (ALL), acute myeloid leukemia (AML) and non-Hodgkin's lymphoma (NHL). According to the Cairo–Bishop model, laboratory TLS is diagnosed when the patient exhibits at least two of the following changes in blood serum: hyperuricemia, hyperkalemia, hyperphosphatemia or hypocalcemia. Clinical TLS is diagnosed when laboratory TLS is accompanied by acute kidney failure, cardiac arrhythmias or seizures. The aim of this study was to determine the prevalence and risk factors associated with development of TLS in paediatric patients..

Materials and methods. We conducted a retrospective cross-sectional study, including patients aged 0–18 years primarily diagnosed with ALL, AML or NHL from January 1, 2011, to December 31, 2021, who underwent primary or relapse chemotherapy.

Results. Among the 160 included patients with mean age 5.96±4.62 years, the highest TLS prevalence occurred in the 1–5 years (2 cases) and 6–12 years (3 cases) age groups. Males constituted 63.75% and females constituted 36.25%, with laboratory TLS observed in 2 females and 5 males, and clinical TLS in 1 female and 3 males. TLS was observed in four ALL and three NHL cases. Initial leukocytosis was present in 71.43% of TLS cases, while initial hepatomegaly and lymphadenopathy were observed in 85.71% of TLS cases. Hypocalcemia and hyperphosphatemia were predominant in laboratory TLS. Clinical manifestations of TLS included acute kidney failure and cardiac arrhythmias.

Conclusions. Despite a significant number of high-risk patients, TLS manifested in only 4% of observed episodes. The findings underscore the importance of preventive measures and vigilant control of serum uric acid and electrolytes to avert life-threatening TLS complications in paediatric hematological malignancies.

THE EFFICAY OF RUXOLITINIB IN MYELOFIBROSIS PATIENTS

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Keywords. Ruxolitinib; Myelofibrosis; Blood count

Objectives. Myelofibrosis is a myeloproliferative disease characterised by clonal proliferation of myeloid cells, bone marrow fibrosis, ineffective extramedullary haematopoiesis and splenomegaly. The only curative treatment is allogenous bone marrow transplant, but a small percentage of patients qualify for it. Alternative treatment is JAK2/JAK1 inhibitor Ruxolitinib, however, it is not effective in all and is associated with cytopenias and infections. The aim of this study is to evaluate the efficacy of Ruxolitinib in myelofibrosis treatment, by comparing blood count parameters before and 6,12,24 months after starting treatment.

Materials and methods. Primary and secondary myelofibrosis patients, who received Ruxolitinib treatment in Riga East University Hospital form 01.01.2019. until 31.12.2022., were included. Data including erythrocyte, platelet and leucocyte count, hemoglobin, hematocrit, RDW, LDH before and 6,12,24 months after starting treatment were collected form patient ambulatory cards. IBM SPSS27 program was used for analysis. Descriptive statistics and Friedman's ANOVA test was run to determine whether there was a statistically significant difference between laboratory values before and 6,12,24 months after starting treatment.

Results. 47 participants were included. There was no statistically significant difference in distribution of erythrocyte (*p*-value0,727) and leucocyte count (*p*-value0,308), hemoglobin (*p*-value0,399), hematocrit (*p*-value0,242), RDW (*p*-value0,801) and LDH (*p*-value0,392). There was a statistically significant difference in distribution of platelet count at the start of therapy and at 6,12 and 24 months (*p*-value0,022). Pair-wise analysis showed that there was a statistically significant difference in platelet count distribution at the start of therapy and at 6 months (p-value 0,048), 12 months (p-value0,048) and 24 months (p-value0,02). The average platelet count decreased from 270,30 $x10^9$/L before therapy to 218,9 $x10^9$/L after 24 months.

Conclusions. There was a statistically significant difference in distribution of platelet count, but in no other parameters included in the study. The average platelet count varied within the normal range.

ASSOCIATED RISKS, RESULTS AND COMPLICATIONS OF ALLOGENIC STEM CELL TRANSPLANTATION IN PEDIATRIC POPULATION IN LATVIA FROM 2006 TO 2023

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Keywords. Allogenic stem cell transplantation; Complications

Objectives. Transplantation of hematopoietic cells is associated not only with a successful outcome in various diseases, but also with a wide spectrum of complications. Recognizing risk factors for complications and understanding the spectrum of complications helps development of appropriate care. Aim of the study is to study and compare the types of complications, risks and potential benefits of allogeneic stem cell transplantation in pediatric patients.

Materials and methods. Patients registered in the period from 2006 to 2023 in the systems of the Children's Clinical University Hospital ("ANDROMEDA" and "SAULE"), who are found by ICD-10 diagnosis code Z94.8, were selected. Data research, processing and statistical analysis were performed using SPSS 20.0.

Results. A total of 47 patients were included in the study from 2006 to 2023. Acute myeloid leukemia (21.3%), acute lymphocytic leukemia (19.1%) and idiopathic aplastic anemia (14.9%) are the main diagnoses associated with the procedure. In 55.3% of cases at least one infectious complication was recorded, of which cytomegalovirus and Epstein-Barr virus infections were the most common (34.0% and 19.1%). In 57.4% of cases signs of acute graft-versus-host disease development were recorded, in 40.5% - signs of chronic graft-versus-host disease development. Patients also had other complications that are not included in the scope of graft-versus-host disease (at least one complication in the acute period in 76.6% of cases and 47.6% in chronic period). The dynamic tracking of 8.4% was not possible, because the patients died in the post-transplantation period.

Conclusions. This research highlights wide spectrum of complications in post-transplantation period for allogenic stem cell transplantation patients. It emphasizes various severity possibilities of post-transplantation complications, which can also result in the death of the patient. It is necessary to weigh the potential risk-benefit ratio of an individual patient before every procedure.

CUTANEOUS MELANOMA: RISK FACTORS AND THEIR ASSOCIATIONS WITH PHENOTYPIC PATIENT CHARACTERISTICS

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Keywords. Cutaneous melanoma; Phenotypic characteristics; Risk factors

Objectives. Melanoma, a potentially lethal cancer, has seen a rapid global increase in the last 50 years. It predominantly affects fair-skinned populations, with varying incidence by sex and associated differences in anatomic site.

Materials and methods. In a retrospective study, conducted from January 15 to February 15, 2023, at a Dermatology and Venereology Department, two groups of patients were examined: 200 without melanoma (control) and 200 with melanoma (case).

Results. Among individuals diagnosed with cutaneous melanoma (CM), statistically significant findings indicate a higher prevalence of CM in women (65.5%, N=131) compared to men (34.5%, N=69) ($p<0.01$, $\chi^2=17.818$). The age range of participants was from 31 to 90, with a median age of 64.00 years (SD 13.869). The back/lumbar region was the most common site in both genders (21%, N=42). Melanoma on the buttocks was exclusively found in women, representing the least frequent site at 1% (N=2). Across both genders, CM was most diagnosed at Stage I (34.5%, N=69), the least frequently *in situ* (0.5%, N=1). Individuals with fair skin color are more prone to develop CM ($p<0.01$, $\chi^2=23.060$). Even 97 patients with melanoma had light skin color. The analysis on eye color's impact on CM development found that, while the majority (N=136) of patients had blue-gray eyes, it was not statistically significant. The study determined that CM occurs significantly more often in individuals with light hair. Out of 118 patients with melanoma, were blonde or had light brown hair color ($p<0.01$, $\chi^2=14.459$).

Conclusions. Women exhibit a higher prevalence of CM compared to men. The back/lumbar region is a frequent site of CM diagnosis.

THE USE OF CYTOCHEMICAL STAINING IN THE DIAGNOSIS OF ACUTE LEUKEMIAS

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Keywords. Acute leukemia (AML/ALL); Cytochemical staining; Sensitivity and specificity

Objectives. Acute leukemias are heterogeneous group of hematopoietic cell neoplasms, characterized by clonal expansion with more than 20% blasts in the bone marrow and/or peripheral blood. The aim was to determine the diagnostic value indicators of the cytochemical staining: alpha naphthyl-acetate-esterase-non-specific-ANAE, periodic Schiff reaction-PAS and myeloperoxidase in leukocytes-POX, as laboratory tests in the diagnostic algorithm of acute leukemias.

Materials and methods. For the period from August 2021 to October 2022, the results of specific laboratory cytochemical and immunophenotypic examination of bone marrow samples from 33 subjects were taken from the database of the Center for Laboratory Medicine, Clinical Center of Vojvodina. In relation to the definitive diagnosis obtained by flow cytometry, for cytochemical staining the sensitivity, specificity, accuracy, positive and the negative predictive values were calculated.

Results. Of a total of 33 (17 male and 16 female) patients, 25 (76%) had a final diagnosis of acute myeloid leukemia. The average age was 60.6±16.2 years. The youngest respondent was 19, while the oldest was 83 years old. For PAS, the sensitivity was 75%; specificity 96.5%; accuracy 93.9%; positive and negative predictive value 75% and 96.6% respectively. For ANAE, the sensitivity was 83.3%; specificity 63%; accuracy 67%; positive 33% and negative predictive value 90%. For POX analysis, sensitivity was 91%; specificity 72%; accuracy 79%; positive 59% and negative predictive value 94%.

Conclusions. The calculated statistical indicators of diagnostic value of cytochemical staining point to the real need and justification of their application in the diagnostic algorithm of acute leukemias.

OPHTHALMOLOGY

FACTORS THAT AFFECT ANTERIOR CHAMBER DEPTH AFTER CATARACT SURGERY WITH AN INTRAOCULAR LENS

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Keywords. Intraocular lens (IOL); Cataract, axial length (AL); Anterior chamber depth (ACD)

Objectives. Intraocular lenses are part of cataract surgery. There are often some errors between the actual diopter of the operative eye and the preoperatively predicted value. One of the important causes of postoperative diopter errors is the change in the expected position of the IOL implanted in the postoperative eye. The study was aimed at studying the factors that can affect anterior chamber depth after surgery.

Materials and methods. This is a retrospective study conducted through the analysis of the medical records of 7 patients (10 eyes) who had cataract surgery with an IOL implant in the anterior chamber of the eye in 2023 at the PSKUS Hospital. The patient's preoperative and postoperative anterior chamber depth (ACD) and axial length (AL) were measured using the IOL Master700. Valid patient data was collected, arranged, and analyzed with Microsoft Excel and IBM SPSS Statistics.

Results. In this study, the average age of the patients was 63.60 years old. The average postoperative ACD value was 2.09 mm larger than the preoperative value. There was no statistical correlation between the patient's age and the ACD difference ($p=0.421$) between the preoperative and postoperative values. There was no statistical correlation between the preoperative AL value and the ACD difference ($p=0.662$). There was no statistical correlation between the preoperative IOP value and the ACD difference ($p=0.887$). Boxplot demonstrated that the median ACD difference was slightly higher in patients with myopia, was significantly higher in patients with high IOP, and was significantly higher in patients who didn't have glaucoma surgery.

Conclusions. The patient's preoperative AL and IOP values and glaucoma surgery history can be risk factors for an ACD change. After surgery, patients with myopia and glaucoma had a larger ACD value than patients with emmetropia.

CHANGES IN THE ULTRASONOGRAPHIC IMAGE OF THE VITREOUS BODY BEFORE AND AFTER INTRAVITREAL INJECTIONS

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Keywords. Intravitreal injections; Macular degeneration; Vitreous body; Floaters; B-scan

Objectives. Ultrasound imaging technology is capable of visualizing any part of the eye. The aim of our case series is to detect USG changes in the vitreous body before and after intravitreal injection.

Materials and methods. A retrospective study was performed in 6 patients with age-related macular degeneration (AMD) and 1 patient with central retinal vein occlusion (CRVO) who underwent intravitreal injections with Bevacizumab between May 2017 and December 2023. All patients had vitreal injections in one eye. USG scans were analyzed before and 15 minutes (+/-5 minutes) after the last intravitreal injection. USG scans were made by a 15-MHz probe using the B-scan aplication technique through the lids. We evaluated USG scans before and after intravitreal injection and counted the amount and area of floaters in the vitreous body. Data analysis was done with IBM SPSS and Microsoft Excel. Non-parametric tests were used.

Results. Based on the quantity of floaters in the vitreous body, we divided the patients into two groups. Three individuals had more than seven floaters prior to injection—group A (N-3), while four patients in the group had fewer than seven—group B (N-4). After the intravitreal injection in group A, the average number of floaters in the USG image increased by 6 floaters, but in group B, it increased by 3.6 compared to the amount of floaters before the injection. The Wilcoxon signed-rank test showed a positive increase in the number of floaters in all patients after injection ($p=0.027$) ($p<0.05$).

Conclusions. A significant increase in the number of floaters was observed in all patients after intravitreal injection. Based on our data analysis, there is no statistically significant correlation between the number of floaters and the injection count. Additional research with more patients is required.

DIROFILARIASIS OF THE EYELID: A CASE REPORT

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Keywords. Ocular dirofilariasis; Subcutaneous nodule; Eyelid

Introduction. Dirofilariasis, an infection caused by nematodes of the genus *Dirofilaria*, is a rare zoonosis in humans. Due to the warming climate, this infection is increasingly common in northern Europe.

Case description. In May 2023, an emotionally distressed 40-year-old woman came to the Emergency Department. She had been feeling and seeing a moving worm on the skin of her upper eyelid since the morning. A month ago, she was visiting Poland. In addition, the patient stated that she has a dog. On examination of the eyes, a vermiform nodule of about 3 cm in length was observed in the subcutaneous tissue of the upper eyelid of the left eye on the mesial side. The node occasionally showed spontaneous movements. The upper eyelid was also swollen and redness was observed. After the incision of the upper eyelid, a whitish filiform nematode of about 18 cm and about 1 mm diameter was removed with tweezers. After visual assessment, *Dirofilaria sp.* was suspected and no systemic anthelmintic treatment was given. The patient's emotional state improved considerably after it was explained that the suspected nematode does not multiply in the human body. The histological examination confirmed that the nematode was a member of the genus *Dirofilaria*. The species was not identified due to autolysis. The patient was examined for helminthiasis. No signs of parasites, such as eggs or cysts, were found in the feces and no eosinophilia was observed in the peripheral blood.

Results. Twenty-six eyes of 13 subjects were enrolled. 69.2% of patients (n=9) were female. 30.8% of patients (n=4) were male. The median age was 72 years (range, 34-88 years). The median measurements of CCT by Heidelberg Anterion, Heidelberg Spectralis and Optovue AngioVue OCT were 559 µm (range, 490-621 µm), 549 µm (range, 492-597 µm), 551 µm (range, 487-612 µm), respectively. The intraclass correlation coefficient between the measurements was ranging from 0.953 to 0.986, which is highly statistically significant (p <0.001). The 95% limit of agreement (LoA) in CCT between Heidelberg Anterion and Heidelberg Spectralis OCT was 31.51 to -16.97 µm. The 95% LoA in CCT between Heidelberg Anterion and Optovue AngioVue OCT was 15.62 to -2.39 µm and between Heidelberg Spectralis and Optovue AngioVue OCT 20.48 to -21.79 µm.

Summary. We present a case of dirofilariasis of the upper eyelid in Lithuania.

Conclusions. Against the background of climate change, the incidence of dirofilariasis will likely increase across Europe, including the Baltic States. The only effective treatment for this eye infection is surgical removal of the parasite.

LOSS OF VISION IN THE COURSE OF GIANT CELL ARTERITIS

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Keywords. Giant cell arteritis; Vision loss; Headache

Introduction. Giant cell arteritis (GCA) is a rare disease of arteries, occurring mainly in the elderly population. Although the involvement of temporal arteries can be most symptomatic, occlusion of ophthalmic arteries has the most severe consequences. That's why early diagnosis and treatment are essential.

Case description. A 74-year-old woman was consulted by a general practitioner several times because of neck pain radiating to the temporal areas of the head without response to painkillers. She began having headaches, night sweats, submandibular edema, and trismus. It was treated as a common cold, but two days after administering an antibiotic, the patient's vision deteriorated in the right eye, and she experienced light flashes. Eventually, blindness occurred. Admitted to the Ophthalmological Department, she had anisocoria. Fundus examination revealed papilledema and optic nerve atrophy. Although imaging of the face and head was intact, ultrasound examination showed thickened walls of the temporal and carotid arteries with a halo sign. Laboratory blood tests revealed elevated CRP (109,8mg/l). Upon the above-mentioned findings, GCA was suspected. IV Steroids and vinpocetine were administered without improvement. So, the treatment was continued in the Rheumatology Department. CT angiography showed a lack of contrast filling in the ophthalmic arteries. The whole clinical picture confirmed GCA. Dexamethasone was upped to 45mg/day, and methotrexate, 25mg/week subcutaneously, was added.

Summary. We report a 74-year-old patient with general non-specific symptoms whose vision deteriorated over a few days, which eventually led to blindness. Unresponsive to steroid treatment, she was referred to the rheumatology ward, where, after a challenging diagnostic process, the final diagnosis of GCA was established, and methotrexate was implemented.

Conclusions. New onset headaches in elderly patients should alert healthcare professionals. That's why differential diagnosis is crucial here, as GCA, if left untreated, leads to blindness in 30%-50% of patients.

PROFILE OF DIABETIC PATIENTS RECEIVING ANTI-VEGF INTRAVITREAL INJECTIONS

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Keywords. Diabetes-related complications; Diabetic retinopathy; Anti-VEGF intravitreal injections

Objectives. It is estimated that about 540 million people worldwide have diabetes - a metabolic disease that presents with chronically elevated blood glucose levels, which can lead to diabetes-related complications. Ophthalmological complication such as diabetic retinopathy can be treated with anti-VEGF intravitreal injections. This study aims to determine the profile of diabetic patients receiving anti-VEGF intravitreal injections.

Materials and methods. In a retrospective study 18 diabetes patients who received anti-VEGF intravitreal injections were included. Data about gender, age, type and duration of diabetes, as well as diagnoses and fasting glucose levels were analysed using Microsoft Excel and IBM SPSS Statistics.

Results. Out of 18 diabetes patients who received anti-VEGF intravitreal injections - 44,4% were females and 55,6% were males, with mean age 56,4 years (SD 16,6). Of all patients 83,3% received treatment for proliferative diabetic retinopathy, 11.1% for nonproliferative diabetic retinopathy and 5,6% for exudative senile macular degeneration. The mean value of intravitreal injection times was 12,4 (SD 7,4). 83,3% of patients had fasting glucose levels <7.2 mmol/l, median 6,1 mmol/l (IQR 1,1). The distribution of fasting glucose levels differed across genders (U=63,0,p=0,043). 27,8% of patients had diabetes for 26-30 years and 55,6% of patients had other diabetes-related complications.

Conclusions. 83,3% of patients that received anti-VEGF intravitreal injections had proliferative diabetic retinopathy. The mean value of intravitreal injection times was 12,4. 83,3% of patients had optimal fasting glucose levels, but the distribution of fasting glucose levels differed across genders. 27,8% of patients had diabetes for 26-30 years and 55,6% of patients had other diabetes-related complications. These variables could characterize a patient who has diabetes-related complications and requires anti-VEGF treatment.

FEMTOSECOND LASER-ASSISTED ARCUATE KERATOTOMY FOR THE MANAGEMENT OF CORNEAL ASTIGMATISM IN PATIENTS UNDERGOING CATARACT SURGERY

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Keywords. Corneal astigmatism; Catarac; Femtosecond laser; Arcuate keratotomy; Cataract surgery; Keratotomy

Objectives. Achieving the correction of preexisting corneal astigmatism and preventing surgically induced astigmatism are crucial for successful surgical outcomes, ensuring a high quality of postoperative vision, and enhancing patient satisfaction. This study aimed to evaluate the outcomes of incorporating femtosecond laser-assisted arcuate keratotomy with cataract surgery in eyes presenting with low-to-moderate corneal astigmatism.

Materials and methods. This prospective analysis included the review of case records for patients with preexisting anterior corneal astigmatism ranging from 0.6 to 4.2 diopters (D) and posterior corneal astigmatism from 0.1 D to 1.0 D. The study parameters involved evaluating anterior and posterior corneal astigmatism and refractive astigmatism using the OCULUS Pentacam®. Subsequently, these data were analyzed three months postoperatively.

Results. The records of 22 patient eyes were examined. Postoperative anterior refractive astigmatism exhibited a significant reduction compared to preoperative anterior corneal astigmatism, decreasing to 0.850 D from 1.495 D (difference 0.654, $p<0.01$), and postoperative posterior refractive astigmatism exhibited reduction compared to preoperative posterior corneal astigmatism, decreasing to 0.313 D from 0.377 D (difference 0.064, $p<0.05$). To confirm the hypothesis of astigmatism reduction after keratotomy, the Wilcoxon Test was used. All patients experienced a decrease in anterior postoperative astigmatism of at least 0.2 D. No arcuate keratotomy-related events were observed during intraoperative or postoperative periods.

Conclusions. The findings indicate that employing femtosecond laser-assisted arcuate keratotomy is a secure and effective method for treating corneal astigmatism.

CHANGES IN THE PERIPHERAL RETINA IN PATIENTS WITH DIABETIC MACULAR EDEMA UNDERGOING THERAPY WITH INTRAVITREAL INJECTIONS

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Keywords. Diabetic macular edema; Clarus ultra-widefield imaging; Peripheral retina

Objectives. The purpose of the study was to evaluate the correlation and agreement in central corneal thickness (CCT) measurements obtained by Heidelberg Anterion, Heidelberg Spectralis and Optovue AngioVue optical coherence tomography (OCT).

Materials and methods. This was a prospective, single-center study. Thirteen medical records of patients who visited ophthalmologist in Pauls Stradiņš Clinical University Hospital were analysed. Each patient underwent Heidelberg Anterion, Heidelberg Spectralis and Optovue AngioVue OCT pachymetry performed by the same examiner. Data were analysed using MS Excel and IBM SPSS 27. Intraclass correlation analysis was used to evaluate the correlation between measurements. Agreement in CCT measurements was evaluated by the Bland – Altman plot method.

Results. The age of the patients was 61 to 80 years with an average duration of diabetes - 21.6 +/- 16.6 years. With a fundus camera, panretinal photocoagulation was observed in most patients, with an area of 6-10mm of the peripheral retina untouched by laser. From the medical history data, laser photocoagulation was performed on 78.6% (N=11) of the eyes. Vitreous hemorrhage was observed in 4 out of 14 eyes. In this case Mann-Whitney U-test results revealed that there is no statistically significant relationship between vitreous hemorrhage and the number of intravitreal injections ($p=0.66;p>0.05$) and Chi-Square test showed no significant relationship between vitreous hemorrhage and laser photocoagulation ($p=0.84;p>0.05$) or arterial hypertension ($p=0.73;p>0.05$).

Conclusions. Through ultra-widefield retinal imaging, changes in larger retinal areas can be spotted contributing to a better understanding of peripheral retinal changes. In this study the lack of a statistically significant relationship between vitreous hemorrhage and the evaluated variables suggests a necessity for additional and broader research that could potentially yield different outcomes.

ANGIOID STREAKS AND CHOROIDAL NEOVASCULARIZATION IN A PATIENT WITH PSEUDOXANTOMA ELASTICUM: A CASE REPORT

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Keywords. Choroidal Neovascularization; Angioid Streaks; Pseudoxanthoma Elasticum

Objectives. Pseudoxanthoma elasticum (PXE) is a rare genetic disease that affects the skin, eyes, cardiovascular, and gastrointestinal systems. Ocular findings of PXE include angioid streaks (AS) and choroidal neovascularization (CNV), which can lead to vision loss. This case report presents the ocular manifestations of PXE and the importance of differential diagnosis.

Case description. A 37-year-old man was referred to the Ophthalmology Department of Lithuanian University of Health Sciences Hospital, Kaunas Clinics, in 2012, complaining of vision impairment in both eyes. He had been to other clinics but was not properly diagnosed. His best-corrected visual acuity (BCVA) was 0.05 in the right eye and 1.0 in the left eye. Intraocular pressure and anterior segment examination of both eyes were normal. Fundus examination of both eyes revealed AS around the optic disc radiating towards the periphery of the retina. Macular edema and scar tissue were found in the right eye. Exudative CNV was observed in the center of the macula of the left eye. Optical coherence tomography (OCT) confirmed the diagnosis of macular CNV, and later the PXE diagnosis was proven. The patient was started on intravitreal anti-VEGF injections. To date, he has received 5 ranibizumab and 40 bevacizumab IVT injections. His BCVA has improved from 0.05 to 0.07. OCT showed macular fibrosis following CNV and subretinal fluid (SRF) in the right eye, as well as reduction of CNV, AS, and SRF in the macula of the left eye.

Results. This clinical case represents a patient with PXE complicated by CNV. Intravitreal anti-VEGF injections have been shown to improve visual acuity.

Conclusions. Although PXE is a rare disease, early diagnosis and treatment of PXE are crucial to prevent vision loss and other health complications. Ophthalmologists should recommend a comprehensive medical evaluation for patients with AS.

ANALYSIS OF IRIS NEOVASCULARIZATION EFFECTS AND CAUSES IN PATIENTS WHO RECEIVE INTRAVITREAL ANTI-VEGF INJECTIONS

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Keywords. Neovascular glaucoma; Iris neovascularization; Anti-VEGF

Objectives. Neovascularization of the iris (NVI) is a feared complication of a variety of ischemic diseases, often resulting in an aggressive, blinding secondary glaucoma. Anti-VEGF is used to manage and slow down the progression of NVI. The aim of the study was to analyse the NVI cause, the efficacy of anti-VEGF injections and to compare the changes in visual acuity (VA) and intraocular pressure (IOP).

Materials and methods. A retrospective study from medical records was performed in 8 patients with NVI who received anti-VEGF injections (Bevacizumab 0.05ml). VA and IOP was compared in eyes with (n=10) and without NVI (n=6) and before and after anti-VEGF injections. Data were analysed by IBM SPSS-29.

Results. 5 patients (62.5%) were male and 3 (37.5%) – female. Median age was 67 years (IQR=19.3). All patients had diabetes mellitus, median time since diagnosis – 23 years (IQR=5.8). 6 patients had proliferative diabetic retinopathy and 1 – non-proliferative. 2 patients had additional central retinal vein occlusion. 7 patients had glaucoma. 5 patients had NVI in the left eye, 2 – in both, and 1 in the right eye. Using Mann-Whitney U test, median IOP in the eye with NVI was 24.2 mmHg (IQR=13.2) and in the eye without NVI – 15.2 mmHg (IQR=3.1) (p=0.017). VA is worse in the affected eye (ranging from complete blindness to 30%) than in the unaffected eye (ranging from hand motion to 70%) (p=0.031). Wilcoxon test revealed that IOP after anti-VEGF improved in 5 patients, worsened in 3, and remained the same in 1 (p=0.943). VA improved in 2, worsened in 3 and remained the same in 4 (p=0.223).

Conclusions. VA is worse and IOP is higher in the eye with NVI. To analyse the effect of anti-VEGF injections research with more patients is needed.

PERIPHERAL RETINAL CHANGES IN PATIENTS WITH WET AGE-RELATED MACULAR DEGENERATION

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Keywords. Peripheral retina; Age-related macular degeneration; Anti-VEGF

Objectives. Age-related macular degeneration (AMD) is one of the leading cause of irreversible blindness in the elderly population. While great research is done describing wet AMD retinal lesions in central (macular) zone, peripheral changes in wet AMD are not well studied. Advancements in ultra-widefield imaging have allowed us to better elucidate changes in peripheral retina. The aim was to study fundoscopic images of peripheral retina, associations with other factors and find out possible panretinal disease manifestation.

Materials and methods. A retrospective study was performed using medical records and images of 16 eyes of patients with wet AMD who previously recieved an anti-VEGF therapy with *Bevacizumab* in Pauls Stradiņš Clinical University hospital. Images were taken using OCT *Heidelberg Spectralis* ultra-widefield lens and *Clarus* ultra-widefield fundus camera (200° field of view). For data analysis *Microsoft Excel* and *IBM SPSS 28.0* were used.

Results. The mean age of the patients was 78,4±7 years. The mean number of previous intravitreal injections was 15,1±7 in the affected eye. 75% of patients had primary arterial hypertension and 37,5% of eyes had artephakia. Peripheral retinal changes were found in 25% of eyes – hypopigmented and hyperpigmented lesions variable in size and intensity were observed in the fundus periphery. Mann-Whitney U test showed no statistically significant differences between peripheral changes and number of injections ($p=0,286$, $p>0,05$) and between peripheral changes and patient age ($p=0,857$, $p>0,05$). Fisher's Exact test showed no statistically significant differences between peripheral changes and arterial hypertension ($p=0,516$, $p>0,05$) and between peripheral changes and subretinal fibrosis ($p=0,245$, $p>0,05$).

Conclusions. Peripheral changes suggesting peripheral dystrophy were found to be prevalent in 25% of eyes which is not enough to support the claim of panretinal disease manifestation. Further ultra-widefield imaging with more affected eyes are therefore recommended.

ANALYSIS OF RETINAL VEIN OCCLUSION IN PATIENTS WITH INITIATED INTRAVITREAL INJECTION THERAPY AT PAULA STRADIŅŠ CLINICAL UNIVERSITY HOSPITAL

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Keywords. Retinal vein occlusion; Intravitreal injection

Objectives. Retinal vein occlusion (RVO) is the second most common cause of vision loss from retinal vascular disease, following diabetic retinopathy. There are various risk factors associated with RVO. It has strongly proven that RVO incidence increases with age. Other risk factors include metabolic syndrome (hypertension, diabetes mellitus, and hyperlipidemia), blood hyperviscosity. Vision loss due to RVO is commonly caused by macular edema. Multiple treatment modalities have been used to treat macular edema. Currently, the most common therapy used is intravitreal inhibition of vascular endothelial growth factor (VEGF).

Materials and methods. The retrospective study enrolled 9 patients who underwent intravitreal injections at Pauls Stradins Clinical University Hospital due to retinal vein occlusion from february 2021 till december 2023. Data of patients macular edema, RVO risk factors, type of RVO, intraocular pressure (IOP) were obtained. Data was analyzed by Microsoft Excel and SPSS programs.

Results. A total of 9 patients were included of which 55%(n=5) were men and 45%(n=4) women, with a mean age of 72 years. The average number of intravitreal injections to one patient was 2.3. 10% had increased occular pressure in the eye with thrombosis. 33.3% (n=3) of patients had glaucoma in their anamnesis. Thrombosis v.centralis retinae was diagnosed in 55.5% (n=5), rami superior 33.3% (n=3), rami inferior 11.1% (n=1). Intraocular pressure was higher (55.5%; n=5) in thrombosis affected eye. The most frequent comorbidity was primary arterial hypertension 66.6% (n=6).

Conclusions. The most common RVO was thrombosis vena centralis retinae. The most frequent comorbidity was primary arterial hypertension. Further studies with more patients are needed to have reliable data.

THE DEVELOPMENT OF CRITERIA FOR IDENTIFYING KERATOCONUS RISK GROUP DURING THE INITIAL OPHTHALMIC EXAMINATION

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Keywords. Keratoconus; Astigmatism; Mean keratometry; Delta keratometry; Allergy; Asthma; Dermatitis

Objectives. There has been an increase in the number of patients diagnosed with keratoconus in Latvia in recent years. These pathology must be timely diagnosed, to prevent further progression. The objective of the research was to understand if it's possible to develop specific criteria, by using data from anamnesis and measurements provided by autorefractometer, that would help to identify a risk group which requires more specific and detailed examination.

Materials and methods. A retrospective case-control and analytical study included 100 patients with keratoconus and a control group of 100 patients who had myopia. Objective measurements, that were made during the initial examination, and accompanying conditions were obtained from the outpatient medical records. Also, patients included in the research were diagnosed with keratoconus during the initial examination. Calculations for delta keratometry and mean keratometry were performed using Excel, comparison of autorefractometer measurements of patients from both groups was made using Mann-Whitney U Test. Chi-square or Fisher's test were used to find out if there is an association between keratoconus and accompanying conditions.

Results. The study revealed a statistically significant difference in the astigmatism ($p<0{,}001$), mean keratometry ($p<0{,}001$), delta keratometry ($p<0{,}001$) distribution between the keratoconus and control groups. There is no statistically significant association between keratoconus and endocrinological diseases (Fisher's exact test, $p=0{,}065$), keratoconus and dermatological diseases, Chi-square test, $\chi^2(1, N=200) = 1{,}418$), $p=0{,}234$), keratoconus and asthma χ^2 $(1, N=200) = 3{,}191$, $p=0{,}074$), keratoconus and allergy χ^2 $(1, N=200)=2{,}098$, $p=0{,}147$).

Conclusions. Astigmatism, delta keratometry and mean keratometry values appeared to be statistically significant, so these parameters may serve as diagnostic criteria. Accompanying conditions didn't show statistically significant association with keratoconus. That's may be because a) some patients didn't provide full information about themselves, b) the sample size should be larger.

IMMEDIATE IMPACT OF INTRAVITREAL INJECTION WITH ANTI-VEGF ON INTRAOCULAR PRESSURE IN GLAUCOMA AND NON-GLAUCOMA PATIENTS

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Keywords. Intravitreal Injections; Anti-VEGF; Intraocular Pressure (IOP); Glaucoma

Objectives. Glaucoma is a progressive eye condition characterized by damage to the optic nerve, leading to irreversible vision loss. Anti-VEGF injections have been associated with short-term increases in intraocular pressure (IOP), but in glaucoma patients elevated IOP can be a risk factor for the progression of glaucoma. This study aims to assess the immediate impact of intravitreal injections with Anti-VEGF on IOP in glaucoma and non-glaucoma patients.

Materials and methods. This retrospective study comprised 20 patients undergoing intravitreal injections in Pauls Stradins Clinical University Hospital, with seven diagnosed with glaucoma and 13 presenting with other ocular conditions. Baseline IOP was measured using a standard tonometer before intravitreal injection, and post-injection IOP was recorded approximately 10 minutes later. Statistical analysis was performed with the Statistical Package for the Social Sciences (SPSS).

Results. The study compared the immediate effects of intravitreal injections on IOP between two distinct groups: Group A comprised patients with glaucoma (n=7), and Group B included patients without glaucoma (n=13). In Group A, the mean IOP increased from 17.2 mmHg before intravitreal injections to 20.0 mmHg after, with an average change of +2,8 mmHg. The highest rise in IOP was +4 mmHg, observed in both the right eye and left eye of different patients. In Group B, patients without glaucoma exhibited a mean IOP change from 11,8 mmHg before intravitreal injections to 12,9 mmHg after, resulting in an average change of +1,6 mmHg. The highest rise in IOP was +3 mmHg, observed in the right eye.

Conclusions. Intravitreal injections resulted in a significant immediate increase in IOP, particularly in glaucoma patients. This study sheds light on the importance of monitoring and managing short-term IOP changes to prevent long-term ocular hypertension and mitigate the risk of glaucoma progression in affected individuals.

BROMAZEPAM VS. MIDAZOLAM IN BLEPHAROPLASTY: A COMPARATIVE ANALYSIS OF PERIOPERATIVE ANXIETY

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Keywords. Blepharoplasty; Perioperative anxiety; Premedication; Anxiety management

Objectives. Invasive facial procedures can cause anxiety, discomfort and pain that non-drug methods and local anaesthetics might not fully relieve. To maintain periprocedural comfort and while avoiding systemic anaesthesia risks, noninvasive conscious sedation, using benzodiazepines like midazolam or bromazepam, can be used. The purpose of the research was to determine which premedication is most effective in blepharoplasty.

Materials and methods. A retrospective study involved 85 female patients who underwent blepharoplasty at the Hospital of Lithuanian University of Health Sciences in 2023. The study participants did not exhibit any co-morbidities or harmful habits. The study groups comprised Group 1 (n=45), who received oral midazolam, and Group 2 (n=40), who administered oral bromazepam. Descriptive statistics included means (±) and median (Mdn) values (min-max). Statistical analyses employed the Mann-Whitney U and unpaired t-test.

Results. No statistically significant differences were observed in demographic parameters between groups, with a mean age of 57.61 ± 8.154 and BMI of 26.58 ± 4.362. Patients in Group 1 reported significantly higher levels of preoperative anxiety (Mdn=4) compared to Group 2 (Mdn=2) (U=531, p=0.0069). However, there was no statistically significant difference between Group 1 (Mdn=2, (0–6)) and Group 2 (Mdn = 1, (0–4)) regarding anxiety during surgery (p=0.9785). Concerning postoperative anxiety, significantly more patients experienced it in Group 1 (Mdn=2, (0–6)) than in Group 2 (Mdn=0, (0–3)) (U=380, p<0.0001). The majority of participants in both Group 1 (63.64%) and Group 2 (58.33%) reported that "the surgical procedure exceeded their expectations" (p=0.6281).

Conclusions. In comparison to midazolam, bromazepam demonstrates a superior reduction in both preoperative and postoperative anxiety. While there were no significant differences in anxiety during surgery, the overall findings suggest that bromazepam may be considered a more effective premedication option in blepharoplasty.

ENHANCING COMFORT IN BLEPHAROPLASTY: THE EFFICACY OF ADDITIONAL PREMEDICATION WITH ORAL ULTRACOD AND EMLA OINTMEN

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Keywords. Blepharoplasty; Local anaesthesia; Pain management

Objectives. During minor surgeries under local anaesthesia, anaesthetic injections are often the most painful aspect. To alleviate this, the use of topical anaesthetic cream EMLA is considered. However, its efficacy for periocular injections lacks strong evidence. This study aims to assess the effectiveness of additional premedication with oral Ultracod and EMLA in reducing pain and improving postoperative comfort.

Materials and methods. A retrospective study involved 80 female patients who underwent blepharoplasty at the Hospital of Lithuanian University of Health Sciences in 2023. The study participants did not exhibit any co-morbidities or harmful habits. The study groups comprised Group A (GA) (n=40), receiving oral midazolam and Group B (GB) (n=40), administered preoperative EMLA eyelid ointment, oral midazolam and Ultracod tablets. Statistical analyses employed the Mann-Whitney U and chi-squared test.

Results. No statistically significant differences were observed in demographic parameters between groups, with a mean age of 51.89 ± 4.543 and BMI of 28.43 ± 5.469. There was no statistically significant difference between GA (Mdn=2) and GB (Mdn=2) in pain during anaesthetic injection. Statistically significantly patients felt less pain in GB (Mdn=0) than in GA (Mdn=1) (U=515.5, p=0.0056) during surgery. Significantly higher postoperative pain was experienced in GA (Mdn=2.5) compared to GB (Mdn=1) (U=367, p<0.0001). Among patients who reported postoperative pain in both groups, with no significant difference, it was experienced only on the day of surgery and started 1-2 h after blepharoplasty.

Conclusions. The additional premedication with Ultracod and EMLA has been found to reduce pain during and after surgery. Although there was no difference in pain at the time of injection, we can assume that additional premedication with Ultracod and EMLA is effective for blepharoplasty.

ORTHOPAEDICS, TRAUMATOLOGY, TRAUMA & ORTHOPEDIC SURGERY, SPORTS MEDICINE, RADIOLOGY

ASSESSMENT OF FLOW REDUCTION IN A. SUBCLAVIA DURING DYNAMIC ULTRASOUND IN PATIENTS WITH THORACIC OUTLET SYNDROME

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Keywords. Thoracic Outlet Syndrome; Roos test; Ultrasound

Objectives. Thoracic Outlet Syndrome (TOS) poses diagnostic challenges due to its complex etiology and diverse clinical presentations. Ultrasonography, as an initial cost-effective and non-invasive imaging modality, is often complemented with a stress test. This study systematically gathers data on Latvian TOS patients, assesses anatomical variations and compares flow reduction during ultrasound examination with Roos test in patients with different sites of compression.

Materials and methods. This retrospective study involved 96 patients (mean age:37 years, range:16-66 years) who underwent ultrasound examination and were diagnosed with at least one of TOS forms at different clinics in Latvia between years 2018-2024. Patients were divided in groups by affected arm and by sites of compression. Sites of compression were defined as: not determined, scalene, costoclavicular, scalene and costoclavicular, scalene and costoclavicular and pectoralis minor. Statistical analyses focused on actual and percentual flow reduction in a. subclavia during Roos test in mentioned groups.

Results. 88 patients (91.7%) had arterial TOS in one or both arms and had been further analyzed. Mean flow reduction during Roos test was 63.93 cm/sec (74.26%) in the left arm and 59.84 cm/sec (71.29%) in the right arm. Mean flow reduction exceeds 60% within all the groups with different sites of compression in both arms. There was no statistically significant difference in actual and percentual flow reduction during Roos test within the groups with different sites of compression comparing pairwise in the left arm: actual ($H=1.147$; $p=0.853$), percentual ($H=3.189$; $p=0.527$) and in the right arm: actual ($H=8.627$; $p=0.071$), percentual ($H=3.832$; $p=0.429$).

Conclusions. While our data suggest no significant flow reduction differences during the Roos test among patients with different sites of compression, the relatively small cohort necessitates further investigation. Additional data is crucial to comprehensively assess variations in flow reduction across different sites of compression.

MYOCARDIAL [18F]FDG UPTAKE PATTERN ON ONCOLOGICAL PET/CT FOR LYMPHOMA PATIENTS RECEIVING CHEMOTHERAPY

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Keywords. Cardiotoxicity: [18F]FDG: Oncological PET/CT

Objectives. Oncologic patients receiving novel therapies have better outcomes than ever before. The concern is how chemotherapy affects myocardium and how to detect cardiotoxicity early. Positron emission tomography–computed tomography (PET/CT) is a highly sensitive nuclear medicine imaging modality used in oncology. PET/CT radiotracer [18F]FDG accumulates at sites with high glycolytic metabolism like aggressive malignant tumors. In the presence of oxidative stress, induced by cardiotoxic chemotherapeutic agents, myocardial glycolytic metabolism intensifies leading to increased uptake observed on [18F] FDG-PET/CT. The aim of this study was to evaluate changes in myocardial [18F]FDG uptake in lymphoma patients undergoing chemotherapy.

Materials and methods. This study involved 169 lymphoma patients who underwent [18F]FDG-PET/CT for staging, during chemotherapy (Interim) and at the End-of-Treatment (EOT) at ARS Nuclear Medicine Clinic between year 2019-2023. We analysed each patients' myocardial [18F]FDG uptake before, during and after chemotherapy exposure. It was classified into 4 patterns: none, focal, diffuse, focal-on-diffuse. The degree of myocardial [18F] FDG uptake was assessed by calculating SUVmax and SUVmean values.

Results. Revealed [18F]FDG myocardial uptake patterns: none (Staging-85,8%; Interim-64,5%, EOT-63,9%), focal (Staging-3,0%; Interim-10,7%; EOT-11,2%), diffuse (Staging-9,5%; Interim-18,3%; EOT-18,9%), and focal-on-diffuse (Staging-1,8%; Interim-6,5%, EOT-5,9%). Statistically significant differences were observed in uptake patterns on Interim and EOT PET/CT compared to Staging PET/CT ($p<0.001$). The median for SUVmax on Staging, Interim and EOT PET/CT were 2.00 ± 0.88, 2.28 ± 2.15 and 2.33 ± 2.05. For SUVmean-1.51 ± 0.53, 1.92 ± 1.09 and 1.88 ± 1.03, respectively. There was a significant difference in SUVmax and SUVmean between Staging PET/CT and Interim PET/CT ($p<0,001$), and Staging PET/CT and EOT PET/CT ($p<0,001$).

Conclusions. Significant disparities in myocardial [18F]FDG uptake pattern, SUVmax and SUVmean values were observed after receiving chemotherapy, suggesting that [18F] FDG-PET/CT could be a sensitive tool to visualise oxidative stress early and potentially adapt treatment, preventing life-threatening cardiotoxicity in oncological patients. Additional investigation into cardiological and chemotherapeutic details is necessary.

FUNCTIONAL OUTCOME ASSESSMENT OF DISTAL RADIUS FRACTURES - PLATING VERSUS CLOSED REDUCTION AND CAST IMMOBILIZATION

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Keywords. Distal radius fracture; Functional outcome; AO/OTA; Frykman; Fernandez; Q-DASH; UEFI

Objectives. This study was aimed to assess and compare mid-term functional outcomes in patients with distal radius fractures undergoing surgical treatment versus conservative treatment. Additionally, the influence of age and effect of hand dominance was examined.

Materials and methods. A retrospective study of 61 patients with distal radius fractures divided in 2 groups included 30 surgically treated patients (group A) and 31 treated conservatively with closed reduction and cast immobilization (group B). Fractures were classified according to AO/OTA, Frykman, and Fernandez classifications. Surgical approaches, fixation types were evaluated. Surgical interventions included fixation with volar locking plate (n=30). Mid-term outcomes were evaluated using the Upper Extremity Functional Index (UEFI) and Quick Disabilities of the Arm, Shoulder, and Hand (Q-DASH).

Results. Functional outcomes 10-38 months post-surgery showed UEFI scores averaging 69.80 SD ± 15.27 and Q-DASH scores of 15.77 SD ± 8.07. Conservative treatment group outcomes 13-21 months post-treatment revealed UEFI scores averaging 68.42 SD ± 13.34 and Q-DASH scores of 16.48 SD ± 7.47. No statistically significant differences were found in mid-term functional outcomes between both groups using the Mann-Whitney U test (p-value > 0.05). Additionally, age and dominant hand factor did not show significant impact on functional outcome differences in both groups using the Mann-Whitney U test (p-value > 0.05).

Conclusions. Study results resemble current literature data. No statistically significant functional outcome differences were found between both groups. Further studies with larger cohort are needed. Earlier functional outcome difference should be assessed.

GENDER-BASED DISPARITIES IN DIAGNOSING HYPERSENSITIVITY REACTIONS TO IODINATED CONTRAST MEDIA

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Keywords. Iodinated contrast media; Allergy; Allergic reactions; Hypersensitivity

Objectives. Iodinated contrast media (ICM) are widely used in radiological studies to highlight normal and pathological formations. Although modern iodinated contrast agents are safe and rarely cause severe adverse reactions, there are still cases where a radiological examination with ICM is either not performed or premedication is administered due to a patient's reported ICM allergy. The manifestation of hypersensitivity reactions (HR) may depend on the patient's age, gender, comorbidities, previous HR, other allergies, and some medications used. Our study aimed to compare the skin allergic reactions to ICM in the male and female populations.

Materials and methods. A retrospective analysis of medical records from the Hospital of Lithuanian University of Health Sciences, Kauno klinikos data register was made. The study cohort comprised 117 patients, of whom 93 were females (range of age: 34-85, median – 66) and 24 males (range of age: 38-79, median – 61). All subjects underwent skin prick tests and intradermal testing for ICM with the culprit (when known) and with the ICM commonly used in our hospital nonionic dimers (iodixanol) and nonionic monomers (iohexol, iopromide) between 2019 and 2023.

Results. Among the women undergoing examinations, 47.3% had documented indications, and 48.4% had undocumented indications. Among the examined men, 41.7% had documented indications, and 54.2% had undocumented indications (p=0,878). Positive test reactions were observed in 7 women, among whom 5 (62.5%) had documented indications, 2 (25%) had undocumented indications. One positive reaction was also observed in a male (12.5%) with documented indications (p=0,537).

Conclusions. There is no significant difference in skin test positivity to ICM between women and men. However, there is a tendency for positive allergic reactions to ICM to be more frequent in women, as well as higher associations with documented indications for testing.

CERVICAL SPINE TRAUMA STATISTICAL EVALUATION IN RIGA EAST UNIVERSITY HOSPITAL 2017 - 2023

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Keywords. Cervical trauma; Complications; Mechanism of trauma

Objectives. The incidence of cervical spinal trauma consists about 3,7% from all trauma patients. Severity of the condition can be variable between injury mechanisms, energy of trauma, age and comorbidities. Furthermore, the neurological complications which arise from these cervical injuries are financially challenging for society to treat. The objective was to evaluate the prevalence of neurological complications in different trauma mechanisms and the prevalence of vertebrae fractures using Jefferson, Anderson D'Alonzo and AO classifications.

Materials and methods. Data for this retrospective study was collected from the medical archives of Riga East University Hospital. Of the 205 patients who were included, 137(66,8 %) were men and 68(33,2 %) were women who were treated in REUH from January 2017 to July 2023. The evaluated parameters included the mechanism of trauma, injured level/-s of the vertebrae, alcohol toxicity, neurological complications, RANKIN scale, Jefferson, Anderson D'Alonzo and AO classifications.

Results. TIn 205 cervical spine trauma patients, 49(23,9%) of them had spinal cord/root injuries which resulted in sensory deficit, monoparesis and most commonly – tetraparesis(57,1 %). In C1 fractures the most common after the Jefferson classification was III grade C1 fracture(37,9%). However, in C2 odontoid fractures(56,4% of C2 fractures) the most common after the Anderson D'Alonzo classification was III grade C2 odontoid fracture(56,6 %). The RANKIN scale was also analyzed in association with trauma mechanisms in which RANKIN 4 – 6 was more prevalent in traffic accidents and falls from a height while RANKIN 1 – 3 was more prevalent in falls at the same level.

Conclusions. The data regarding neurological complication prevalence in trauma mechanisms and the prevalence of vertebrae fractures has no statistically significant differences. Therefore, it is crucial to inform the society about risks which can result in cervical spine trauma and lead to severe neurological complications.

LONG-TERM PATIENT-REPORTED OUTCOMES AND QUALITY OF LIFE FOLLOWING AC JOINT STABILIZATION WITH HOOK PLATE

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Keywords. Acromioclavicular joint; Hook plate; Patient-reported outcomes; Shoulder function; Quality of life; Stabilization

Objectives. The primary objectives were to assess patient-reported long-term outcomes, measure the impact on shoulder function, and determine the overall satisfaction with the Hook plate stabilization procedure.

Materials and methods. A cohort of 46 patients, aged 19 to 69 years, with AC joint dislocation underwent surgical stabilization with a Hook plate. Long-term assessments were conducted 13–45 months post-stabilization using patient-reported outcomes (PROMs) and a modified questionnaire. Radiographic evaluations were performed to analyze AC joint stability. Statistical analyses were employed to assess the significance of outcomes.

Results. The analysis revealed a median age of 40 years, with approximately 79% of patients reporting pain or discomfort while the Hook plate was in place. Notably, 76% reported a successful return to pre-injury physical activity levels, indicating a restoration of shoulder function. PROMs, particularly the Shoulder Pain and Disability Index (SPADI) score, demonstrated significant improvement. Radiographic assessments confirmed a substantial reduction in AC joint dislocation, supporting the effectiveness of the Hook plate stabilization procedure.

Conclusions. This study provides comprehensive insights into the long-term outcomes of AC joint stabilization with a Hook plate. The procedure demonstrates efficacy in restoring shoulder function and improving patient quality of life, as evidenced by both objective measures and subjective PROMs. The positive results support the Hook plate as a reliable intervention for managing AC joint instability.

BLOOD LOSS DURING KNEE ARTHROPLASTY: COMPUTER ASSISTED VS CONVENTIONAL TECHNIQUE

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Keywords. Computer-navigation; Knee arthroplasty

Objectives. Knee arthroplasty often results in a substantial blood loss. Computer-navigated system could mitigate this because the femoral canal is not breached. A retrospective study was carried out to evaluate the operation results between computer-navigated and conventional knee arthroplasty. The main tasks were to evaluate the total perioperative and intraoperative blood loss, the amount of hemotransfusions in each group and the operative time.

Materials and methods. There were in total 66 patients included, from which 36 were in the computer-navigated group and 30 were in the conventional group. All of the patients included were operated by the same surgeon using the same surgical technique and all of them had a diagnosis of secondary knee gonarthrosis, and they all received a unilateral total knee replacement between 2022 and 2023. The patients were matched by their age, gender, BMI, ASA score and preoperative hemoglobin levels.

Results. The mean total perioperative blood loss, intraoperative blood loss and intraoperative blood loss based on patient's weight in the navigation group were all significantly less than in the conventional group (797.03ml vs 1234.27ml $p<0.001$; 232.78 ml vs 291.67ml $p=0.003$; 2.62 ml/kg vs 3.08 ml/kg $p=0.018$). In the computer-navigation group 13.9% of patients received a blood transfusion perioperatively, but in the conventional group 26.7%, although this was deemed to not be statistically significant $p=0.194$. In total there were 1542 ml of blood transfused in the navigation group, but 2361 ml in the conventional group. The mean operative time was longer in the navigation group than in conventional (77.08 min vs 71.83 min $p = 0.003$).

Conclusions. It was concluded, that computer-navigated knee arthroplasties lead to a smaller amount of perioperative and intraoperative blood loss comparing with the conventional method, but the operative time is longer.

DEVELOPMENT OF ANTI-DISLOCATION APPARATUS FOR STABILITY OF HUMAN HIP JOINT 3D PROSTHESIS USING ADDITIVE MANUFACTURING TECHNOLOGY

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Keywords. Anti-dislocation; Hip joint; 3D prosthesis; Model; Additive manufacturing

Objectives. 3D-printed implants can be ideal for hip reconstruction and replacement and can assist in planning, delivering, and teaching surgery. The study aimed to design a 3D prosthesis to restore the potential hip joint anti-dislocation using a customizable device and to restore mobility according to the anatomical and biomechanical rules.

Materials and methods. Before starting the design process, the different prostheses have been analyzed. The study was conducted on dry human bones (8 pelvis, 8 femurs) and the virtual 3D dissection table "Anatomage" digital material (15 pelvis, 30 femurs) that were obtained from the Laboratory of Anatomy and the Department of Morphology of the Institute of Anatomy and Anthropology, Rīga Stradiņš University. The acetabular depth/width ratio, lever arm ratio, head of the femur/acetabular site, and diameter of the head of the femur/neck were measured. Excel was used to perform statistical analysis. The 2D model scheme was applied to analyze the force and reaction on the hip joint. The 3D models were drawn and designed using the software Inventors® to evaluate the appropriate component size, knowing the load and the kind of stress such as compression, traction, and torsion, with a secure safety coefficient.

Results. Compared with the existing prosthesis, the developed 3D prosthesis was observed to have several advantages (tailor-made on the specific case, less invasive surgery than a complete replacement, effective in case of muscular weakness or moderate trauma/injury, decreasing the possibility of further dislocations) and disadvantages (don't restore the structure of the hip joint, don't eliminate biomechanics defect).

Conclusions. The device explicitly reduces the possibility of dislocation maintaining the head of the femur solidly connected with the acetabular site. It is reasonable explore the proposed technical solution in dynamic 3D models; preparring the device for in vitro and in vivo studies.

EVALUATION OF RANO CRITERIA FOR THE RADIOLOGICAL ASSESSMENT OF TUMOR PROGRESSION FOR GLIOMAS

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Keywords. Gliomas; Response assessment in neuro-oncology (RANO) criteria; Macdonald criteria

Objectives. About 33% of all brain tumors are gliomas. Response assessment in neuro-oncology criteria (RANO), published in 2010, was developed as an objective tool for the radiological evaluation of treatment efficacy in high-grade gliomas (RANO-HGG) as well as low-grade gliomas (RANO-LGG). Imaging plays a critical role in the management of the patients with gliomas, from the initial diagnosis to the post-treatment follow-up. The aim of this study was to assess the accuracy, reproducibility and limitations of RANO and compare RANO to the Macdonald criteria.

Materials and methods. A total of 37 participants with gliomas (23 glioblastomas, 10 astrocytomas, 4 oligodendrogliomas) were included. Clinical status, corticosteroid dose, 2-dimensional measurements of tumor contrast enhancement and FLAIR hyperintensity were retrospectively assessed in transversal projection. Post-surgical MRI scan was the baseline for treatment response evaluation, follow up imaging was conducted after 3 months. Response was determined according to each set of criteria, each patient was assigned one of the following categories: 1) partial response (PR), 2) stable disease (SD), 3) progressive disease (PD), 4) complete response (CR).

Results. In total 14 (38%) females and 23 (62%) males with median age of 52 years (range, 22 to 80) were included in this research. According to RANO, PR was achieved in 2/37 (5,4%), SD in 14/37 (37,8%), PD in 19/37 (51,4%) and CR in 2/37 (5,4%). When identifying response, agreement among the RANO and Macdonald criteria was high (kappa statistic > 0.91).

Conclusions. The RANO criteria is effective tool to determine therapeutic effectiveness by standardising imaging definitions, including measurable and non measurable massses, interpreting pseudoprogression and pseudoresponse and expanding the radiographic definition of response to include changes in T2 and FLAIR sequence.

CLINICAL OUTCOME IN PATIENTS UNDERGOING MICROSURGERY OF LUMBAR DISC HERNIATION AND SPINAL STENOSIS – A PROSPECTIVE STUDY

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Keywords. Surgery; Neurosurgery; Microdiscectomy; Microdecompression; Oswestry Disability Index (ODI); Pain; Numeric Rating Scale; Lumbar disc herniation; Spinal stenosis

Objectives. Lumbar back pain is critical issue in healthcare, often causing disabilities in working- age group. The Oswestry Disability Index (ODI) is eminent assessment instrument, relying on patients subjective experience. This clinical study examines surgical intervention suitability and advantages. Using ODI and Numeric Rating Scale (NRS) questionnaires, assessments are conducted preoperatively, at six months postoperative, and one year postoperative.

Materials and methods. Fifty-one patient (mean age 54 years) with typical symptoms of LDH (lumbar disc herniation) and LSS (lumbar spinal stenosis) were included. The data were collected between year 2021.-2022. who underwent microsurgery. The main criteria – preoperative diagnosis, age, gender, results in ODI (points, percents) including NRS, before surgery, 6 months and 1 year after surgery. Patients were divided into 2 groups by diagnosis – LDH (n=31) and LSS(n=20).

Results. Both groups showed significant reduction in pain and improved the quality of life. NRS values before surgery LDH: 7 (IQR 6;8) LSS 7 (IQR 6;8) showed no statistical difference [p=0.858]. However, at 6 months post-surgery, significant changes were observed NRS for LDH 1 (IQR 0;2) and LSS 2 (IQR 1;2) [p<0.001]. One year follow-up, NRS for LDH 0 (IQR 0;1) and LSS 0 (IQR 0;0) showed no significant differences [p=0.582]. A correlation (r=0.36, p<0.010) revealed higher preoperative ODI percentages associated with higher NRS values.

Conclusions. The results of this study indicate that there is a significant reduction of pain and improvement of the quality of life in both patient groups who underwent microsurgery. Patients treated using microsurgical technique are estimated to swiftly return to their daily work.

OTORHINOLARYNGOLOGY & OTORHINOLARYNGOLOGIC SURGERY, DENTISTRY, MAXILLOFACIAL SURGERY

EFFECT OF HEAD SIMULATION TRAINING ON ORAL HEALTH PROFESSIONALS

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Keywords. Confidence; Dental skill; Experiential learning; Head simulator

Objective. Researchers have revealed the advantages of experiential learning for students and professionals at all levels of the health care delivery system. The purpose of this study is to determine the effectiveness of the use of head simulators in dental school in acquiring proficient periodontal knowledge, dental skills, and confidence by practicing oral health professionals.

Materials and methods. A purposive sample survey using a 5-point Likert scale questionnaire was conducted using oral health professionals participants who engaged with head simulators during their dental school years.

Results. The findings regarding the effect of the head simulator in dental school revealed varying perspectives. Of the 117 purposive sampled participants, 60 respondents used head simulators during their dental school education. A significant majority of participants agreed that the head simulator had a beneficial effect on their skills. Among these findings, a third of participants strongly agreed that the use of the head simulator notably enhanced their skills. When considering the influence on knowledge, the responses were more evenly distributed. Almost 40% of participants agreed the head simulator positively affected their knowledge, while almost 20% of participants generally disagreed. Examining the effect on confidence, findings also depicted varying viewpoints among the participants, with 42% acknowledging the head simulator had a positive effect on their confidence.

Conclusion. The findings suggest that head simulators positively affect dental education, particularly in enhancing knowledge, skills, and confidence.

COMPARATIVE ANALYSIS OF SALIVARY MICROBIOME COMPOSITION AMONG CURRENT SMOKERS, FORMER SMOKERS, AND NON-SMOKERS

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Keywords. Salivary microbiome; Smoking; Oral health; 16S rRNA gene sequencing

Objectives. Smoking poses a significant global health concern, with well-established associations with cardiovascular and respiratory diseases. Emerging evidence also indicates a potential impact on the oral microbiota. The objective of this study was to compare the saliva microbiota composition among current smokers, former smokers, and non-smokers.

Materials and methods. Unstimulated whole saliva sialometry was done for patients with salivary flow disorders. The questionnaire was used to assess the cigarette-smoking status. The human oral metagenomic DNA from saliva samples was isolated and the metagenome sequencing of the V3-V4 regions of 16S rRNA was conducted by Novogene Company (UK).

Results. The study involved 35 participants, the majority being females (85,7%, n=30). Patients were assigned into 3 groups based on their smoking status: 22 (62,9%) non-smokers (NSS), 9 (25,7%) former smokers (FSS) and 4 (11,4%) smokers (SS). Metagenome sequencing data revealed that the community diversity in the saliva of the smokers group was higher compared to NSS and FSS groups. The phyla Firmicutes, Bacteroidota, Proteobacteria and Actinobacteria comprised the highest proportions in the saliva microbiota. In the samples from non-smokers and former smokers Bacteroidota was the second relatively most abundant phyla (21,2% and 30,2%, respectively), while in the samples from smokers, Proteobacteria were relatively more prevalent (22,8%) than Bacteroidota (10,4%). At the genera level, Streptococcus and Neisseria were relatively more common in NSS compared to other groups. An increase in Prevotella_7was observed in saliva samples from former smokers (24,7%), while in the samples from smokers Prevotella_7 relative abundance was only 6,2%.

Conclusions. In conclusion, our study results suggest that smoking may influence oral health by altering bacterial abundance and composition in saliva. Specifically, smoking had a notable impact on the relative abundance of two predominant phyla, Bacteroidota and Proteobacteria, found in saliva.

FACTORS AFFECTING EXTRACTION OF FIRST PERMANENT MOLARS IN CHILDHOOD

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Keywords. Children; First permanent molar (FPM); Extraction

Objectives. After the loss of FPM, spontaneous space closure is only possible if the FPM was extracted during the age of 8-10 years when the early calcification of second permanent molar's bifurcation was happening. Later the possibility of spontaneous space closure significantly decreases. Thus, the objective was to determine factors affecting extraction of FPM in different age groups.

Materials and methods. In this 10-year retrospective study, medical records of the inpatient day centre of Vilnius University Hospital, Zalgiris Clinic were assessed. Only 8-17-year-olds who had at least one FPM extracted were included. Two age groups were formed: 8-10 years (Group 1) and 11-17 years (Group 2). Information about FPM, patient's age, gender, place of residence and health status was gathered. Data was analysed using descriptive statistics and univariate logistic regression.

Results. 164 medical records of 8-17-year-olds who had at least one FPM extracted were included in this study: 71 (43.3%) from Group 1 and 93 (56.7%) from Group 2. Out of all subjects, 83 (50.6%) were females, 105 (64.0%) lived in the city, 30 (18.3%) had systemic diseases, 26 (15.9%) were using medication and 83 (50.6%) had disabilities. The odds of having FPM removed at the age of 11-17 years increased if the patient had systemic diseases (OR=2.44, 95% CI 1.02-5.87), was using medication (OR=3.85, 95% CI 1.37-10.79) or had disabilities (OR=2.74, 95% CI 1.45-5.19). No statistically significant association was observed between age groups and gender, place of residence, oral hygiene status or number of decayed teeth.

Conclusions. Children who are using medication, have systemic diseases or disabilities are more likely to have FPM extracted at the age of 11-17 years, thus consultation with an orthodontist is essential before or immediately after the extraction due to lower chances of spontaneous space closure post extraction.

CONGENITAL CHOLESTEATOMA OF THE PETROUS PYRAMID APEX IN AN ADULT PATIENT: A CASE REPORT

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Keywords. Congenital cholesteatoma; Magnetic resonance imaging; Hearing loss; Vertigo

Introduction. Congenital cholesteatoma refers to a rare non-cancerous cystic mass of keratinizing squamous epithelium located anywhere in the temporal bone medially to an intact tympanic membrane without prior history of infection, trauma or previous otologic surgery. The typical age at diagnosis is five years. The annual incidence is 9,2 cases per 100,000. If untreated, it can cause complications, including hearing loss, cranial nerve palsies and other neurological dysfunctions.

Case description. A 56-year woman was hospitalized due to vertigo when verticalizing and a complete hearing loss of the left ear. The condition has been worsening for about two months. She has had a reduced hearing ability of the left ear since adolescence. The examination revealed subtotal epitympanic perforation, which was a late finding of this particular diagnosis. The head magnetic resonance imaging demonstrated a mass located at the apex of the left petrous pyramid with destruction of the bone walls, spread to the inner ear, as well as towards the cochlea and membranous labyrinth. The diagnosis of congenital cholesteatoma was also confirmed by findings of the pathohistological examination. The patient underwent a radical left ear surgery, and a closure of the external auditory canal was performed. Postoperative follow-up was advised, the dizziness had resolved.

Summary. The case report illustrates the diagnostic process of a patient with an ongoing undiagnosed congenital cholesteatoma at the age of 56. The case report is also complemented by an informative intraoperative image, which adds novelty and gives broader comprehension of this case report.

Conclusions. Congenital cholesteatoma may enlarge for years asymptomatically, which emphasizes the importance of prudent diagnostic evaluation. It is crucial to consider congenital cholesteatoma as a differential diagnosis not only in children but also in adult patients with similar features.

THE EFFECT OF GENERAL BONE MINERAL DENSITY ON RESIDUAL RIDGE RESORPTION

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Keywords. Osteoporosis; Residual ridge resorption; Edentulous

Objective. To assess whether general bone mineral density (BMD) affects residual ridge resorption in postmenopausal women with edentulous jaws.

Materials and methods. A total of 128 postmenopausal women with edentulous jaws, aged 52 to 91 years (mean age 70.39 ± 8.85), desiring dental implant treatment, participated in the study. Dual x-ray absorptiometry (DXA) (Lunar DXA DPX-NT) measured BMD in the lumbar spine and hips. The lowest T-score from both readings was considered. Cone beam computed tomography (CBCT) was conducted using the i-CAT system (Kavo eXam Vision) and analysed with OnDemand3D software. Multiple cross-sectional images were obtained from CBCT: maxilla (central incisors, canines, first premolars, first molars) and mandible (lateral incisors, first premolars, first molars). Bone height and width were determined on these images. To detect differences between groups One-way ANOVA was used.

Results. Based on the DXA results, the patients were divided into 3 groups: normal BMD (n=42, mean age 69.45 ± 9.13), osteopenia (n=56, mean age 70.09 ± 8.96), and osteoporosis (n=30, mean age 72.27 ± 8.27). No statistically significant differences were observed between BMD groups for alveolar bone width and height, except in the regions of the maxillary right first premolar and left central incisor, where the alveolar bone width is smaller in osteoporosis (3.25 ± 1.87; 2.90 ± 1.31) than in normal BMD (3.99 ± 2.30; 3.49 ± 1.37) group ($p = 0.030$; $p = 0.035$). Also, in the region of the lateral incisor and first molar of the mandible, the width of the alveolar bone is smaller in osteoporosis (4.96 ± 2.55; 5.95 ± 3.06) than in normal BMD (5.85 ± 2.09; 8.03 ± 3.69) group ($p = 0.015$; $p = 0.038$).

Conclusions. Postmenopausal osteoporosis is not a determining factor for more pronounced residual ridge resorption in edentulous jaws.

A FUNGUS BALL IN AN ATYPICAL LOCATION - THE CONCHA BULLOSA: A CASE REPORT.

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Keywords. Fungus ball; Concha bullosa; Functional Endoscopic Sinus Surgery; Sinusitis

Introduction. Concha bullosa (CB) is a common anatomical variant of the middle turbinate, characterized by the presence of air-filled cavities within the turbinate bone. Fungus ball (FB) or mycetoma is described as a noninvasive dense accumulation of fungal hyphae, usually located in a maxillary sinus. In rare cases, the hyphae can spread in other sinuses. FB formation within a CB is a rare condition (only 18 cases described in literature) that can lead to various symptoms and complications.

Case description. A 52-year-old woman complained of recurrent sinusitis and nasal congestion. Initial clinical examination revealed a deviated nasal septum and CB on the left side. A CT scan of the paranasal sinuses revealed a hyperdense material within the CB. The diagnosis of fungal sinusitis was confirmed by histopathological findings. The Functional Endoscopic Sinus Surgery (FESS) aimed to remove the FB and create adequate drainage of the CB cavity was performed by an experienced otolaryngologist. The CB was carefully dissected, and the FB was completely removed.

The patient experienced uneventful recovery initially. However, on the 5th postoperative day, she developed epistaxis. The epistaxis was managed effectively, and the patient's symptoms gradually improved. The patient was advised regular nasal saline irrigation and during the postoperative follow-up visits showed significant improvement in her symptoms.

Summary. A 52-year-old woman was diagnosed with a FB in her CB through a CT scan and subsequently underwent FESS but experienced epistaxis postoperatively.

Conclusions. A FB located in an atypical place can be the cause of recurrent rhinosinusitis. CT scan is significant in diagnostics, FESS is an effective treatment option for such cases, providing symptom relief and preventing recurrent sinusitis. However, postoperative complications, such as epistaxis, need to be anticipated and promptly addressed to ensure patient well-being.

DENTISTS' AND 5TH-YEAR DENTISTRY STUDENTS' ABILITIES TO APPLY KNOWLEDGE ABOUT THE INDEX OF ORTHODONTIC TREATMENT NEED IN PRACTICE

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Keywords. General dentist (GD); Dentistry student (DS); Index of Orthodontic Treatment Need (IOTN); Orthodontic anomalies (OA)

Objectives. Renewals of medical norm give the possibility for Lithuanian GD to treat OA within IOTN limits of Grade 1 and 2. So, the aim was to assess Lithuanian GD' and 5th-year DS' abilities to apply knowledge about IOTN in practice.

Materials and methods. Questionnaire was distributed among GD and 5th-year DS. Self-evaluation questions, photographs of clinical cases, questions about background characteristics, renewals of GD's medical norm and IOTN were included. Abilities to apply knowledge about IOTN in practice were rated in 3 categories using overall percentage score: ≤40% (poor), 41-55% (fair), 56-70% (average), 71-85% (good), 86-100% (excellent). Data was analysed using independent T-test, One-Way ANOVA, Spearman's correlation, descriptive statistics.

Results. 87 responses of 23 (26.4%) DS and 64 (73.6%) GD were collected. More respondents knew/partly knew IOTN (73.6%) than did not know (26.4%). 42.2% of those who knew/partly knew IOTN have not used it in practice, mostly because they evaluate OA subjectively or have lack of knowledge. Overall, subjects' abilities were rated as average (M=66.0%, SD=14.4%). There was negative correlation between scores and age ($r(85)=-0.3$, $p=0.005$) and positive correlation between scores and self-evaluation on knowledge about IOTN ($r(85)=0.4$, $p<0.001$). Subjects who planned/were undecided whether to treat OA received better scores (M=69.7%, SD=13.5%) than those who did not plan to treat OA (M=62.0%, SD=14.3%) ($t=2.6$, $p=0.012$). DS' and GD' abilities were good (M=74.5%, SD=16.8%) and average (M=62.9%, SD=12.1%), respectively ($t=3.1$, $p=0.005$). There was no statistically significant difference between GD' received scores and years in practice, public and/or private practice, age, IOTN usage in practice or decision whether to treat OA.

Conclusions. Lithuanian general dentists' abilities to apply knowledge about IOTN in practice are average. Dentistry students have better abilities, but additional training is still needed.

EVALUATION OF THE RELATIONSHIP BETWEEN THE GRADE OF MANDIBULAR CONDYLE CORTICATION AND SPHENO-OCCIPITAL SYNCHONDROSIS FUSION AND CHRONOLOGIC AGE AND GENDER

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Keywords. Mandibular cortication; Spheno-occipital synchondrosis; CBCT; Age estimation

Objectives. Observation of the fusion grade of spheno-occipital synchondrosis (SOS) and mandibular cortication could be essential in estimation of age for forensic practice purposes. The aim of this study was to evaluate the relationship between the grade of mandibular condyle cortication and spheno-occipital synchondrosis fusion and chronologic age and gender in 14-22 years old adolescents and young adults undergoing diagnosis for orthognathic surgery during treatment in the RSU Institute of Stomatology, using cone-beam computed tomography (CBCT).

Materials and methods. This retrospective observational cross-sectional study is conducted on a group of 134 individuals (68 females, 66 males) aged 14-22 years. Data was acquired from investigating sagittal section of CBCT images presenting the condyles and the SOS, scans were made in 2022. Cortication grade of condyle was assessed by three-type system based on the classification Bayrak et al. and SOS fusion was evaluated by four-stage system described by Franklin and Flavel.

Results. Data will be analyzed completely and summarized further, using Statistical analysis methods, statistical assessment will be performed using SPSS.

Conclusions. According to the correlation between the grade of mandibular condyle cortication and spheno-occipital synchondrosis fusion and chronological age, these skeletal parameters could be used for chronological age estimation.

MAXILLARY GROWTH AND FACTORS AFFECTING IT IN CHILDREN WITH UNILATERAL CLEFT LIP AND PALATE

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Keywords. Unilateral complete cleft lip and palate; Maxillary growth; Orthognathic surgery

Objectives. Understanding of the frequency of orthognathic surgery in different cleft phenotypes is important to educate patients and families about the course of treatment that the patient will experience during their lifetime. Understanding the frequency of orthognathic intervention may also facilitate the development of outcome measures for different treatment protocols. The aim was to investigate whether children with unilateral cleft lip and palate had sufficient maxillary growth when evaluating growth and treatment outcome.

Materials and methods. A retrospective study was done. Information was selected from 83 patients of the Riga Cleft Lip and Palate Centre with congenital non-syndromic unilateral cleft lip and palate born in 1990-2005. Data were collected on the patient's year of birth; sex; cleft side; age at which cheiloplasty, palatoplasty, osteoplasty was performed; method by which palatoplasty was performed ('one-stage'/'two-stage'); whether orthognathic surgery is planned, under way or already performed. The data were processed using Microsoft Excel software and analysed using IBM SPSS Statistics.

Results. Of all patients with unilateral cleft lip and palate 13% required/have required orthognathic surgery. Of the patients who underwent one-stage cleft palate closure 10% required/have required orthognathic surgery. Of the patients who underwent two-stage cleft palate closure 15% required/have required orthognathic surgery. 16% of all men and 9% of all women required orthognathic surgery.

Conclusions. Of all patients with congenital, unilateral, cleft lip and palate, orthognathic surgery was/is required in 13% of patients, which means that 13% of all patients did not have sufficient maxillary growth. There is no statistically significant association between the need for orthognathic surgery and sex. There is no statistically significant association between the need for orthognathic surgery and the type of palatal closure ('one-stage'/'two-stage').

MANDIBULAR SECOND MOLAR ROOTS IN RELATION TO THE MANDIBULAR CANAL IN CONE BEAM COMPUTED TOMOGRAPHY

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Keywords. Mandibular second molar; Mandibular nerve; Localization of the roots; Iatrogenic injuries; Complications

Objective. To evaluate the relationship of the roots of the second mandibular molar to the mandibular canal in cone beam computed tomography (CBCT).

Materials and methods. Cross-sectional study. The study included 200 patients, both genders (aged 15 to 56 years, mean age 35) who underwent CBCT examinations during the last 10 years by i-CAT Next Generation (Kavo, voxel size 0,300mm) at the Riga Stradins University Department of Radiology. Altogether 375 teeth were analyzed. Kavo eXamVision program was used for CBCT examination analysis. Data processing with MS Excel and IBM SPSS. The study was conducted in accordance with the Declaration of Helsinki, and approved by the Ethics Committee of Riga Stradins University (protocol Nr. 2-4/459/2023, date of approval 9.06.2023).

Results. The most frequent distance from the mandibular second molar to the mandibular canal was 1,01 – 3,00 mm, direct contact with the canal was observed in up to 21,2% of cases. Penetration of the root apex into the mandibular canal was observed in up to 1,2%. The most frequent position of the canal was apical (84,2 – 97,5 %). The obtained results are clinically significant.

Conclusions. Direct contact between the apex of the root of the second mandibular molar and the mandibular canal is a fairly common phenomenon, in most cases the distance between these structures is less than 3,00 mm. When performing root canal treatment, the dentist must be extremely careful to avoid iatrogenic injuries to the alveolar nerve, which can significantly reduce patient's quality of life.

INCIDENCE OF TONGUE CANCER AND THE MOST COMMON SYMPTOMS IN ONCOLOGY CENTRE OF LATVIA FROM 2021 TO 2023

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Keywords. Tongue cancer; Cancer symptoms; Cancer stage

Objectives. Squamous cell carcinoma of head and neck (SCCHN) is becoming more common all over the world. From GLOBACON data in 2020 lip and oral cancer accounts for 377 713 new cases worldwide for both sexes. In Latvia incidence for oral cancer in men is 6,5:100 000 and woman 1,1-1,4:100 000. The aim of the study was to evaluate the cancer stage when patients sought medical help and with what kind of complaints.

Materials and methods. In this retrospective study, data was collected from a medical archive at the Oncology Centre of Latvia (OCL). 52 patients were included, 33 (63,5%) men and 19 (36,5%) women, who had been diagnosed with tongue cancer (C01-C02) from January 2021 to May 2023 and had operative intervention. It was important to evaluate onset time of signs and symptoms, cancer stage, TNM classification and patient risk factors. Data analysis was preformed using IBM SPSS.

Results. Research populations mean age was 61,65 years (SD=1,37). Mean time for medical consult in OCL was 1 month from onset of the symptoms, nevertheless from all enrolled patients 65,4 % (n =34) had already developed an advanced tongue cancer stage (III-IV). 67,3% of patients (n=35) complained about pain, 40,4 % (n=21) – mass formation in the tongue and 38,5% (n=20) reported difficulty/discomfort of swallowing. Most common cancer site was lateral side of the tongue (n=29) and in 22 cases at the base of the tongue.

Conclusions. There were no statistically significant differences between the stage of tongue cancer and onset time of symptoms (p = 0,384). Therefore, it is important to educate public about tongue cancer to prevent undiagnosed tongue cancer in advanced stages.

IMPLEMENTATION OF MINIMALLY INVASIVE CARIES CONTROL STRATEGIES IN PEDIATRIC DENTISTRY IN CLINICAL PRACTICES IN RIGA

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Keywords. Minimally invasive dentistry; Implementation science; Paediatric dentistry

Objectives. Minimally invasive caries control strategies are effective evidence-based methods that are suitable for children. The aims of this study were to investigate minimally invasive caries control strategies in paediatric dentistry in clinical practices in Riga and dentists' attitudes towards the methods.

Materials and methods. A cross-sectional study was conducted using the questionnaire survey method on the use of the following minimally invasive caries control strategies: fluoride varnish or gel, silver diamine fluoride, Hall technique, atraumatic restorative therapy, selective removal of carious tissues and step-wise method and sealants among dentists working with children in Riga. The questionnaire was distributed on Facebook in the group for dental care specialists "Kursi/Darbs zobārstiem, asistentiem, zob.medmāsām". The acquired data were statistically analysed in IBM SPSS and level of significance was set at $p<0,05$.

Results. In total, 37 respondents participated in the study, 35 of whom were dentists who work with children and practice clinically in Riga. 80% of them were general dentists and 20% were certified paediatric dentists. The study showed that there was a statistically significant difference between fluoride varnish use and clinical experience with children ($p=0.005$), between position and SDF ($p=0.003$) and HT use ($p=0.002$).

Conclusions. Dentists practicing in Riga willingly use minimally invasive caries control strategies. Dentists with less clinical experience with children are more likely to use fluoride varnish. SDF and HT are more likely to be used by certified paediatric dentists than general dentists.

THE CORRELATION BETWEEN THE SUBJECTIVE ASSESSMENT OF PAIN AND SOME CHARACTERISTICS OF THE NERVOUS SYSTEM IN PERIODONTAL PATIENTS

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Objectives. Pain is an organism's reaction, formed by biological, emotional, psychological and social components, which occurs as a result of irritation of the nervous system. Pain is always subjective and individual. The aim of the study was to investigate the dependence of the subjective assessment of pain on the type of nervous system of periodontal patients.

Materials and methods. 28 people who visited a dentist for professional hygiene participated in the study. All subjects were tested to determine personal and reactive anxiety according to Spielberger, as well as the properties of the nervous system according to Strelau's theory. Then the participants underwent an examination with an assessment of the condition of the oral cavity and periodontal tissues, the DMF indices, Green-Vermillion GI, PMA index were determined, and the periodontal diagnosis was made according to the classification of Danilevsky M.F.

Results. According to the results of the subjective assessment of pain during ultrasonic scaling, all respondents were divided into 2 groups - group 1 - 16 study participants - people who reported a low level of pain (0-4 points) and group 2 - 11 people - people who reported a higher level of pain (5-8 points). None of the participants reported a pain level of more than 8 points. The DMF index was as follows 6,2 ±0,95. PMA – 22,88±0,9. In Group 1, different results were recorded for both personal and reactive anxiety, but it is interesting that 37.5% of the people in this group had different scores for different types of anxiety. In Group 2, 96% of the subjects had the same anxiety scores.

Conclusion. Understanding the correlation between the psycho-emotional sphere and the subjective perception of pain can be used by dentists to influence patients' perception of dental interventions.

MICROCRYSTALLIZATION PATTERNS IN SALIVA UNDERGO VARIATIONS BASED ON THE SPECIFIC DENTAL PROCEDURES AND ASSOCIATED FACTORS

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Keywords. Oral fluid microcrystallization; Dental procedures; Patient treatment

Objectives. The investigation of oral fluid has emerged as a focal point for dentists, given its microcrystallization patterns' potential as indicators of qualitative changes in the body, thus significantly contributing to enhanced patient treatment and overall recovery. The purpose of the study was to examine and assess microcrystallization patterns in oral fluid before and after dental procedures, considering intervention nature, patient age, and relevant factors.

Materials and methods. The study at the Poltava Regional Dental Clinic, involving 20 patients, examined indices like the Green-Wermilion hygienic index, DMF index, gingivitis, and complex periodontal index. Patient demographics, including age, gender, concomitant diseases, and habits, were recorded. After dental interventions, oral fluid samples were collected, air-dried for a day, and examined.

Results. Post-treatment, notable shifts in oral fluid microcrystallization patterns were observed. 55% of respondents exhibited reduced crystallization intensity (Category I), while 45% displayed increased crystal count (Category II), implying a significant impact of dental procedures on microcrystallization types. The participants were categorized by age into three subgroups. Subgroup 1 (40% of participants) aged 20-30 years showed 80% falling into Category I. Subgroup 2 (20% of participants) aged 30-40 years had an even distribution between Categories I and II. Subgroup 3 (40% of participants) over 40 years old had 63% in Category II. Among the study's 11 patients (constituting 52%), the majority (72.7%) were smokers, indicating a correlation between smoking habits and a higher prevalence of Category II in oral fluid crystallization ability.

Conclusions. The acquired data holds promise for enhancing patient recovery post-dental procedures and preventing the onset of secondary complications.

PRIMARY EXTERNAL EAR CHOLESTEATOMA IN A YOUNG MALE. CASE REPORT

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Keywords. Cholesteatoma; external auditory canal; primary cholesteatoma

Objectives. Primary external ear cholesteatoma occurs rarely and has no specific symptoms. It poses a diagnostic challenge due to its rarity, uncommon localisation, and lack of etiological factors. Cholesteatoma can cause significant damage to ear structures, including bone tissue, if left untreated.

Case description. A 19-year-old male who presented in the clinic with complaints about his right ear. He noted that initially there was tingling and itching in the ear that evolved to great pain in approximately a month that even affected his everyday activities. Pain was accompanied by discharge. The patient went to a local clinic for regular ear cleanings. When no improvement was observed, the patient obtained a computed tomography scan, went to the University Hospital Clinic, where an otolaryngologist assessed the problem of the ear. Obturation of the external auditory canal was noted - additional tissue with a blue tinge of colour, suspected granulation tissue. Analysing the CT scan, a mass of soft tissue was identified as well as destruction of the bony part of the external auditory canal, characteristic of cholesteatoma. With the initial diagnosis of external otitis with granulation, the patient was surgically treated under local anaesthesia. Debridement of the pathological tissue and meatal reconstruction was performed. Histologic analysis of the evacuated tissue suggested morphological similarity to cholesteatoma.

Summary. Cholesteatoma is not lethal, but can be widely destructive and cause discomfort for the patient. Optimal tactic is efficient and precise diagnostics, especially imaging diagnostics, and evacuation of cholesteatoma masses, limiting the damage to nearby structures.

Conclusions. The situation was resolved efficiently, without debilitating effects on patients' health. Prompt surgical therapy and precise imaging analysis was the main reason for the good outcome. Six months later, the patient was satisfied with results and had no complaints.

PAEDIATRICS

AWARENESS OF PARENTS ABOUT PAEDIATRIC RHEUMATOLOGICAL DISEASES AND THE FIELD OF PAEDIATRIC RHEUMATOLOGY IN LATVIA

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Keywords. Paediatric rheumatology; Public awareness; Survey

Objectives. This study evaluated awareness of Latvian parents about paediatric rheumatological diseases and the field of paediatric rheumatology in Latvia.

Materials and methods. A cross-sectional survey was conducted in a 3 month period from June until August of 2023 among 300 participants via *visidati.lv*. Only males and females with children who lived in Latvia were included. A self-administred, online-based survey assessed sociodemographic factors, knowledge, social awareness and personal experience with paediatric rheumatology. Pearson-Chi square and Fishers exact tests were used to look for associations between sociodemographic groups.

Results. 300 surveys were included (27 male participants; 273 female participants). Only 13% fully agreed on the most common paediatric rheumatological disease- juvenile idiopathic arthritis; 48,3% had no opinion on the organ system involvement of paediatric rheumatological diseases; 24% thought that paediatric rheumatological diseases occur due to lack of physical acitivity; Only 6,3% had heard of WORDday and 17,3% of the Latvian society of Paediatric rheumatologists. 36% had noted symptoms of paediatric rheumatological diseases and 29,3% had responded that their GP has not paid attention to their child's musculosceletal pain. 96% noted that there should be more information in the public space about paediatric rheumatology. There were significant associations between the number of children and knowledge of the Latvian society of Paediatric rheumatologists ($p=0,04$) and knowledge of organ system involvement of paediatric rheumatological diseases ($p=0,04$); the financial state and knowledge of WORDday ($p=0,03$). Level of education had no significant associations between statements mentioned above ($p>0,05$).

Conclusions. Awareness of Latvian parents was poor. Although paediatric rheumatological diseases mostly belong to the group of rare diseases, greater public knowledge about different types and symptoms of these diseases could lead to earlier referral to a paediatric rheumatologist for an earlier diagnosis of the disease.

EXPLORING SLEEP DISORDERED BREATHING IN PATIENTS WITH SMA AND DMD: A COHORT RETROSPECTIVE STUDY

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Objectives. Sleep-disordered breathing (SDB) is prevalent among pediatric patients with neuromuscular disorders (NMD), like spinal muscular atrophy (SMA) and Duchenne muscular dystrophy (DMD), due to respiratory muscle weakness. Despite guidelines recommending polysomnography for assessing the need for noninvasive ventilation (NIV) in symptomatic NMD patients, evidence supporting this is limited. The study examines the efficacy of spirometry and polygraphy with transcutaneous capnography (PG+trCO2) in detecting SDB in these patients, highlighting the limitations of spirometry. The aim of this study is to compare the efficacy of spirometry and PG+trCO2 in detecting SDB and assess PG+trCO2's role in diagnosing SDB in patients with DMD and SMA.

Materials and methods. This retrospective cohort study at the Children's Clinical University Hospital covered SMA and DMD patients evaluated between 2016 and 2023. Patient data was analyzed using IBM SPSS Statistics software.

Results. The study included 31 SMA and 41 DMD patients. PG+trCO2 was used in 36% of cases, identifying mild sleep-related respiratory disturbances in 42% of SMA and 38% of DMD patients, severe obstructive sleep apnea in 21% of SMA and 29% of DMD patients, hypoventilation in 16% of SMA and 19% of DMD patients. Spirometry, used in 63% of patients, showed normal pulmonary function in 38%, a restrictive breathing pattern in 47%, while 15% encountered challenges in understanding the spirometry procedure, which compromised the validity of their test results. In 2 cases, PG+trCO2 detected respiratory complications that spirometry missed, leading to the initiation of NIV. The study found a statistically significant correlation between motor function and all spirometry measures, but not with any of the PG+trCO2 measures.

Conclusions. Our study underscores the necessity of comprehensive respiratory assessments in NMD patients and advocates for integrating PG+trCO2 into routine diagnostics for early SDB detection. Implementing a "PG+trCO2 for All" policy could facilitate annual screenings, emphasizing the need for further research to optimize monitoring strategies.

LYME NEUROBORRELIOSIS IN CHILDREN HOSPITALIZED IN CHILDREN'S CLINICAL UNIVERSITY HOSPITAL IN 2018-2022 – EPIDEMIOLOGY, DIAGNOSTICS AND TREATMENT

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Keywords. Borrelia burgdorferi infection; Lyme disease; Facial palsy; Meningitis; Children

Objectives. Lyme disease is the most common tick-borne disease in Europe. Neuroborreliosis is seen in approximately 10-12% of all Lyme disease cases in children. The aim of this study is to determine the most common symptoms, diagnostic and treatment strategies of Lyme neuroborreliosis in pediatric population.

Materials and methods. A retrospective study was made including 49 patients 28 days to 18 years of age with diagnosis A69.2 (Lyme disease according ICD10) and neurologic symptoms admitted to the Children's Clinical University Hospital from 2018 to 2022. Data was collected from Andromeda hospital database and analyzed using IBM SPSS Statistics version 29.0 ($p<0.05$).

Results. During the study period 158 children with Lyme disease were diagnosed in Latvia. 69 patients were hospitalized in Children's Clinical University hospital with Lyme disease diagnosis, of which 71% presented with neurological symptoms (n=49). The median age of patients was 7 (Q_1; Q_3 4,75-13,25) years, 47% were females (n=23) and 53% were males (n=26). 20,4% were identified as "probable" Lyme neuroborreliosis (n=10), while 44,9% (n=22) were identified as "definite" Lyme neuroborreliosis according to case definition. The most common clinical manifestation of neuroborreliosis was facial paresis, which was diagnosed in 38,8% (n=19) followed by meningitis, which was diagnosed in 34,7% of the cases (n=17). Both meningitis and facial paresis simultaneously were diagnosed in 12,2% of the cases (n=6). Ceftriaxone was used in 69,4% of the cases (n=34), in 12,2% doxycycline was used (n=6). Both drugs were used in 12,2% (n=6), while in 6,1% of cases none of these drugs were used (n=3).

Conclusions. Most common clinical presentations of Lyme neuroborreliosis in children were facial paresis and meningitis, which corresponds well with the literature. Management of Lyme neuroborreliosis remains challenging and a more definite diagnostic algorithm should be emphasized among different specialists.

PREVALENCE OF CRIMINAL INJURIES AMONG CHILDREN AND ADOLESCENTS IN RIGA AND ITS REGION FROM 2018 TO 2022

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Keywords. Violent death of children; Forensic medicine; Autopsies

Objectives. Child trauma is a significant public health problem. Compared to other European member states, there is a large number of children killed in traffic accidents in Latvia. The aim of the study is to determine the prevalence of violent deaths, including injuries, among children and adolescents in Riga and its region and to find out what the most common causes of death are, and their distribution by age group and gender.

Materials and methods. A retrospective study analyzing the data of the State Centre for Forensic Medical Examination of the Republic of Latvia on the circumstances of violent death (accident, suicide, murder) among children and adolescents from 0 to 18 years inclusive. The distribution of the data by age groups has been created (< 1; 1 – 4; 5 – 9; 10 – 14; 15 - 18). Analysis by gender and causes of death (mechanical injury, asphyxia, poisoning, electrocution) was carried out based on the documentation of the examinations conducted in Riga and its region.

Results. 62 autopsies were performed in Riga. Domestic accidents 48 (77%), suicides 6 (10%), murders 5 (8%), uncertain circumstances 3 (5%). The most represented age groups were 5 - 9 and 15 – 18, most often boys died . The most violent deaths were in 2022 – 16 (26%). The most common cause was mechanical injury 33 (53 %), of which vehicle-related injuries 26%, blunt injuries 21%. Mechanical asphyxia 22%, of which drowning 16 %. Drowning was the leading cause of death for children 1- 4.

Conclusions. The number of violent deaths among children and adolescents remains high. Different age groups have different leading causes of death, but the most common cause of death among children and adolescents is injuries sustained in traffic accidents.

BRONHOPULMONARY DYSPLASIA (BPD) CASES AND COMPLICATIONS IN BKUS FROM 2019 TO 2021

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Keywords. Anterior segment optical coherence tomography; Pachymetry; Central corneal thickness

Objectives. BPD is chronic lung disease (affects preterm born infants). Pathophysiology of BPD is characterised by abnormal development of lungs leading to decreased/defective septation, vascularization, increased elastic tissue formation. Pathogenesis is multifactorial: inflammation, surfactant deficiency, impaired angiogenesis. Risk factors: prematurity, mechanical ventilation, infections, genetics. Clinically BPD manifests with need for oxygen/respiratory support. BKUS treats patients with BPD but precise incidence of BPD in Latvia is unknown. Mostly in treatment of BPD works neonatologists but pulmonologist consultations are also important. Oxygen therapy for BPD patients may vary from simple oxygen mask to mechanical lung ventilation. It is crucial to declare risk factors, complications of BPD: week of gestation when patient was born, birth weight, intraventricular hemorrhage.

Materials and methods. Retrospective study (April 2019 - December 2021). Data is gained from BKUS patient cards and analysed anonymously using only patient medical parameters (not personal data). The data were proceed using IBM-SPSS-Statistics-29.

Results. In this study were included 221 patients, median gestation weight: 1100g, gestation week 28. Between gestation week and BPD stage there was moderately strong negative correlation ($p<0.001$; $r=-0.650$). Correlation between BPD stage and total respiratory support day count was strong and positive ($p<0.001$; $r=0.838$). Analysing respiratory support day count between BPD stages, difference was detected between mild and severe stage of BPD. Highest day count of oxygen/respiratory support was detected in severe BPD stage (Me=85.50 q1=57.5, q3=105.75), but in mild BPD stage (Me=44.50, q1=33.25, q3=56.50). Median day count of oxygen and respiratory support in moderate BPD stage was 60.50(Me=60.50, q1=54.00, q3=68.00).

Conclusions. The results show negative correlation between gestation week and BPD stage. Total oxygen, respiratory support depend on stage of BPD. Huge amount of respiratory and oxygen support shows needs for pulmonologist consultations. Often treatment day count is more affected by complications and less by main pathology.

DELAYED COCHLEAR IMPLANTATION IN PAEDIATRIC PATIENTS WITH CONGENITAL HEARING LOSS

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Keywords. Delayed cochlear implantation; Children; Barriers to early diagnosis

Objectives. Age of cochlear implantation (CI) is an important predictor of language development in children with congenital hearing loss. Despite newborn hearing screening and known benefits of early CI, many children continue to be evaluated for CI later in life. The aim of this study was to identify the barriers of early diagnosis and determine language development in patients with delayed CI.

Materials and methods. A retrospective review was conducted for all CI aged three or older performed at Riga Children's Clinical University Hospital between 2014 and 2022. Children implanted before the age of three, those with a prior unilateral cochlear implant, and those with progressive hearing loss were excluded. Data about demographic factors, time of diagnosis and CI as well as outcomes was collected from database Andromeda and Child Hearing Center of Latvia. Data was analyzed using MS Excel. This study received an ethical approval from the RSU Ethics Committee.

Results. Thirty-five patients met the inclusion criteria. The average age at CI was 4.2 years. Twenty (57%) patients are able to attend a comprehensive school and thirteen (37%) are attending a specialized school. We found that twenty-five (71%) of the children are able to communicate using the spoken language and eight (23%) use sign language. Individual chart analysis and discussion with the treating audiologists revealed three main reasons for delayed referral to CI. The barriers were — 1) family related concerns; 2) socioeconomic reasons; and 3) inadequate guidance from prior consulting specialists.

Conclusions. Understanding the reasons for delayed CI might allow the development of targeted interventions to improve early diagnosis and adequate treatment. We discovered that the majority of patients who were implanted later in life were able to use the spoken language as a main form of communication.

CLINICAL MANIFESTATIONS OF TUBEROUS SCLEROSIS IN PEDIATRIC PATIENTS : A RETROSPECTIVE STUDY IN LATVIA

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Keywords. Tuberous sclerosis; TSC1/TSC2 Genes; Central Nervous System; Epilepsy

Objectives. Tuberous sclerosis (TS) is a rare congenital genetic disorder characterized by the development of benign tumors in various organs. The disease results from mutations in the TSC1/TSC2 genes, leading to the overactivation of mTOR signaling pathways. TS presents with a diverse range of symptoms affecting the central nervous system (CNS), skin, kidneys, eyes, heart, liver, and other organs. The aim of this study was to characterize and evaluate the clinical manifestations of tuberous sclerosis in children in Latvia.

Materials and methods. A retrospective study was conducted at the Children's Clinical University Hospital in Latvia, where data were collected from the electronic patient database. The study included 19 pediatric patients diagnosed with TS between December 2012 and December 2022. Clinical manifestations were assessed through patient history data.

Results. Epilepsy was observed in all study participants, with 73.7% (N=14) exhibiting focal seizures. Skin changes were present in 63.2% (N=12), kidney involvement in 52.6%(N=10), changes in eye structure were diagnosed in 15.8% (N=3), and cardiac pathologies in 47.4% (N=9) of patients. Developmental disorders were noted in 47.4% (N=9), and psychiatric deviations in 47.4% (N=9), including autism spectrum disorders in 10.5% (N=2). Genetic confirmation was achieved in 36.8% (N=7) of cases.

Conclusions. CNS impairments, particularly epileptic seizures and structural brain changes, were prevalent in our study population. The clinical diagnosis of TS was established in the absence of genetic confirmation, highlighting the importance of comprehensive diagnostic criteria. The incidence of clinical manifestations in our cohort differed from other studies, possibly due to population-specific factors. Genetic confirmation was limited, emphasizing the need for improved access to genetic screening.

FACTORS LINKED TO HOSPITALIZATION IN CHILDREN PRESENTING WITH LOWER RESPIRATORY TRACT INFECTION TO PED

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Keywords. LRTI; PED; Pediatrics; Hospitalization

Objectives. Lower respiratory tract infections are frequent diseases in children. Lack of optimal management guidelines, children being vulnerable population, often leads to high number of hospitalizations. Which is associated with higher complications rates, antibiotics over-prescriptions, higher costs. This study aimed to clarify factors resulting in hospitalization.

Materials and methods. We performed retrospective data analysis. Children 0-17 y.o. with diagnosed pneumonia/bronchitis at pediatric emergency department 2022 January 1st-November 1st. Exclusion: chronic diseases, asthma exacerbation, bronchiolitis. Further data collected: gender, age; chief complaints, symptom duration; vital signs; tests and treatment in PED. Statistical analysis was performed with SPSS 28.0. P value <0.05 considered significant.

Results. Data from 443 patients were analyzed. Median age 3 (IQR 2-4). Common complaints: fever 71.3%, cough 76.7%, rhinorrhea 53.8%, dyspnea 29.9%. Median symptoms duration 2 days (IQR 1-4). Pneumonia diagnosed in 39.1%, bronchitis 60.9% of cases. 26.5% children were hospitalized, 18.6% stayed for observation (up to 24h). Antibiotics prescribed in 34.6% cases, 10.9% received intravenous fluids, 13.3% oxygen therapy. Pneumonia diagnosis correlated with higher hospitalization rates ($p<0.001$), while age did not ($p=0.059$). General practitioner referrals strongly correlated with hospitalization, with over 2/3 admitted, while ambulance arrivals were more frequently discharged home ($p<0.001$, $p=0.011$ respectively). Saturation ≤94% and symptoms like respiratory distress and weakness influenced hospitalization rates ($p<0.001$ all). Inflammatory biomarkers and X-ray results had no impact on the decision. Those receiving intravenous fluids, oxygen therapy, or observation were more frequently hospitalized ($p<0.001$ all). Multivariant logistic analysis revealed that only children receiving intravenous antibiotics and diagnosed with pneumonia were hospitalized more frequently (OR 1.67; 95% CI 1.044-2.662; OR 3.06; 95% CI 1.975-4.724 respectively).

Conclusions. Age, symptom duration, and the symptoms themselves were robustly linked to hospitalization. However, in multivariate analysis, only children receiving intravenous antibiotics and diagnosed with pneumonia demonstrated a higher hospitalization rate.

PSYCHIATRY, PSYCHOTHERAPY, PSYCHOSOMATICS

ASSOCIATION BETWEEN SYMPTOMS OF DEPRESSION AND ANXIETY AND NURSING PRACTICE ENVIRONMENT AMONG NURSES OF PAULS STRADIŅŠ CLINICAL UNIVERSITY HOSPITAL

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Keywords. Anxiety; Stress; Nursing practice environment

Objectives. A connection exists between work organizational factors and symptoms of anxiety and stress. The aim of this study was to assess the correlation between these symptoms, and nursing practice environment among nurses of Pauls Stradiņš Clinical University Hospital.

Materials and methods. A quantitative cross – sectional study among nurses of Pauls Stradiņš Clinical University hospital was conducted between May and August 2023. Symptoms of mental health were assessed using Depression, Anxiety and Stress Scale (DASS21). Nursing practice environment was assessed using The Practice Environment Scale of the Nursing Work Index (PES-NWI). Statistical analysis (Spearman's correlation test) was performed using SPSS.

Results. The study had 76 participants with a mean age of 33 years. 27,7 %(N=21) of respondents had bachelor's degree; 11,8 % (N=9) masters degree, 46,1 % (N=35) first level professional higher education, but 14,5 % (N=11) highest level of education was secondary professional education. DASS 21 score revealed that 26,3 % (N=20) of participants had mild level of anxiety, 14,5 % (N=11) moderate level, but 3,9 % (N=3) reported severe anxiety. 13,2 % (N=10) of participants had severe and 34,2% (N=26) moderate levels of stress. The data analysis showed statistically significant negative moderate correlation between anxiety and collegial nurse-physician relationship(r=-0.456, p=<0.001), and a weak correlation between nursing foundations for quality care (r=-0.250; p=0.029). There is a statistically significant moderate negative correlation between stress and nurse participation in hospital affairs. (r=0,375, p=<0.001) and a weak correlation between nurse manager ability, leadership, and support for nurses (r=-0.275, p =0.016).

Conclusions. The data indicates that deteriorated relationship between nurses and physicians is associated with elevated levels of anxiety. Further studies involving larger participant groups are necessary to evaluate the this correlation, as the PES – WI scale was translated to Latvian only in 2019.

ANTHROPOMETRIC DATA, BODY WEIGHT ASSESSMENT, REGULATION AND ASSOCIATIONS WITH WELL – BEING IN MEDICAL STUDENTS

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Keywords. Weight; Weight regulation; BMI; Well-being; Medical students

Objectives. Medical students face emotional challenges, with a need for more research on how emotional well-being, self-harm, BMI, and weight management are interconnected. This research aimed to investigate well-being and self-harm in female medical students, specifically focusing on the link between BMI and weight regulation.

Materials and methods. An anonymous online survey collected data from medical students at two universities, including information on BMI, weight regulation, self-harm, and well-being using the WHO questionnaire, with data analysis conducted in Excel and R Commander, and statistical significance set at $p < 0.05$.

Results. Out of 228 surveyed women, the average BMI was 21.49, and the average WHO Well-being Questionnaire score was 55. The women were divided into three groups according to BMI. BMI 18.5-24.9 was found in 187 (82.0%) women, BMI < 18.5 in 18 (7.9%) women and BMI ≥ 25.0 in 23 (10.1%) women. The mean of the well-being scores was 56.07 for women with a BMI of 18.5 - 25.0, 50.43 for those with a BMI ≥ 25.0 and 55.11 for those with a BMI <18.5. 54.7% of women regulated their body weight with a median well-being score of 52, while 45.2% did not regulate weight, with a median well-being score of 60 (p-value = 0.01962). The well-being score was 60 for those who never self-harmed, 50 for past self-harmers, and 40 for current self-harmers (p-value = 0.000189). Among weight regulators, 18% self-harmed, compared to 5.3% among non-regulators (p-value = 0.0003467).

Conclusions. No link was found between BMI and self-harm or well-being, but women regulating their weight were more likely to self-harm and had lower well-being scores.

PSYCHIATRIC OUT-PATIENT WITH PSYCHOEMOTIONAL DISORDERS KNOWLEDGE ABOUT SELF-HELP TECHNIQUES

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Keywords. Psychiatric outpatient care; Self-help in Psychiatry; Help seeking population

Objectives. The number of first-time patients for outpatient psychiatrists has increased in Latvia, mostly for Affective (F30-39) and Neurotic (F40-48) disorders – 30% and 47% accordingly, comparing 2021 to 2019, which has caused longer waiting time for consultations and patients getting first aid in a worsened condition. Self-help has considerably increased psychiatric well-being of patients, compared to patients inactively placed on waiting list. The aim of this study was to assess the knowledge patients have of self-help techniques before receiving specialized help.

Materials and methods. A descriptive cross-sectional study, data was obtained by using an anonymous questionnaire and explanatory material about self-help. Data was collected between June and November 2023, in RPNC Ambulatory Clinic "Pārdaugava" (ACP). The results were processed using MS Excel and IBM SPSS.

Results. During data collection period, 259 patients with F30-39/F40-48 diagnosis were registered in ACP. Questionnaires were distributed to 58 respondents by the principle of convenience. 29 (50%) questionnaires met inclusion criteria. 58,6% had F40-48 disorders. 58,6% used self-help, of which 58,8% had F40-48 disorders. Self-help was most common in age group 30-39 years (41,2%). Most commonly used techniques were information, blogs online (58,8%), talking problems through with acquaintances (58,8%), audio materials (52,9%). 75% of self-help methods were found online. 52,9% of F40-48 self-help users marked a positive effect.

Conclusions. Self-help techniques showed tendency to be more effective in patients with Neurotic spectrum disorders. Most patients consulting psychiatrist on their own initiative reported a better knowledge of self-help techniques. Self-help techniques were mostly obtained online, most frequently used techniques were internet based – which could make them less accessible for a part of the population. Further patient education should be advised. More research is needed to evaluate the accessibility and effectiveness of particular self-help techniques.

TREATMENT ADHERENCE AND READMISSION RATES AMONG SCHIZOPHRENIA INPATIENTS AT THE RIGA PSYCHIATRY AND NARCOLOGY CENTRE: A CROSS-SECTIONAL STUDY

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Keywords. Adherence; Readmission; Schizophrenia

Objectives. This study aims to explore the factors influencing treatment adherence among patients with schizophrenia in the inpatient department of the Riga Psychiatry and Narcology Centre and to examine the association between adherence and readmission rates. Non-adherence among patients with schizophrenia is a global challenge, further emphasizing the significance of thorough evaluation. Assessing treatment adherence in clinical settings is crucial due to its implications for patient outcomes, particularly the risk of disease relapse. Identifying factors influencing non-adherence has the potential to mitigate the financial resources expended on treatment, highlighting the importance of targeted interventions to enhance adherence and ultimately improve patient well-being.

Materials and methods. A cross-sectional survey was conducted involving inpatients diagnosed with schizophrenia at the Riga Psychiatry and Narcology Centre, with sociodemographic data gathered from medical records and patient interviews. Readmission rates were computed based on hospitalizations and illness duration. Antipsychotic medication adherence was assessed using the Medication Adherence Reporting Scale, and data analysis was performed using IBM SPSS Statistics software, incorporating frequency distribution, cross-tabulation, the Chi-Square test, and logistic regression.

Results. The study, encompassing 50 patients, revealed a non-adherence rate of 56%. Non-adherence exhibited a significant association with increased readmission rates (p=0.004). Factors significantly linked to non-adherence included alcohol consumption (OR=6.96; 95% CI 1.85–26.09), self-reported dissatisfaction with socioeconomic status (OR=6.96; 95% CI 1.85–26.09), diabetes (OR=3.4; 95% CI 0.98–11.78), and cardiovascular diseases (OR=4.53; 95% CI 1.30–15.77).

Conclusions. The study highlights a substantial non-adherence prevalence among Riga Psychiatry and Narcology Centre inpatients. Dissatisfaction with socioeconomic status, alcohol consumption, diabetes, and cardiovascular diseases adversely affects treatment adherence. Non-adherent patients exhibit a higher likelihood of requiring inpatient care compared to adherent counterparts. Addressing these factors can enhance adherence, reduce readmission rates, and optimize treatment cost-effectiveness.

"AN ANALYSIS OF OUTPATIENT PSYCHIATRY APPOINTMENT TIMES AND DIAGNOSTIC DIVERSITY"

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Keywords. Outpatient psychiatry; First-time appointment; Waiting time; Diagnostic groups

Objectives. For patients with specific mental diseases, it is crucial to reach a psychiatrist as soon as possible. Early diagnosis and intensive intervention enhance the favorable outcome of therapy and reduce the likelihood of unfavorable events. The study was aimed to evaluate the diagnostic group of first-time patients and the length of waiting time.

Materials and methods. 377 first-time patients scheduling a psychiatrist appointment at ambulatory center "Pārdaugava" were enrolled in a retrospective study. The waiting time for outpatient psychiatrist appointment was compared between diagnostic groups. All data were analysed using IBM SPSS Statistics version 29.

Results. In our study participated 132 males and 245 females; average waiting time was 35 days. Amount of participants with first-time diagnosed schizophrenia was 12 and waiting time was 30 ± 4.77 standard error of the mean or SEM days; first-time diagnosed mood disorder was 64 and waiting time was 36 ± 2.72 SEM days; first-time diagnosed neurotic and somatoform disorders was 124 and waiting time was 34 ± 1.47 SEM days; first-time diagnosed organic mental disorders was 82 and waiting time was 34 ± 2.36 SEM days. No significant association was found between waiting time and diagnostic group ($p = 0.612$).

Conclusions. First-time patients average waiting time for psychiatrist appointment was 35 days and had no significant difference between diagnostic groups. Consideration could be given to implementing interventions during the patient registration phase with a specialist, to assess the immediacy and prognostic more severe disorders of the required consultation faster than others.

WAITING FOR CARE: A CLOSER LOOK AT FIRST-TIME PATIENTS IN OUTPATIENT PSYCHIATRY CONSULTATIONS

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Keywords. Outpatient psychiatry; First-time appointment; Waiting time; Sick leave; Hospitalisation; Other specialists consultation

Objectives. The protracted waiting time for outpatient psychiatrist appointments poses a significant challenge, often prompting patients to seek assistance expeditiously. The aim of this study was to assess the behaviors and experiences of first-time patients in the outpatient psychiatry setting during the waiting period for their initial appointments.

Materials and methods. 377 first-time patients scheduling a psychiatrist appointment at ambulatory center "Pārdaugava" were enrolled in a retrospective study. The waiting time, diagnostic groups, attendance, sick leave, hospitalization, and consultations with other specialists during the waiting period were analysed for first-time patients. All data were analysed using IBM SPSS Statistics version 29.

Results. In our study participated 132 males and 245 females ; average waiting time was 35 days. Seventy percent, or 258 patients, attended the consultation. Participants were diagnosed with Schizophrenia (n=12), Mood disorder (n=64), Neurotic stress-related and somatoform disorders (n=124), Organic mental disorders (n=82) and other diagnosis (n=32). Out of 360 patients, 50% (n=180) did not attend appointments with other specialists; 14.7% (n=53) attended other specialists but were not prescribed medication; 28.6% (n=103) visited other specialists and received prescribed medication; 2.5% (n=9) were in hospital. Fifteen patients were issued Type A sick leave. Hospitalized were 4 participants.

Conclusions. Our study shows the challenges of outpatient psychiatry appointment waiting times and involvement of primary care treating patients with psychoemotional symptoms. Addressing attendance barriers and enhancing support mechanisms are crucial for optimizing patient experiences and mental health outcomes, as well more actively the treatment process should be started already un primary care.

EXPLORING FATIGUE IN SEROPOSITIVE (ACHR) MYASTHENIA GRAVIS: INFLUENTIAL FACTORS AND IMPACT ON THE QUALITY OF LIFE

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Keywords. Myasthenia Gravis; Fatigue; Quality of life

Objectives. Myasthenia Gravis (MG) is an autoimmune disease characterised by muscle weakness due to antibody impairment of neuromuscular transmission. MG is the most prevalent neuromuscular junction disorder with a worldwide prevalence with a range of 0.15 to 61.33 per million person-years (Latvia 9,7). Fatigue is highly prevalent in MG population between 42 and 82% (A.M.Ruiter et all, 2020).This study aims to investigate the prevalence of fatigue in the seropositive (AchR) myasthenia gravis (MG) population, evaluating association between fatigue, quality of life, daily activities and disease severity and other factors that influence its occurrence.

Materials and methods. The study included 46 patients diagnosed with seropositive (AchR) Myasthenia Gravis. The disease clinical classification was based on the MGFA classification. Fatigue severity was measured based on fatigue severity score (FSS). In addition, MG Composite (MGCS), MG quality of life scale (MG-QOL15) and MG activities of daily living profile (MG-ADL) were assessed during outpatient visits in 2022-2023. Spearman's correlation tests and Kruskal-Wallis tests were performed for statistical analysis.

Results. There were 16 males and 30 females with mean age 56.43 (SD±2,406) years and disease duration median 82,5 (25th-75th percentile=44,74-144,25) month. MG-QOL15 median was 19,5 (25th-75th percentile=14,75-36,50), MG-ADL median 2,50 (25th-75th percentile=0-5), MGCS mean 4,00 (25th-75th percentile=0-8,25). 33 patients(72%) with MG reported experiencing fatigue (score≥36). FSS median was 48,5 (25th-75th percentile=29,75-55,50). Analysing the association between FSS and age, gender, disease duration and severity scores(MGFA,MGCS,MG-ADL), no correlations were found. A moderate positive correlation was shown between FSS (score≥36) and MG-QOL15 ($r = 0.507, p = 0.003$).

Conclusions. Fatigue significantly affects the quality of life for patients, but it does not necessarily correlate with the severity of the disease. Therefore, it should be considered a distinct symptom that requires more attention and treatment, particularly in the context of mental health.

ANXIETY AND MAGICAL THINKING, CRITICAL THINKING DISPOSITION AMONG WORKERS OF SPECIALIZED HOSPITAL IN RIGA, LATVIA

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Keywords. Magical thinking; Critical thinking disposition; Anxiety; Hospital workers

Objectives. To ascertain the proportion of magical thinking, critical thinking disposition and anxiety of workers from specialized hospital in Riga, Latvia, as well as interaction of these factors.

Materials and methods. An internet survey was made with 94 respondents from February till April of 2023, which consisted of 26-item Revised Paranormal Belief Scale (RPBS), two-factor, 11-item Critical Thinking Disposition Scale (CTDS) and General Anxiety Disorder 7-item scale (GAD-7).

Results. Amongst female participants, minimal anxiety were found in 25 (36,8%), mild in 35 (51,5%), moderate in 8 (11,8%) and there were zero with severe anxiety. Amongst male respondents, minimal anxiety were found in 16 (61,5%), mild anxiety in 7 (26,9%), moderate anxiety in 1 (3,8%) and severe anxiety in 2 (7,7%) respondents, (x^2 (3 N94) = 11.646, p=0,009). There were positive correlation between levels of anxiety and traditional religious belief subscale, psi subscale, extraordinary life form subscale and precognition subscale of RPBS (p=0,000; p=0,004; p=0,011; p=0,001, respectively). There were negative correlation between anxiety level and critical openness and reflective scepticism subscales of CTDS (p=0,000; p=0,031 respectively).

Conclusions. In female and male respondents, more were with minimal and mild anxiety, but there were no females with severe anxiety, while two male respondents had severe anxiety. There was a positive correlation established with magical thinking and anxiety - if magical thinking is stronger, anxiety levels get higher. There was a negative correlation established with critical thinking disposition and anxiety, as stronger critical thinking disposition means less anxiety.

MAGICAL THINKING AND DEMOGRAPHIC DIFFERENCES AMONG WORKERS OF SPECIALIZED HOSPITAL IN RIGA, LATVIA

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Keywords. Magical thinking; Revised Paranormal Belief Scale; Hospital workers

Objectives. To ascertain the proportion of magical thinking of workers from specialized hospital in Riga, Latvia and interaction of magical thinking with respondents age, gender and level of education.

Materials and methods. An internet survey with 94 respondents was made from February till April of 2023, which consisted of 26-item Revised Paranormal Belief Scale.

Results. Female mean answers were 2,0 (1,3-2,5) points, male mean answers were 1,0 (1,0-1,6) point (p=0,001) in Traditional Religious Belief (TRB) subscale. In Psi subscale, female answers were 1,5 (1,0-2,3) but male were 1,0 (1,0-1,6) (p=0,025). In Precognition subscale female answers were 2,0 (1,0-2,6), but male 1,0 (1,1-1,3) (p=0,002). In Spiritualism subscale, female answers were 1,3 (1,0-2,0) but male 1,0 (1,0-1,3) (p=0,027). In TRB age group 40-49 mean answers were 2,0 (1,4 - 2,9), but 1,0 (1,0-2,0) point in age group 20-29 (p=0,032). In Superstition subscale, age group 50+ mean answers were 1,7 (1,0-2,0) points, while in other age groups mean answers were 1,0 (1,0-1,7) (p=0,043). In TRB respondents with high school education mean answers were 2,3 (1,7-2,9) points, but lower in respondents with uncompleted higher education 1,25 (1,0-1,8) points (p=0,008). In Spiritualism subscale, respondents with high school education mean answers were 1,8 (1,3-2,8), but with uncompleted higher education 1,0 (1,0-1,3) (p=0,016). In Witchcraft subscale, respondents with high school education mean answers were 1,8 (1,1-2,8) points, but in other education groups 1,0 (1,0-2,0), (p=0,036).

Conclusions. Females have stronger magical thinking than men, but the main difference were with answers “strongly disagree” and “moderately disagree”. In older respondents magical thinking was stronger than in younger. Respondents with lower education level had more magical thinking tendencies than respondents with higher education level.

LITHUANIAN PHYSICIANS' BELIEFS AND ATTITUDES ABOUT BENZODIAZEPINES: A CROSS-SECTIONAL STUDY

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Keywords. Benzodiazepines; Attitudes; Beliefs

Objectives. Lithuania exceeds other North Europe region countries in benzodiazepines (BZD) prescription and use by two-three times. In reaction to a situation Ministry of Health has implemented new policies from 2021 July 1st towards the reduction of BZD misuse and rational approach to psychotropic medicines consumption. This research aims to analyze physicians' belief and attitudes about BZD.

Materials and methods. This study was conducted from 2023 November 27th to 2024 January 7th. The main criteria of selection was clinical practice involving BZD prescription. Invitations to participate were sent through direct e-mail message via workplace. Respondents were asked to answer demographic questions, one open question and fill in *Perception about Use of BZD Scale* (PUBS). All of the data was collected anonymously. *MS Excel* and SPSS® were used for statistical analysis.

Results. 171 physicians had participated in this study. Composition of respondents: 73 general practitioners; 70 psychiatrists; 6 child and adolescent psychiatrists; 22 from other specialties (neurology, internal medicine, toxicology, physical medicine and rehabilitation). Average age of participants was 47.75 years, clinical work experience by years – 20.88. 30 questions of PUBS were grouped into four categories: attitudes (13), beliefs (11), self-perception of literacy (3) and self-efficacy for promoting withdrawal (3). 88.3% of participants saw long-term use of BZD as public health problem, 90.0% - as deteriorating to cognitive skills. 90.4% of general practitioners felt pressured to prescribe BZD, whereas 58.8% of psychiatrists related to this question. Mann-Whitney U test was used for measurement of statistical significance ($p < 0.05$). Test presented differences in 14 questions between general practitioners and psychiatrists, 10 – general practitioners and other specialties, 7 – psychiatrists and other specialties.

Conclusions. Lithuanian physicians perceive irrational and long-term use of BZD as public health problem. Nevertheless, analysis of study revealed dissimilarities in all categories of PUBS.

UNVEILING THE DIGITAL MIGRAINE CHRONICLES: A THEMATIC NARRATIVE ANALYSIS OF BLOGS

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Keywords. Migraine; Blogging; Social media; Barriers

Objectives. To explore the experience of Chronic migraine sufferers as expressed through online blog articles. Migraine causes more disability than all other neurologic disorders together but has received relatively little attention as a major public health issue despite the daily disease burden it presents for sufferers. To date no studies have been done on how migraine has been portrayed in online blogs. Experience shared through blogs gives an in-depth insight of how migraine is experienced by migraine sufferers.

Materials and methods. Thematic analysis of qualitative blog data was conducted to explore how those suffering from migraine express their experiences in blogs. Blogs were coded to sort data into themes and followed an inductive coding of line by line into major themes and subthemes. The data collection and analysis phases of the project proceed at the same time. Sampling was stopped when data saturation was reached.

Results. The major themes found included the impact on daily life, inability to make plans, negative impact on employment, mental health implications, co-morbidity and perception of migraine by others. Bloggers reported frustration with barriers to care; access to online support networks was reported as beneficial.

Conclusions. Chronic migraine sufferers expressing their experience through blogs may use the medium to overcome feelings of isolation common to migraine sufferers. The call for more awareness reflected participants' collective advocacy for recognition by both medical professionals, family members and the general public. Addressing barriers to effective treatment for migraine and understanding the financial and emotional burden of migraine is important to those living with this chronic disease.

"MEDICAL STUDENT SYNDROME" – MYTH OR REALITY? THE INCIDENCE OF HYPOCHONDRIA AMONG STUDENTS OF RIGA STRADINS UNIVERSITY

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Keywords. Hypochondria; Medical student syndrome; Health anxiety

Objectives. Medical student syndrome (MSS) is a term used to describe a form of hypochondria in medical students characterized by anxiety about having one or more of the diseases they are studying about. Recent studies show ambiguous results on this topic, and there is no available data about MSS among Latvian students. The aim of this study is to compare the incidence of hypochondria among Latvian medical and non-medical students at Rīga Stradiņš University.

Materials and methods. A quantitative cross-sectional study in the population of Rīga Stradiņš University students was performed during December 2023-January 2024. Students from 8 faculties were asked to fill out the questionnaire electronically. The questionnaire included the Short Health Anxiety Inventory (SHAI-14), which was used to evaluate the severity of hypochondria symptoms. Descriptive statistics were done using Microsoft Excel and IBM SPSS Statistics software.

Results. 214 students completed the questionnaire; 81.3% were female and 78.5% were younger than 24 years. 75.7% (n=162) students were from medicine-related faculties and 24.3% (n=52) students were from non-medical faculties. Study shows that medical and non-medical students have statistically significant difference in SHAI scores (p=0.016). Hypochondria symptoms are present in 32.69% of medical students and 15.52% of non-medical students. There is a significant difference in SHAI scores between students of the Faculty of Medicine and other medical students (p=0.044) although the incidence of hypochondria was lower - 23.08% and 38.14% respectively. There is no association found between hypochondria severity score and gender, age, study year or the presence of health worker in the family (p>0.05).

Conclusions. Medical students of Rīga Stradiņš University have significantly higher hypochondria severity scores than non-medical students, which proves the existence of MSS.

PSYCHOSOCIAL HEALTH AND WELLBEING AMONG LATVIAN OBSTETRICIANS AND MIDWIVES INVOLVED IN TRAUMATIC CHILDBIRTH

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Keywords. Midwives; Obstetricians; Psychosocial health and wellbeing; Traumatic childbirth

Objectives. Traumatic birth is characterized by unexpected interventions and complications such as shoulder dystocia, anal sphincter injuries, massive bleeding, placental abruption, instrumental delivery, or emergency cesarean section. Such traumatic births can affect not only the patient giving birth but also obstetricians and midwives. This study aimed to assess the psychosocial health and well-being of obstetricians and midwives in Latvia in the last four weeks and following exposure to traumatic childbirth.

Materials and methods. A cross-sectional study of midwives (n=87) and obstetricians (n=69) in Latvia was conducted from February 2023 to January 2024. Questionnaires were distributed electronically through both professional associations of midwives and gynecologists, as well as in person in labor wards. Responses were assessed on six scales: burnout, sleep disorders, general stress, depressive symptoms, somatic stress, and cognitive stress using an adapted version of the Copenhagen Psychosocial Questionnaire (COPSOQII).

Results. 97% of study participants have experienced traumatic childbirth, with 50,6% within the last 6 months. In the four weeks preceding the survey, midwives had higher sleep disorder scores, and obstetricians had higher burnout scores. In the aftermath of the traumatic birth, midwives had higher somatic and cognitive stress scores. Fewer years in the specialty correlated with more burnout, depressive symptoms, psychosomatic symptoms, and cognitive stress ($p < 0.007$, $p < 0.001$). Older age correlated with fewer depressive symptoms, psychosomatic symptoms, and cognitive stress ($p < 0.002$, $p < 0.005$, $p < 0.001$). 27,1% reported ongoing psychosocial health symptoms, while 16.1% – symptoms persisting over 12 months and 14.4% – for 1–3 months.

Conclusions. Obstetricians and midwives experience high levels of burnout and stress among other psychosocial health symptoms. Prioritizing tailored support becomes imperative, emphasizing the pivotal role it plays in ensuring the mental health resilience of healthcare professionals facing these challenging experiences.

ASSESSMENT OF PATIENT SATISFACTION IN THE OUTPATIENT DEPARTMENTS OF THE RIGA PSYCHIATRY AND NARCOLOGY CENTER USING THE CHARLESTON PSYCHIATRIC OUTPATIENT SATISFACTION SCALE AND LONGENESIS

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Objectives. In the world and in Latvia, there is an increasing interest in the evaluation of patient experiences in health care institutions and the connection of these experiences with patient comfort and changes in health status. The aim of the work is to assess the patients' experience and satisfaction with the received outpatient care services, to determine the relationship between outpatient patient satisfaction indicators and socio-demographic data.

Materials and methods. From 2.05.2023 until 3.08.2023 a quantitative cross-sectional study was conducted. The CPOSS survey was translated in Latvian and Russian languages. Patient surveys were carried out in paper format at the RPNC outpatient centers; surveys were conducted in electronic format - in form of SMS (hyperlink). In total, 338 surveys were analysed in the study - response rate of 67.1% for paper-filled surveys, 13.7% for electronically filled surveys.

Results. Average characteristics of respondent: female (71.5%), 31-40 years old (28.6%), married (37.7%), with higher education (58.1%), working (68.6%), has mental illness (68.2%). Patient satisfaction and comparing the obtained results between age groups - patients who are older rated that the assistance provided by the receptionist ($r(167)=0.193$, $p=0.012$), the availability of information ($r(168)=0.155$, $p=0.044$), the waiting time until receiving the service ($r(168)=0.151$, $p=0.049$), the appearance of waiting rooms higher than younger patients ($r(168)=0.213$, $p=0.005$). Comparing the results of gender, the patient's education level, the marital status relations and CPOSS ratings, no statistically significant difference is found.

Conclusions. Patient satisfaction with outpatient care is not related to the socio-demographic status - the obtained results demonstrate a weak or very weak correlation, or no statistically significant difference between the obtained results can be observed. Patients are not more critical in the electronically filled surveys compared to the paper filled surveys. The CPOSS survey is suitable for ascertaining the satisfaction of outpatients in psychiatric clinics.

ADVERSE CHILDHOOD EXPERIENCES AND SUICIDALITY AMONG OUTPATIENTS DIAGNOSED WITH SCHIZOPHRENIA AT RIGA PSYCHIATRY AND NARCOLOGY CENTRE

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Keywords. Suicidality; Childhood abuse; Depression; Schizophrenia

Objectives. Suicide significantly reduces life expectancy in individuals with schizophrenia while childhood abuse may have multifaceted effects on their suicide risk. Additionally, patients with schizophrenia with a history of childhood abuse have a higher risk of suicide. Another suicide risk factor in patients with schizophrenia is depression. This study aims to assess the impact of adverse childhood experiences and symptoms of depression on suicidality in patients with schizophrenia in the Outpatient Consultative Department of the Riga Psychiatry and Narcology Center.

Materials and methods. The study was carried out among outpatients with schizophrenia (aged 24-77) who had not been hospitalized for at least three months. Clinical diagnoses were evaluated and confirmed according to ICD-10 by the psychiatrist of the outpatient consultation department. The assessment of suicide risk was conducted utilizing the RASS (Risk Assessment of Suicide Scale) scale. The Calgary Depression Scale for Schizophrenia (CDSS) was employed for the evaluation of depressive symptoms, while the Childhood Trauma Questionnaire (CTQ) was utilized for the investigation of adverse childhood experiences.

Results. In total 60 outpatients diagnosed with schizophrenia were interviewed. It was found that the association between adverse childhood experiences (CTQ score ≥ 12) and the frequency of suicide attempts during a lifetime was statistically significant ($r=7{,}255$, $p<0{,}05$). Patients with positive CTQ outcome (CTQ score≥ 12) also had a higher CDSS score for severity of depression ($6{,}08\pm7{,}22$). Suicidal thoughts were found to be more frequent among respondents who were observed to be depressed during the interview (CDSS score > 6, $r=32.047$, $p<0.001$).

Conclusions. Adverse childhood experiences exhibit elevated rates of lifetime suicidality, and a parallel association is observed in the correlation between the severity of depression and suicidal thoughts among those with adverse childhood experiences. Therefore, individualized intervention for patients with schizophrenia exposed to ACEs is recommended.

USE OF CONTRACEPTION IN PATIENTS WITH BIPOLAR AFFECTIVE DISORDER

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Keywords. Contraception; Communication; Behavior

Objectives. Birth control (contraception) is the use of methods or devices to prevent pregnancy. When choosing contraception, more attention should be paid not to the age stage, but to the life situation – relationships, reproductive plans and health status of the woman. Existing literature about the psychological side effects of contraception is limited. In Latvia, there were no studies on the availability of contraception and side effects for women with bipolar disorder.

Materials and methods. This is an ongoing cross-sectional study conducted October 2023 – March 2024, based on questionnaire about socioeconomic situation, communication experience with gynaecologist, communication between gynaecologists and psychiatrists. The study was approved by the Ethics Committee of RSU. The data were processed using IBM SPSS Statistics-27, comparing cases in different age-groups, type of contraception.

Results. From all responders (86) 75% claimed that gynecologist in consultation gained information about general health state. 86% of responders stated that they use at least one type of contraceptiont, however 9.3% of those who use contraception agreed that type of contraception changes because of mood. 8.1% of responders answered that they have bipolare affective disorders, but only 42% of them informed their gynecologsit about this disease.

Conclusions. The results show that mostly gynecologists ask questions and gain data from patient about general health state. Not all of gynecologists were informed about patient pathology(bipolar affective disorders) and psychological status. Gynecologists should draw more attention to patient general health state. Recomendations for patient surveying should be made to help gynecologist easier survey their patient globally.

PSYCHOLOGY

ADAPTATION OF SOCIAL NETWORKING ADDICTION SCALE (SNAS) IN LATVIA

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Keywords. Addiction; Social networking; Adaptation

Objectives. The aim of the paper is to adapt the Social Networking Addiction Scale (SNAS) in Latvian and check its psychometric factors, reliability, validity. An additional reason for adaptation is the need for a test in Latvia, as there are currently no similar instruments that measure social networking addiction. Social networking is more and more part of every person's daily life and the time spent on them is increasing. Therefore, it is important to follow the relationship people have with them, to be able to notice changes in self-feeling, mood, relationships with people, and more frequent use, which may indicate addiction or its formation.

Materials and methods. 216 respondents from Latvia took part in the adaptation, all of them had reached the age of 18 years and mastered the Latvian language at the needed level. To adapt the SNAS instrument which contains 21 item, a questionnaire was created including SNAS's Latvian version, Life satisfaction survey, UCLA loneliness scale, and demographic questions at the end. Various psychometric tests were implemented to check the reliability and validity of SNAS. The results prooved reliability and validity. The general Cronbahs alfa is $\alpha = 0.94$, and the convergent validity is present.

Conclusions. It can be concluded that the translation of the test into Latvian was successfully carried out, the test data are stable over time and measure the addiction of social networking. In order to improve the psychometric properties of the test, it is recommended to improve item 16 by changing its translation. In addition, it is recommended to perform a retest, in order to confirm the stability of the adapted test results over time. It can be concluded that the Latvian version of the SNAS test is ready for use, although it contains minor psychometric deficiencies that can be eliminated in further research.

ADAPTATION OF THE CONTEXT SENSITIVITY INDEX (CSI) IN LATVIAN

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Keywords. Context Sensitivity Index (CSI); Psychometric property; Adaptation

Objectives. The aim of this study was to translate and validate the Latvian version of Context Sensitivity Index (CSI), a scenario-based self-report measure designed to assess sensitivity to context in general population. This measure is a part of the Flexibility sequence theory.

Materials and methods. The permission to translate the measure was received from Prof. George A. Bonanno via email. It was then translated by three independent translators, corrected by MSc Agnese Ušacka and administered in Latvian population. A total of 317 individuals from Latvia, aged 18 – 62 (M = 27.18, 50.8% male) have participated in the study. The questionnaire included demographical questions (age, sex, location), 20 translated items from CSI as well as 10 items from previously adapted PHQ-9 and 10 items from CFS to test construct validity. Reliability was tested, comparing means and standard deviations in two groups of different participants, similarly to original test methodology. Construct validity was calculated, using Pearson correlation. Gender differences and differences between clinical and non-clinical depression groups were calculated, using Independent Samples T-Test.

Results. Translated version showed no differences in means and standard deviations, suggesting good reliability of the measure. Similarly to the original test, Latvian version of CSI Cue Presence subscale did not correlate with the PHQ-9, while Cue Absence subscale correlated with the Evaluation subscale of CFS and didn't correlate with the Adaptive subscale. Correlations between Cue Presence subscale and both CFS subscales, as well as between Cue Absence and PHQ-9 were not statistically significant, unlike in the original measure. Differences between depression groups are discussed.

Conclusions. The present study found that translated version of the Context Sensitivity Index is a reliable and valid measure that can be used for further study of Context sensitivity separately and within Flexibility Sequence theory.

ADAPTATION OF THE SPIRITUAL AND RELIGIOUS ATTITUDES IN DEALING WITH ILLNESS (SpREUK-P SF17) QUESTIONNAIRE INTO LATVIAN LANGUAGE

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Keywords. Spiritual practices; Religious practices; Spirituality; Questionnaire adaptation

Objectives. Given the relevance of research on spirituality and religion (RSU, 2023, Pargament et al., 2013, Vieten & Lukoff, 2022, Bitēna & Mārtinsone, 2021), the positive role of different spiritual practices in the context of human health (Malviya et al, 2022, Braam & Koenig, 2019) and the fact that nowadays the majority of the world population is religious or spiritual (Jackson Chris, 2023, PRRI, 2023), there is a need for psychological assessment scales and measurement tools for a concept of spirituality (e.g. spiritual practices), including in Latvia. This study aimed to adapt the Spiritual and Religious Attitudes in Dealing with Illness (SpREUK-P SF17, Büssing et al, 2012) into Latvian and examine its psychometric properties.

Materials and methods. 416 Latvian residents (aged 19-87 (M = 41), 83% women, 17% men) participated in the study. Participants filled SpREUK-P SF17 and a sociodemographic questionnaire. SpREUK-P SF-17 questionnaire consists of 5 factors and 19 items – each rated using 4-point Likert scale from 0 to 4, with higher scores reflecting more often use of concrete spiritual or religious practice.

Results. Factor analysis showed 5 factors consistent with the original. The internal consistency of the scales was higher (Cronbach's alpha ranging from 0.80 to 0.89) than the original instrument ($\alpha = 0.72$ to $\alpha = 0.82$). Overall, in the questionnaire, all items reached the item-discrimination index range of 0.2 to 0.8, but the response indices of all items fall within the optimal range [0,6; 2,4] of variation of the response indices, except for item 5.

Conclusions. The internal consistency of the SpREUK-P SF17 questionnaire into Latvian was good. The factor structure corresponds to the original, and the response indexes are within optimal limits. Further adaptation and adjustments of the questionnaire are needed.

RELIGIOUSNESS IMPACT ON WELL-BEING: PROMOTION OR HINDRANCE?

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Keywords. Psychological well-being; Religiosity; Religious struggle

Objectives. Recent research indicates that religion may serve as a source of comfort and resilience during crises induced by uncertainty. However, it also acknowledges the potential for religion to become a stressor when individuals undergo experiences of religious struggles (RS).

Research underscores the mediating influence of religious practices and beliefs, such as meaning-making and prayers, contributing to mitigating the adverse effects of RS on psychological well-being (PWB). The objective of this study is to explore the mediating role of various aspects of religious centrality in the association between dimensions of RS and PWB amid uncertainty.

Materials and methods. Data collection will occur in November and December 2022 through an online survey. The survey instruments utilized encompassed the Centrality of Religiosity Scale (CRS-5), the Religious and Spiritual Struggle Scale, and the Scale of Psychological Well-Being. The survey was disseminated employing a convenience sampling methodology. The total of 452 participants was within the age range of 18–85 (M = 47,92, SD = 13,21). The participant pool exhibited a wide representation of individuals adhering to diverse Christian denominations."

Results. Religious experience exhibits partial mediation effects on the negative association between RS and PWB. The standardized regression coefficient for RS and WLB coping is β =-0.503 in Model 1 ($p<.001$), which decreases slightly to β = -0.466 in Model 2 ($p<.001$).

Conclusions. The key findings emphasize the importance of addressing religious struggle as a critical factor in promoting effective coping mechanisms for maintaining psychological well-being. Additionally, they highlight the significant role of belief systems in shaping coping strategies and overall mental health outcomes in individuals' lives.

ADAPTATION AND VALIDATION OF THE "HEALTHCARE DEMAND PROCRASTINATION SCALE" IN LATVIA

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Keywords. Procrastination; Delay; Health care; Medical care; Adaptation; Psychometric properties

Objectives. Procrastination has been widely studied in the context of education and work, however it can also be associated with certain health behaviours, such as getting medical attention when illness symptoms occur. In order to explore psychological aspects of this behaviour a specific instrument - 11-item "Healthcare Demand Procrastination Scale" (HDPS, Soyler et al., 2022) - was recently developed. The purpose of this study is to make Latvian adaptation of HDPS and determine its psychometric properties.

Materials and methods. Test adaptation study was conducted in a sample of 118 Latvian residents aged 18-70 (M = 34,19), 68,6% of whom were women. Respondents filled out sociodemographic data questionnaire (gender, age, education level, health insurance, presence of a chronic disease), Latvian version of HDPS and answered four additional author-generated questions to test instrument's convergent validity. After two weeks 51 respondent was retested. Data was acquired via online-testing and analysed in SPSS and JASP software programs to determine adapted instrument's validity and reliability.

Results. Instrument showed encouraging internal consistency (α=0,85) and test-retest reliability (r=0,89, p <0,001). Convergent validity was approved by expected correlations with criterion measures (r from 0,27 to 0,73). However, the original test structure, which implies three factors, could not be confirmed. Exploratory and confirmatory factor analysis showed a two-factor structure with good internal consistency (1st scale α=0,84, 2nd scale α= 0,77). The total variance explained by two factors is 54,06%. One factor structure, which explains 41,43% of variance, is also acceptable.

Conclusions. HDPS shows good psychometric properties in Latvian cultural environment, however discussion with the test authors about its structure is ongoing. Therefore, it is early to make assumptions about the success of HDPS adaptation in Latvia, although it's reasonable to continue developing this instrument.

THE RELATIONSHIP OF SHORT-TERM MEMORY AND DEPRESSION SCORES IN ADULTS

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Keywords. Depression; Short-term memory (STM); Adults; Correlation: Latvia

Objectives. Every year in Latvia, there is a 2% increase in people, who suffer from a depressed mood (Center for Disease Prevention and Control, 2022). Depression is a well known and serious emotional state disorder. It affects a persons cognitive functions, for example, impairing memory (Hubbard et al., 2015). There is a lack of research, which studies the correlation of short-term memory (STM) and depression scores that relates specifically to the population of Latvia. The aim of this study is to investigate the relationship between STM and depression scores in adults. 83 people participated in the study of which 62,6% were females. Participants were aged between 18 and 55 years (M = 28,6 ; SD = 9,2). At first, demographic data were collected, participants had to state their age, gender and education. Then, the participants filled out "Patient Health Questionnaire – 9, PHQ-9" (Kroenke et al., 2001, adaptation in Latvian conducted by Rancans et al., 2018). Afterwards, the respondents had to do the Ten Word Memory Task (Luria, 1976). All the data was collected between October 10th and January 7th.

Results. Due to the lack of normal distribution, Spearman Rank Correlation was conducted, indicating a statistically significant positive strong correlation between STM and depression scores. coefficient test was used to determine the relationship between the variables short-term memory and depression scores.

Conclusions. Study results indicate a relationship between better memory scores in people with lower levels of depression. Future studies might benefit from a larger sample size and more homogenous education and gender distribution.

DIGITAL COMPETENCE OF PSYCHOLOGISTS: A SCOPING REVIEW

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Keywords. Digital competence; Digital health; Psychologists; Psychological practice

Objectives. The rapid digitalization of various sectors, including psychological practice, highlights the growing importance of understanding and enhancing digital competencies among psychologists. The challenges in adapting to digital health underscore the necessity of comprehensive analysis of psychologists' digital competences. This scoping review aims to describe and synthesize scientific literature on psychologists' digital competence.

Materials and methods. Following the PRISMA ScR guidelines, a comprehensive search strategy was developed and executed across seven databases: MEDLINE (PubMed), Core collection (Web of Science), Scopus, Sage journals, APA PsycArticles, APA PsycTherapy, ProQuest One Academic. Search strategy was following: ("digital competencies" OR "digital skills" OR "digital competence" OR "Digital competency" OR "digital health" OR "digital tools" OR "digital technologies" OR telepsychology) AND ("psychological practice" OR psychologists OR "psychologists work OR "psychological services"). Studies about psychologists' digital competence were considered for inclusion. Triangulation was utilized by two persons.

Results. After screening 1153 articles and abstracts followed by 733 full-texts, 21 unique articles were included in further study. Preliminary analysis shows that 5 papers reviewed frameworks addressing the psychologists' digital competence; 8 reviewed attitudes and experiences, including technologies and tools in practice; 5 reviewed opportunities and barriers, including ethical considerations; and 2 reviewed training.

Conclusions. This study reviews diverse frameworks concerning psychologists' digital competence, while also examining crucial facets like attitudes, experiences, opportunities and barriers. This comprehensive synthesis not only contributes to the understanding of psychologists' digital competence but also lays the foundation for establishing norms and benchmarks in this evolving domain. These insights offer valuable guidance in enhancing digital competence standards among psychologists.

SOURCES OF MENTAL AND PHYSICAL WELL-BEING IN OLDER ADULTS

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Keywords. Ageing; Mental well-being; Older adults; Physical well-being

Objectives. As the world's population ages rapidly, the number of people over the age of 65 is projected to nearly double to 1.6 billion by 2050. The aging of the population causes extensive changes in society, including increasing health and social challenges, as well as the need to adapt to the changing demographic structure. The aging of an individual is accompanied by physical and psychological changes, bringing with it social challenges and questions about mental and physical well-being. The aim of the study was to investigate the sources of well-being in older adults.

Materials and methods. The qualitative study design was selected. The data was obtained through interviewing and surveying of older adults in the framework of a broader study. Replies to the questions related to mental and physical well-being were extracted and analysed. The sample consisted of community-dwelling adults aged 65 and over (N = 38). Individuals living in social care centres and having neuro-cognitive disorders were excluded. The data was obtained from October 2023 to January 2024. Interviews were held face-to-face and online, while surveying was implemented online. The data was processed using thematic analysis (Braun & Clarke, 2006).

Results. The main groups of well-being sources were identified like arts-based activities (e. g., listening to music, attending concerts/performances) and nature-based activities (e.g., being in nature, gardening, walking in nature).

Conclusions. Older adults are aware of their sources of mental and physical well-being. The sources represent mostly mental activities. Physical activities are less represented among the well-being sources.

PUBLIC HEALTH, OCCUPATIONAL MEDICINE, NUTRITIONAL SCIENCE, REHABILITOLOGY

ASSESSMENT OF PERCEIVED SOCIAL SUPPORT AND ITS RELATIONSHIP WITH HEALTH- RELATED QUALITY OF LIFE IN HIV/ AIDS PATIENTS

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Keywords. Perceived social support; Health quality; Cross sectional study; MSPSS

Objectives. HIV/AIDS is one of the most devastating diseases humanity has ever faced. AIDS patients not only require effective treatment for physical discomfort but also require social support to help them address difficulties in life and relieve their psychological anxiety and uneasiness. This study aims to analyze the status of perceived social support and health quality among AIDS patients in medical institutes of Lahore, Pakistan.

Materials and methods. It was cross sectional study, in which 101 patients of age ≥18 years, presenting with AIDS to Jinnah Hospital, confirmed on serology and fulfilling the selection criteria, were enrolled, using informed consent, through non-probability convenience sampling. A questionnaire comprising all study variables was designed to collect data. The collected data was analyzed using SPSS version 24 and $p<0.05$ was considered statistically significant.

Results. The total number of participants included in our study were 101 in which 77(76.2%) were males and 24(23.8) were females. The most frequent age group was found to be 30 to 39 years with 48(47.5%) participants. 47(46.5%) participants belonged to rural areas while 54(53.5%) belonged to urban areas. The mean scores calculated for Social support and physical and mental components of SF12v2 were MSPSS=53.84+15.47, PCS=40.41+10.52 and MCS=40.30+10.01, respectively. Both the MCS and PCS show a positive correlation with perceived social support. Perceived social support was more strongly positively related to physical health (PCS)r= .271, p< .01 than to mental health (MCS), r=.159, p< .01.

Conclusions. This study revealed that the social support level among people living with HIV/AIDS was generally low. It was found that there is a positive association between perceived social support, and physical and mental aspects of health of PLWHA. It was also identified that perceived social support was more strongly related to physical health of PLWHA than mental health. These findings suggest the need for better social support system for PLWHA.

PARENTS' EXPERIENCE OF USING DIETARY SUPPLEMENTS FOR CHILDREN

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Keywords. Dietary supplements; Children; Micronutrients; Micronutrient deficiencies in children

Objectives. To find out the experience of parents in the use of dietary supplements for children during the last year.

Materials and methods. Quantitative non-experimental cross-sectional study. Respondents were approached via social networks (*Instagram, Facebook, WhatsApp*) with an invitation to fill out the research questionnaire in the *Qualtrics*program. The study participants had to fill out questions about demographic data and the use of dietary supplements for children: frequencies, reasons, purposes and describe the child's diet.The obtained data from 245 completed questionnaires were processed with *Excel* and *IBM SPSS* programmes. Descriptive and inferential statistical methods were used to interpret the results.

Results. Most respondents were women, 97.2%. Median age of respondents 37 (Q1; Q3 = 32 to 40). The most widely represented age group of children was 6-11 years. Respondents noted that the child is practically healthy in 81.6% of cases.During the last year, 83.8% of respondents used vitamin D, 43.2% of omega-3 fatty acids and 28.2% of multivitamins. As the main source of information,77.6% of respondents noted a doctor. The number of dietary supplements used has a weak positive correlation with the age of children and parents. The older the respondents are, the more they supplement the child's diet with dietary supplements. The smaller the child, the fewer supplements he took.

Conclusions. Children's diet was most often supplemented with dietary supplements by women 32 to 40 years, with higher education.The absolute majority of children used dietary supplements during the last year.The most popular were vitamin D,omega-3 fatty acids, multivitamins. The main goals of the respondents for supplementing the diet with dietary supplements are to maintain the general health of the child or to maintain the immune system,having previously consulted a doctor or other health care specialist about the choice and use of dietary supplements.

CRITICAL INSIGHTS INTO PAEDIATRIC HEALTHCARE: USAGE HABITS, ACCESSIBILITY AND PARENTAL VALUATION IN LATVIA

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Keywords. Latvia; Children; Healthcare services; Accessibility

Objectives. This study assesses parental evaluation of paediatric healthcare services in Latvia, examining accessibility to different specialists and their competence as seen by parents. It explores the impact of financial sources of specialists' services and respondents' demographic data.

Materials and methods. The study was part of the Latvian healthcare monitoring survey 2023 which assesses healthcare quality and accessibility of various healthcare services in different age groups and regions in Latvia. Part of the questionnaire included questions about paediatric healthcare services. A stratified randomised sampling method was employed to interview 2856 respondents aged 18 and over.

Results. 25.8% (n= 737) of all respondents had at least one minor (<18 years-old) in their household, and of those 88.5% (n=652) responded to questions on paediatric healthcare services. 631 respondents children have visited a state-funded family doctor (FD) at least once in the last year, and of those 90.0% (n=568) evaluate the accessibility of FD as very good/good ($\chi2=16.3$; $p=0.001$), and 91.9% (n=580) see the competence of their FD as very good/good ($\chi2=28.9$; $p<0.001$). 330 respondents children have visited a state-funded doctor-specialist at least once in the last year. 88 have used privately-funded specialist services, and of those 85.2%(n=75) indicate that the privately-funded services were used because the same state-funded service was not available soon enough or at all. A significant correlation emerged comparing differences in availability of state-funded paediatric specialists across different regions. As for accessibility for acute paediatric dental care, 79.7% (n=384) rate it as poor/very poor, with the worst being in Vidzeme - 89.1% ($\chi2=11.7$; $p=0.020$). Elective dental care accessibility was evaluated as poor/very poor by 66.4% (n=374).

Conclusions. This study highlights critical aspects of paediatric healthcare accessibility in Latvia, revealing differences of parental judgement and challenges in specialist availability. Targeted interventions are needed to enhance overall satisfaction, and ongoing monitoring for uniform access across regions and specialists is very important.

BIOMARKER VARIATIONS IN EATING DISORDERS: UNDERSTANDING PHYSIOLOGICAL DYNAMICS

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Keywords. Eating disorders; Biomarkers; Anorexia nervosa; Bulimia nervosa; Binge eating; Atypical eating disorder

Objectives. This study delves into the intricate relationship between eating disorders (ED) and physiological markers, aiming to discern biomarker variations among specific categories, namely anorexia nervosa, bulimia nervosa, binge eating, and atypical eating disorder.

Materials and methods. The research involved the analysis of data obtained from 254 patients who sought evaluation at a tertiary center specializing in eating disorders at Lapeyronie Hospital, CHU Montpellier. The patients were meticulously assessed based on DSM-5 criteria, and those diagnosed with an eating disorder—whether Anorexia Nervosa (AN), Bulimia Nervosa (BN), Binge Eating Disorder (BED), or Atypical Eating Disorder (AED)—were incorporated into the database. The sample, with a mean age of 28.12 ± 1.4, predominantly comprised females (91.7%). Utilizing advanced statistical tools such as SPSS version 27 and ANOVA, the study meticulously examined biomarkers associated with the various eating disorder categories.

Results. The results disclosed noteworthy differences in blood composition among the different ED categories concerning several biomarkers. Significant disparities were observed in albumin levels ($p<0.01$), bicarbonate levels ($p=0.016$), calcium levels ($p=0.001$), magnesium levels ($p=0.01$), fluorised glucose levels ($p<0.01$), and alkaline phosphatase levels ($p=0.013$). Conversely, no clinically significant variations were detected in hemoglobin levels ($p=0.274$), ferritin levels ($p=0.194$), vitamin B12 levels ($p=0.376$), and vitamin A levels ($p=0.071$).

Conclusions. In conclusion, these findings furnish valuable insights into the intricate biochemical variations linked with different eating disorders, thereby contributing to a more profound understanding of their physiological implications. The study underscores the potential utility of biomarkers in facilitating precise diagnoses and guiding appropriate treatment strategies, particularly when faced with diagnostic uncertainties in the realm of eating disorders.

CHARACTERISTICS OF GAMBLING AND INTERNET GAMING IN RELATION TO SOCIO-DEMOGRAPHIC FACTORS AND ALCOHOL USE AMONG ADOLESCENTS IN LATVIA

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Keywords. Gambling; Internet gaming; Behavioural addictions

Objectives. As the prevalence of behavioural addictions increases, the World Health Organisation has included gambling addiction and Internet gaming addiction in the ICD-11. Behavioural addictions in other studies have been linked to a number of social demographic factors, as well as substance use problems. The objective is to assess the prevalence of behavioural addictions (gambling and internet gaming) in association to socio-demographic factors and alcohol use among 15–16-year-old students in Latvia.

Materials and methods. This was a cross-sectional study based on the secondary data from the 2019 ESPAD study. The study surveyed 15 – 16-year-old students on the use of alcohol, drugs, tobacco, gambling, video gaming, internet gaming, and social media. 2679 respondents' data was analysed in the study using descriptive statistics in SPSS 23.

Results. Among all respondents, 18.3% of boys (n=249, 95% CI 16.4% - 20.5%) and 4.2% (n=55, 95% CI 3.2% - 5.4%) of girls were problem gamblers, but problematic internet gamers were 10.1% (n=134, 95% CI 8.6% - 11.8%) boys and 1.7% (n=22, 95% CI 1.1% - 2.5%) girls. The results show that problem gambling and problematic internet gaming have statistically significant gender differences ($p<0.001$). With the increase in alcohol use up to 40+ times, the prevalence of internet gaming increased by 14.6 percentage points, while the prevalence of gambling increased by 33.0 percentage points compared to 1 to 9 times.

Conclusions. Problematic gambling and internet gaming is higher among 15–16-year-old boys than girls. The highest prevalence of problem gamblers is in families with a better economic situation, compared to families with a worse or the same economic situation, as well as in families where the teenager lives with other relatives. Within the groups where alcohol usage was the highest, the prevalence of problem gambling and problematic internet gaming was the highest.

KNOWLEDGE, ATTITUDE, AND PRACTICES OF PARENTS ABOUT IMMUNIZATION OF INFANTS AND ITS ASSOCIATED FACTORS IN JALAL-ABAD, KYRGYZSTAN

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Keywords. Immunization; Infants

Objectives. Immunization, also known as vaccination, is a critical public health intervention that has played a pivotal role in preventing and controlling infectious diseases for centuries. A recent study has shed light on the factors affecting child immunization, revealing that a child's gender, the mother's education level, and the region of residence play crucial roles. It found that educated mothers and those who delivered in health facilities had a higher likelihood of ensuring complete immunization. This study aims to learn about the attitude of parents toward vaccination and make them aware of its importance.

Materials and methods. It is a cross-sectional study in which 220 parents who are residents of Jalal-Abad, Kyrgyzstan, took part through a random sampling technique. All respondents are married females with a newly born child. A questionnaire was prepared that consisted of information about vaccination to collect data.The data is analyzed in SPSS.

Results. In a study of 220 respondents, mothers, aged 26-30, urban/rural (60.9%), with education ranging from primary (3.2%) to bachelor's or higher (70%). Families mostly had one child (69.1%), concentrated in the 0–5-month bracket (80.9%). Knowledge on immunization was high (96.4% preventive, 93.6% importance post-birth). 92.7% committed to completing the schedule, 74.1% had concerns. Positive attitude (87.7% compliance importance, 88.2% aware of benefits). Practices showed adherence (95% received mandatory vaccines), with proactive behaviors (91.8% seeking additional vaccines, 94.5% using pain relievers). Challenges included waiting times (78.2%). Areas for improvement: education on side effects and health facility efficiency.

Conclusions. In conclusion, respondents show positive attitudes, but concerns about side effects and waiting times persist. Solutions include guiding mothers during delivery, raising awareness, and improving health facility services. Allocating dedicated teams to newborns for vaccinations can enhance practices, leading to better public health outcomes. We suggest implementing checks and balances, with dedicated teams for newborn vaccination duties.

PSYCHOSOCIAL WORK ENVIRONMENT RISKS, BURNOUT SYNDROME AND WORKABILITY FOR EMPLOYEES IN FINANCIAL SECTOR WHEN WORKING ONSITE AND REMOTELY

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Keywords. Financial sector; Psychosocial risks; Workability; Burnout

Objectives. Psychosocial risks are one of the most frequent with which employees in financial sector have to deal with when working onsite and remotely. Psychosocial risk factors may be the cause of burnout syndrome and reduced workability (Nascimento et al., 2020). It is important to identify psychosocial risks and their impact on workability to implement preventive and health promoting measures in the work environment (Valente et al., 2016). The aim of this study was to investigate the psychosocial risks of working remotely and onsite for employees in financial sector and their impact on workability. 129 financial sector employees participated in the study, of which 88 women and 41 men in the age groups from 18 to 65 years.

Materials and methods. Survey questionnaire, the short version of the Copenhagen psychosocial questionnaire, the burnout syndrome test, determination of the workability index, data analysis using Statistical Package of the Social Science program.

Results. Results show that employees in the financial sector feel psychosocial risks when working both – onsite and remotely. The calculated workability index shows that workability of the employees is good, regardless of the type of work to be performed - onsite or remotely. Results of the burnout syndrome test show that the average score of financial sector employees is 3.44 (SD=0.64), which means that employees should consider possible changes in order not to increase the likelihood of burnout syndrome. The static compilation of the data shows that there is a negative relationship between the workability index and burnout syndrome ($r= -0.438$, $p<0.001$).

Conclusions. Employees of financial sector feel the psychosocial risks when working onsite and remotely. The more the psychosocial risks of the work environment are experienced, the worse the workability and the worse burnout syndrome test results.

PRELIMINARY INSIGHTS INTO UPPER LIMB MUSCLE CHARACTERISTICS: A MULTIMODAL ASSESSMENT APPROACH

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Keywords. Arm muscles; Clinical examination; Dynamometry; Electromyography; Functional examination; Muscle tests

Objectives. The aim of the study was to investigate and assess the relationships between clinical muscle examination, muscle strength, and electrical activity in various upper limb muscle groups. Hypothesis: Examination of muscle strength through clinical tests, dynamometry, and electrophysiological examination (sEMG) shows consistent patterns across different arm muscles in healthy individuals.

Materials and methods. This study analyzed upper limb muscle characteristics in 17 healthy volunteers, averaging 24.2 years of age (median 22 years), with 94.12% (n=16) being right-handed. We employed a multimodal approach to assess eight pairs of upper limb muscles (deltoid, biceps, brachioradialis, triceps, and wrist flexors and extensors). The assessment included clinical muscle strength testing, surface electromyography (sEMG) for electrical activity evaluation, and quantitative measurements using a handheld dynamometer. The comparative analysis of each muscle testing method was performed using *IBM SPSS Statistics 29*.

Results. In our study with 17 participants, we analyzed muscle strength and electrical activity in various muscle groups. We found significant correlations ($p<0.05$) between maximum muscle strength on both sides for most muscle groups, both in dynamometry and sEMG, except for wrist flexors and *brachioradialis*. Additionally, BMI correlated significantly ($p < 0.05$) with muscle strength across most groups, but not with spectral mean. Age showed a significant relationship ($p < 0.05$) with spectral mean in deltoids and wrist extensors. Due to the small sample size, these results are preliminary and warrant further investigation.

Conclusions. Our study revealed significant relationships between muscle strength, body composition, and electrical activity in various muscle groups. Key findings include the notable strength of the left *biceps brachii* and the unique electrical characteristics of the right wrist extensors. These preliminary results underscore the complexity of muscle functionality and the need for further extensive research to deepen our understanding of these interrelationships.

EXPLORING THE EFFECTIVENESS OF SMART DEVICE-BASED THERAPY IN ENHANCING HAND MOTOR FUNCTION DURING REHABILITATION IN STROKE SURVIVORS: A SCOPING REVIEW

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Keywords. Stroke; Smart devices; Smart device-based therapy; Telerehabilitation; Hand motor function

Objectives. This research aims to identify smart device-based therapy interventions for improving hand motor function in stroke survivors during rehabilitation and to assess their impact on hand motor function improvement compared to traditional therapy methods.

Materials and methods. A scoping review was conducted to identify smart device-based therapy interventions in clinical trials across the Web of Science, PubMed, EBSCO Complete, Google Scholar, Science Direct, ClinicalKey, and Scopus databases. The available literature was screened to identify smart device-based therapy interventions used to improve hand motor function in stroke survivors during rehabilitation, and their levels of evidence were analyzed. The selection procedure adhered to the PRISMA guidelines. References were managed using Mendeley reference manager (v1.19.8). Duplicates were removed by one reviewer using Covidence systematic review software. Title and abstract screening, as well as full-text review, were conducted by two independent reviewers, and data extraction was performed by four independent reviewers. The effectiveness of smart device-based therapy interventions was systematically searched for and analyzed.

Results. From identified 813 studies 9 studies were selected. Studies encompassed a variety of research designs, including randomized controlled trials (n=4), pilot studies (n=2) and other study types (n=3). Studies employed diverse digital intervention strategies, including games (n=8), virtual/mixed reality devices (n=6), sensors (n=5), mobile technologies (n=5) and robotic devices (n=1). Studies involved 248 individuals who had experienced either chronic or subacute stroke. Smart-device based interventions were delivered through asynchronous (n=8), synchronous (n=1) and hybrid (n=2) approaches.

Conclusions. Smart device-based interventions have shown to be efficient in improving hand motor function. Incorporating feedback from end-users (both therapists and patients) is essential for the creation and execution of a smart device intervention. Current development of smart devices is an ongoing process, evolving mostly under inpatient settings and specialist supervision.

HIGH-INTENSITY INTERVAL TRAINING VERSUS MODERATE-INTENSITY CONTINUOUS TRAINING EFFECTS ON TRAINING-RELATED HORMONAL RESPONSE, WORKING MEMORY, AND HEART RATE IN HEALTHY YOUNG ADULTS

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Keywords. Hiit; Mict; Growth hormone; Testosterone; Thromboplastin; Heart Rate; Memory

Objectives. Cardiovascular training is a powerful modulator of cardiovascular, endocrine, musculoskeletal, and cognitive health. However, the extent of gains in health relies on the modality and intensity of the training intervention. Therefore, this study aimed to compare two cardiovascular training modalities, high-intensity interval training (HIIT) and moderate-intensity continuous training (MICT), and their effects on cardiopulmonary adaptability, working memory, body composition, and three blood indicators (growth hormone, testosterone, and activated partial thromboplastin time (APTT)) over a 3-week, twice per week, training period.

Materials and methods. The study was conducted at Rehabilitation Medicine and Sports Injury Clinic ABI Promedical between March 20 and April 11, 2023. HIIT included cycling 2-min high-intensity intervals at 80-90% of heart rate maximum (HR max) interspersed with 2-min active recovery intervals at 50-60% of HR max for 8 cycles (or a total of 32 min) on an assault bike, while MICT included continuous cycling at 70% of HR max for 32 min on an assault bike. Both training interventions involved training twice a week during the hours 4 PM to 8 PM, interspersed with 2–3-day rest intervals, for 3 weeks in a row.

Results. The sample included 10 healthy students (aged 19-25) with no metabolic diseases and low to moderate physical activity levels. Between the first and last practice sessions, it was observed that HR regulation improved for the HIIT group. Free testosterone increase was greater in the MICT group, however, APTT increased more in the HIIT group. Both intervention groups also showed meaningful results for short-term memory.

Conclusions. This study found that six 32-minute HIIT and MICT training sessions performed over the 3 weeks are enough to see changes in cardiovascular, endocrine, and cognitive health indicators.

THE ASSOCIATION OF LONGER BREASTFEEDING DURATION AND SOCIOECONOMIC FACTORS, PREGNANCY, CHILDBIRTH AND POSTPARTUM CHARACTERISTICS

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Keywords. Breastfeeding duration; Smoking; Sociodemographic

Objectives. Breastmilk is the safest and most suitable food for an infant and plays a role of the first vaccine with all the essential nutrients, antibodies, hormones and antioxidants for the first months. World Health Organization recommends exclusive breastfeeding from birth to 6 months of age, continued breastfeeding until 2 years and beyond. According to Latvian statistical data of 2022 – 88,1% of infants were breastfed for 6 weeks, 53,7% for 6 months and only 27,4% were breastfed for 12 months. The aim of this study was to investigate the duration of breastfeeding in Latvia in relation to mothers` socio- demographic factors, pregnancy, childbirth, and the postpartum period factors.

Materials and methods. Data from the "Study on factors and habits affecting the sexual and reproductive health of the population in Latvia" carried out by Ministry of Health of the Republic of Latvia, 2023, was used. Cross -sectional study with a representative sample of women who gave a birth at least once (n= 1407) aged 15 – 64 years were analyzed. Dependent variable was breastfeeding duration (0-6 and 7+ months). Binary logistic regression was used to detect factors independently associated with the breastfeeding duration. Variables with statistically significant association in univariate analysis were included in a binary logistic regression model. Results were considered as statistically significant if $p<0.05$.

Results. Multivariate analysis shows that not smoking during pregnancy (aOR=2.1), two childbirths (aOR= 1.5), maternal higher education (aOR=2.0), breastfeeding initiation immediately after childbirth (aOR=1.7) are associated with longer breastfeeding duration.

Conclusions. Identification of factors promoting longer breastfeeding in Latvia is useful in planning and organizing targeted public health activities.

GENDER DIFFERENCES IN ACCEPTANCE OF FACTORS THAT MAKE OFFICE WORKERS MOVE MORE OFTEN

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Keywords. Office workers; Physical activity promoting factors; Sedentariness

Objectives. Sedentariness causes serious problems that can be prevented by more frequent movement. Understanding how differently factors influence women and men can help employers plan their strategies more efficiently. The aim is to analyze the impact of gender on factors that make office workers move more frequently.

Materials and methods. The first anonymous questionnaire was distributed electronically among the Latvian office workers in 2022, the second one - in 2023. The same questions from both surveys were combined and analyzed by the SPSS program using frequency and Pearson Chi-square tests.

Results. A total of 552 respondents were included of which 23.9% (n=132) were men and 76.1 % (n=420) women, with a mean age of 39.6 ± 11.3 years. Statistically significant differences ($p<0.05$) between genders regarding factors that could possibly help office workers to increase daily movements and reduce sedentariness while working on computer were observed. More women (47.9%) than men (27.3%) totally agreed that it would help them to move more if their employer provided a specialist to lead physical activity classes. 21.2% of men and 31.4% of women believed that it would help them move more if the employer provided a physical activity schedule. More women (7.4%) totally disagreed, while only 1.5% of men didn't agree with the statement that a rest corner with standing activities in the workplace would help them move more often.

Conclusions. Employers should take into consideration gender differences to stimulate physical activities and reduce sedentariness in office workers. For instance, women can exercise with a trainer according to the schedule, while men can participate in standing activities in the rest corner.

ANTIDIABETIC PROPERTIES OF BILBERRY (VACCINIUM MYRTILLUS) AND LINGONBERRY (VACCINIUM VITIS – IDAEA) OF LEAVES AND HERBS EXTRACTS

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Keywords. Vaccinium myrtillus; Vaccinium vitis – idaea; Antioxidants; Type 2 diabetis mellitus

Objectives. The use of medicinal plants is making a comeback as drug resistance to some diseases (including type 2 diabetes mellitus) is emerging. The leaves and stems of Vaccinium myrtillus (VM) and Vaccinium vitis – idaea (VV) contain high amounts of polyphenols, which are antioxidants and can positively affect blood sugar levels. The purpose – was to compare the chemical composition and antiradical and antidiabetic activity (total phenolic content and total flavonoid content) of the leaves and stems of Latvian Vaccinium myrtillus (VM) and Vaccinium vitis – idaea (VV).

Materials and methods. A total of 4 samples were collected in different locations: 2 VM samples and 2 VV samples. Dried plant was used for 8 samples of 50% ethanol tinctures (4 samples of leaves and 4 herbs) and 8 samples of ethanol extract lyophilisates (4 samples of leaves and 4 herbs). UV – VIS spectroscopy was used to determine total tannin content, total phenolic content, antiradical activity using a DPPH (2,2-diphenyl-1-picrylhydrazyl), also was detected α-amylase activity.

Results. VM polyphenol content ranging 366.73 - 420.62 mg gallic acid equivalent/g in tinctures and 589.25 to 714.40 mg gallic acid equivalent/g in lyophilized extracts. VV exhibits polyphenol content from 470.93 to 632.80 mg gallic acid equivalent/g in tinctures and 825.13 to 968.52 mg gallic acid equivalent/g in lyophilized extracts. Tannin content in VM tinctures is 0.68 to 1.34% and lyophilized extracts is 0.09 to 0.21%. VV tinctures contain tannins from 0.85 to 2.85%, and lyophilized extracts range from 0.02 to 0.18%. A high correlation between DPPH and alpha-amylase is observed (R=0.86, p=0.015).

Conclusions. The leaves and herbs of Vaccinium myrtillus and Vaccinium vitis – idaea contain a high concentration of polyphenols and tannins, have antiradical properties, may also have antioxidant properties.

A COMPARATIVE ANALYSIS OF CONVENTIONAL CIGARETTE SMOKERS AND NOVEL SMOKING ALTERNATIVES

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Keywords. Cigarettes; Electronic cigarettes; Heat-not-burn tobacco

Objectives. Despite the efforts in mitigating smoking over the years, public health faces a new challenge with the emergence of novel smoking alternatives. The aim of this study was to determine and compare the quantity of substances smoked and the tendency to smoke indoors among smokers of cigarettes, heat-not-burn products (HNBP) and electronic cigarettes (e-cigs).

Materials and methods. A study was conducted during the period from February 2020 to April 2020, as an anonymous voluntary survey in various media platforms and adverts in Lithuania. 642 people submitted their responses out of whom 283 (44.1%) were smokers. A questionnaire was used to assess the quantity of nicotine-containing substances smoked by smokers and their tendency to smoke indoors.

Results. The mean age of the respondents was 28.36 ± 11.74 years. Among the smokers, 37.5% reported smoking cigarettes, 41.7% HNBP, 17.7% e-cigs and 3.2% other. Majority of cigarette smokers reported smoking outdoors (81.1%), whilst the opposite was observed with HNBP and e-cig smokers as 85,6 % and 96 % respectively reported smoking indoors. Smokers of HNBP smoked an average of 10.54 ± 6.82 HNBP per day, while smokers of cigarettes smoked an average of 5.94 ± 5.49 cigarettes per day. 68.8% e-cigs smokers reported continuous day-long smoking. An association between e-cigs ($p<0.001$) and HNBP ($p<0.015$) and smoking indoors was found.

Conclusions. HNBP emerged as the preferred smoking method among respondents, with users averaging 1.77 times higher consumption compared to cigarette smokers. Notably, a substantial proportion of e-cigs users reported day-long usage. E-cigs smokers exhibited a 5.33-fold higher likelihood of indoor smoking compared to cigarette smokers, while HNBP users were 4.53 times more inclined to smoke indoors. These findings underscore the evolving landscape of smoking habits, necessitating continued investigation for comprehensive insights into tobacco use patterns and associated health implications.

ANTIDIABETIC PROPERTIES OF THE ROOT EXTRACTS OF DANDELION (TARAXACUM OFFICINALE) AND BURDOCK (ARCTIUM LAPPA)

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Keywords. Diabetes mellitus; Dandelion; Burdock; Tannin; Inulin; Total polysaccharide; Total phenolic content; Antioxidant; Hypoglycemic properties

Objectives. Several preclinical studies suggest the potential of edible plants in controlling blood sugar levels and stabilizing diet. The goals of the study were to examine, analyze and describe whether there are chemical compounds in dandelion and burdock roots that could have antidiabetic properties.

Materials and methods. Dandelion and burdock roots were collected by hand in late autumn from two Latvian rural regions. The roots were washed under running water, dried, crushed, and then this powder was used in the preparation of extracts. The 70% ethyl alcohol and lyophilizate (freeze-dried) extracts (AE and LE, respectively) were utilized, and their inulin, tannin, total polysaccharide (TP), and total phenolic content (TPC) were measured. The antioxidant activity of extracts was determined using the DPPH (2,2-diphenyl-1-picrylhydrazyl) assay, and hypoglycemic properties were based on α-amylase activity.

Results. Qualitative techniques confirmed the presence of inulin in both roots. TPC (mg GSE/g) and tannin (%) content, DPPH assay (ic50 mg/l) and α-amylase (ic50 mg/ml) activity indicated that burdock root had higher values than dandelion root, but TP (%) content was higher in dandelion. Burdock contained a small amount of tannin, while dandelion had a non-significant amount of tannin. LE exhibited higher values compared to AE.

Conclusions. Despite burdock root showing overall better results, it is uncertain whether these plants can be recommended as antidiabetic agents without in vivo studies.

ACCIDENTS AT WORK – AFFECTED BODY PARTS BY NONFATAL AND FATAL INJURIES IN LATVIAN EMPLOYEES

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Keywords. Occupational accidents; Occupational health

Objectives. Accidents at work have been described as an important public health problem. Depending on the conditions in which they occur, occupational accidents can cause everything from mild injuries, such as bruises or minor trauma, to more severe ones, such as loss of limb function or amputation and can lead to temporary, permanent disability or even death. The study aimed to investigate the main cause and the body parts affected in occupational accidents.

Materials and methods. Cross-sectional descriptive study based on the occupational accidents database of the State Labour Inspectorate and Official Statistics portal in Latvia. Data on accidents at work from 2012 to 2022 were used and recalculated per 100,000 employees. For the analysis of the body parts affected in occupational accidents, variables gender, age group and trauma factors were selected.

Results. A total of 21,532 accidents at work from 2012 to 2022 were analysed. The highest number of accidents per 100,000 employees involved hands (63.8±10.0 or 29.2% of all accidents), foot (35.6±5.5 or 16.3%), lower and upper arm (28.0±4.7 or 12.8%), lower and upper leg (27.3±4.5 or 12.6%) and head (25.1±5.5 or 11,6%). The least frequently registered accidents were affected with whole body (3.7±0.6 or 1.7%). The main cause of accidents per 100,000 employees is unsafe behaviour at workplace (184.1±24.7 or 75.1%). Analysing by gender involved in accidents at work, the rate per 100,000 employees was on average 293.6±44.3 (66.6%) for men and 147.5 ±21.8 (33.4 %) for women. The most affected age group was 15 to 24 years (45.7±11.7 or 30.4%) and the least affected was group 35 to 44 years (17.3±2.3 or 11.5%).

Conclusions. The data suggests the most affected body part by occupational accidents is the hand, mainly in men aged 15 to 24 years by unsafe behaviour at work.

TEMPORARY DYSPHONIA AFTER ANTERIOR CERVICAL APPROACH: SUCCESSFUL REHABILITATION

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Keywords. Cervical corpectomy; Successful rehabilitation; Audiologopedics

Introduction. Voice alteration is a frequent complication after anterior cervical spine surgery. Although dysphonia may be permanent, most cases are temporary and lasting for weeks or months. Because of patient dedication and following the rehabilitation plan, the return of the voice was possible within 6 months.

Case description. A 46-year-old man presented in a hospital for a planned C7 corpectomy and anterior spondylodesis with ADD Plus, due to progressing cervical vertebra deformity, spinal cord stenosis and associated radiculopathy and sensory impairment in C7 dermatome. In the early post-operative period complaints about vertigo decreased, but there was still a little discomfort in the neck. On the second day of post-operation patient presented with dysphonia. The audiologist consulted the patient and evaluated the GRBAS scale, which revealed moderate voice dysfunction (G2R2B0A0S2). The patient was educated about voice rehabilitation tasks, but even after the first rehabilitation days dysphonia progresses and the patient is given a strong recommendation for voice rest. The patient continues rehabilitation ambulatory with positive dynamics after 3 months. After 6 months and regular voice rehabilitation tasks, there is seen a positive dynamic in dysphonia. GRBAS was significantly better – C0R0B0A0S0 – and the quality of voice increased. Maximal phonation time was closer to normal – 35 sec.

Summary. A 46-year-old patient had voice alteration after anterior cervical spine surgery. With a successful rehabilitation plan, GRBAS was significantly better and the voice quality was closer to normal. This case report shows why rehabilitation programs are important for patient rehabilitation and better outcome results.

Conclusions. For many patients after anterior cervical spine surgery voice change resolves early in the post-surgery period. A multidisciplinary team is needed to ensure a better recovery period and more effective adaptation in a working environment.

KNOWLEDGE ABOUT HIV, RISK PERCEPTION AND TESTING BEHAVIORS AMONG YOUNG ADULTS

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Keywords. HIV; Knowledge of HIV prevention and transmission; Testing; Stigma; Young adults

Objectives. Human Immunodeficiency Virus (HIV) remains a significant global health concern, with a particular impact on young adults. Understanding the transmission methods, prevention and the importance of early detection is crucial for young adults to protect themselves and contribute to the collective effort to curb the spread of HIV. The aim of this study is to investigate HIV knowledge, risk perception, and testing behaviors among a sample of young adults in Lithuania.

Materials and methods. A cross-sectional study was conducted among adults aged 18 - 26 years in Lithuania. Data were collected through an anonymous online self-administered questionnaire from September 2023 to November 2023. Survey data were entered into an Excel sheet and conducted statistical analysis using IBM SPSS Statistics.

Results. A total of 290 young people responded. More than 25% of participants displayed misunderstanding about HIV transmission. 4,1% perceived themselves to be at high risk for HIV, and only 8,6% reported having ever been tested for HIV. People who perceived own risk for acquiring HIV as high had lower knowledge about HIV transmission and prevention. HIV knowledge was negatively correlated with HIV testing. In addition, a majority of participants (83,1%) reported they would feel ashamed if they acquired HIV.

Conclusions. Results indicate the need for HIV education among young adults in Lithuania, aiming to dispel misconceptions, narrow knowledge gaps, lessen HIV-related stigma, and encourage HIV testing.

SURGERY

HOSPITAL CARE FOR ASYMPTOMATIC PRIMARY HYPERPARATHYROIDISM (APHPT) IN TERTIARY CARE HOSPITAL IN LATVIA: A 3-YEAR RETROSPECTIVE BASED STUDY

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Keywords. Primary hyperparathyroidism; Asymptomatic hyperparathyroidism; Parathyroidectomy; Osteoporosis

Objectives. To evaluate characteristics, management, diagnostic assessment and surgical outcome in APHPT.

Materials and methods. Data of 168 patients evaluated at Riga East Clinical University Hospital from January 2021 to November 2023 were retrospectively analyzed using IBM SPSS 29.0.

Results. 168 patients (mean age 63.7±11.8 years), 86.3% were females. The mean preoperative maximal calcium level was 2.89±0.32mmol/L, iPTH level – 247.6±224.9pg/mL. Parathyroid adenoma sizes ranged from 0.3×0.4cm to 5.3×3.7cm. Ultrasonography verified adenomas in 63.7% (107/168), SPECT/CT 68.4% (52/76), 99mTc-sestamibi scintigraphy 65.6% (61/93), 3D-CT 70.6% (24/34), contrast-enhanced ultrasonography (CEUS) – 84% (21/25), MRI – in 40% (2/5) cases. Parathyroid adenomas were located on the right inferior in 38.1% (n=64), left inferior in 32.1% (n=54), right superior in 7.1% (n=12), left superior in 4.2% (n=7), both sides in 1.2% (n=2). 3.0% (n=5) had ectopic parathyroid adenoma. 34.5% (n=58) had osteoporosis, 12.5% (n=21) osteoporotic fractures, 47.6% (n=80) osteopenia. 22.0% (n=37) had kidney stones, 17.3% (n=29) gallstones, 7.1% (n=12) had a history of cholecystectomy. 61.9% (n=104) underwent parathyroidectomy, with a mean surgical time – 54.6±29.6 minutes. 12.5% of patients (n=21) did not undergo parathyroidectomy due to an unidentified adenoma location, while 25.6% (n=43) were awaiting surgery. Histopathology and radiologic imaging of operated patients revealed a single adenoma in 93.3% (n=97), double adenomas in 1.9% (n=2), hyperplasia in 2.9% (n=3) and carcinoma in 1.9% (n=2). The mean maximal postoperative calcium level (n=103) was 2.39±0.13mmol/L, the mean maximal iPTH (n=101) – 63.5±27.7pg/mL. Preoperative calcium levels positively correlated with adenoma cross-sectional area (ρ=0.187,p=0.029) and maximal dimension (ρ=0.215,p=0.011). Three patients developed hungry bone syndrome. Three – required reoperation.

Conclusions. The clinical profile of this disease has evolved through the decades from symptomatic to asymptomatic presentation. Parathyroidectomy is recommended for all patients. It's crucial to consider the diverse clinical manifestations in patients with APHPT.

COMPARATIVE ANALYSIS OF AESTHETIC SATISFACTION, SCARRING, AND SAFETY IN BREAST REDUCTION ALONE VERSUS AS A COMPONENT OF MOMMY MAKEOVER: A RETROSPECTIVE STUDY

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Keywords. Breast reduction; Mommy Makeover;Aesthetic Satisfaction

Objectives. The realm of aesthetic surgery continually evolves, offering patients diverse options to enhance their appearance and well-being. Within this spectrum, the choice between standalone breast reduction (BR) and its integration into Mommy Makeover (MM) procedures becomes a pivotal decision for both surgeons and patients. The question remains whether performing one operation at a time changes patients' aesthetic satisfaction, scar healing and complication rates after surgery.

Materials and methods. A retrospective study involved 108 female patients who underwent BR or MM at a private clinic in 2022. Group 1 (G1) (n=49) comprised patients who received only BR, while Group 2 (G2) (n=59) consisted of patients who underwent MM. Patients were administered the "BREAST-Q" questionnaire including "Satisfaction with breasts" before (SBBS) and after (SBAS) the surgery and the "Appraisal of Body Contouring Scars" for BR (ABR). Descriptive statistics included means (±) and median (Mdn) values. Statistical analyses employed the Mann-Whitney U and unpaired t-test.

Results. No significant differences were observed in demographic parameters between groups, with a mean age of 41.41 ± 9.391 and BMI 26.57 ± 3.506. When compared SBBS, with no significant difference between G1 (Mdn=0) and G2 (Mdn=0) there was huge dissatisfaction with breasts before the operation. When compared SBAS, significantly patients were more satisfied with breasts in G1 (Mdn=100) than in G2 (Mdn=82) (U=892, p=0.029). When compared ABR, significantly more scars were visible in the breast area in G1 (Mdn=78) than in G2 (Mdn=100) (U=1049, p=0.0296). Significantly more patients experienced complications in G2 (55.93%) compared to G1 (34.69%) (χ^2=4.856, p=0.0275).

Conclusions. Patients undergoing only BR reported higher satisfaction, fewer complications, and more visible scars compared to MM. Despite increased scar visibility, BR alone appears safer with better outcomes. Hence, unless specific indications dictate otherwise, a single surgery is more advisable.

THORACOTOMY AS A SAFE AND EFFECTIVE APPROACH TO THORACIC SURGERY

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Keywords. Posterolateral – thoracotomy; Transcostal suture; Rib resection

Materials and methods. One cadaver of the Institute of Anatomy and Anthropology, Department of Morphology is being dissected. A posterolateral thoracotomy with rib resection and reconstruction is used in bronchial carcinoma using a muscle-sparing technique.

Objectives. Thoracotomy is used for thoracic surgery. Although it provides excellent exposure of the thoracic organs, this approach requires the crossing of large muscle groups, which can contribute to the occurrence of postoperative complications. To save m. latissimus dorsi and m. serratus anterior, we used transcostal sutures, reducing the method of sacral-sparing thoracotomy after surgery.

Results. Muscle-sparing thoracotomy - the patient lies on the right side, the operation is performed through a skin incision from the middle ear line around the corner of the scapula to the paravertebral line. A triangle bound by m.latissimus dorsi, m.trapezius and scapula is identified. The connective tissue between the muscles is broken down. The m.latissimus dorsi muscle is mobilized and retracted using special hooks - holders. Also, m.serratus anterior is mobilized in order to damage the muscles (latissimus dorsi, serratus anterior) as little as possible and not to injure the long thoracic nerve, the damage of which can cause postoperative neuralgia, breathing disorders. An interspace is formed, and an incision is made in the selected place (where the bronchial carcinoma should be excised) along the upper side of the lower rib of the interspace, the exposure is increased with the technique of two retractors. Transcostal sutures were used for suturing.

Conclusions. In summary, we simulated this procedure in case of bronchial carcinoma, performing a muscle-sparing posterolateral thoracotomy with rib resection and applying transcostal sutures. The benefits of this method are the muscle preservation from crossing, that would reduce postoperative complications and reduce pain.

PET/CT ROLE IN BREAST CANCER STAGING

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Keywords. Breast cancer; PET/CT imaging

Objectives. Although nowadays diagnostics of breast cancer have improved, often it is discovered in advanced stages. PET/CT is relatively recent diagnostic method in Latvia and may have some advantage regarding to CT imaging when it comes to detecting regional and distant metastasis.

Materials and methods. This retrospective study included 119 women aged 27-85 with diagnosis of breast cancer who were treated in Pauls Stradiņš Clinical University Hospital, Breast Unit, from 2016 to 2022 and did both PET/CT and CT imaging with maximum 2 months in between. Patients were divided into 3 groups based on when the imaging was done: before (51 patients), during (41 patients) or after-treatment (37 patients). Data was collected from medical records and "Datamed" database. Analysis was done with SPSS Statistics using Cohen's kappa method.

Results. Overall assessment of regional metastasis both in PET/CT and CT were not significantly different between the groups, measuring substantial agreement (κ=0.8 both before and during-treatment, κ=0.7 after-treatment, $p<0.001$). Similarly, findings of distant metastasis in during and after-treatment group showed substantial agreement (both κ=0.7, $p<0.001$). However, in before-treatment group only weak to moderate agreement transpired κ=0.5, $p<0.001$). In before-treatment group 47% (24) of patients also had uncertain metastasis assessment, decreasing to 24% both in during and after-treatment. During treatment majority of patients had PET/CT reveal additional findings not observable in CT, whilst in before and after-treatment majority had CT findings doubtful, but PET/CT denied them.

Conclusions. PET/CT and CT showed similar metastasis assessments, with only moderate agreement on distant metastasis in the before-treatment group. More precise analysis would require larger population and detailed examination of medical history to assert accuracy difference of the imaging methods.

BLEEDING IMPACT ON OUTCOME IN BLOOD CULTURE POSITIVE AND NEGATIVE BACTERIAL ENDOCARDITIS

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Keywords. Endocarditis; Bleeding; POTTER

Objectives. Blood culture negative (BCNE) and positive (BCPE) endocarditis present with variable coagulopathy- including increased bleeding, especially intraoperatively. Research suggests- BCNE has higher mortality due to lack of pathogen-specific treatment of various complications including postoperative bleeding. The aim of the research was to compare BCNE, BCPE in terms of 1) total blood component transfusion volumes (TBCTV) (including packed red blood cells, fresh frozen plasma, cryoprecipitate, platelets) and surgical drain volumes in ICU (SDV); 2) how TBCTV, SDV correlate with intrahospital mortality; 3) POTTER 30-day mortality score with intrahospital-mortality, POTTER bleeding requiring transfusion score with SDV.

Methods. Retrospective research analyzes 176 endocarditis patients (72 BCNE, 104 BCPE) who underwent cardiac surgery at Pauls Stradiņš Clinical University Hospital from 2014 to 2021 by comparing mean TBCTV, SDV, mortality values. POTTER scores were calculated using POTTER calculator mobile application. Shapiro-Wilk test was used for assessing normality. Spearman's rho was used for TBCTV and SDV, POTTER score and intrahospital mortality, bleeding relationship assessment. P-values<0.05 were considered statistically significant. SPSS version29 was used for analysis.

Results. Mean TBCTV in BCNE, BCPE patients were 1833.42.±1621.78mL, 2653.8±3809.38mL respectively. Mean SDV in BCNE, BCPE groups were 888.47±882.1mL, 1082.1±1755.373mL respectively. POTTER 30-day mortality score correlates with intrahospital-mortality in BCPE ($r(102)=0.204$ $p<.05$) and BCNE ($r(70)=0.256$ $p<.05$). POTTER for bleeding requiring transfusion score correlates with SDV in BCPE ($r(102)=0.208$ $p<.05$). Intrahospital mortality in BCNE: 6.9%, BCPE: 14.4%.

Conclusions. BCPE requires more transfusions, has a tendency of more pronounced bleeding and has higher intrahospital mortality. TBCTV show correlation with intrahospital mortality in BCNE, BCPE groups. Whereas SDV show no correlation with intrahospital mortality in both groups. POTTER 30-day mortality shows tendency of predicting intrahospital mortality risk for BCNE, BCPE groups. It is worth noting- POTTER score for bleeding requiring transfusion when compared to SDV analysis suggests that there is a correlation between the variables in the BCPE group, but no significant correlation in the BCNE group, limiting its use for prediction of transfusion volumes in all endocarditis patients.

FACTORS AFFECTING COMPLICATIONS IN BREAST REDUCTION: A RETROSPECTIVE STUDY

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Keywords. Breast reduction; Complications; Patient outcomes

Objectives. Breast reduction surgery is a significant and often transformative procedure, addressing both cosmetic concerns and functional limitations for women. As with any surgical intervention, minimizing complications is paramount for ensuring patient well-being and satisfaction. This study aims to investigate factors influencing complications in breast reduction.

Materials and methods. A retrospective study involved 80 female patients who underwent breast reduction for pre-existing gigantomastia at the Hospital of Lithuanian University of Health Sciences in 2023. Group 1 included women without complications, while Group 2 consisted of those experiencing infection, seroma, skin necrosis, wound separation, unwanted scarring, and hematoma. The normality of the data was evaluated using the Shapiro-Wilk and Kolmogorov-Smirnov tests. Descriptive statistics included median (Mdn) values (min-max). Statistical analyses employed the Chi-squared, Mann-Whitney U and unpaired t-test.

Results. Group 1 (n=39) median age was 29 (20–60), and Group 2 (n=41) median age was 42 (23–68). The age in Group 1 was significantly lower than in Group 2 ($p<0.0001$). Body mass index did not show a significant difference between the groups, with a median of 29 (20–43). Statistically significantly, a higher proportion of patients in Group 1 (92.31%) had a history of childbirth compared to Group 2 (75.61%) ($\chi^2=4.095$, $p=0.048$). However, no statistically significant differences were found between the groups in terms of smoking habits and co-morbidities ($p=0.7838$; $p=0.5699$).

Conclusions. Patients who had undergone childbirth and were younger exhibited a lower incidence of complications after breast reduction compared to those who had not given birth and were older. This might be influenced by childbirth and breastfeeding that induce changes in breast tissue, including increased blood flow, mammary gland development, and hormonal factors that reshape its structure. The presence of smoking and co-morbidities did not demonstrate a significant influence on the occurrence of complications after the surgery.

CASE REPORTS, SMALL CASE SERIES

GYNAECOLOGY, GYNAECOLOGICAL SURGERY, OBSTETRICS, PERINATOLOGY

BLADDER EXSTROPHY - A CASE REPORT

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Keywords. Bladder exstrophy; Congenital disease; Prenatal ultrasound

Introduction. Bladder exstrophy is a severe and complex congenital malformation. The exact pathogenesis of bladder exstrophy is unknown. The estimated incidence of this defect is 3-5:100 000 live births with male to female ratio of 2.3:1. The sensitivity of ultrasound to detect bladder exstrophy varies from 47 to 71%. We report a case and focus attention on the role of various ultrasound findings to come to prenatal diagnosis.

Case description. A 27-year-old primipara was referred to Riga Maternity Hospital at 22^{+3} weeks of gestation for the second opinion of anomaly midtrimester scan. The family history and first trimester screening were unremarkable and showed low risk. Ultrasound examination revealed ambiguous genitalia and low insertion of the umbilical cord. The small echogenic mass was seen protruding suprapubically. The iliac crests were abnormally wide. The fetal urinary bladder was absent despite visualization of both kidneys and normal amniotic fluid volume. Both umbilical arteries were traced by the side of the mass. All other fetal structures were unexceptional. The biometric parameters were consistent with gestational age. Based on ultrasound scan finding, a bladder exstrophy was suggested. Findings and prognosis were discussed with the patient, and family opted for termination of pregnancy. Diagnostic karyotyping with sequential feticide was performed before induction of labour. Postabortal findings confirmed an exposed bladder.

Summary. Early diagnosis of bladder exstrophy allows parents to make an informed choice about pregnancy termination or preparing for the birth of a sick child.

Conclusion. Bladder exstrophy should be suspected when urinary bladder is not visualized in the presence of normal appearing kidneys and amniotic fluid volume. Structured ultrasound examination helps to reveal this anomaly during the first and second trimesters. Although the bladder exstrophy is not fatal, it has a substantial impact on patient‘s quality of life.

DEEP PELVIC ENDOMETRIOSIS - A RARE CASE IN PAEDIATRIC PRACTICE

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Keywords. MRI; Paediatric endometriosis; Dysmenorrhea; Pelvic pain; Laparoscopic surgery; Deep pelvic endometriosis excision

Introduction. Deep pelvic endometriosis is a presence of functional endometrial tissue outside the uterus. While it is relatively common among the adult female population, it is rare in paediatric clinical settings. Magnetic Resonance Imaging (MRI) plays a crucial role in identifying its expansion.

Case description. A 16 year old girl was consulted by a gynaecologist due to dysmenorrhea and menorrhagia. Clinical evaluation excluded systemic diseases, and the patient had no history of prior surgeries. Upon physical examination, initial transabdominal ultrasonography revealed left ovarian mass, potentially a dermoid. Subsequent ultrasonography identified multilocular cyst with lace-like reticular echoes, leading to the diagnosis of an ovarian hemorrhagic cyst (endometrioma or teratoma). Three months later, follow-up ultrasonography confirmed endometriosis, presenting as endometriomas in both ovaries, with suspected pelvic infiltration. Soon after MRI was performed to unveil deep endometriosis extending from the dorsal part of *cul-de-sac* to the anterior wall of the rectum and peritoneum. Due to the rapid progression of endometriosis and a decline in the quality of life despite hormonal treatment, the decision was made to conduct laparoscopic endometriosis surgery. Histopathology results confirmed diagnosis of bilateral ovarian endometriomas.

Summary. This case presents a disease rarely seen in paediatric age - deep pelvic endometriosis with infiltration into peritoneum, treated by laparoscopic excision as well as the importance of early diagnosis with advanced imaging such as MRI.

Conclusion. Early diagnosis of endometriosis in the paediatric population is of crucial importance to prevent infiltration in adjacent tissues. While the prevalence of endometriosis in the paediatric population is low, if clinical signs are present and there is a resistance to conventional treatment, MRI should be the preferred modality for the diagnosis of endometriosis.

RARE CASE OF PYOMYOMA MIMICING OVARIAN CANCER

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Keywords. Pyomyoma; Necrosis; Myoma; Gynaecological tumor; Anemia

Introduction. Uterine leiomyomas (also referred as myoma or uterine fibroids) are the most common pelvic neoplasms in females. They are noncancerous neoplasms. Pyomyoma is rare complication of leiomyoma usually due to vascular compromise resulting in necrosis. If untreated it can result in life threatening complications such as sepsis. Diagnostics of this condition are usually delayed due to non-specific clinical symptoms.

Case description. A 40-year-old primipara woman with complaints of stomach bloating, pain, abdomen increasing in the size for two weeks and a fever up to 38°C for one week. Patient turns to primary care doctor where transvaginal USG is performed. After examination she is sent to emergency room. In emergency room computer tomography scan reveals a large unilocular mass with thickened wall and in the left side of small pelvis, suspected ovarian malignancy. Bilateral hydronephrosis grade 3 suspected due to both ureters compression from the mass. At the time of admission laboratory findings shows increased levels of CRP-190mg/l, leucocytosis-17.04×10^3, and haemoglobin-7,10d/dl. Patient receives antibiotics and blood transfusions; her condition doesn't improve. Patient underwent surgery. Intraoperative findings demonstrate tumour in uterus 30 centimetres in diameter and not ovarian masses. During the surgery uterine mass rupture occurs and 3 litres of purulent fluid is aspirated. Due to findings hysterectomy and unilateral salpingectomy is performed and material sent to histology.

Summary. Pyomyoma can result in serious and life-threatening complications, immediate treatment is necessary as it can lead to sepsis. This condition is usually seen in context of pregnancy, postmenopausal status, or uterine instrumentation. This case is unusual because patient had no history of myoma and no known risk factors for pyomyoma.

Conclusion. This case report highlights difficulties in diagnostics due to its non-specific clinical presentation. Surgery is required for a definite diagnosis.

ACUTE TWIN ANEMIA POLYCYTHEMIA SEQUENCE - CASE REPORT

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Keywords. Monochorionic twin pregnancy; Twin anemia polycythemia sequence

Introduction. Twin anemia polycythemia sequence is an unbalanced blood transfusion via placental anastomoses in MC twins, leading to anemia in the donor and polycythemia in the recipient. TAPS can occur spontaneously or after incomplete laser surgery for TTTS. We represent a case report of a MC twin pregnancy complicated by acute TAPS.

Case description. A 24-year-old pregnant woman presented to the Hospital of Lithuanian University of Health Sciences Kaunas Clinics due to complicated MC twin pregnancy. At 24 w. the ultrasound showed a 11% difference in growth, isolated polyhydramnios was found in twin A. The patient was observed once in a week, later once in two weeks since the condition did not change. MCA PSV of twins did not reach >1.5 MoM and the difference was <0.5. At 29 w. the US revealed TAPS (stage 2): twin B - a donor with anemia (ACM PSV 1.37 MoM), and twin A - a recipient (MCA PSV 0.55 MoM). The placentas were different: one was brighter, the other was darker and an enlarged liver with hyperechoic dots was observed in fetus A. The next day US showed no cardiac activity in fetus B and pregnancy was terminated by C-section. After 7 minutes of neonatal resuscitation, the newborn (fetus A) was transferred to NICU (postnatal blood test – RBC 5.3 $x10^{12}$/l, HGB 211 g/l, HCT 60%). Phototherapy was applied because of neonatal jaundice and hypoglycemia was corrected by feeding.

Summary. This case report reveals a rare spontaneous acute TAPS in which a single fetus was saved.

Conclusion. MC twin pregnancies are at high risk of complications. Continuous monitoring is crucial as the condition can change rapidly.

RECURRENT PREGNANCY LOSS: A CASE REPORT

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Keywords. Recurrent pregnancy loss; Uterine abnormalities

Introduction. Recurrent pregnancy loss (RPL), defined as two or more failed clinical pregnancies, is a complex and frustrating challenge in obstetrics and reproductive medicine because the etiology is multifactorial and often even unknown. Approximately 2 percent of pregnant women experience two consecutive pregnancy losses and only 0,4 to 1 percent have three consecutive pregnancy losses.

Case description. A 35 year old female came to a gynaecologist consultation during 8th week of pregnancy following a history of several lost pregnancies. Over the preceding years, the patient had total of five pregnancies and none of them resulted in life birth. Patients karyotype analysis revealed mosaic chromosomal composition (47XXX/46XX). Additionally, the patient has hypothyroidism and structural uterine abnormalities. During pregnancy patient faced cervical insufficiency, for which cervical cerclage was performed, leading to successful delivery at 37+1 gestational weeks. Patient expressed a desire for having more children in the future, so a year after delivery a hysteroscopy was conducted to address the uterine septum, but unfortunately, after that she had two more missed abortions. Genetic testing of the miscarriage tissue from the most recent missed abortion revealed monosomy of chromosome 10 in the fetus, a condition incompatible with sustaining life. It was advised that the next pregnancy should be initiated through frozen embryo transfer (FET), as the patient still had one genetically correct embryo from previous IVF cycle.

Summary. The case presents a 37 year old patient with RPL due to multifactorial etiology. While spontaneous pregnancy is possible, it is not the most suitable option for this patient.

Conclusion. This case illustrates that dealing with RPL is a complex challenge. It is crucial to identify and address all potential risk factors contributing to recurrent pregnancy loss and find the most appropriate solution for each patient individually.

MASSIVE BLOOD LOSS AFTER CAESEREAN DELIVERY WITH PLACENTA PREVIA RESULTING IN HYSTERECTOMY

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Keywords. Placenta previa; Hemorrhage; Massive blood loss

Introduction. Placenta previa is a concerning condition that can lead to major hemorrhage after caeserean section. It is a major cause of maternal morbidity and mortality globally. Blood loss greater than 1500 ml after delivery is considered a severe post-partum hemorrhage.

Case description. A 28-year-old woman (graviditas III, partus maturus II) at 38+2 gestational weeks was admitted to hospital for a planned caesarean delivery. A caesarean section is performed, and a healthy neonate delivered. Complications arise after delivery – uterine atony and hemorrhage. To minimize uterine bleeding, a Bakri balloon is inserted. This technique is not successful - the patient loses about 3000 ml of blood and is rushed to uterine artery embolization. Uterine artery embolization was ineffective, and a decision was made to perform a laparotomy with a hysterectomy. During all the manipulations total lost volume was 5000ml, she received massive blood transfusions. Afterwards, the patient is admitted to intensive care unit for observation.

Summary. Despite early diagnostics of placenta previa, it still is a known risk factor for post-partum complications such as uterine atony leading to a massive hemorrhage. Blood loss must be evaluated immediately and corrected to avoid hemorrhagic shock. Blood type and Rhesus factor must be determined before surgery. A team of highly experienced staff including gynaecologists and anaesthesiologists is necessary. Fast decision making and an experienced team plays a key role in positive outcome.

Conclusion. This case highlights the importance of assessment of the high risk situations during Caeserean section. Preparation for this kind of situation is important for a good outcome. This case may give rise to discussion whether a Bakri balloon insertion and uterine artery embolization is a waste of time during such a massive blood loss.

SPONTANEOUS TWIN PREGNANCY WITH ONE FETUS REDUCTION IN PATIENT WITH WILSON'S DISEASE

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Keywords. Pregnancy; Fetus reduction; Wilson's disease

Introduction. Wilson's disease is a rare autosomal recessive inherited condition characterized by the accumulation of copper in various organs, including the liver, brain, and eyes. If left untreated, Wilson's disease can lead to subfertility and spontaneous miscarriage. Although D-penicillamine and Zinc acetate are the drugs of choice for treating this condition, neither of them is considered safe for use during pregnancy.

Case description. 34-year-old Wilson's disease patient presented spontaneous twin pregnancy. The patient's medical history reveals hepatic fibrosis, primary infertility with suspected polycystic ovary syndrome (PCOS), previous pregnancy achieved using assisted reproductive technology followed by vaginal delivery with a healthy girl. During the first pregnancy, the patient was administered penicillamine for the management of Wilson's disease.

During the initial appointment, two fetal eggs were visualized at 6+1 weeks. As the pregnancy was deemed high-risk and the patient was unprepared to carry twins, fetal reduction of one fetus was conducted at 11+5 weeks. During the gestational period, the patient was consulted by a hepatologist. The patient continued to use penicillamine 750 mg p/o daily. During pregnancy, folic acid, iodine, and vitamin D were administered. The pregnancy progressed without significant events and culminated in a spontaneous vaginal delivery at 39+3 weeks.

Summary. A patient diagnosed with Wilson's disease presented with a spontaneous twin pregnancy. At 11+5 weeks, fetal reduction of one fetus was performed, and the patient continued to take penicillamine medication during pregnancy. Postpartum, the newborn showed no significant malformations.

Conclusions. It is necessary to continue Wilson's disease therapy during pregnancy. Multidisciplinary assessment should be done before, during, and after pregnancy if the patient has other pre-existing diseases. It is important to outweigh the benefits and risks of medical manipulations and medication use during pregnancy.

INFERTILITY, MYOMAS, PREMATURE OVARIAN INSUFFICIENCY AND HORMONE REPLACEMENT THERAPY - HOW CAN A WOMAN HAVE SUCCESSFUL PREGNANCY

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Keywords. Myomas; HRT; Pregnancy.

Introduction. Hormone replacement therapy (HRT) is among the most widely implemented in patients with premature ovarian insufficiency (POI) to relieve menopausal symptoms; however, it can affect ovarian reserves and conception.

Case description. In March 2022, a 40-year-old woman approached an infertility clinic with the desire to get pregnant. There were no significant changes in the analyses at that time, but the transvaginal USG showed a myoma node measuring 8×9cm. The patient underwent surgical treatment, receiving Sol.Triptorelinum to decrease the myoma size before myomectomy. Following four courses of medication, the myoma decreased to 4cm. After cessation of medication, her menstruation disappeared. In blood tests- LH and FSH decreased, anti-Müllerian hormone decreased- 0,2 mg/mL, therefore patient started HRT. In May, a laparoscopic myomectomy was performed, evacuating a total of five nodes; however, menstruation did not occur. In August, she experienced vaginal bleeding, abdominal pain, and a fainting episode, leading to hospitalization. A ruptured tubal pregnancy was diagnosed, and a salpingectomy sinistra was performed. After a month, HRT will recommence if there is no occurrence of a menstrual cycle or pregnancy. 29.09. patient comes for examination, menstruation has returned, now it is day 14 of the cycle, in USG in right ovary is a dominant follicle 19×16mm in diameter, patient was given the ovulation trigger. 31.10.- a positive pregnancy test, USG corresponds to 6+2 weeks, the foetal egg is visualised at 1.87cm in diameter in the uterine cavity. On 15 June, she delivered a healthy child via the C-section.

Summary. HRT can act as a trigger for ovulation, resulting in POI patients becoming pregnant naturally.

Conclusion. In conclusion, patients can have several possible factors of infertility and their therapy should be carried out, so that the desired result can be achieved; therefore, patients should be inspected and monitored regularly.

PARVOVIRUS B19 INFECTION DURING PREGNANCY AND DIAGNOSTIC DIFFICULTIES

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Keywords. Parvovirus B19; Pregnancy

Introduction. Parvovirus B19 infection, although widespread in children, is less common in adults and pregnant women, can cause very specific abnormalities in the fetus, which can cause severe complications even death. Although the abnormalities are very severe, their diagnosis is challenging as there is specific clinical examination that can present those abnormalities caused by the virus, namely intrauterine fetal anemia. The basic method to present fetal anemia is examination of fetal dopplerometry - arteria cerebri media peak flow velocity.

Case description. Case is about G1P1 (36wod) who is hospitalized at Paula Stradins Clinical University Hospital due tonon-reassuring fetal CTGand poorly felt fetal movements for several days. The patient underwent a C-section. The newborn was in extremely difficult condition, Apgar score 1/2/3.After full resuscitation measures and because of low Apgar score and symptoms of severe asphyxia caused by extremely severe fetal anemia, newborn was transferred to the ICU. Diagnose - Severe asphyxia. Multiorgan hypoxic-ischemic damage. Persistent pulmonary hypertension. Early neonatal sepsis - Staphylococcus epidermidis. Intracranial hemorrhage. Hypoglycemia. Thrombocytopenia. Anemia. Later in blood tests positive IgG antibodies against Parvovirus B19 were found.

Summary. Parvovirus B19 is a infectious disease wich rarely causes infection of fetus during pregnancy and that is reason why in this case dopplerometry of a. cerebri media for fetal anemia was not performed and is usually not performed in outpatient practice.

Conclusion. In cases when patient presents with indistinctive complaints of fetal wellbeing like explicit or decreased movements or reabsorb some signs of fetal hydrops in pregnancy fetal anemia should be investigated on fetal dopplerometry specificly detecting a. cerebri media peak flow velocity and this investigation should be emphasised to improve knowledge and understanding about Parvovirus B19 infection and possibility of severe and potentially lethal cases.

CASE REPORTS, SMALL CASE SERIES
INTERNAL MEDICINE I (CARDIOLOGY, PULMONOLOGY)

CLINICAL CASE REPORT OF CLASSICALLY MANIFESTED ANDERSON-FABRY DISEASE: DIAGNOSTIC CHALLENGES BETWEEN VENTRICULAR HYPERTROPHY PHENOTYPES

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Keywords. Anderson-Fabry disease; Sphingolipidosis; Cardiomyopathy; Left ventricular hypertrophy

Introduction. A 51-year-old man was diagnosed with symptomatic left ventricular (LV) hypertrophy of uncertain origin. Cardiac magnetic resonance (CMR) revealed characteristic myocardial findings, leading to an Anderson-Fabry disease diagnosis.

Case description. The 51-year-old patient presented with dyspnea, palpitations, arterial hypertension, dizziness and leg swelling. Medical history includes CKD and transient unilateral hearing loss. Since childhood, the patient has experienced heat intolerance, paresthesia, hand numbness, poor vision, and leg swelling. Physical examination revealed a rash on the neck, elevated blood pressure (160/80 mmHg) and bradycardia (50 bpm). ECG showed sinus bradycardia, first-degree atrioventricular block (PR – 208 ms), and signs of LV hypertrophy. Laboratory testing revealed elevated TnI and BNP (0.06 µg/l and 55.4 ng/l), dyslipidemia (LDL-cholesterol – 2.92 mmol/l, HDL-cholesterol – 1.46 mmol/l), and impaired renal function (GFG 53.5 ml/min./1.73m2, serum creatinine 138 µmol/l). Echocardiography demonstrated concentric LV hypertrophy (LVMM – 311.98 g, interventricular septum thickness – 13.5 mm, LV posterior wall thickness – 13 mm, RWT – 0.47) with decreased LV tension in the basal segment. CMR imaging showed increased LV mass and end-systolic (ESV)/diastolic volumes (EDV) (LV mass – 245 g; EDV – 257 ml; ESV – 95 ml) with normal LV systolic function. T1 mapping revealed lower and T2 - elevated septal relaxation values (T1 – 1149 ms; T2 – 46.18 ms). LGE images showed enhancement in the basal LV segment. Genetic testing confirmed a pathogenic GLA gene variant, associated with reduced alpha-galactosidase activity (0.2 µmol/l/h) and elevated globotriaosylsphingosine at 108.4 ng/ml, prompting a multidisciplinary approach.

Summary. Anderson-Fabry disease is characterized by globotriaosylsphingosine accumulation, causing specific symptoms. Management involves multidisciplinary care and enzyme replacement therapy to improve quality of life.

Conclusions. Anderson-Fabry disease is an inherited metabolic disorder, causing multiple systemic alterations and requiring multidisciplinary care and specific treatment.

VENTRICULAR EXTRASYSTOLE MAY BE THE SOLE MANIFESTATION OF A PAST MYOCARDITIS

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Keywords. Ventricular extrasystole; Myocarditis; Fibrosis; COVID-19; Autoimmune disease

Introduction. Myocarditis typically resolves spontaneously in most cases, however in some patients, its underlying cause continues to progress, leading to recurrent ventricular rhythm disturbances, ventricular dysfunction requiring advanced heart failure treatment, heart transplantation, and even death. Therefore, it is crucial to establish a diagnosis and determine the cause of myocarditis.

Case description. A 19-year-old patient with multifocal ventricular extrasystoles (likely associated with myocarditis) was referred to the hospital for a planned evaluation. From the medical history, it appears that slightly over a year ago, the patient had an upper respiratory tract infection (COVID-19). Subsequently, she was hospitalized in the gastroenterology department, where ulcerative colitis was diagnosed (treated with sulfasalazine, currently in remission). Incidentally, during the hospitalization, asymptomatic ventricular extrasystole was observed (35,000/day). Cardiac magnetic resonance imaging revealed fibrosis within the myocardium (likely post-inflammatory). At present, she reports no cardiovascular symptoms. In the follow-up Holter ECG, sinus rhythm was recorded at an average rate of 80/min, with a significant reduction in the number of ventricular ectopic beats (16,000/day), and the morphology of ventricular extrasystoles varied in consecutive beats, with an increasing pseudodelta up to 70-80 ms.

Summary. Considering the clinical picture, particularly the absence of clinical symptoms, normal left ventricular systolic function, variable morphology of additional beats, and the lack of a consistent attempt at pharmacological antiarrhythmic treatment, the patient was classified for conservative management. Verapamil was initiated at an initial dose of 3×40 mg, with the possibility of gradual dose escalation under heart rate monitoring.

Conclusions. It is noteworthy that the patient exhibits a tendency toward autoimmune diseases, as confirmed by the concurrent presence of clinically, endoscopically, and histologically confirmed ulcerative colitis, along with findings suggesting a past myocarditis.

AORTIC DISSECTION IMITATING ACUTE MYOCARDIAL INFARCTION: A CHALLENGE OF DIFFERENTIAL DIAGNOSIS

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Keywords. ST-elevation myocardial infarction; Aortic dissection

Introduction. The incidence of ST-elevation myocardial infarction (STEMI) in aortic dissection (AD) ranges from 1% to 5%.

Case description. 63-year-old man was admitted to Emergency department in July 2023 after having an intense burning pain between shoulder blades. Electrocardiogram (ECG) showed anterior STEMI and atrial fibrillation (AF). The patient was transported to Kaunas Clinics for coronary angiography (CA) and percutaneous coronary intervention (PCI). Peripheral pulses were present, bilaterally symmetrical. Following STEMI management guidelines by European Society of Cardiology, an urgent CA was performed. It revealed a bifurcational stenosis in left anterior descending artery and first diagonal branch. Successful PCI was performed. He was hospitalized in Cardiology intensive care unit, ECG showed no ST depression and persisting AF, cTnI was 0,37µg/l. However, strong pain between shoulder blades remained and CA changes did not correlate to patient's condition, therfore computed tomography angiography (CTA) was performed. It displayed existence of AD which reached the ostium of right coronary artery and *A.renalis* branched from false lumen, slightly hypoperfused kidney parenchyma was observed. After repeating CTA next day, diameter of ascending aorta increased to 50mm. During 8 hour thoracic surgery, ascending aorta from sinotubular part and aortic arch were prostheticized with vascular prostheses, hybrid aortic stent–prosthesis was implanted. Postoperative period was complicated by cardiogenic shock, posthemorrhagic anemia, hospital-acquired pneumonia, sepsis and renal failure. He regained consciousness, was gradually weaned from the ventilator, his renal function recovered 40 days postoperatively without need for hemodialysis. After 100 days in hospital, he was transferred to rehabilitation.

Summary. Differential diagnosis of an acute AD should always be considered because more delay will result in a higher mortality rate.

Conclusions. In case of doubt, early imaging tests such as chest CTA can help to diagnose a rare but fatal if untreated disease – AD.

LEFT VENTRICULAR THROMBUS FORMATION IS A RARE COMPLICATION OF TAKOTSUBO CARDIOMYOPATHY. CASE REPORT

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Keywords. Takotsubo cardiomyopathy; Left ventricular thrombus

Introduction. Takotsubo cardiomyopathy (TCM), also known as stress cardiomyopathy, can mimic acute coronary syndrome (ACS). In our case report, we will discuss a rare complication of TCM - left ventricular (LV) apical thrombus formation.

Case description. An 83-year-old woman was admitted to Kaunas Clinics of the Lithuanian University of Health Sciences Hospital with intense shortness of breath, general weakness and pain throughout her body. ECG showed ST elevation in inferior leads, laboratory tests showed elevated troponin I 0.93 µg/l (normal value <0.04), BNP 2225.9 ng/l (normal value <25ng/l). The patient was suspected of having ACS. An urgent coronary angiography was performed and showed no stenosis. Echocardiography showed hypercontraction of the basal segments, akinetic mid-apical segments and a significant decrease in LV ejection fraction (EF) up to 30%. As a result of acute emotional and physical stress and instrumental tests, she was diagnosed with TCM. In addition, after a cardiac magnetic resonance imaging (CMRI) a thrombus was found in the apex of the LV as a complication of TCM. Evidence-based medical treatment was applied, the patient improved and was discharged for further outpatient follow-up. Two months later, the patient underwent a CMRI scan, which showed that LVEF improved to 66% and the thrombus had disappeared.

Summary. This is a case report of a patient diagnosed with a complication of TCM and LV thrombus after a stressful event**.**

Conclusions. TCM is a disease with a good prognosis, but it should also be considered a disease at risk of serious complications that can lead to death.

EARLY-ONSET MYOCARDIAL INFARCTION: EXPLORING HYPERCHOLESTEROLEMIA AND RECREATIONAL MARIJUANA - CASE REPORT

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Keywords. Myocardial infarction; Dyslipidaemia; Hypercholesterolaemia; Marijuana

Introduction. Although myocardial infarction (MI) is most common in the elderly, young people (up to 55 years of age) are sometimes affected due to a combination of cardiovascular risk factors and genetic predisposition. MI in the young is associated with both traditional cardiovascular risk factors (dyslipidaemia, hypertension, diabetes mellitus, obesity, smoking) and family history of early ischaemic heart disease, as well as the recreational use of certain psychoactive substances (cocaine, marijuana).

Case description. A 32-year-old man with a family history of cardiovascular disease and a history of smoking marijuana for about a year, noticed a new-onset anginal pain. Eventually, exercise tolerance decreased, fatigue continued to increase and anginal pain started to manifest during moderate exercise and emotional stress. Patient's condition had been deteriorating for about 3 weeks when he presented to the emergency department. Patient's electrocardiography showed signs of ischaemia, troponin – 98 ng/l, low-density lipoprotein cholesterol (LDL-C) was 8,31 mmol/l, total cholesterol – 9,93 mmol/l. During coronarography, triple vessel disease was diagnosed, and coronary artery bypass graft surgery was chosen as the optimal treatment. The postoperative course was uneventful, patient received inpatient rehabilitation treatment and medical treatment with aspirin, clopidogrel, betablockers, atorvastatin and ezetimibe.

Summary. This case report demonstrates and emphasizes genetic, lifestyle factors, and accentuates early intervention in preventing early myocardial infarction.

Conclusions. Screening for cardiovascular risk factors, consistent testing and early intervention in young people is essential to prevent or delay the progression of cardiovascular disease. Early identification and management of cardiovascular risk factors is essential to prevent myocardial infarction and premature MI in young individuals.

WHEN BENEFITS OUTWEIGH THE RISKS: THROMBOLYSIS FOR PULMONARY ARTERY THROMBOEMBOLISM IN A POLYTRAUMA PATIENT

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Keywords. Polytrauma; Thromboembolism; Thrombolysis; ECMO

Introduction. Polytrauma patients are at risk of thromboembolism, it being one of the possible causes of death in this patient group. Thus, in case of an unsuccessful thrombectomy, the risks and benefits of thrombolysis are still questioned.

Case description. 58-year-old male car-crash victim presented to the emergency room, bleeding from the ruptures of the spleen (Grade IV) and the left kidney. After emergency embolization of the left renal and splenic arteries, he was transferred to the intensive care unit (ICU) sedated, mechanically ventilated and hemodynamically unstable. 3 days later the required dose of noradrenaline decreased, with no signs of worsening respiratory insufficiency. However, his left leg became edematous, mottled, with an impalpable popliteal artery pulse. Vascular surgeon examined the affected limb, but shortly after raising the leg, the patient went into a cardiac arrest. Pulmonary artery thromboembolism was confirmed by CT. After a partial thrombectomy, the patient was brought back to the ICU and 10 minutes later – his heart stopped. Sinus rhythm was restored after 7 minutes of CPR, 3 synchronized cardioversions and maximal doses of noradrenaline, dobutamine and vasopressin. ECMO was considered, however, the indications were not justified. Despite the significant bleeding risk, intravenous thrombolysis was the only option left. Days later the vasopressor doses were decreasing. CT showed a small positive dynamic, no hemorrhage.

Summary. Thrombolysis in a polytrauma patient is considered a contraindication. However, in our case, it was the only possible lifesaving treatment for progression of hemodynamic instability and cardiac arrest.

Conclusions. Despite the significant bleeding risk, thrombolytic therapy for pulmonary artery thromboembolism in a polytrauma patient had a successful outcome.

DYSPNEA AT THE 35TH WEEK OF GESTATION – HEALTHY PREGNANCY OR HEART FAILURE? – CASE REPORT ON A RARE CARDIOVASCULAR COMPLICATION OF THE PREGNANCY

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Keywords. Peripartum cardiomyopathy; Dyspnea; Acute heart failure

Introduction. Peripartum cardiomyopathy (PPCM) is a rare dilated cardiomyopathy. PPCM symptoms are similar to those of a healthy pregnancy. Significantly is to differentiate normal findings from life-threatening disease.

Case description. A 30-year-old previously healthy female G3P2, 35-weeks-gestation was hospitalized with a history of cough, rapidly progressive dyspnea, orthopnea for a week. On admission, patient presented with hypotension, tachycardia. ECG finding suspected acute right ventricular overload. An emergency caesarean section was performed, during which patient fell into cardiogenic shock. Acute heart failure (HF) therapy and mechanical ventilation were continued in the ICU. Due to the changes in ECG, pulmonary embolism (PE) was suspected. CT pulmonary angiography eliminated PE, however, showed bilateral hydrothorax. First echocardiography showed significant left ventricle (LV) dilatation and systolic dysfunction (LVEF 25-30%) with extensive akinesis of the apex. PPCM was suspected, however, other acute HF causes should be ruled out. Secondly, coronary angiography was performed to exclude Takotsubo syndrome and Pregnancy-related spontaneous coronary artery dissection. No vascular changes were detected. Thoracentesis was performed, patient`s respiratory function improved, she was extubated. Patient was transferred to a tertiary-level hospital, specific therapy, including Bromocriptine, was initiated. 3-days later patient`s hemodynamical state was stabilized. Following 10-day treatment, echocardiogram still revealed dilatation of the left chambers and LVEF 30%. Lastly, cardiac MRI confirmed LV dysfunction, dilatation, myocardial damage signs with tissue edema and fibrosis, which could indicate PPCM. Patient`s clinical condition improved, she was discharged with HF therapy and scheduled for follow-ups to confirm diagnosis.

Summary. PPCM is a severe pregnancy-related cardiological complication. As PPCM is a diagnosis of exclusion, this clinical case is an example of proper broad-spectrum differential diagnoses and interdisciplinary management.

Conclusions. Early diagnosis and treatment of PPCM are crucial factors in minimizing mortality risk, improving prognosis on woman`s life-quality and future childbearing.

PIVOTAL ROLE OF MECHANICAL CIRCULATORY SUPPORT IN CARDIOGENIC SHOCK CAUSED BY AN ACUTE OCCLUSION OF THE LEFT MAIN CORONARY ARTERY

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Keywords. Mechanical circulatory support; Cardiogenic shock; Myocardial infarction

Introduction. Cardiogenic shock resulting from a Myocardial Infarction is the most dangerous manifestation of coronary artery disease. The basis of treatment is revascularization of the infarct-related artery. In patients whose blood pressure does not increase after revascularization, mechanical circulatory support (MCS) of left ventricle should be considered. Currently, we can use axial flow blood pumps or extracorporeal membrane oxygenation (ECMO). The choice of device depends on the function of the right ventricle and the severity of cardiogenic shock.

Case description. A 68-year-old female patient was referred to the hospital due to the acute Inferior ST-elevation Myocardial Infarction (STEMI). At the admission symptoms of cardiogenic shock were present with blood pressure of 70/50 mmHg. ECHO examination revealed severe impairment of left ventricular systolic function with LVEF=25%. Coronary angiography revealed occlusion of left main coronary artery (LM). Angioplasty with stent implantation was performed in the anterior descending artery and LM; adequate flow in all branches of the left coronary artery was achieved. After the procedure, there was a progressive drop in blood pressure, followed by a cardiac arrest. Resuscitation was initiated using chest compression system (LUCAS), restoring the heart rate with blood pressure of 50/30. Due to hypotension, symptoms of biventricular shock and progressive multi-organ failure, it was decided to install ECMO and an intra-aortic balloon pump (IABP). Over the next days the clinical condition gradually improved; ECMO was removed on day 7 and IABP was removed on day 8. In the follow-up ECHO: LVEF = 30%.

Summary. Occlusion of LM leading to myocardial infarction is associated with a high risk of cardiogenic shock and death. In presented case MCS played a key role in saving patient's life.

Conclusions. In patients with persistent symptoms of shock despite revascularization, MCS should be considered.

COMPLEX THERAPY OF VENTRICULAR TACHYCARDIA AND DILATED CARDIOMYOPATHY IN A 26-YEAR-OLD PATIENT: CLINICAL EVALUATION OF ICD IMPLANTATION

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Keywords. Dilatated cardiomyopathy; Acute heart failure; Amiodarone; Torsades de pointes; Advanced resuscitation; Atrial fibrillation; S-ICD

Introduction. Secondary dilated cardiomyopathy is quite common due to CAD, PAH, valvular diseases etc., but the prevalence of primary dilated cardiomyopathy is rarer (5-7/100,000 people per year). Primary dilated cardiomyopathy requires a careful approach to diagnostics with a wide range of examinations and complicated treatment. This work reflects the clinical case of a young patient with life-threatening complications and the effective pharmacological therapy.

Case description. This case explores the treatment of a 26-year-old male who presented with fatigue, shortness of breath on exertion, peripheral oedema, and tachycardia. Initial diagnosis revealed cardiomyopathy of unknown aetiology, atrial fibrillation, and unsustained ventricular tachycardia. The patient's echocardiogram revealed a significantly reduced ejection fraction of 20% and dilatation of both atrium and left ventricle. Therapeutic intervention began with diuretics, anticoagulants, sacubitril/valsartan, and amiodarone. However, the patient developed Torsades de Pointes as a complication of amiodarone, necessitating emergency cardioversion. Subsequent investigations, including myocardial biopsy and MRI showed interstitial fibrosis. To manage arrhythmias, a subcutaneous ICD was inserted. After 1 year the patient had a control transthoracic echocardiography. There were no signs of dilatation and ejection fraction was 60%.

Summary. This study presents a case of dilated cardiomyopathy. The patient was treated according to ESC cardiology guidelines, the ejection fraction improved from 20% to 60% over the course of eighteen months. However, there are some issues, such as the use of amiodarone for unstable ventricular tachycardia, the application of anticoagulants with a CHA2DS2-VASc 1 score, the immediate implantation of ICD-S, etc.

Conclusions. The patient was diagnosed correctly at an early stage, but despite adequate therapy, life-threatening complications developed during treatment. To solve these problem the implantation of a ICD-S and advanced resuscitation measures were chosen.

FROM DEEP VEIN THROMBOSIS TO CTEPH: A 20-YEAR JOURNEY OF DIAGNOSIS AND TREATMENT CHALLENGES

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Keywords. Chronic thromboembolic pulmonary hypertension; Deep vein thrombosis; Anticoagulants

Introduction. Chronic thromboembolic pulmonary hypertension (CTEPH) is recognized as a distinct form of pulmonary hypertension, classified in WHO's Group 4. The pooled CTEPH incidence in Latvia has been around 5 cases per million inhabitants. This progressive disease is characterized by diagnostic challenges, often due to non-specific symptoms and limited awareness among healthcare professionals. Prompt and accurate diagnosis is essential for effective management and improved patient outcomes.

Case description. We report a case of a 53-year-old male patient experiencing severe dyspnea and syncopal episodes over the last year. The patient's medical history revealed a series of symptomatic deep vein thrombosis dating back to 1992. Despite the use of anticoagulants, namely rivaroxaban and warfarin, the patient's condition progressively deteriorated. Following a comprehensive evaluation, which included an echocardiogram, right heart catheterization, and CT scans, the diagnosis of CTEPH was confirmed. The subsequent treatment plan necessitated an urgent pulmonary endarterectomy (PEA) at Vienna General Hospital, as determined by the assessment of an experienced multidisciplinary CTEPH team. The patient underwent a successful PEA procedure at Vienna General Hospital, resulting in a noteworthy improvement in European Society of Cardiology pulmonary hypertension mortality risk from high to low risk of 1 year mortality.

Summary. This case report underscores the gradual progression, challenging diagnosis, and treatment of CTEPH. It also highlights the consequences of inadequate anticoagulant therapy in a patient with a 20-year history of deep vein thrombosis, leading to the development of CTEPH.

Conclusions. This case study emphasizes the importance of appropriate anticoagulant therapy for individuals with CTEPH, particularly those experiencing recurrent deep vein thrombosis and respiratory issues. Timely identification and proper management of CTEPH significantly enhance patient survival and contribute to an improved quality of life.

DO WE RECOGNIZE WHAT WE CONSIDER RARE – DRESSLER SYNDROME IN A 63 YEAR OLD MALE PATIENT - A CLINICAL CASE REPORT

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Keywords. Dressler syndrome; Pericarditis

Introduction. Dressler syndrome, also known as post-myocardial infarction (MI) syndrome, although rare, estimated prevalence is 1% of post-MI patients. Nonetheless, it remains a noteworthy complication that demands recognition when patients exhibit specific symptoms or show electrocardiogram or echocardiographic changes post-MI. In certain cases, the syndrome may result in severe complications like cardiac tamponade or constrictive pericarditis, which can be life-threatening.

Case description. A 63-year-old male patient presented to the emergency department with a 3-day history of chest pain, fatigue, and dizziness. Upon hospitalization, he reported fainting episodes and unsuccessful blood pressure measurements. With a blood pressure of 86/60 mmHg, he exhibited cardiogenic shock symptoms. An electrocardiogram showed ischemic signs in the inferior and posterior left ventricular wall. Urgent percutaneous coronary intervention with DES placement in the RCA was done. Hemodynamic stabilization was achieved through norepinephrine therapy. On the fifth day of hospitalization, the patient developed a fever and mild chest pain. Inflammatory markers increased, but the blood and urine samples were negative. Antibacterial therapy and NSAIDs were initiated. Echocardiography revealed pericarditis with 8 mm of fluid. Considering the time lapse from MI, symptom characteristics, and no indications of thrombosis or new ischemic issues, the patient was diagnosed with Dressler syndrome. The patient's condition clinically improved after treatment and he was discharged 26 days after admission.

Summary. The diagnosis of Dressler syndrome can be challenging as its symptoms are nonspecific, however, it is essential to be aware of it and examine the patient properly despite the diagnostic difficulty.

Conclusions. Adequate therapy and patient monitoring are crucial, as the syndrome can, in some cases, lead to life-threatening complications such as cardiac tamponade or constrictive pericarditis.

CASE REPORTS, SMALL CASE SERIES

INTERNAL MEDICINE II (GASTROENTEROLOGY, NEPHROLOGY, ENDOCRINOLOGY, RHEUMATOLOGY)

SECONDARY HYPOPITUITARISM AND COGNITIVE DEFICIT AFTER SURGICAL RESECTION OF CRANIOPHARYNGIOMA. A CASE REPORT

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Keywords. Hypopituitarism; Craniopharyngioma; Cognitive deficit

Introduction. Hypopituitarism is defined as a partial or total loss of function in the pituitary gland. Secondary hypopituitarism can be associated with craniopharyngiomas and iatrogenic hypopituitarism occurs after surgical resection of the tumour. Craniopharyngioma is a rare malformational tumour with low-grade histological malignancy. Patient's quality of life is often decreased in concern of the tumour's often close anatomical proximity to optic chiasm, pituitary gland and hypothalamus. The goal of this case report is to present a difficult treatment approach in patient with iatrogenic hypopituitarism and cognitive deficit after resection of craniopharyngioma and overview its consequences on the patient's health.

Case Description. A 21-years-old male was diagnosed with craniopharyngioma at 17 years of age (2019). Symptoms included vision impairment and headaches. Tumour's surgical resection was performed which led to secondary hypopituitarism that included: secondary adrenal insufficiency, secondary hypothyroidism, hypogonadotropic hypogonadism and diabetes insipidus. Hormonal substitution for mentioned conditions were given and therapy adjustments during check-ups were made. Remarkable tumor's recurrence was found in 2023. Another surgical resection of tumour was performed and some residual tumour tissue that remained was noted. Cognitive impairment was observed, containing motory, sensory aphasia, memory deficit. Multiple different care providers contributed to the patient's recovery. Improvement in the patient's health was observed. Weeks later the patient was admitted to hospital with edema, polydipsia and polyuria. Therapy adjustments were made because of clinical hypothyroidism and uncontrolled diabetes insipidus.

Summary. A case of secondary hypopituitarism and cognitive deficit after surgical craniopharyngioma resection. Multiple different care providers collaborated on the patient's recovery, showing successful results.

Conclusions. Multidisciplinary approach is an important aspect in describing a patient's recovery. Frequent patient check-ups are necessary. Patient's memory deficit may gradually improve, but it could be speculated that a lifelong caregiver for this patient is needed to help maintain health, improving the patient's quality of life.

ACUTE KIDNEY INJURY SECONDARY TO RETROPERITONEAL FIBROSIS OF RARE CAUSE. TECHNOLOGICALLY ADVANCED MEDICINE CAN BE POWERLESS

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Keywords. Retroperitoneal fibrosis; Acute kidney injury; Signet ring cell carcinoma

Introduction. The degenerative process known as retroperitoneal fibrosis is primarily caused by inflammation and an augmented immune response, both of which result in soft tissue fibrosis. The frequency of occurrence is 1,38:100,000 instances. One uncommon type of cancerous tumor is signet ring cell carcinoma. It makes up 2% of all large intestine cancers. We describe the patient's case which was implemented when both conditions were present at the same time.

Case description. We present a case report of a 37-year-old woman, previously healthy, admitted urgently to the Department of Nephrology, due to acute kidney injury. After the diagnostics, acute kidney injury due to fibrosis was diagnosed retroperitoneal. The patient underwent hemodialysis, and after the disorders stabilized biochemical tests, ureteral catheters were implanted bilaterally, as a result of improved kidney function, steroid therapy was used. After three weeks, the patient was admitted, due to symptoms such as renal colic, UTI, and deterioration of the filtration function kidneys. The therapy included antibiotic therapy and the supply of fluids and electrolytes. In March, the patient was admitted to the ward again, this time with symptoms suggestive of gastrointestinal obstruction, once confirmed by an abdominal CT scan, surgery was performed, during which numerous focal lesions were found in the field of intestines. Histopathological examination revealed a rare type of tumor - cancer signet ring cell.

Summary. The patient was transferred to the chemotherapy department for continued treatment. The consulting oncologist estimated the chance of survival at less than 5% over 5 years.

Conclusion. The purpose of the case study is to raise awareness of two extremely rare disorders that one female patient had. It was not possible to make the right diagnosis straight away, even with the use of accurate and long-term diagnostics.

CONCURRENT IMMUNE THROMBOCYTOPENIC PURPURA AND ALOPECIA AREATA IN A MIDDLE-AGED FEMALE: A RARE CASE

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Keywords. Alopecia Areata; Immune Thrombocytopenic Purpura; Autoimmunity; Adverse Drug Reaction

Introduction. The coexistence of immune thrombocytopenic purpura (ITP) and alopecia areata (AA) in the same patient is a rare phenomenon that suggests a potential shared pathogenesis. This case report discusses such a concurrence in a 45-year-old female, highlighting the challenges in managing coexisting autoimmune conditions.

Case Description. The patient, a 45-year-old woman, has been managing alopecia areata (AA) since her twenties, along with a range of autoimmune and orthopedic conditions. She has mild immune thrombocytopenia (ITP), which is being monitored conservatively without active treatment. This condition occasionally manifests as ecchymotic patches, a common symptom due to the reduced platelet count. Additionally, she suffers from sensorimotor polyneuropathy affecting her lower limbs and has a history of hondropathy. An adverse reaction to topical minoxidil for AA, resulting in significant facial swelling, led to the discontinuation of this treatment. Extensive autoimmune and infection screenings, including ANA, ENA, RF, and hepatitis, were negative, excluding other autoimmune or inflammatory conditions.

Summary. This case contributes to the scant literature on the simultaneous occurrence of ITP and AA, underscoring the need for careful patient management. The patient's allergic reaction to AA treatment and the conservative management of her ITP reflect the complex interplay of autoimmune conditions and the necessity for individualized patient care strategies.

Conclusions. The co-occurrence of AA and ITP may represent a broader dysregulation of the immune system than previously understood. This case suggests the importance of a thorough workup for patients with AA to screen for other autoimmune conditions, such as ITP. It also highlights the potential for allergic reactions to standard treatments, warranting careful monitoring and a readiness to adjust therapeutic approaches.

CLINICAL CHALLENGES IN MANAGEMENT OF A YOUNG WOMAN HAVING TOXIC ALCOHOL DECOMPENSATED CIRRHOSIS WITH DIURETIC REFRACTORY ASCITES AND MULTIRESISTANT FLORA

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Keywords. Decompensated liver cirrhosis; Ascites; Multiresistant flora

Introduction. Acute decompensated cirrhosis is characterised by the development of cirrhosis-related complications, such as ascites, hepatic encephalopathy, variceal bleeding or bacterial infections and 30% of patients progress to extrahepatic organ failures.

Case description. A 43-year-old woman was repeatedly admitted to Rīga East University Hospital due to alcohol decompensated liver cirrhosis complication – diuretic refractory ascites (MELD-23). Previously in the gastroenterology department, the patient was evaluated by CT portography and was consulting with invasive radiology specialists. TIPS surgery was indicated after this to reduce portal hypertension and ascites symptoms. During this treatment time and while waiting for TIPS surgery, liver failure progressed joined by hepatorenal syndrome with health care associated problems such as urinary tract infection with multiresistant flora (*OXA 48 and NDM carbapenemase–producing Klebsiella pneumonia, ESBL producing E.coli*) and multiresistant bacteria in the ascites drained solution (*Vancomycin resistant Enterococcus faecalis, ESBL producing E.coli, Staphylococcus haemolyticus*). After two days, significant electrolytes disbalance and hepatorenal syndrome symptoms developed. Shock episodes repeated two times, and Noradrenaline infusion was indicated. While hepatic encephalopathy progressed, there were episodes when it was not possible to maintain contact with the patient. Against all this background, the patient was cachectic, exhausted, and was presented with hypoproteinemia and hypoalbuminemia (MELD-29). Due to the progression of the last stage of decompensated cirrhosis of the liver and exhaustion of the body – *exitus letalis.*

Summary. The aim of this case report is to introduce how severe it could be to manage clinical situations with alcohol decompensated cirrhosis and related complications.

Conclusion. Alcohol decompensated cirrhosis can become life threatening. Such patients require lifelong follow-up for prevention and management of complications.

DRUG-INDUCED (TOCILIZUMAB) AUTOIMMUNE HYPOPHYSITIS WITH COMPLICATIONS- ADRENAL INSUFFICIENCY, HYPOTHYROIDISM, HYPOGONADOTROPIC HYPOGONADISM IN A PATIENT WITH DIFFUSE LARGE B CELL LYMPHOMA

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Keywords. Autoimmune hypophysitis; Tocilizumab; Adrenal insufficiency; Hypothyroidism; Hypogonadotropic hypogonadism

Introduction. Chimeric antigen receptor T-cell (CAR-T) therapy, particularly the anti-IL-6 receptor monoclonal antibody Tocilizumab, is being used to treat patients with diffuse large B-cell lymphoma. Despite the successful results, this drug has many side effects, one of which is extremely rare (0.65-3%) - autoimmune hypophysitis can lead to endocrine complications, in this case to secondary adrenal insufficiency, secondary hypothyroidism (both are life-threatening conditions) and hypogonadotropic hypogonadism.

Case description. A 58-year-old man got into the regional hospital with prolonged complaints of vomiting, constipation, weight loss, fever, severe weakness, dizziness, fatigue, loss of consciousness, arterial hypotension. The treatment had not brought the expected results and the patient was getting worse, so for clarification of diagnosis he was transported to the Pauls Stradiņš Clinical University Hospital. Physical examination reveals orthostasis, pale, cool skin, cyanotic lips. An MRI of the brain was performed, conclusion: panhypophysitis - the pituitary stalk is affected, including the gland in all its parts with a radiologically necrotic area, altered undifferentiated neurohypophysis. The results of the blood tests: thyroid stimulating hormone 0.122 (<) uIU/mL, free T4 0.53 (<) ng/dL, cortisol 0.66 (<) mkg/dL, luteinizing hormone <0.07 (<) IU/L, prolactin 430.2 (>) µIU/mL, total testosterone <7 (<) ng/dL, adrenocorticotropic hormone <5.00 (<) pg/mL.

Summary. Taking into account the results of the visual examination and blood tests, during hospitalization the patient received Tab. Hydrocortisoni, Tab. Levothyroxini, due to applied therapy, the patient's subjective and objective condition improved.

Conclusions. Autoimmune hypophysitis is rare but life-threatening complications which can be difficult to diagnose because of nonspecific symptoms. Therefore, when examining the patient's condition, and choosing treatment, not only obvious differential diagnoses, but also medical history, comorbidities, and rare side effects from medications should be considered.

OSTEOGENESIS IMPERFECTA (OI) IN LATVIA: A CASE OF 4 GENERATIONS INVOLVED FAMILY WITH OI TYPE I

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Keywords. Osteogenesis Imperfecta; Familial cases; Rare disease; Genetic disorder; Bone fragility; Glass bones; Multidisciplinary care; Adolescent osteoporosis; Brittle bones; Multiple fractures

Introduction. Osteogenesis Imperfecta (OI) is a group of rare genetic disorder with global incidence up to 1:10000, characterized by brittle bones and other connective tissue manifestations. While OI is well-documented globally, in Latvia cases remain underreported, thus undertreated. This case study report aims to emphasize the importance of tailored management strategies for patients' present and future life quality. And remind colleagues about specific OI features to be recognized amongst patients and friend's families.

Case description. Case initiated with 29-years old male presented with multiple bone fractures history from 12y.o. and DEXa confirmed osteoporosis from 16-years of age. Family history suggestive of OI in total 4 generations, youngest 4 y.o. female. History of clinical evaluations, laboratory findings, genetic testing and imaging studies analyzed. Mutations in the COL1A1 gene confirmed Type I OI. Treatment tactics changed from bisphosphonates to new combined strategy with Denosumab, D vit. and Ca. Which proved by DEXa to be beneficiary. Signed permission of patient received to present the case.

Summary. Tailored management strategies, genetic counselling and ongoing support are paramount in improving the outcomes for individuals and families grappling with OI. Documenting this Latvian family's journey suggests that doctors will recognize OI faster and contribute valuable insights to the global understanding of OI, fostering collaboration in research and enhancing clinical care for affected individuals worldwide.

Conclusions. Case emphasizes the need for comprehensive multidisciplinary care, patient compliance and progressive solutions for the future. Early detection and intervention is crucial for prevention of new fractures and supporting life quality.

37 YEARS FROM DIAGNOSING TYPE 1 DIABETES MELLITUS TO CORONARY ANGIOPLASTY, STENT INTERSECTION AND A KIDNEY TRANSPLANT: A CASE REPORT

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Keywords. Type 1 diabetes mellitus; Kidney transplant; Diabetes complications

Introduction. Type 1 diabetes mellitus (T1DM) is an autoimmune condition when the immune system destroys insulin-producing beta cells. Genetic and ambiguous environmental factors provoke the onset of DM, which requires lifelong insulin therapy, education, carbohydrate counting and glucose self-control. Insufficient DM compensation can lead to numerous diabetic complications.

Case description. This case describes a 39-year-old male (diagnosed at the age of one) with all the possible T1DM complications. The patient's life motto was to live as long as possible without trying to achieve reasonable DM compensation and not doing annual/periodic examinations. He was admitted to the hospital for the first time at two due to decompensation of DM and a complete lack of C-peptide. Total insulin dose is 80 U/ml daily (Insulin Detemir, Insulin Aspart). Despite the prescribed treatment and recommendations, during all 39 yrs of DM, satisfactory levels of HbA_{1c} have not been achieved, with HbA_{1c} fluctuating from 8.5% to 13%, because of the patient's lack of carbohydrate counting ignorance and non-adherence. The patient's complications include diabetic retinopathy, glaucoma, diabetic cataract, diabetic autonomic neuropathy, diabetic polyneuropathy, dyslipidemia, arterial hypertension, early generalised atherosclerosis, and CAD (LAD DES placement in April 2021). Secondary hyperparathyroidism and anaemia due to diabetic nephropathy stage V. In February 2021, peritoneal dialysis was started three times a week and in November 2021 received a kidney transplant from a deceased donor. Now the kidney works efficiently; and the patient regularly attends follow-ups.

Summary. Persistently uncontrolled T1DM with HbA_{1c} levels of 10-12% results in various diabetic micro-/macroangiopathy complications, kidney transplant and CAD with DES at the age of 38 (duration of DM 37 yrs).

Conclusions. T1DM is a serious condition leading to multiple severe DM complications. Modern medicine tremendously helps prolong life expectancy, despite patients' non-compliance to diabetes care.

WHEN GENETICS AND IMMUNOTHERAPY GO HAND IN HAND: A NEW THERAPEUTIC APPROACH FOR X-LINKED HYPOPHOSPHATEMIA

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Keywords. Burosumab; PHEX; X-linked hypophosphatemia

Introduction. X-linked hypophosphatemia (XLH) is a genetic disease caused by a mutation in the PHEX gene (Xp22). It has an X-linked dominant inheritance with complete penetrance. The PHEX (phosphatase regulating endopeptidase X-linked) gene provides instructions for making an endopeptidase, which is involved in renal phosphate absorption and mineralization of the bones and dentin. The PHEX enzyme regulates the expression of the protein fibroblast growth factor 23, a phosphate-regulating hormone, which is encoded by the FGF23 gene, a mutation of the PHEX gene leading to increased circulating levels of FGF23. Burosumab, a newly approved drug, inhibits FGF23 and shows promising results, as was the case of our patient.

Case description. This case shows the evolution of a 34-year-old female diagnosed with XLH (confirmed by genetic testing- c2077T>A mutation in the PHEX gene), at the age of 7, when she underwent multiple corrective surgeries for the right lower limb. In October 2023, she was admitted to the Endocrinology department for routine investigations, all the blood tests being within the normal range. Regarding the imaging investigations: the thyroid and abdominal ultrasounds showed no modifications, whereas the x-ray of the inferior limbs revealed osteoporosis at the level of both of the thighs, knees, and calves. Then, a new treatment was proposed for our patient: Burosumab.

Summary. This patient, known with XLH since childhood and with a medical history abounding with fractures, receives a genetic diagnosis only at the age of 34. Due to complications, monthly treatment with Burosumab is initiated, a drug that increases renal tubular reabsorption and gastrointestinal absorption of phosphate, thereby increasing serum phosphate levels.

Conclusion. The uniqueness of the case is represented by the usage of this treatment, which is common in children, but highly rare in adults, with only a few cases being reported in Romania.

ELEVATED PLASMA CA-125 LEVELS. OVARIAN CANCER OR AUTOIMMUNE HEPATITIS

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Keywords. Autoimmunity; Liver cirrhosis; CA-125 Lipoma

Introduction. Autoimmune hepatitis is a chronic liver disease usually associated with other autoimmune conditions, such as Hashimoto's thyroiditis, vasculitis, type 1 diabetes mellitus or systemic lupus erythematosus. Liver cirrhosis is a complication of this disease.

Case description. This case report not only highlights the clinical features of this disease, but also puts emphasis on an unusual significant rise in plasma CA-125 levels, a glycoprotein which is a very accurate marker of malignant ovarian cancer. We herein report a case of a 49 year-old female patient admitted to our internal medicine department with abdominal distension, depigmentation of the dorsal side of the hands and asthenia that started approximately 3 months earlier.

Laboratory tests showed modified liver function tests and an altered coagulation profile. Based on raised levels of antinuclear antibodies, IgG and undetectable hepatitis virus antibodies, a diagnosis of type I autoimmune hepatitis was made. Echographic imaging confirmed the presence of liver cirrhosis. Increased levels of TPO and TSH confirmed the association with Hashimoto's thyroiditis. Two weeks after curative treatment for liver cirrhosis, the patient was readmitted with abdominal distension, asthenia and scleral jaundice. Labs showed significantly high levels of CA-125, thus, an ovarian tumor was suspected. Hence, diagnostic laparoscopy with adnexectomy was performed.

Summary. According to the histopathological examination, this atypical rise of CA-125 turned out to be due to a benign condition, namely salpingeal lipoma. High CA-125 levels can be related to liver cirrhosis too, this being a unique feature of this clinical case, together with sudden onset and late diagnosis of liver cirrhosis.

Conclusions. The clinical diagnosis of a disease is a very complex process, which needs a multidisciplinary vision. As medicine is under continuous evolution, and there are many variations regarding individual physiology, documentation is vital for an accurate diagnosis.

THE MULTIPLE FACES OF PHEOCHROMOCYTOMA AND PARAGANGLIOMA

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Keywords. Pheochromocytoma; Paraganglioma

Introduction. Pheochromocytomas and paragangliomas are rare, catecholamine-producing neuroendocrine tumors located adrenaly or extra-adrenaly respectively. Although the diagnosis and treatment rely on significant radiological and laboratory findings, the latter might not be performed due to lack of suspicion, resulting in increased multisystem crisis risk during tumor resection.

Case description. Three cases were included to highlight the importance of thorough evaluation and treatment of catecholamine-producing tumors. Case 1: A 48-year-old female patient with a retroperitoneal mass in abdominal CT that was interpreted as a resectable mesenchymal tumor. During operation, multisystem crisis and clinical death occurred due to the absence of preoperative treatment. The cardiopulmonary resuscitation was successful, the resection of the tumor was radical. Only after the surgery it was discovered that there were symptoms of excess catecholamine production in patients' history, confirming the mass as a paraganglioma. Case 2: A 76-year-old female patient with retroperitoneal mass that was interpreted as mesenchymal neoplasm and a known history of paroxysmal blood pressure fluctuations. Biochemical investigation revealed high catecholamine levels in urine. Preoperative therapy with alpha and beta adrenoblockers was initiated. Left-side subcostal laparotomy was successfully performed. Case 3: A 33-year-old female patient with a left adrenal mass interpreted as a "*non-adenoma*" and a history of blood pressure crises. Laparotomic extirpation of the left adrenal gland was followed by relapse, histological findings revealed a possible malignant pheochromocytoma. After two additional resections, therapy with temozolomide and I-131 MIBG was initiated, resulting in positive therapeutic response.

Summary. Early identification of pheochromocytoma ensures appropriate preoperative treatment and a suitable strategy for monitoring.

Conclusions. Vascularized retroperitoneal and adrenal masses with CT attenuation exceeding 10 HU should raise suspicion for catecholamine-producing tumors, biochemical investigations should be conducted. Preoperative adrenergic control must be implemented, all cases necessitate life-long monitoring.

A CASE REPORT: TEMPORAL ARTERITIS IN A 67 YEAR-OLD MALE

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Keywords. Temporal arteritis; Methylprednisolone

Introduction. Temporal arteritis is a rare autoimmune disease with nonspecific but bothersome symptoms that can easily mimic other conditions. Confirming the diagnosis can be challenging and delayed, leading to prolonged patient complaints, affecting both the quality of life and potentially causing irreversible vision loss.

Case Description. In April 2015, a 67-year-old man presented to a family doctor with complaints of tinnitus, hearing loss on the left side, severe left-sided headache, and upper jaw problems after tooth extraction. Vital signs were within normal limits. In May 2015 the patient complains about fever up to 40°C, sweating, headaches, temporal region swellings, and increased eye pressure. Doxycycline was initiated due to suspected Lyme disease. Patient was admitted to the Latvian Centre of Infectious Diseases. Diagnostic tests revealed atherosclerosis in brachiocephalic vessels, bilateral pleuropneumonia on lung CT, elevated inflammatory markers, positive anti-Borrelia burgdorferi IgG, and negative tick-borne encephalitis virus IgG and IgM. Brain CT without pathological changes. Despite antibiotic therapy, febrile elevations persisted. A rheumatologist diagnosed temporal arteritis, initiating methylprednisolone therapy. After 14 days, the patient was discharged in stable condition. A recurrence occurred in November 2016, with clinical remission in March 2017. To control the disease and potentially discontinue methylprednisolone therapy, methotrexate was recommended, and no relapses have occurred.

Summary. This case reports a patient with temporal arteritis presenting with headaches, persistent fever, hearing loss, and increased eye pressure. Admitted to the Latvian Centre of Infectious Diseases, the patient underwent complex treatment and was discharged in stable condition. Diagnosis relied on clinical signs and diagnostic criteria.

Conclusions. Temporal arteritis diagnosis is challenging due to nonspecific laboratory findings and symptoms. It can mimic other diseases, as exemplified in this case by recent tooth extraction and infections. Early diagnosis and steroid therapy initiation are crucial for better outcomes and reduced complications.

RECURRENT HYPERBILIRUBINEMIA – A RARE CASE OF BENIGN RECURRENT INTRAHEPATIC CHOLESTASIS – A DIAGNOSTIC CHALLENGE

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Keywords. Benign recurrent intrahepatic cholestasis; Hyperbilirubinemia; Plasmapheresis

Introduction. Benign recurrent intrahepatic cholestasis (BRIC) is a rare autosomal recessive disease characterized by repeated episodes of conjugated hyperbilirubinemia, jaundice, pruritus, and general fatigue. Episodes last for weeks or months, followed by a complete clinical, biochemical, and histological remission period.

Case description. In 2013, a 19-year-old woman was hospitalized with progressive jaundice and pruritus. The diagnostic results were negative for most frequent etiologies and a liver biopsy showed intrahepatic cholestasis without fibrosis. Episodes like this occurred 14 times during 2013 to 2022, but the diagnosis wasn't made until 2016, when genetic analyses confirmed the diagnosis of benign recurrent intrahepatic cholestasis type 2 with heterozygote mutations in the ABCB11 gene. Patient improved on treatment with multiple plasmapheresis and ursodeoxycholic acid, although episodes still repeat once to several times a year and has a pronounced impact on quality of life. There is no evidence of changes in biochemical and histological values during remission.

Summary. BRIC is an autosomal recessive disease with mutations in genes encoding hepatocyte bile duct membrane proteins most commonly in homogeneous form; only 30% of cases have multiple heterozygous changes. The case demonstrates an unusual example of BRIC with heterozygous mutations in only one hepatocyte bile duct membrane protein encoding gene and explicit clinical symptoms. It is believed that multiple heterozygous changes determine the severity of the clinical manifestations of the patient concerned, but this example proves otherwise.

Conclusions. BRIC is a rare disease, to label a rare disease, practically all causes of pre-hepatic, hepatic and post-hepatic jaundice should be considered. Only after numerous episodes of relapses and remissions it could be asserted that this disease has a recurring pattern. Although there is currently no specific treatment available to prevent recurrence, the disease does not progress and has a benign course.

PANCREATIC ISLET TRANSPLANTATION FOR THE TREATMENT OF TYPE 1 DIABETES

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Keywords. Pancreas transplantation; Pancreatic islets; Diabetes; Type I

Introduction. Diabetes is a dangerous disease that causes serious complications, which often worsen the quality of life of the affected people. In recent years, great progress has been made in the field of diabetes care, with people having easier access to information and having more information about the disease and its possible consequences, allowing for better control of the disease. Thus, a pancreatic or pancreatic islet transplant could be a treatment alternative

Case description. The patient has type I diabetes since childhood. He had a kidney transplant 16 years ago. The patient was troubled by severe and frequent hypoglycemia and has had numerous hypoglycemic comas. Pancreatic islets are isolated from the pancreas of a deceased donor. The recipient was selected after matching his and the donor's blood types.After four weeks of pancreatic islet implantation, the need for insulin was significantly reduced and reached up to 50% previous doses, and after one year it reached 70%. The patient was transplanted with pancreatic islets several times.

Summary. The main indication for pancreatic islet transplantation is frequent and severe hypoglycemia.Transplanted islets prolong the function of the transplanted kidney, helping to control the fluctuation of blood glucose, especially the sudden drop in glucose.

Conclusions. Pancreas and pancreas-kidney complex transplantation could become an alternative treatment for people with type 1 diabetes, but he shortage of donors, the complexity of the operation, the rejection reaction, and the period of functioning of the transplanted organ are still not allowed to lead to routine and universally available treatments. Pancreatic islet transplants can partially and sometimes completely improve diabetes management.

FAMILIAL MULTIPLE ENDOCRINE NEOPLASIA

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Keywords. MEN2A syndrome; Familial medullary thyroid carcinoma; RET gene

Introduction. Multiple endocrine neoplasia (MEN) syndromes are infrequent inherited disorders in which more than one endocrine gland develops benign or malignant tumors. There are 3 well-known forms of MEN syndromes: MEN1 (*MEN1 gene*), MEN2A, MEN2B (*RET proto-oncogene*). This case describes a familial medullary thyroid carcinoma (MTC) with inheritance in 3 generations with 5 family members affected.

Case report. a 73-year-old man was admitted to the emergency department in serious condition – diarrhea, weight loss, skin flushing, lower extremity weakness. Objectively – dehydration, massive neck lymphadenopathy, large nodular goiter. Radiologically – metastatic process in the lungs, liver, bones, neck and mediastinal lymph nodes. Thyroid CORE biopsy and laboratory showed ACTH-secreting MTC with calcitonin level 97756 pg/ml and CEA 2052,22 ng/ml. The patient died one month after the diagnosis. Relatives of the patient underwent testing for MEN2A syndrome. Patients' son is 49 years old, asymptomatic. USG showed a nodule in the right lobe (TIRADS-4a). His daughter is 26-year-old, asymptomatic. USG showed thyroid gland nodule (TIRADS-4a). The Patient's other son is 44 years old, asymptomatic. USG showed nodules in both lobes (TIRADS-4a). His daughter is 16-year-old, asymptomatic. USG showed a small nodule with microcalcifications in the right lobe (TIRADS-5). All patients underwent total thyroidectomy with central/lateral lymph node dissection. All patients were diagnosed with – MTC with heterozygous variant in the RET gene.

Discussion. This case reports MEN2A syndrome with familial MTC with inheritance in 3 generations. All family members were asymptomatic but with malignant changes in thyroid ultrasound. Therefore, this case represents the importance of testing family members before they develop any symptoms.

Conclusions. The most common MTC presentation is a solitary asymptomatic thyroid nodule. After the diagnosis of MTC is made, family members must be evaluated for fasting calcitonin, CEA, thyroid ultrasound and RET gene mutation.

CASE REPORT: THROMBOTIC MICROANGIOPATHY (TMA) AS A DETERMINANT IN TERMINAL KIDNEY FAILURE AND A PROVOCATIVE FACTOR IN ACUTE KIDNEY TRANSPLANTATION REJECTION

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Keywords. Thrombotic microangiopathies; Graft function; Kidney transplantation

Introduction. Thrombotic microangiopathies (TMAs) represent rare yet severe disorders marked by microvascular thrombosis and organ damage. In this case report, we explore the intricate connection between TMAs and unknown etiology-driven end-stage kidney disease (ESKD), with a particular focus on outcomes post-kidney transplantation.

Case Description. In 2020, patient was admitted to the nephrology department following referral by a family doctor due to markedly abnormal kidney function. Patient, female, aged 44, for two weeks have had sever edema and hypertension 190-200/100-110 mmHg. 15 years ago have had pyelonephritis during pregnancy following a miscarriage. Have not been to nephrologist and gynecologist follow up for several years. Viral infections are negative, no information about family history. Laboratory tests showed a decreased glomerular filtration rate (GFR) of 8 ml/min elevated urea (29.3 mmol/l) and potassium (5.1 mmol/l), and decreased hemoglobin (76 g/l). Renal ultrasound revealed poorly differentiated kidneys with pronounced hyperechoic parenchyma, reduced size, and an absence of urostasis and concretions. Patient opted for peritoneal dialysis (PD) after declining a kidney biopsy. In 2021 patient agreed to have a kidney transplantation. Post-transplantation, complications including fever, leukopenia, thrombocytopenia, anemia, and elevated serum creatinine led to a kidney biopsy revealing TMA. Blood analysis showed an ADAMTS13 mutation. Subsequently transplantectomy was performed, followed by the resumption of PD two days post-surgery.

Summary. The patient, diagnosed with acute kidney failure, initially chose peritoneal dialysis and later underwent kidney transplantation. Postoperatively, complications emerged, including TMA with an postive ADAMTS13 mutation, resulting in transplant removal and a return to peritoneal dialysis.

Conclusions. This case highlights the diagnostic complexities surrounding ESKD with TMA, compounded by an unknown etiology. This case underscores the intricate interplay between chronic kidney failure, TMA, and the challenges in managing such complex scenarios. Continued monitoring is essential for long-term outcomes.

CASE REPORTS, SMALL CASE SERIES

NEUROLOGY, PSYCHIATRY, PSYCHOTHERAPY, PSYCHOSOMATICS

PRIMARY CENTRAL NERVOUS SYSTEM VASCULITIS (PCNSV): A CASE REPORT

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Keywords. Primary Central Nervous System Vasculitis (PCNSV); Rare disease; Inflammatory disease

Introduction. Primary Central Nervous System Vasculitis (PCNSV) is a rare inflammatory disorder affecting small- and medium-sized brain and spinal cord vessels. It poses diagnostic challenges due to diverse symptoms resembling neurological and psychiatric disorders. The autoimmune response damages CNS blood vessels, with infections as potential triggers. Diagnosis involves neuroimaging and histopathological study. Treatment includes immunosuppressive therapy. Prognosis varies, emphasizing the need for early intervention. Ongoing research aims to refine strategies for this complex condition.

Case description. A 65-year-old male with a history of heart diseases and prostate cancer developed progressive neurological symptoms including balance disorders, left-sided hemiplegia, diplopia and blurred vision with left eye. Initial tests were inconclusive, leading to suspicion of paraneoplastic syndrome. In the head MRI there were signs of demyelinating lesions bilaterally in both hemispheres, corpus callosum, and right corticospinal tract, with persisting inhomogeneity and mild contrast accumulation. Brain biopsy was performed revealing a diagnosis of Primary Central Nervous System Vasculitis (PCNSV). Patient received high dose methylprednisolone, plasma exchange and therapy with rituximab which did not show improvement. The patient's condition deteriorated rapidly, with vision loss, tetraplegia, cognitive impairment, and pneumonia leading to *exitus letalis*.

Summary. This case reveals the complexity of PCNSV, with diagnostic challenges and treatment limitations. Despite therapy, the disease progressed, emphasizing the poor prognosis associated with PCNSV. It underscores the need for improved diagnostic methods and alternative treatments for better outcomes.

Conclusion. This study adds valuable insights to the existing knowledge of PCNSV, emphasizing its complexity and the need for comprehensive diagnostic and therapeutic approaches. The implications for clinical practice and potential advancements in treatment strategies underscore the importance of ongoing research in unraveling the mysteries of this rare and challenging disorder.

MANAGEMENT CHALLENGES OF RECURRING SYMPTOMS DUE TO CERVICAL ARTERIOVENOUS MALFORMATION - A CASE STUDY

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Keywords. Arteriovenous malformation; Neurovascular; Embolisation

Introduction. Arteriovenous malformation (AVM) is an abnormal connection of vasculature resulting in capillary bed bypassing, and high risk of bleeding. The infrequent intramedullary localisation of AVM in the cervical spinal cord attest to challenging management. Treatment approaches are conservative, endovascular embolisation, microsurgical and stereotactic radiosurgery.

Case description. In 2011 a 15-year-old female presented with sudden neck and arm pain and asymmetrical neurological deficits. Diagnosis of spinal cord AVM at the level of 4th spinal vertebra was confirmed by spinal digital subtraction angiography (DSA). A partial endo-vascular embolization using ONYX liquid embolization system was the treatment of choice with following conservative management. Over 9 years, apart from mild left-sided hyperesthesia the AVM remained clinically silent, ambulatory follow-ups were continued. In 2020, clinical manifestations recurred as in the previous episode with additional positive Babinski sign. MRI showed pronounced intramedullary oedema in C3-C6 segments. Due to increased nidus size, rapid AVM shunting and clinical presentation, total AVM embolization was performed successfully using PHIL liquid embolization system. Thereafter the patient developed asymmetrical tetraparesis and right sided hemitype sensory disturbances. Further ambulatory care consisted of symptomatic management, rehabilitation, and monitoring. In 2023, a third episode of pain and neurological motor and sensory deficits resulted in hospitalization. In the spinal DSA the AVM seems comparable to past results, with possible slight increase in size. The patient responds to conservative treatment with Mannitol, Dexamethasone and symptomatic therapy. Further, rehabilitation and the conservative treatment continue ambulatory. At the last follow-up in September 2023, preserved neurological deficits are: asymmetric spastic paresis, hyperesthesia, hemitype paraesthesia and episodic pain.

Summary. Recurring symptomatology of cervical intramedullary AVM poses continuously high challenges on treatment choices balancing risks and benefits.

Conclusions. The rare intramedullary, cervical localisation of AVM leads to recurrent symptoms with challenging management and different treatment approaches.

PONTOCEREBELLAR ANGLE MENINGIOMA AS A CAUSE OF TRIGEMINAL NEURALGIA: A CASE REPORT

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Keywords. Meningioma; Pontocerebellar angle; Trigeminal neuralgia

Introduction. Meningiomas are slow-growing brain tumors that arises from the arachnoid cap cells of meninges. In rare cases when a meningioma develops in the pontocerebellar angle and compresses the trigeminal nerve, it can lead to irritation or damage of the nerve fibers, resulting in trigeminal neuralgia (TN) that is characterized by prolonged episodes of severe, stabbing unilateral pain in the face.

Case Description. A 73-year-old female reported experiencing severe, shooting pain on the right side of her face for approximately three years. Magnetic resonance imaging (MRI) of the brain was performed, revealing a small tumor at the right pontocerebellar angle causing compression on the right trigeminal nerve. Initially, the patient was treated conservatively with Carbamazepine but as the symptoms persisted and got worse, it became evident that surgical intervention was necessary. A right-sided retrosigmoid osteoplastic craniotomy and tumor evacuation was performed after which complaints of facial pain were completely reduced. The pathohistological analysis of the removed tissue confirmed the presence of a meningioma (WHO Grade I).

Summary. A 73-year-old patient with right side trigeminal neuralgia was initially treated conservatively but it did not give sufficient effect. After performing an MRI, the conflict of the right trigeminal nerve with the tumor at the pontocerebellar angle was verified. After surgical resection of the tumor, the facial pain was completely reduced.

Conclusions. Effectively managing trigeminal neuralgia depends on identifying the root cause of the neuralgia. This recognition is essential for selecting the most suitable treatment approach tailored to the individual patient.

DIVERSE COMPLEXITIES: REVEALING PSYCHOGENIC DISORDERS CONCEALED BY THE GUISE OF ACUTE PATHOLOGIES

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Keywords. Psychogenic disorders; Depression; Somatoform Undifferentiated Disorder; Insomnia

Introduction. Psychogenic disorders, also known as psychosomatic or somatoform disorders, manifest as physical symptoms with no discernible organic cause. These conditions stem from psychological factors, such as stress, trauma, or unresolved emotions, impacting the body's functions.

Case description. The patient reported intense abdominal pain, prompting admission to the gastroenterology department for suspected pancreatitis. However, normal levels of amylase, lipase, inflammatory markers and radiology results ruled out pancreatitis. Patient was transferred to cardiology department. Subsequent suspicions of myocardial infarction went unconfirmed in cardiology. Referred to gastroenterology, the diagnosis included 1st-degree arterial hypertension, paroxysmal tachycardia, orthostatic hypotension. Discharged from hospital, she lost consciousness the next day, leading to hospitalization for functional gastrointestinal disorders, revealing erosive gastritis through FGDS. Endocrinological evaluation disclosed elevated ACTH, high-normal cortisol, hyponatremia, and severe hypokalemia, potentially linked to fasting, increased water intake, and hormonal changes due to heightened stress. A psychiatrist diagnosed moderate depression, somatoform undifferentiated disorder, and insomnia. Treatment with Escitalopram, Magnesia sulfate and Pregabalinum nightly commenced, alleviating symptoms. Historical data indicated recurring complaints over five years, unfamiliar to the patient but effectively managed with antidepressants, demonstrating symptomatic relief.

Summary. Psychogenic disorders can disguise themselves as acute pathologies, creating impressions of polymorbidity, causing difficulties in diagnosis.

Conclusions. When identifying psychogenic disorders, it's vital to rule out acute pathologies. A comprehensive evaluation necessitates a collaborative, multidisciplinary approach with effective communication among diverse medical specialists. Following the elimination of potential organic issues, engaging in consultations with a psychiatrist becomes a pivotal step in treating and understanding these patients.

RECURRENCE OF CRANIOPHARYNGIOMA: A CASE REPORT

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Keywords. Adamantinomatous craniopharyngioma; Pituitary gland; Panhypopituitarism

Introduction. Craniopharyngioma, a rare benign tumor near the pituitary gland, has an incidence rate of 0.5 to 2 cases per 1 million people. This tumor often requires neurosurgery, radiation therapy, or both. However, the recurrence rate is approximately 20 to 40%. Complications that often accompany craniopharyngioma are panhypopituitarism, visual deficits and cognitive impairments, which significantly impact the patient's quality of life.

Case description. A 17-year-old male underwent a partial resection of a WHO grade 1 adamantinomatous craniopharyngioma in 2019, which resulted in post-manipulation panhypopituitarism. The patient developed comorbidities, including secondary hypothyroidism, hypogonadotropic hypogonadism, hyperprolactinemia, secondary adrenal insufficiency, and diabetes insipidus. In July 2023, a recurrence of the craniopharyngioma was visualized on magnetic resonance imaging (MRI), revealing a substantial increase in size, lateral ventricle expansion, and compression of the anterior recess of the third ventricle. Compression of the optic chiasm was also noted. In August 2023, the patient underwent a repeated craniotomy and partial resection of the recurrent craniopharyngioma. A follow-up MRI in September indicated an undifferentiated normal infundibulum structure, with no observed dynamic changes in brain ventricle expansions. Following treatment in the neurology and endocrinology departments, the patient, in generally satisfactory condition, was discharged from the hospital. The patient continues further therapy on an outpatient basis, including dexamethasone, acetazolamide, levothyroxine, desmopressin, Sol. Sustanon, and radiotherapy.

Summary. This clinical case report presents MRI findings on a patient with craniopharyngioma and the serious complications that, without treatment, can significantly impact the patient's quality of life.

Conclusions. Craniopharyngioma is a rare tumor of the central nervous system. MRI plays a crucial role in determining the tumor's extension into adjacent structures, such as the third ventricle or hypothalamus, influencing treatment planning. Follow-up imaging is essential for monitoring post-treatment changes, detecting recurrence, and assessing potential complications.

CHALLENGES IN MANAGEMENT OF A COMPLICATED PATIENT CASE - DEPRESSION DIFFERENTIAL DIAGNOSIS WITH HYPERSOMNIA OR COMORBIDITY?

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Keywords. Depression; Epilepsy; Suicide; Border-line personality disorder (BPD)

Introduction. Due to the ever-evolving psychiatric care, a higher number of depression especially with comorbidities have been diagnosed. However, in treatment of comorbidities has often been challenging, as well as one disorder may mask another, that requires a different approach.

Case description. A 28 years old woman was diagnosed with depression and general anxiety symptoms, panic attacks and reported chronic sleepiness. Medical history includes brain organic post-traumatic changes and post-traumatic focal epilepsy, several suicidal attempts and history of emotional and physical abuse in family. As well as symptoms of BPD and impulse control difficulties were diagnosed. It is usual for depression syndrome to include sleepiness during the day, but it was found out that it appeared before the onset of depression and met some of the criteria for hypersomnia disorder. Another factor for suspecting hypersomnia was the number of medications tried to improve the patient's condition without major effect on symptoms of sleepiness. A polysomnography examination was conducted in the Center for Epilepsy and Sleep Medicine 3 months later. Due to acute bronchitis afterwards, she discontinued medication use for more than two weeks as a result of what condition had worsened and she missed the meeting with council for conclusion of examination and the question about the diagnosis and a therapy of hypersomnia remained open.

Summary. An extremely rare case of a woman with psychiatric symptoms as profound as organic changes asks for help. Despite psychosocial difficulties different kinds of therapies have been tried unsuccessfully so hypersomnia is suspected as a comorbidity or underlying cause of persistent symptoms.

Conclusions. It is important to evaluate possible comorbidities in depression syndrome as depression symptoms may mask other conditions such as hypersomnia.

CEREBRAL VENOUS THROMBOSIS AFTER IN VITRO FERTILIZATION

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Keywords. Cerebral venous thrombosis; *In vitro* fertilization; Cerebrovascular pathology

Introduction. The risk of cerebral venous thrombosis after *in vitro* fertilization is 0.2%.

Case description. 36 years old, otherwise healthy, 9th +1 week pregnant female presented to the Emergency department with complaints of fatigue and nausea, lasting a week. Two days later, she developed vomiting 15 times per day. Pregnancy was induced by *in vitro* fertilization. On admission, the patient had a severe headache: not relieved by paracetamol, most prominent on the right-side occipital region, radiating through the scalp till the right eyeball. She had painful eyeball movement looking to the left, and neck stiffness. On MRI scan, the patient had right transverse sinus, jugular vein bulbus and sigmoidal sinus cerebral venous thrombosis, signs of initial superior sagittal sinus thrombosis and intracranial hypertension. During fundus oculi examination, was found out left side papilledema. The patient received paracetamol, non-steroidal anti-inflammatory drugs, antiemetics, and initiated treatment with subcutaneous heparin in therapeutic dose for the whole pregnancy and 6 weeks postpartum. The patient was hospitalized for nine days, during which the complaints subsided. The pregnancy period was without complications; a delivery was done by planned C-section. After delivery, the patient was admitted to the Neurology Department for a control head MRI scan – no thrombosis was found in cerebral veins. It was recommended that protein C activity should be repeated after completion of subcutaneous heparin treatment.

Summary. This clinical case demonstrates cerebral venous thrombosis, which is a rare complication of *in vitro* fertilization. After successful treatment, the patient's complaints subsided, the remaining pregnancy period and delivery were without complications. Control MRI scan did not reveal signs of cerebral venous thrombosis.

Conclusions. Although the risk of cerebral venous thrombosis is low, prompt recognition and management of this complication is necessary for successful pregnancy guidance.

GRADE III ASTROCYTOMA IN PATIENT WITH SCHIMMELPENNING SYNDROME

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Keywords. Schimmelpenning syndrome; Astrocytoma; Nevus; HRAS gene

Introduction. Schimmelpenning syndrome is a rare congenital neurocutaneous disorder related to epidermal nevus syndromes and characterized by craniofacial nevus, neurologic, skeletal anomalies, and ocular pathologies. Extracutaneous neoplasms associated with the CNS have rarely been reported in Schimmelpenning syndrome patients. The syndrome is thought to be caused by mutations in the HRAS gene which has been reported in several tumor types. This mutation is thought to share some links between Schimmelpenning syndrome and the development of intracranial tumors.

Case description. A 44-year-old female patient with Schimmelpenning syndrome sought medical help with complaints of progressive headache and dizziness. A magnetic resonance imaging (MRI) scan of the brain revealed an irregularly shaped, inhomogeneous mass in the left frontal lobe. The patient underwent surgery via frontotemporal craniotomy and osteoplastic trepanation. A complete resection was not attempted as the tumor was adherent to surrounding structures. Histopathological analysis confirmed the sampled tissue to be an astrocytoma IDH mutant, Grade 3. Molecular analysis revealed pathogenic changes in oncogenic HRAS. The case was reviewed by a multidisciplinary neuro-oncology council with agreement on further chemotherapy which was postponed due to pancytopenia. The patient started high-dose dexamethasone infusions, 2 platelet mass transfusions and subcutaneous injections of granulocyte-stimulating factor, but the increase in the number of platelets was minimal and chemotherapy was postponed until September when the patient received combined radiation and chemotherapy, which she tolerated well.

Summary. A 44 year old patient with Schimmelpenning syndrome sought medical help with neurological clinical signs. The MRI revealed a pathological mass in the left frontal lobe which turned out to be a grade III astrocytoma. Patient received combined radiation and chemotherapy which was well tolerated.

Conclusions. Glial tumors have been associated with genetic mutations of HRAS upregulation, which may imply a common pathway between both pathologies.

MULTIPLE CEREBRAL CAVERNOUS MALFORMATIONS WITH SPINAL HEMORRHAGE AND INTRACRANIAL INVOLVEMENT: A CASE REPORT

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Keywords. Cerebral cavernous malformations; Spinal Cord cavernomas; Spinal hemorrhage; MRI findings

Introduction. Cerebral cavernous malformations (CCM) are rare, intricate clusters of blood vessels affecting the brain and spinal cord. While often solitary and sporadic, multiple CCMs are linked to genetic factors and are inherited in an autosomal dominant manner. Intracranial CCM cases, frequently asymptomatic, pose a substantial risk of spontaneous intracerebral hemorrhage, with symptomatic lesions in the spinal CCMs being considered extremely rare. Early detection is crucial, involving a comprehensive family history assessment and the use of Magnetic resonance imaging (MRI).

Case description. We report a rare case report of a 67-year-old female presented with weakness and numbness in her legs, coinciding with back pain after snow removal. Neurological examination revealed lower paraparesis, asymmetrical reflexes, and sensory disturbances. A CT scan revealed hyperdense inclusions at various spinal levels, prompting additional MRI clarification. The cervical and thoracic spine MRI revealed multiple spinal cord formations with central hyperintensity, small formations at various levels, and transverse longitudinal edema with intramedullary hemorrhage from Th6 to Th12. The brain MRI had revealed numerous cavernous malformations of various sizes, the largest in the right parietal lobe, and smaller ones in the brainstem. The patient's condition worsened, causing lower paraplegia and anesthesia. Discharged with persistent paraplegia, she was transferred to a Rehabilitation Center.

Summary. This report highlights MRI findings in a patient with multiple CCMS. Notably, the case exhibits atypical spinal manifestations, alongside the presence of intracranial CCMs.

Conclusions. Cerebral Cavernous Malformation (CCM) poses a significant health risk due to its heightened potential for intracranial bleeding and, less frequently, spinal hemorrhage. With only a few documented cases in the existing literature, this case report brings attention to the diagnostic challenges faced in patients exhibiting acute symptoms with the rare condition of CCM and symptomatic spinal cord hemorrhage.

SKULL METASTASIS OF HEPATOCELLULAR CARCINOMA: A CASE REPORT

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Keywords: Hepatocellular carcinoma; Skull metastasis.

Introduction. Metastasis to the skull frequently occurs in patients with lung, breast and prostate cancer. However, skull metastasis from hepatocellular carcinoma (HCC) has been rarely reported and is thought to account for only 0.6%-1.6% of all bone metastases from HCC.

Case description. A 61-year-old male presented to the hospital for evaluation of two painless masses over the frontal and left temporal regions for 6 months. There was no data on chronic comorbidities or oncology. On admission, no abnormality was observed by neurological and physical examination except the subcutaneous masses on his forehead, 8×6,5cm and of the left temporal lobe, 8,5×4,5 cm in size. A computed tomography (CT) with intravenous contrast showed bone destruction and well-circumscribed high-density masses with calcined inclusions. MRI showed the homogeneous hypervascular tumors compressing the left frontal lobe on the T1 weighted image as isointense and the T2 weighted image showed slightly low-intensity masses. The patient underwent surgical excisions of the tumors, due to the difficult healing process, the patient was re-hospitalized for wound revision and serratus anterior muscle flap for forehead region reconstruction. After successful wound healing, the patient underwent partial cranioplasty.

The histopathological and immunohistochemical profile of the surgical material is consistent with high-grade HCC.The case was reviewed at the neuro-oncology patient council and it was decided that the patient should undergo chemotherapy.

Summary. This study presents a rare case of multiple skull metastasis as an initial finding of HCC. Not only skull metastasis from hepatocellular carcinoma (HCC) has been rarely reported, but also there is not enough data on the most effective method of their treatment.

Conclusion. Skull metastasis as the first symptom of HCC is a rare situation. Clinical, radiological, and histological data should all be taken into consideration to better establish a personalized therapeutic strategy.

A CASE REPORT OF EXTRAPONTINE MYELINOLYSIS, REQUIRING DIFFERENTIATION FROM THE RARE CREUTZFELDT-JAKOB DISEASE

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Keywords. Extrapontine myelinolysis; Creutzfeldt-Jakob disease

Introduction. Extrapontine myelinolysis (EPM) is a rare symmetrical demyelinating disease of the central nervous system associated with chronic hyponatraemia and its rapid correction.

Case description. A 46-years-old female patient was hospitalized in the Lithuanian University of Health Sciences Hospital Kaunas Clinics with impaired speech, handwriting, gait, dizziness, nausea and vomiting. She had polycystic ovary syndrome and was taking Reduxcut for weight loss. Examination results: the pathological Babinski reflex on both sides, ataxia, sways in the Romberg position. Brain MRI revealed slightly increased bilateral putaminal and caudate nucleus signal on T2W/FLAIR, DWI sequences. EEG showed fluctuating brain activity. A multilocular cystic structure with septations accumulating contrast material was observed in CT scan of the abdomen and pelvis. A double increase in the cancer marker Ca125 was found. The patient underwent a laparotomy, a biopsy of the surgical specimen was obtained and showed a serous cystadenoma of the ovary, so there was insufficient evidence for a paraneoplastic syndrome. Serotonin syndrome was also considered but ultimately ruled out. The patient's neurological condition worsened during the course of the disease. A head MRI changes were consistent with extrapontine myelinosis, but couldn't rule out Creutzfeldt-Jakob disease (CJD). Later, MRI changes became more indicative of CJD. Brain tissue biopsy was recommended, but the patient's family disagreed. Despite treatment with saline solution, glucocorticoids, and intravenous immunoglobulin, the patient's condition did not improve.

Summary. The patient was evaluated and treated for EPM, suspected paraneoplastic syndrome, and medication intoxication. Repeated brain MRI scans showed changes that were more characteristic of CJD. The disease progressed rapidly, and treatment did not improve the condition.

Conclusions. In this case, the diagnosis of CJD cannot be ruled out, but the only test that can confirm this neurodegenerative disorder is a brain tissue biopsy.

EVALUATION OF TREATMENT FOR A PATIENT WITH ORGANIC DELUSIONAL DISORDER UNDERGOING DOPAMINERGIC THERAPY. CASE REPORT

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Keywords.

Introduction. Parkinson's disease, primarily characterized by movement abnormalities, can lead to psychiatric symptoms due to the loss of dopaminergic neurons in the substantia nigra. Organic delusional disorder, sharing similarities with schizophrenia, manifests as persistent delusions resulting from disrupted brain function caused by various factors.

Case description. The patient, under Parkinson's treatment since 2012 (Rasagiline, Ropinirole, Amantadine, and standard Levodopa/benserazide) displayed changed behavior and heightened suspicion in 2021. The patient's mood was dysphoric, emotions were labile, and anger reactions were easily provoked. Diagnosed with F06.2 organic delusional disorder, he underwent various treatments during hospitalizations. Initial medications included Haloperidol (drops), later replaced with Olanzapine, and Diazepam for a brief period. Parkinson's disease correction involved lowering doses of Ropinirole. Subsequent hospitalizations addressed worsening delusional symptoms, leading to adjustments in Olanzapine doses and the inclusion of Lorazepam. The last time the patient was hospitalized because delusional jealousy persisted, with the patient insisting that his wife take a pregnancy test and accusing her of drug use. The patient displayed circumstantial thinking, labile emotions, a lack of criticism, and delusions. After four weeks of hospital treatment, the patient showed improvement, allowing for outpatient management with Olanzapine, Diazepam, and unchanged Parkinson's treatment.

Summary. This case report investigates the management of organic delusional disorder in a 75-year-old Parkinson's disease patient undergoing dopaminergic therapy. Treatment adjustments were made to balance symptom relief, emphasizing the importance of cautious dosage modifications.

Conclusions. The manifestation of organic delusional disorder in this case could have been influenced by both Parkinson's disease and antiparkinsonian drugs. Antipsychotic medications, by inducing extrapyramidal side effects, can impact the exacerbation of Parkinson's disease. The approach included reducing the doses of antiparkinsonian drugs, specifically reducing the Ropinirole dose to 8 mg/day. If psychotic symptoms persist, atypical antipsychotics, such as Olanzapine, are recommended.

MIGRAINE WITH AURA OR ACUTE ISCHEMIC STROKE

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Keywords. Migraine; Ischemic stroke

Introduction. Migraine, a common neurological disorder affecting millions globally, often disguises a more serious issue – cerebral ischemia. Mistaken for migraines due to shared symptoms, this case highlights the interplay between two neurological pathologies.

Case description. A 42-year-old woman presented to the ER in October 21, 2023, with right limb weakness and numbness, accompanied by a migraine, eye flickering, and elevated blood pressure, symptoms started 2 days prior. Despite migraine relief with Sumatriptan, limb and eye symptoms persisted. Patient is diagnosed with migraine for over 20 years, but never experienced aura. Patient was on birth control pills. After receiving pain relief, patient was discharged from the ER. On 25th of October patient returned to the ER with same symptoms. Neurological examination, CT and CTA findings - no pathology. Patient was discharged, symptoms worsened, leading to inability to move the right side limbs. CT and CTA were repeated - no abnormal findings, after neurological examination, patient was hospitalized for further evaluation and treatment. Neurological assessment revealed reduced muscle strength on the right side, proximal arm strength 1/5, distal 3/5, leg strength 3/5. Hypoesthesia on the right side limbs, torso. Extracranial vessels ultrasound revealed pre-occlusive circulation in the left ICA, no morphological changes. MRI and MRA revealed left acute ischemia due to dissection of the left internal carotid artery. Conservative treatment was recommended, with dual antiplatelet therapy and rehabilitation leading to improvement.

Summary. This case underscores how migraine symptoms can mimic cerebral ischemia, leading to potential radiological and neurological examination misinterpretation. We suspect diagnostic errors by radiologists and neurologists in the early stages of patient's examination.

Conclusions. Migraine, a complex pathology, may mask life-threatening conditions like cerebral ischemia. This case emphasizes the importance of careful medical supervision to uncover critical underlying issues in chronic conditions.

THE UNFORTUNATE AND CHALLENGING CASE OF A YOUNG WOMAN WITH MEDULLARY BRAINSTEM GLIOMA AND SELLA TURCICA TUMOUR

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Keywords. Sella turcica tumour; Medullary brainstem glioma; Adult high-grade glioma

Introduction. Brainstem glioma is a highly aggressive brain tumour, accounting for 20% of all paediatric brain tumours, but only for 1-2% of all adult gliomas. The median age of onset is 35 years old, but it can be noticed at any age. In 60% of the cases, the gliomas are found in the pons, but they can arise from the midbrain or medulla, as well as infiltrate beyond the brainstem. Common symptoms include: nausea, headaches, vertigo, limb weakness, visual and sensory disturbances. For diagnosis, an MRI is usually achieved, whereas a biopsy is rarely performed. Low-grade gliomas are frequent, but exceptionally, adults present a rapidly-growing tumour, similar to the tumours found in children.

Case description. A 33-year-old female, known with a sellar mass, and mother with a history of brain tumour, is admitted to the ER, as she complained of vertigo and balance disorder, accompanied by nausea and vomiting. The patient stated that the symptoms occurred 8 months ago, but they exacerbated in the last two days. Further imaging investigations showed two infiltrative bulbar lesions, one in favour of high-grade glioma and a non-specific lesion in the diploe of the occipital bone along with a sellar focal lesion extended to the sphenoidal sinuses. During hospitalization, the patient presented an alteration of mobility in the lower limbs, resulting in her inability to move.

Summary. This case exposes the evolution of a woman with three brain masses and relevant family history, with worsening symptoms that led to her regularly presenting to the ER. A biopsy of the bulbar region is scheduled, so that the specific treatment can be initiated.

Conclusions. Despite the unfavourable prognosis, there is an imperious need for continued research and advancement of new therapeutic approaches to improve the outcomes.

PARAPHILIAS- UNCHARTED TERRITORY AND UNTALKED ABOUT FANTASIES: A CASE REPORT

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Keywords. Paraphilia; Fetishism; Masochism; Intoxication

Introduction. Paraphilias are a group of diseases, involving recurrent, intense, imperative sexual needs and sexual fantasies that induce increased libido. Those fantasies may require objects, children or other people who do not consent, and provoking pain and humiliation. Paraphilias don't solely present as problems pertaining to the psychiatric or psychological field, usually, they are illegal and can inflict severe emotional trauma or physical damage to the victims. These issues are on the rise, but those suffering from paraphilias often lead normal non-sexual lives, so oftentimes they don't even seek to solve these issues.

Case report. The patient's problems began at 4 years old when he suffered an abdominal traumatic injury, which resulted in intestinal rupture and peritonitis. He developed post-intervention intestinal occlusion. After having felt violent pain, fear of death and being saved, he started identifying pain with pleasure. After he discovered the act of self-pleasuring, he soon felt the need to start designing ways to make it more sophisticated in order to prolong and heighten gratification. He started using syringes to draw blood out of his veins, injecting his scrotum with substances, and inserting urinary catheters to provoke orgasms. Years later, the patient desired to be touched internally and initiated the act of kissing, tasting and swallowing gloves, feeling intense satisfaction when doing so. Another part of the ritual is intoxication with ether through a tracheal tube.

Summary. As time passes, this patient becomes more and more disconnected socially, because of his abnormal behaviour and feels extreme distress, shame, guilt and tries to get medical help through behavioural therapy and medication, but with little to no improvements.

Conclusion. While being the most important part of a human, the brain, its myriad and perplexing afflictions remain erroneously undiscussed because of the stigma surrounding mental illness.

CDH2 MISSENSE VARIANT IN CHILD WITH RECURRENT HERPES SIMPLEX ENCEPHALITIS FOLLOWED BY ANTI-NMDA RECEPTOR ENCEPHALITIS: A CASE REPORT

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Keywords. HSV encephalitis; Anti-NMDA receptor encephalitis; CDH2; Recurrent encephalitis

Introduction. The CDH2 gene produces N-cadherin, a protein essential for cell adhesion crucial in the development of the nervous system.

Case description. A 7-month-old boy presented to the hospital with a febrile temperature, progressing drowsiness, and generalized seizure. CSF showed pleocytosis and proved the presence of HSV using PCR, confirming the diagnosis of HSV encephalitis, and i/v acyclovir was initiated for 21 days. After the course of treatment, repeated lumbar puncture showed no HSV DNA, the patient was discharged with no symptoms.

3 days later the boy was re-stationed due to changed behavior – crying, breastfeeding difficulties, uncontrolled leg, arm, and tongue movements. The diagnosis of the anti-NMDA receptor encephalitis was suspected and confirmed by positive IgG antibodies in CSF. The patient was treated with 1st, 2nd, and then 3rd line treatment. At the age of 11 months, the patient received genetic counseling due to a relapse of HSV encephalitis – NGS primary immunodeficiency gene panel was performed and was negative. Later the patient was discharged in a satisfactory condition for palliative care and rehabilitation.

At the age of 21 months was admitted to the hospital with a relapse of HSV encephalitis. Extended genetic testing was made and identified a novel likely-pathogenic heterozygous missense variant CDH2 c.1064A>G, p.(Glu355Gly).

Summary. A boy with no reported family history, with recurrent HSV encephalitis, HSV triggered Anti-NMDA encephalitis, psychomotor developmental regression, speech delay, negative NGS primary immunodeficiency panel, whole-exome sequence analysis was performed and a heterozygous CDH2 variant was identified.

Conclusions. This study explores the connection between the CDH2 variant and the sequential occurrence of HSV and anti-NMDA encephalitis, enhancing our understanding of the interplay between genetic variations and viral-induced neurological disorders.

BILATERAL BASAL GANGLIA HAEMORRHAGE

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Keywords. Bilateral basal ganglia haemorrhages; Untreated hypertension

Introduction. Intracerebral haemorrhage (ICH) is the second most common cause of stroke, accounting for 10–15% of worldwide cases and leading to major morbidity and mortality. Basal ganglia (BG) haemorrhages represent singular entities, mostly occurring in spontaneous ICH and less frequently in traumatic ICH. Bilateral basal ganglia haemorrhages (BBGHs) are extremely rare and poorly studied.

Case description. A 69-year-old female patient with a history of untreated hypertension, ischemic heart disease and type 2 diabetes mellitus was admitted with somnolence, disorientation and blood pressure of 220/110 mmHg. No history of intoxication or trauma was given. Glasgow Coma Scale at the presentation was E4V4M6. CT scan head revealed bilateral symmetrical, oval-shaped, slightly inhomogeneous, markedly hyperdense zones in the basal nuclei - intracerebral haemorrhages (dxt:2.6×1×2.1cm, sin: 2.7×1×1.9cm) along the spina bifida occulta at the C1 level. The patient was managed conservatively in the Neurological unit. The patient's verbal response was improving and a repeat CT scan showed bilateral basal ganglia intracerebral haemorrhages without any changes in dynamics. The patient was treated with a combination of intravenous and oral antihypertensive medication; five days later she became normotensive with improving neurological function. The hypertensive crisis did not occur again during her hospital stay.

Summary. A 69-year-old female patient with a history of untreated hypertension sought medical help. A CT scan revealed simultaneous bilateral thalamic haemorrhages with cognitive impairment. The patient underwent conservative treatment and was discharged from the hospital in a generally satisfactory condition without any neurological deficit.

Conclusions. Simultaneous bilateral basal ganglia haemorrhage is a rare emergency with no clear consensus on a management approach. This case highlights the importance of undiagnosed hypertension in causing intracerebral haemorrhage in elderly patients.

THE ROLE OF ANESTHESIA IN AWAKE CRANIOTOMY: A CASE REPORT ON OLIGODENDROGLIOMA EXCISION IN THE LEFT FRONTAL LOBE

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Keywords. Awake Craniotomy; Anesthesia; Neurosurgery; Intraoperative Monitoring

Introduction. Awake craniotomy with brain mapping is crucial for neurosurgical interventions in eloquent brain areas, essential for speech and motor functions. This approach reduces neurological risks inherent in traditional surgery under general anesthesia.

Case Description. This presentation details the management of a 31-year-old patient diagnosed with oligodendroglioma, measuring 1.5×1×0.5 cm. The procedure was structured into three phases:

First phase: Anesthesia to awakening, duration 70 minutes. The anesthesia protocol commenced with 0.15 mg fentanyl and 200 mg propofol for induction, undergoing a surgical procedure with arterial and central venous catheter placement, and the placement of a size 4 LM. Anesthesia maintenance involved total intravenous anesthesia using remifentanil (10-20 ml/h) and propofol (20-60 ml/h). Continuous infusion of norepinephrine at 0.074-0.15 mcg/kg/min was essential in maintaining a MAP above 75 mmHg.

Second phase: Awake phase, lasting 105 minutes. During the patient's conscious state, remifentanil dosage was adjusted to 6 ml/h for effective pain management.

Third phase: Closing, suturing, till extubation, encompassing 50 minutes. The final stages of surgery involved administering an additional 0.1 mg of fentanyl and a preemptive dose of ketorolac. Paracetamol was used during scalp suturing, demonstrating a multimodal approach to pain management.

Postoperative assessments revealed comprehensive preservation of neurocognitive functions, including speech articulation, motor skills, and complex cognitive abilities, with no identifiable neurological complications following the anesthesia and surgical intervention.

Summary. Awake craniotomy marks a pivotal progression in neurosurgical methods, particularly for resections in eloquent brain regions. It optimizes tumor removal while reducing postoperative neurological impairment risks.

Conclusions. This case of awake craniotomy for oligodendroglioma highlights the efficacy of a personalized neurosurgical approach. Tailoring the procedure to the patient's neurology ensured successful tumor removal while preserving crucial brain functions, demonstrating the value of patient-centered surgery in reducing postoperative risks and improving patient outcomes.

SLEEP BRUXISM AS A MANIFESTATION OF RAPID EYE MOVEMENT SLEEP WITHOUT ATONIA IN THE PATIENT WITH MULTIPLE SCLEROSIS

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Keywords. REM without atonia; Bruxism; Multiple sclerosis

Introduction. REM without atonia (RWA) is a polysomnographic (PSG) finding characterized by increased tonic or phasic motor tone on the limbs and/or chin electromyography (EMG) channels during REM sleep. Jaw muscle activity, like teeth clenching or grinding, is known as sleep bruxism (SB). SB during REM sleep may be a subclinical manifestation of REM sleep behaviour disorder. RWA seems to occur more often in MS patients with lesions in the brain stem.

Case description. A 31-year-old man has presented with relapsing-remitting multiple sclerosis (RRMS) treated at REUH. The initial symptoms of this disease manifested 16 months ago. The EDSS was used as a marker of MS severity, where the patient got a score of 1. MRI data indicates the presence of MS lesions: 25 supratentorial lesions and 2 infratentorial lesions. This patient underwent a sleep examination, which initially included a patient examination, questionnaire, and polysomnography (PSG). The patient was overweight (BMI 28,36 kg/m^2). His ESS score was 5/24, PHQ-9 score was 5, Moca – 27/30 points, FSS 32/63 points, PSQI score was 8/21 and IRLIS score was 0. PSG recordings showed episodes of teeth grinding or clenching occurring exclusively during REM sleep. The excessive phasic chin electromyographic twitching was observed.

Summary. SB as a manifestation of RWA is a rare condition and in patients with MS may be caused by infratentorial lesions. Evaluating the high incidence of sleep disorders in MS, studies should be strongly considered for these patients since most sleep disorders are treatable, even preventable.

Conclusions. The case report showed the relationship between SB and RWA in the patient with MS. Factors such as stress, fatigue, neurological dysfunction, and medication side effects, which are common in MS, could be the cause for the development of both – SB and RWA.

CYTOMEGALOVIRUS ASSOCIATED MENINGOENCEPHALOMYELITIS OR MULTIPLE SCLEROSIS?

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Keywords. Cytomegalovirus; Meningoencephalomyelitis; Multiple sclerosis

Introduction. Cytomegalovirus (CMV) infection of the central nervous system (CNS) occurs most commonly in the patients with severe immunosuppression, whereas immunocompetent patients are affected very rarely. Reactivation of latent CMV infection may occur in some individuals. The association and role of CMV and multiple sclerosis (MS) is still inconclusive and requires research. The aim of the study - increase the awareness of healthcare professionals about the relationship between CMV and the development of meningoencephalomyelitis, MS.

Case description. A 37-year-old male with complaints of numbness, tingling around the lips and at the tip of the tongue, later accompanied by segmental sensory loss on trunk and tingling on the dorsal surface of the right foot. Cerebrospinal fluid analysis (CSF)- cytosis (26 μL) with a prevalence of agranulocytes. Confirmed positive CMV DNA in the CSF. Magnetic resonance imaging (MRI) showed an active supratentorial and infratentorial lesions in the brain and demyelinating lesion at the Th2-Th3 level. Oligoclonal bands in the CSF were positive. Due to the presence of CMV in the CSF, the patient received antiviral therapy with improvement of symptoms. After 5 months, a follow-up MRI with intravenous contrast showed both - active and inactive demyelinating lesions, fulfilling McDonald criteria. Established diagnosis of relapsing – remitting MS and disease modifying treatment initiated.

Summary. A 37-year-old man with confirmed CMV DNA in CSF and active demyelinating lesions in the brain and spinal cord, diagnosed with CMV associated meningoencephalomyelitis. A few months later, the diagnosis of MS is established.

Conclusions. CMV associated meningoencephalomyelitis is rare, especially in immunocompetent patients. Demyelinating lesions that all are active are not a typical finding of MS. Close MRI and clinical monitoring should be done in unclear cases. Awareness of uncommon clinical findings is crucial for clinicians to successfully diagnose and treat the disease.

RARE CASE OF ANGIOMATOUS MENINGIOMA IN YOUNG ADULT: CASE REPORT

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Keywords. Angiomatous meningioma; Atypical meningioma; Intracranial tumor

Introduction. Meningiomas are the most prevalent primary intracranial tumors, arising from the brain meninges. Among subtypes, angiomatous meningiomas stand out as rare and highly vascular (comprising more than 50% of the entire mass). Radiologically, they present challenges in differentiation from other subtypes, potentially leading to misinterpretations. However, positive EMA staining confirms their meningothelial origin. Surgical resection, complicated by rich vascularity, remains the primary treatment approach.

Case description. We present a case of a 27-year-old man who experienced a convulsive attack and subsequently underwent surgical resection due to a brain formation on the convex surface of the right frontal lobe. The immunohistochemistry showed an angiomatous meningioma, classified as CNS WHO Grade I. Postoperatively, the patient experienced mild hemiparesis and persistent epilepsy. Six months after the surgery, an MRI imaging revealed a polycyclic formation measuring 2.4 × 2.0 × 1.4 cm at the excision site. A craniotomy of the right temporal region and resection of the recurrent tumor were performed. The morphoimmunohistochemistry was consistent with an atypical meningioma, classified as CNS WHO Grade II.

Summary. This case underscores the intricate surgical challenges. Despite the initial resection, the subsequent recurrence as a WHO Grade II atypical meningioma emphasizes the surgical complexity heightened by the tumor's vascularity and the potential for recurrence.

Conclusions. This case report highlights the diagnostic complexities and evolution of meningiomas, especially in young adults, emphasizing the importance of accurate pathology assessments and frequent postoperative monitoring. Our research holds significant importance due to the publication of highly reliable radiological and pathoanatomical images. These images, limited in existing literature, enhance the depth and precision of treating young adults with meningiomas. By providing a comprehensive visual repository, our work advances current understanding and also serves as a reference for future research and clinical applications.

CASE REPORTS, SMALL CASE SERIES
ONCOLOGY, HEMATOLOGY

CLINICAL CASE OF PERDIATRIC STAGE IV OSTEOSARCOMA AND FERTILITY PRESERVATION

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Keywords. Osteosarcoma; Fertility preservation

Introduction. Osteosarcoma is the most common bone tumor in children and adolescents. Introduction of aggressive multiagent chemotherapy has not only led to an increase in survival rates, but also increased the likelihood of late complications, such as infertility, early menopause, osteoporosis, making fertility preservation a pressing issue.

Case description. On November 2022, 17-year-old female presented to Kaunas Clinics complaining with left knee stiffness and pain lasting for a month. Following imaging tests and biopsy, osteosarcoma was diagnosed. Further tests and treatment with the COSS protocol were planned. However, the patient left for an experimental treatment at a foreign clinic. On May 24, 2023, the patient came back for the recommended treatment. Patient's condition worsened to stage IV osteosarcoma with metastases in the right lung and the left parailiac lymph node. Aggressive EURAMOS chemotherapy began on May 30, predicting infertility. A fertility preservation consultation on June 7 led to the laparoscopic preservation of ovarian cortical tissue due to limited options during urgent chemotherapy. Over the next 4 months, the patient underwent 5 chemotherapy courses, knee replacement surgery and the surgical removal of 2 lung metastases. On October, the patient turned 18 and was transferred to the adult oncohematology unit. It is planned that the preserved ovarian tissue will be implanted into the peritoneum after 2 years in remission.

Summary. From missed tests to experimental treatment, fertility preservation and multiple surgeries, the patient's journey underscores the complexities in managing this aggressive cancer.

Conclusion. Despite a 30% 5-year survival rate with aggressive treatment, the long-term risk of infertility and hormone imbalance is high. In this case ovarian cortical tissue freezing, typically performed before chemotherapy, was undertaken during urgent chemotherapy. This case reflects a balance of managing a life threatening disease and long-term impact of the quality of life.

ULTRA RARE CASE OF NON-GESTATIONAL CHORIOCARCINOMA IN AN ADOLESCENT

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Keywords. Non-gestational choriocarcinoma; Bilateral dermoid cysts; Ovaries; Adolescents

Introduction. Non-gestational ovarian choriocarcinoma (NGOC) is a rare malignant ovarian tumour that affects 1 in 500'000 women, arising directly from primordial germ cells or of a different tumour such as teratoma. Dermoid cysts are benign germ cell tumours, with a rare possibility of malignant transformation (MT).

Case description. An 18-year-old woman presented with an irregular menstrual cycle, and non-specific immune reactions for 6 months, a previous pelvic ultrasound (US) was performed 18 months ago. The patient had bilateral dermoid cysts (BDC) which were laparoscopically removed three years ago. The patient has never been sexually active. Pelvic US showed a large (106×78×74mm), irregular, vascularised mass in the right ovary. A fertility-sparing surgery - unilateral adnexectomy was performed. Computed tomography revealed metastases in both lungs, free beta-hCG was elevated (415.52 mIU/mL). First histopathological results showed a diagnosis of mixed germ cell tumour with elements of yolk sac and choriocarcinoma. The final diagnosis of NGOC was confirmed by a reference centre abroad. Patient was treated with chemotherapy. Two years after chemotherapy, a 30×241×286 mm dermoid cyst was found in the US in the remaining ovary, cystectomy was performed. Almost 7 years after the initial presentation of NGOC patient is cancer-free.

Summary. We present a rare case when a patient with BDC in anamnesis experiences MT into a rare histological type of cancer with dissemination. After fertility-sparing surgery and chemotherapy, remission was achieved, although there was one recurrence of benign teratoma which was operated on.

Conclusion. To make an early diagnosis of MT and to have the possibility of fertility-sparing surgery, education of physicians about the nature and prognosis of ovarian tumours is crucial. As is the education of patients regarding follow-up regimen and alarming symptoms for an immediate check-up.

MULTIPLE WIDELY SPREAD BASAL CELL CARCINOMAS IN GORLIN-GOLTZ SYNDROME

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Keywords. BCC; Gorlin-Goltz syndrome

Introduction. Basal cell carcinoma (BCC) is the most widely spread cancer of dermatologic origin. The disease usually manifests in late adulthood resulted by excessive exposure to ultraviolet radiation. BCC is usually described as a sporadic cancer, yet they can appear concurrently in other genetic disorders. We present a case report of an outspread BCC associated with Gorlin-Goltz syndrome.

Case description. A 50-year-old woman presented with multiple bright red skin lesions widely spread across torso and abdomen. Medical history revealed the onset of the disease during late adolescence. Previously conducted histopathological examination revealed the features of BCC. Proband underwent multiple laser treatments due to constant recurrence of the disease. Since then, the patient has stopped seeking treatment from medical personnel for around 15 years switching to homeopathic modalities. Anamnesis also revealed multiple surgical treatments for dentigerous cysts as well as an oophorectomy due to ovarian apoplexy caused by a fibrothecoma. The patient has a monozygotic twin with analogical medical history who was diagnosed with Gorlin-Goltz syndrome. Proband is currently undergoing systemic treatment.

Summary. Gorlin-Goltz syndrome is a rare genetic condition usually manifesting as a result of germline mutations causing patients to develop multiple BCCs. The incidence of the disorder is reported to be 1 in 50,000 to 150,000 worldwide. Other clinical findings might involve multiple dentigerous cysts; skeletal, ophthalmologic, neurologic abnormalities. Management of the condition usually involves a multidisciplinary approach.

Conclusion. The case report presents a rare example of an autosomal dominant familial cancer syndrome causing widespread skin lesions.

A NOVEL GERMLINE SUFU VARIANT IN A CHILD WITH MEDULLOBLASTOMA

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Keywords. *SUFU*; Germline *SUFU* variant; Medulloblastoma

Introduction. Medulloblastoma is a malignant embryonal tumor of the cerebellum that mostly affects children. Germline mutations of *SUFU* gene predispose sonic hedgehog (SHH) medulloblastoma. We present a discovery of a novel germline *SUFU* variant in a child with medulloblastoma.

Case description. A one-year-old boy was hospitalized after experiencing sudden loss of coordination and inability to eat following three days of a febrile illness. He was unresponsive to sound and touch, had no oculomotor pursuit and had limited mobility. A subtentorial tumor measuring 46×43×38mm was detected through brain magnetic resonance imaging (MRI). Consequently, surgery was performed two days later to remove the tumor. Immediately after surgery the boy slipped into a coma while MRI showed residual tumor mass and hydrocephalus. Histologically a desmoplastic/nodular medulloblastoma was diagnosed. Chemotherapy was initiated and finished within a span of 10 months. 4 months after completing chemotherapy MRI showed tumor recurrence. Another protocol of therapy was commenced. Unfortunately, the patient suffered from chemotherapy-induced neurotoxicity and the treatment was discontinued, leaving symptomatic management as the only option. Next generation sequencing of blood DNA identified a *SUFU* missense variant, which was heterozygous in the genomic DNA and homozygous in the tumor DNA. The detected variant was located in *SUFU*-like domain, it was not found in gnomAD genomes and was classified as pathogenic by many in-silico predictors. The variant was inherited from the mother who had no oncological conditions.

Summary. This case presents a child diagnosed with a highly aggressive medulloblastoma, and introduces a newly identified *SUFU* gene variant linked to pediatric medulloblastoma.

Conclusion. Germline *SUFU* pathogenic variants predispose medulloblastoma in the first years of life, with worse prognosis than usually observed for SHH medulloblastoma. The optimal treatment of *SUFU* mutation–associated medulloblastoma has not been defined yet and should be further investigated.

A RARE CASE RISING COMPLEX ISSUES: SEMINOMA PRESENTING AS A LARGE RETROPERITONEAL MASS

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Keywords. Testicular cancer; Germ cell tumors; Retroperitoneal mass

Introduction. Germ cell tumors (GCTs) are neoplasms , derived from primordial germ cells. Primary localization of GCTs are testes and ovaries. Testicular GCTs can be classified into two main histological groups– seminomas and non-seminomas. Testicular GCTs are rare (<2% of tumors in men). Typically, primary testicular cancer manifests with a nodule, unilateral enlargement of testis or pain. Rarely, the first symptoms are associated with metastatic spread. We report an unusual case of testicular GCT presenting as a large retroperitoneal mass.

Case description. A 46-year-old male complained on prolonged abdominal and lumbar back pain. The computed tomography angiography of abdominal aorta revealed pathological mass surrounding aorta from renal arteries to the aortic bifurcation. A puncture biopsy of the mass was performed under ultrasonography FUSION control. Histopathological evaluation yielded germ cell tumor (possible seminoma; by immunohistochemistry OCT4+, SALL4+, PLAP+, CD117+, Ki67 40-50%) spreading to retroperitoneal tissues. Testicular tumor markers showed elevated lactate dehydrogenase but normal β-human chorionic gonadotropin and α-fetoprotein. The left testicle was denser, but only minimally enlarged. MRI revealed para-aortic lobulated mass, with indications of dislocation of the left L1 root and slight infiltration, dislocation of the L2 root without signs of infiltration. Considering cTxcN3M0S1, stage IIC seminoma, radical chemotherapy (three cycles of bleomycin, etoposide, and cisplatin) was proposed to the patient, to which he agreed.

Summary. This case highlights the diagnostic challenge posed by retroperitoneally located seminomatous mass in association with minor changes in testicles. The diagnostic issues include difficulties to reach early diagnosis, wide differential diagnosis with other retroperitoneal malignancies and complex considerations on the primary location. High awareness of medical society is mandatory to solve such cases.

Conclusion. Clinicians should maintain a high index of suspicion and purposefully use imaging techniques to identify the primary tumor site.

CASE REPORT: ERDHEIM-CHESTER DISEASE WITH KIDNEY, ADRENAL GLAND, BONE AND SKIN INVOLVEMENT

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Keywords. Multisystem disorder; Rare disease; Non-Langerhans cell histiocytosis; Malignancy of myeloid progenitor cells; BRAF V600 mutation

Introduction. Erdheim-Chester disease is a very rare(~1500 cases worldwide) multisystem disorder which can present various unusual clinical aspects and, therefore, is difficult to diagnose. It is a non-Langerhans cell histiocytosis characterized by xanthogranulomatous infiltration of foamy histiocytes surrounded by fibrosis, which are found mainly in the bones, retroperitoneum, skin, heart, and brain. This malignancy affects middle-aged adults, with more than 50% of cases having a positive BRAF V600 mutation.

Case description. We report a case study of 40 year old woman, who presented with recurrent episodes of febrile temperature, bone and articular (elbow and knee) pain every day for last 3 years. The patient used ~10 pills of Ibuprofen every month to reduce the temperature, and lost 14 kilograms in the last six months. The young woman was admitted to Pauls Stradiņš Clinical University Hospital, where she underwent computed tomography examination, which showed a band of moderately high-density, unevenly contoured tissue around both kidneys, denser tissue mass next to the left adrenal gland and sclerotic changes in the bones. A biopsy was performed and the pathological examination identified BRAF V600 mutation.

Summary. Erdheim-Chester disease is very rare non-Langerhans cell histiocytosis with unknown aetiology. There are typical radiographical and pathological features, which can lead to the diagnosis, but the clinical spectrum shows a broad variation, ranging from asymptomatic tissue infiltration to fulminant multisystem organ failure.

Conclusion. Erdheim-Chester disease prevalence has increased significantly the past few years due to increased awareness about the disorder, but still this type of blood cancer is often not diagnosed and treatment started in time. Because of newly discovered mutation of BRAF V600 we need to find the right treatment for the patient based on guidelines.

PRIMARY PULMONARY SYNOVIAL SARCOMA

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Keywords. Primary pulmonary synovial sarcoma; Chemotherapy

Introduction. Synovial sarcoma is arising from mesenchymal tissue, presents in 5–10% of all soft tissue sarcomas. Synovial sarcoma of lung is a very rare tumour accounting for 0.5% of all primary lung malignancy and is highly aggressive. It is a unique tumour as there is no synovial tissue located in the pulmonary system.

Case description. October of 2022 –a 36-year-old female went to the doctor with an elevated temperature, respiratory symptoms, fatigue, cough and pain behind the breastbone. In November another illness episode with cough, chest pain radiating to shoulder blade, hoarseness, shortness of breath. At this point the diagnosis - acute bronchitis. The symptoms remained; cough intensifies. In January an X-ray visualized a paramediastinal mass. Then CT, bronchoscopy, PET/CT diagnostic followed. The diagnosis was monophasic pulmonary synovial sarcoma in the right lung. CT –10×7cm crosswise, 10.5cm lengthwise. In March chemotherapy was started. However, the tumour continued to grow. August of 2023 –a sudden leg swelling, shortness of breath. In the hospital clots in right and left heart chambers and metastasis in the heart were diagnosed. A CT in October revealed a mass growth 14.0AP x12.4LL x13.2CC cm, lung compression, bronchial lumen stenosis. Overall patient received therapy with Doxorubicin (09.03, 30.03, 20.04, 11.05, 05.06.2023), Pazopanib (27.06-23.10.2023), Vinorelbin and Gemcitabine (31.10, 07.11, 22.11, 29.11). However, a negative dynamic remained. The patient passed away in January of 2024. Genomic finding showed no reportable therapeutic trial options.

Summary. Non-specific symptoms prolonged establishing the right diagnosis which delayed the beginning of therapy. After all the tumour progressively increased in size even when therapy started.

Conclusion. Pulmonary synovial sarcoma is a rare type of tumour with poor prognosis and a non-specific symptomatic. Available therapy didn't give positive results. This type of cancer requires more investigation, therapy analysis and improvements.

ONCOLOGICAL ODYSSEY: ETHICAL DECISION-MAKING IN ADENOCARCINOMA MANAGEMENT

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Keywords. Adenocarcinoma; Biopsy; Multidisciplinarity

Introduction. The intersection of oncology and bioethics centralizes the impact of medical decisions on quality of life. Bioethics offers a framework for addressing moral challenges, ensuring compassionate care and promoting ethical conduct in advancing cancer treatment.

Case description. Our 72-year-old male patient has a history of a skin carcinoma excised 12 years ago. Recent findings include a colonic tumor identified during colonoscopy, along with an additional pulmonary tumor detected on a CT scan, suspected to be a secondary manifestation. Colonic biopsies reveal an invasive adenocarcinoma. PET-CT with F18-FDG shows intense uptake in the colonic and pulmonary lesions. Considering the patient's age and the location of the lesion in an area prone to secondary determinations of colonic adenocarcinoma, the bioethical dilemma is whether to biopsy the metastasis or not. More importantly, there is a risk of seeding the biopsy tract, compromising subsequent surgical outcomes. Consequently, the decision is to follow the treatment protocol as if dealing with oligometastatic cancer. Neoadjuvant chemotherapy is started, followed by pulmonary surgical intervention. An anatomical segmentectomy of the left lower lobe is performed. On histopathology, morphological features of atypical neuroendocrine carcinoid are observed. Six weeks later, an extended right hemicolectomy is performed, classified morphopathologically as adenocarcinoma. Subsequently, the patient undergoes adjuvant chemotherapy. The patient will be periodically assessed for oncological pathologies.

Summary. A 72-year-old male, previously treated for skin carcinoma, presented with an infiltrative colonic tumor and suspected pulmonary metastasis. Neoadjuvant chemotherapy preceded pulmonary surgery, unveiling a neuroendocrine carcinoid. Subsequent right hemicolectomy confirmed adenocarcinoma, prompting adjuvant chemotherapy.

Conclusion. The intricate management in this case included neoadjuvant chemotherapy for oligometastatic cancer, followed by excisional surgery. The histopathological findings added complexity, highlighting the importance of a multidisciplinary approach and ethical reasoning in navigating treatment decisions for elderly patients with multiple synchronous malignancies.

TARGETING PI3K-PATHWAY: A PROMISING APPROACH IN TREATING RECURRENT HNSCC

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Keywords. HNSCC; PI3K-pathway; Clinical trial

Introduction. Most common head and neck malignancies begin from the squamous cells lining the interior of oral cavity, pharynx and larynx. A particular type of HNSCC is the retromolar trigone cancer whose unique location and close proximity to vital anatomical structures usually lead to recurrence and poor prognosis in spite of appropriate treatment methods.

Case description. During follow-up after concurrent chemoradiotherapy, a 53-years-old female patient presented with local recurrence of a T3N2cMo squamous cell carcinoma of the right retromolar trigone accusing severe pain secondary to trismus. As the tumor expressed low levels of PD-L1, immunotherapy was not eligible dictating the implementation of the first-line therapy consisting of anti-EGFR targeted therapy (Cetuximab) combined with systemic chemotherapy (5FU+ Carboplatin). Due to exacerbating symptoms causing an orocutaneous fistula, the second-line therapy with immunotherapy (Nivolumab) was consequently indicated, yet there was no clinical amelioration. Therefore, the specialists reconsidered chemotherapy, but administering Methotrexate only led to visible growth with a tumoral mass measuring 10cm. Since the control of cancer could not be achieved by conventional strategies, the patient was enrolled in a phase 1 – clinical trial studying Involisib, a new therapy targeting PI3K-pathway. Despite a drug-induced hyperglycemia, a significant size reduction finally occurred owing to experimental medication.

Summary. PI3K-pathway is considered one of the master regulators of cell growth, its alteration causing multiple cancers. Recent studies suggested a regular occurrence of this mutated messaging system in HNSCC, especially in recurrent and metastatic tumors. Subsequently, an innovative approach is conducted in a clinical trial that examines Involisib, an investigational PI3K alpha-inhibitor used in HNSCC unresponsive to traditional therapy.

Conclusion. Considering how complex cancers are, treatment must be constantly revolutionized. Developing targeted therapies proves to be a promising strategy, however a better understanding of cancer's molecular biology is crucial.

A CASE REPORT OF NEONATAL CONGENITAL GRANULAR CELL TUMOUR

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Keywords. Congenital granular cell tumour; Congenital epulis; Newborn

Introduction. Congenital granular cell tumour also know as congenital epulis is rare benign growth of the gingiva in newborns. The estimated incidence of this tumour is 0,0006%, including multiple medical centers reporting only few known cases over the last years. Congenital epulis may cause mechanical obstruction of the oral cavity and therefore contribute to respiratory distress and feeding dysfunction. These benign lesions in the neonates mouth may reach remarkably large sizes and therefore the clinical presentation of this rare tumour can be rather distressing for the attending medical staff due to its aggressive appearance.

Case description. In this case we've been presented with full term new born female who had a large mass in the oral cavity. The patient was admitted to new born intensive care department on the same day. Due to size of the lesion and obvious potential feeding difficulties surgery was indicated. Extirpation of the mass was performed under general anaesthesia and the mass was submitted for histopathological examination. For the next 14 days the surgical sight was treated with lidocaine hydrochloride containing gel and the patient received an analgesic when needed. Patient was discharged at 2 weeks of age with recommendations to consult with face and jaw surgeon at six months of age.

Summary. Although congenital epulis may spontaneously diminish, difficulties with feeding and breathing necessitate surgical excision. It is critical that paediatricians and general dentists identify this lesion and provide pertinent treatment advice.

Conclusion. Congenital epulis has the ability to impair newborns breathing and create feeding difficulties. Treatment options include both surgical and non-surgical methods, depending on the clinical symptoms and the mass size. It is crucial that attending medical staff are able to identify this lesion and know about available treatments.

CUTANEOUS PSEUDOLYMPHOMA SIMULATING MALIGNANCY: A CASE OF COMPLEX DIAGNOSTIC JOURNEY

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Keywords. Cutaneous pseudolymphoma; CPL

Introduction. Cutaneous pseudolymphoma (CPL) refers to a rare condition that mimics the blood cell cancer, but is not a true lymphoma. The lymphocyte-rich infiltrates are usually apparent on histological examination, though certain instances can manifest clinically as localized or disseminated skin lesions. CPL is mostly characterized as idiopathic, but it can also develop as a response to arthropods, contact dermatitis or bacterial infection.

Case description. A 47 year old female came to her family physician, reporting the presence of a 3 cm diameter cutaneous lesion on the left upper arm with unclear boundaries and surrounding erythema. The ultrasound indicated the presence of fibroma, blood tests showed no abnormalities, prompting a recommended follow-up. In light of lesion advancement and cosmetic discomfort, a referral to plastic surgeon was made and the consultation of dermatologist and magnetic resonance imaging (MRI) was recommended. The MRI study indicated a benign formation with contrast accumulation, resembling myxoid or fibroid tissue. After the surgical removal, histopathological findings unveiled a reactive lymphoid tissue. Following the evaluation by dermatologist, oncologist and hematologist, no significant changes necessitating further consultations were found, confirming the diagnosis of pseudolymphoma cutis. One year post-initial consultation, the patient returned complaining of a similar skin lesion, but this time on the left corner of the lips, featuring episodic stinging and itching. Referral to a maxillofacial surgeon was initiated and surgical removal confirmed CPL with histological evidence of lymphoid tissue hyperplasia.

Summary. The rarity of such cases result in deficiency of reliable information in literature about the treatment and management guidelines of CPL. If surgical excision is not performed, the follow-up is highly recommended as there lies a possibility of CPL advancing to malignant lymphoma.

Conclusion. It is crucial to lead the meticulous and comprehensive diagnostic process while trying to differentiate cutaneous lesions.

PRIMARY CNS LYMPHOMA TREATED WITH CHEMOTHERAPY, AUTOLOGOUS HEMATOPOIETIC STEM CELL TRANSPLANTATION AND STEREOTACTIC RADIOTHERAPY

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Keywords. Primary CNS lymphoma; Autologous hematopoietic stem cell transplantation; SRT

Introduction. This case report describes a 64-year-old man diagnosed with primary CNS large B-cell lymphoma, treated through IV course chemotherapy, autologous hematopoietic stem cell transplantation (AHSCT) and stereotactic radiotherapy (SRT).

Case description. Initially experiencing limbs weakness, walking deviation, involuntary urination, the patient's head MRI revealed changes indicative of lymphoma. Stereotactic biopsy in 02.2022 confirmed primary CNS large B-cell lymphoma. CT scan of chest, abdomen, and pelvis showed no additional abnormalities.

Patient underwent I-III courses of chemotherapy (R-HDMTX/R-HDARAC). The patient tolerated this treatment well, showing positive MRI results. On 07.2022, IV chemotherapy (R-HDARAC) and the first AHSCT phase were successful. Mobilization before the first AHSCT phase involved filgrastim, yielding 30.9 × 10*6/kg hematopoietic stem cells.

Thiotepa and carmustine constituted the conditioning regimen for second AHSCT phase, which occurred in 09.2022. Post-transplantation, the patient experienced neutropenic enterocolitis and febrile neutropenia, managed with empirical antibiotics, including Imipenem and Vancomycin. Later Corynebacterium amycolatum growth in the blood led to adding Rifampicin. Thrombocytopenia was corrected with irradiated 2 units of thrombocyte mass transfusion. Fifteen days post-transplantation, platelets count was >50 × 10^9/l, neutrophils 1.7 × 10^9/l. Follow-up head MRI showed decreased former contract accumulating, only a minimal contrast accumulating was visible. SRT was performed for additional consolidation. Discharged 31 days post-transfusion. A two-month follow up MRI revealed full recovery.

Summary. Primary CNS lymphoma involves malignant cells forming in the lymph tissue of the brain and/or spinal cord. AHSCT shows potential for long-term progression-free survival with good tolerability. Additional consolidation may be considered for patients with incomplete remission.

Conclusion. Primary CNS lymphoma, a rare extranodal non-Hodgkin lymphoma, presents treatment challenges with high morbidity and mortality. High-dose chemotherapy with AHSCT post-induction demonstrates feasibility and efficacy, and patient with incomplete remission can benefit from SRT.

UNDIFFERENTIATED NEUROBLASTOMA AND MEDULLOBLASTOMA IN A FANCONI ANEMIA PATIENT: A CASE REPORT

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Keywords. AMML; FISH; Flow cytometry; *MECOM*

Introduction. Acute myelomonocytic leukemia (AMML) is a rare subtype of acute myeloid leukemia (AML), with estimated prevalence of 1-9/1000000. Morphological evaluation plays crucial role in diagnostics where >20% of myeloblasts, blast equivalents are necessary to establish the diagnosis. Both cytogenetical, molecular testing are needed for risk stratification, planning of treatment. The report describes a rare case of acute myelomonocytic leukemia with atypical *MECOM* gene rearrangement.

Case description. A 58-year-old male patient was transferred to the hematology department at Latvian Oncology Centre from regional hospital due to suspected acute leukemia. Patient complained of tooth pain, fever, night sweats, persistent cough, fatigue. CBC results showed leukocytosis (78^10³), prominent monocytosis (48^103), anemia, thrombocytopenia. On peripheral blood (PB) smear 63% of blast equivalents were observed (myeloblasts 6%, monoblasts 17%, promonocytes 40%) which was consistent with PB flow cytometry, showing 65% of monocytes of which half were harboring immature immunophenotype (strong CD14, CD11b, CD33, dim CD16, HLA-DR positivity). PB FISH revealed t(3;7)(q.26.2;p22) which confirmed diagnosis and is scarce type of *MECOM*rearrangement, associated with poor prognosis. Patient was initiated on standard 3+7 (*Idarubicin+AraC*) chemotherapy, during post-chemotherapy period no neutropenia was observed. On day 25 post-chemotherapy bone marrow evaluation showed 9% of malignant cells, no remission was achieved, salvage chemotherapy was planned, however, patient developed multiresistant *Pseudomonas aeruginosa* sepsis and expired due to multi-organ dysfunction syndrome.

Summary. The study demonstrates the case of acute myeloid leukemia with myelomonocytic differentiation and rare *MECOM* gene rearrangement.

Conclusion. We describe a rare case of AML with t(3;7)(q26.2;p22), myelomonocytic differentiation. It is important to note that integrative incorporation of morphological, immunophenotypical, genetic testing is needed for diagnostics, prognostics, treatment of acute leukemias. Despite recent advances in understanding the biology of the disease and novel treatment options, AML still is associated with high mortality rates.

A RARE CASE OF ENDOMETRIOSIS-ASSOCIATED OVARIAN CLEAR CELL CARCINOMA

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Keywords. Endometriosis; Ovarian endometrioma; Ovarian cancer; Clear cell carcinoma

Introduction. Endometriosis is a chronic inflammatory condition, characterized by the growth of endometrium like tissue outside the uterus. It affects approximately 10% of women in the reproductive period, out of which 17-44% develop ovarian endometriomas. It is considered to be a benign cystic lesion with a scarce chance of malignization. Ovarian endometriomas are highly associated with ovarian clear-cell carcinoma, a rare histological subtype that makes up 5-25% of ovarian malignancy cases.

Case description. A 44-year-old woman with no prior gynaecological condition, presented complaints of weight loss, nausea, loss of appetite, diarrhea, and lower abdominal pain. Initial clinical examination raised a suspicion of borderline malignancy in the ovaries. Further pelvic examination, transvaginal ultrasound were suggestive of bilateral ovarian endometriomas, due to cystic formations with ground-glass echogenicity contents being present. To differentiate, a pelvic MRI was performed. It revealed cystic formations with solid components, that showed diffusion restriction and uneven contrast enhancement. Thus, malignancy was suspected. To assess the spread of the disease, a contrast-enhanced CT of the chest, abdomen, and pelvis was performed, revealing one suspicious locoregional lymph node on the right. Total hysterectomy with salpingo-oophorectomy, tumor-mass reduction, omentectomy, and high anterior resection of the rectum were performed. Peritoneal biopsies were taken. Colostomy was formed. Pathological examination revealed ovarian clear-cell carcinoma with metastases in the sigmoid colon and rectum. The patient was transferred to the Hospital of Oncology for further systemic treatment of chemotherapy and biological therapy.

Summary. We presented a case of a 44-year-old woman with ovarian endometriosis, that developed into clear cell carcinoma with metastases in the sigmoid colon and rectum.

Conclusion. Even though malignization of ovarian endometrioma is a rare occurence, a thorough testing should be performed, as there is a possibility of masked cancerous lesions being present.

CASE REPORTS, SMALL CASE SERIES

ORTHOPAEDICS, TRAUMATOLOGY, TRAUMA & ORTHOPEDIC SURGERY, SPORTS MEDICINE, RADIOLOGY

HEEL AREA RECONSTRUCTION WITH A SENSATE MEDIAL PLANTAR FREE FLAP

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Keywords: Reconstructive surgery; Sensate free flap

Introduction. Heel region soft tissue reconstruction is a challenge in reconstructive surgery, requiring specialized tissue with thick glabrous skin for weight bearing and it needs sensory feedback. The aim of this clinical case was to show a rare reconstructive surgery method to close the heel area.

Case description. A 28-year-old male, involved in a 2023 traffic accident, suffered multiple fractures and a degloving wound around the right ankle and heel. Initial treatment consisted of wound revision, reposition and fixation of the broken bones and refixation of the degloved sole soft tissue envelope. Unfortunately, heel region soft tissues developed necrosis and had to be resected. To recover the full function of the foot, reconstructive surgery was needed. The patient's left foot was intact, so the contralateral foot's medial plantar flap from non-weight-bearing arch area as a donor site was used for the reconstruction of the heel. The stumps of the posterior tibial artery and vein, and the posterior tibial nerve were identified and dissected to healthy appearing margins. Flap was harvested with identifying and dissecting the medial plantar artery, veins, as well as medial plantar nerve, which underwent meticulous interfascicular dissection. The donor site was closed with a split thickness skin graft. Inset of the flap was done with end-to-side anastomosis of the artery and end-to-end anastomosis of both veins. The nerve was sutured with the recipient site sensory nerve. Postoperative period required a protective external fixator around the ankle for 3 weeks. The follow-up was done till six months after the surgery, with good functional and aesthetic results.

Summary. A sensate medial plantar free flap from the contralateral foot was used for the reconstruction of the heel soft-tissue wound.

Conclusions. Late follow-up results showed that the used surgical method returned the function of the patient's foot.

A CASE REPORT: TENOSYNOVIAL GIANT CELL TUMOR IN 50-YEAR-OLD MALE

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Keywords. Tenosynovial giant cell tumor; Medial meniscus rupture; Knee arthroscopy

Introduction. Tenosynovial giant cell tumor (TGCT) is a rare benign tumor affecting joint membranes, bursae and tendon sheaths, with an incidence ranging from 1.8 to 50 cases per million. It predominantly occurs in individuals aged 25-50, typically affecting a single joint, most commonly the knee and ankle synovium.

Case description. A 50-year-old male presented with knee trauma, leading to a haematoma and persistent synovitis. Local analgetic treatment was received in combination with joint immobilization. Upon follow-up after 7 days, persistent synovitis was observed. Clinical examination indicated intact distal vascular perfusion and sensory function; however, movement was severely restricted due to acute pain localized to the femoral medial condylar projection zone and medial articular gap zone. The patient's medical history included an untreated medial meniscus rupture from five years prior. Subsequent MRI of the left knee identified a giant cell tumor and a medial meniscus rupture. The patient underwent surgical intervention involving left knee arthroscopy, tumor extraction and resection of the medial meniscus back horn. The procedure was uncomplicated, and the postoperative period went without any complications. The patient was subsequently discharged and initiated a tailored exercise program alongside rehabilitation to optimize functional recovery. Histological results came back later, confirming TGCT.

Summary. In this case, the patient presented with left knee trauma, the symptoms didn't improve after initial treatment. The combination of TGCT with medial meniscus rupture was successfully diagnosed and treated arthroscopically.

Conclusions. This case highlights the successful surgical management of a complex knee joint condition involving a TGCT and medial meniscus rupture. A multidisciplinary approach, including accurate diagnosis and appropriate surgical intervention, is pivotal in achieving favorable postoperative outcomes. Further research and long-term follow-up are warranted to assess the long-term effects and functional outcomes in similar cases.

BILATERAL ATYPICAL FEMORAL FRACTURES FOLLOWING LONG-TERM BISPHOSPHONATE THERAPY. A CASE REPORT

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Keywords. Bisphosphonates; Osteoporosis; Atypical femoral fracture

Introduction. Bisphosphonates are widely used for the treatment of osteoporosis. Decreased bone remodeling in time may cause a stress fracture in the femoral shaft. It is a rare occurrence for bisphosphonates therapy with an incidence rate of 3.2 to 50 cases per 100,000 person-years.

Case description. A 79-year-old woman was admitted to the Hospital of Traumatology and Orthopaedics with diaphyseal fracture of the right femur without trauma. From August the patient began experiencing pain in the same area. Day after the injury, surgery was performed – right femur osteosynthesis with Expert intramedullary nailing and a biopsy to exclude oncological disease. Several years ago, the patient was diagnosed with osteoporosis and for the last eight years has been undergoing bisphosphonate therapy with ibandronic acid. Preoperative CT scan revealed transverse fracture and cortical thickening in right femur diaphysis, and incomplete unicortical stress fracture in left femur diaphysis. Five days later, a preventive Expert intramedullary nailing operation was performed on the left femur to reduce the possibility of a complete fracture. The patient was mobilized on the first postoperative day. It was decided to change bisphosphonates to parathormone analog – Teriparatide. The patient was discharged in satisfactory condition, moving with a walking frame, for further ambulatory treatment.

Summary. A patient with a history of osteoporosis underwent surgical treatment with intramedullary nailing for atypical femoral fracture in the right leg. To minimize the likelihood of a complete fracture, a preventive intramedullary nailing operation was performed on the left femur.

Conclusions. Patients undergoing bisphosphonate treatment for osteoporosis may experience atypical femoral fractures, even without trauma. The risk of femoral shaft fractures escalates after long-term bisphosphonate therapy exceeding 5 years. To mitigate this risk, regular patient examinations are essential. Switching therapy to parathormone analogues and surgical treatment may also be required.

LIMB SALVAGE FOR A MANGLED LOWER EXTREMITY

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Keywords. Mangled lower extremity; Soft tissue injury; Limb salvage; Amputation

Introduction. Open tibial fractures Gustilo – Anderson grade IIIC represent a wide spectrum of injury to the bone and soft tissues. The aim of the therapy in open fractures was to achieve good soft tissue coverage and healing of the fracture without presence of infection.

Case description. A 46-year-old man presented with open proximal and middle left tibial fracture of *Gustilo type IIIC* with anterior tibial artery rupture (it was ligated) and posterior tibial artery partial damage (it was sutured) and severe soft – tissue defect caused by high – energy trauma; multiple foot bone fractures.

After radical debridement, the fracture was temporarily stabilized with an external fixator, soft tissue defect was closed using artificial deformity – creating technique. Open reduction and internal fixation of proximal tibial plateau fracture was done later. After 4 weeks, the amputation of the I and II toes was performed on the left foot due to osteonecrosis. After the left lower leg was fixed with an Ilizarov frame and orthopaedic hexapod was used for deformity correction and the bone autograft was used for tibial diaphysis defect treatment. The left foot bones were fixed by osteosynthesis. After twelve months of follow-up, the fracture was healed, and the *Ilizarov frame* was removed.

Summary. After successful artificial deformity – creating technique for the treatment of severe open fractures with significant soft-tissue damage, patient is prepared for lengthening the left lower limb and correcting the deformity.

Conclusions. Limb salvage can be successfully performed even in a patient with a severely mangled lower extremity. The artificial deformity – creating with an orthopaedic hexapod and subsequent lengthening of the left lower limb is a satisfactory treatment method for open tibial fractures *Gustilo type IIIC*.

TREATMENT OF PELVIC BONE CHONDROSARCOMA WITH A CUSTOMIZED 3D-PRINTED IMPLANT

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Keywords. Chondrosarcoma; 3D- printed implant

Introduction. Pelvis Chondrosarcoma is a rare type of cancer that develops in the cartilage cells of the bones, but can sometimes occur in the soft tissue near bones. Treatment for these types of oncology patients has evolved. Not only can we treat the disease but we can also provide a better quality of life after the surgery.

Case description. The following case is about a 59 year-old male that was suffering from pain in his right side of the pelvis for the last two years that prevented him from uninhibited ambulation. And after radiology and biopsy's were performed a diagnosis of a G1T1Mo chondrosarcoma in his right ala ossis illi was concluded. Sarcomas of the pelvis are rare. Approximately 1/milj in a year, that's why they are hard to diagnose and treat. 1/3 of all pelvis sarcomas are chondrosarcomas and the only treatment is radical surgery. The traditional surgery method was a hemipelvectomy. But because of the development of implant technology there is an option of excision and reconstruction with a customized 3D printed implant to maintain the right leg's functional ability. The planning for the operation and the implant preparation took approximately 6 weeks. After the surgery the patient can freely move with one cane, and doesn't notice any discomfort.

Summary. This is the first case in Latvia a patient's pelvic chondrosarcoma has been reconstructed with a customized 3D-printed implant. And the patient is feeling well and also doesn't have any recidive.

Conclusion. This method has been used around the world for almost 10 years and it has great results in oncology treatment.

A CASE REPORT: HUMERAL HEAD AUGMENTATION WITH FEMORAL HEAD ALLOGRAFT FOR DEFECT REPAIR

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Keywords. Humeral head reconstruction; Femoral head allograft

Introduction. Fractures of the proximal humerus represent 5-6% of all adult fractures. There are few humeral head reconstruction methods. Humeral head augmentation using femoral head allograft is an unpopular treatment option that restores spheric humeral head outline, articular stability and stimulates osteogenesis.

Case description. A 38-year-old male complaining of left upper arm pain and lack of shoulder function three weeks after fall from height. Left shoulder MRI and CT revealed dorsal dislocation of the humeral head, rotation and immersion with articular blocking, significant intraarticular humeral head impression and fracture with caudal prolongation to proximal humeral body and humeral head lateral fragment displacement. Intraarticular surface was not congruent to glenoid. Open surgery was performed. Humeral head was reduced to a glenoid and femoral head corticospongiotic fragment with an articular surface allograft was placed to fill the humeral head defects. Allograft was fixated with two 3,5 mm cortical screws. Intraosseous reinsertion of subscapular muscle using Orthocord filament with second generation Pushlock 4,5 mm anchor additional support was performed. Post-surgery active exercises of palm, wrist and elbow movement were allowed and passive shoulder joint movement was advised. Desault splint was applied for 6 weeks after surgery followed by Rehabilitation. After 6 months, the fracture was united, the patient regained shoulder mobility and was pain free.

Summary. This clinical case presents a successful 38-year-old patient humeral head fracture surgical treatment using femoral head allograft.

Conclusions. Surgical humeral head fracture treatment using femoral head allograft for defect repair is a rare choice nonetheless in specific cases this treatment shows very good results.

POSTTRAUMATIC CEREBROSPINAL FLUID LEAKAGE WITH EXTREMELY RARE SECONDARY COMPLICATIONS SUCH AS PNEUMOCEPHALUS, MENINGITIS AND COMMUNICATING HYDROCEPHALUS

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Keywords. Rhinorrhea; Pneumocephalus; Meningitis; Communicating Hydrocephalus

Introduction. After certain forms of traumatic brain injury rhinorrhea may develop. Meningitis and ventriculitis may accompany pneumocephalus, an infrequently reported consequence following severe traumatic brain injury. This is an extremely rare case report discussing the complex clinical and radiological management of a 41-year-old male with unusual post-traumatic complications.

Case description. Following a traumatic brain injury with multiple skull and facial fractures, the patient exhibited persistent rhinorrhea, and after 2 days developed pneumocephalus. Initial brain computed tomography (CT) revealed multiple fractures, including skull base and right temporal bone fractures, and traumatic subarachnoid hemorrhage in the left frontal lobe. The patient underwent facial bone osteosynthesis but continued to have symptoms of rhinorrhea. A follow-up CT showed diffuse pneumocephalus, likely originating from the sphenoidal sinus, and blood in the prepontine cistern and sphenoid sinus cavity. A month later, he presented with progressive headache and persistent rhinorrhea. Clinical examination revealed stable hemodynamics and neurological functions. However, a lumbar puncture showed pleocytosis and brain CT indicated diffuse pneumocephalus, transtentorial herniation, and brain edema. Due to the deteriorating condition, he underwent a right ventriculostomy with an antibacterial drain, followed by a ventriculoperitoneal shunting operation. Postoperative CT indicated stabilization of ventricular size and reduced brain edema.

Summary. The patient's condition progressed from post-traumatic complications to life-threatening meningitis and communicating hydrocephalus. This case report demonstrates the complexities involved in diagnosing and treating severe post-traumatic complications.

Conclusions. This case highlights the importance of prompt and comprehensive clinical and radiological evaluation in patients with traumatic brain injuries. The development of a pneumocephalus and communicating hydrocephalus following traumatic brain injury and cerebrospinal fluid leakage represents an extremely uncommon clinical scenario and within the existing medical literature, there are only a small number of case reports documenting a similar set of complications with good radiological illustrations.

ONE-STAGE FUNCTIONAL RECONSTRUCTION OF POSTERIOR GROUP THIGH MUSCLES AFTER EXTRAOSSEOUS CHONDROSARCOMA RESECTION

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Keywords. Extraosseous chondrosarcoma; Posterior thigh muscle reconstruction; Myocutaneous gracilis flap; Myocutaneous vastus lateralis flap; Fasciocutaneous gastrocnemius flap

Introduction. Extraosseous chondrosarcoma is an ultra-rare sarcoma subtype with an incidence of <1/1,000,000 inhabitants/year, which frequently affects extremities. Sarcoma treatment is challenging due to their rarity, heterogeneity and high recurrence rates. Surgical treatment should include radical tumor resection and functional reconstruction of lost anatomical structures, taking into consideration donor site morbidity and functional properties. Limb-preserving treatment emphasizes an inseparable link between preserving limbs and restoring functionality.

Case description. This case highlights a 71-year-old female, who presented to the Oncology Centre of Latvia Abdominal & Soft Tissue Surgery Department with a mass in her left posterior thigh. Core biopsy confirmed extraosseous chondrosarcoma. CT scan determined - soft tissue tumor in posterior group thigh muscles. CT angiography determined - tumor location and its relation to surrounding blood vessels. Surgical treatment was performed, which consisted of radical tumor resection and one-stage posterior thigh muscle reconstruction. Semimembranosus, semitendinosus and biceps femoris muscle reconstruction was achieved by using vascularized functional myocutaneous gracilis, myocutaneous vastus lateralis and fasciocutaneous gastrocnemius flaps. After surgery, the patient started early rehabilitation, which included physiotherapy. Patient received adjuvant radiation therapy (60 Gy). Nearly two years after surgery, the patient is disease-free.

Summary. This case displays complex surgical treatment of extraosseous chondrosarcoma in the posterior thigh. One-stage functional reconstruction of posterior group thigh muscles was performed after radical extraosseous chondrosarcoma tumor resection. Myocutaneous gracilis, myocutaneous vastus lateralis and fasciocutaneous gastrocnemius flaps were used for excised muscle reconstruction. Nearly two years post-surgery, the patient is disease-free.

Conclusions. Extraosseous chondrosarcoma is an ultra-rare sarcoma subtype. Radical extraosseous chondrosarcoma resection is crucial for reducing local sarcoma recurrence risks. One-stage functional reconstruction is key for allowing radical surgical treatment and maximal functional restoration of gait and leg function.

COMPLICATED POSTOPERATIVE DEEP WOUND INFECTION AFTER LUMBAR TRANSPEDICULAR FIXATION AND ITS TREATMENT WITH THE ANTIBACTERIAL BONE CEMENT APPLICATION

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Keywords. Polytrauma; Transpedicular fixation; Deep wound infection

Introduction. Fractures of the lumbar vertebrae of the spine are one of the possible injuries in polytrauma. In instances of severe cases where the patient exhibits traumatic instability and neurological deficit, a viable treatment approach involves proceeding with stabilizing transpedicular fixation. Postoperative deep wound infection is a potential complication following this type of surgery, often proving challenging to treat.

Case Description. A 26-year-old female was admitted to the emergency department due to a traffic accident, sustaining multiple injuries. A CT scan reveals an unstable burst fracture in the L_4 vertebral body. A lower distal paraparesis was revealed after neurological examination. The treatment involved transpedicular fixation (L_3-L_5), laminectomy of L_4 and a placement of a suture on the dural sac. During the postoperative period, the patient experiences wound dehiscence with purulent discharge. Microbiological culture identifies the presence of Acinetobacter baumannii, Enterococcus faecalis, Enterococcus faecium and Bacteroides fragilis. Intravenous antibiotic therapy proves ineffective. The patient underwent a reoperation involving postoperative wound debridement and the application of Colistin and Vancomycin-impregnated bone cement onto a metallic construction. Over time, the wound infection diminished, leading to the patient discharge for treatment with prescribed oral antibiotics.

Summary. A 26-year-old patient underwent surgery involving transpedicular fixation (L_3-L_5), laminectomy of L_4 and placement of a suture on the dural sac. During the postoperative period a deep wound infection with multiresistant flora was identified, necessitating a reoperation. This intervention included postoperative wound debridement and the application of Colistin and Vancomycin-impregnated bone cement onto a metallic construction, resulting in the successful resolution of the infection.

Conclusions. Postoperative deep wound infections after transpedicular fixations are challenging to treat as intravenous antibacterial therapy may prove ineffective. Therefore, consideration should be given to reoperation and the direct administration of antibacterial agents to the metallic construct.

A CASE REPORT OF INFERIOR PATELLA POLE FRACTURE FIXATION WITH SUTURES

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Keywords. Patella fracture; Suture fixation

Introduction. The patella is the largest sesamoid bone in the human body, which is located in front of the knee joint and helps to protect it. The incidence of patellar fractures is 1% of all fractures. About 20% of surgically treated patellar fractures are located in the inferior patellar pole. These patellar fractures can be fixed with sutures or metal tension bend wire. The purpose of the case report is to present a case about internal fixation of inferior patellar pole fracture only with sutures.

Case description. A 76-year-old female was administered to hospital with pain and swelling in her right knee after she fell directly on her knee. After X-Ray was performed inferior patellar pole fracture with displacement was diagnosed. Presurgical plan was made according to the patient's age, sex and quality of the bone. After 5 days of hospitalization, an operation was performed under spinal anesthesia. A front incision was made in the knee joint, the fracture was exposed and the amount of bony fragments were evaluated. There was a decision made to perform three canals in patellar bone. Modified Krackow suture was performed in patellar tendon with 2 non-absorbable sutures. Threads then were passed through the created canals and continuously fixated a fracture to quadriceps tendon. Additionally, tendon defects were sutured by absorbable Vicryl sutures. The wound was irrigated and closed layer by layer. The leg was braced with an ability to correct an angle. First movements were allowed to perform after 2 weeks. After 8 weeks, full range of motion movement was successfully reached.

Summary. Case report demonstrates successful fixation with sutures of patella inferior pole fracture.

Conclusion. Traditional fixation methods are the best choice, but patient centric treatment might be optional accordingly.

AN EXCLUSIVE AND MISLEADING DIAGNOSIS: HIDE AND SEEK WITH ENDOMETRIOSIS – A CASE REPORT

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Keywords. Endometriosis; MRI; Pelvic Inflammatory Disease

Introduction. Endometriosis is a common disease where endometrium-like tissue grows outside of the uterus. Women suffering from endometriosis may have symptoms that include, but are not restricted to: severe dysmenorrhea, menorrhagia, painful intercourse, fatigue, subfertility or even infertility. Magnetic resonance imaging (MRI) is a non-ionising and non-invasive medical imaging technique that utilises powerful magnetic fields and emission of radio waves to obtain detailed scans of structures inside the human body.

Case report. A 32 year old woman presents to the ER with fever, pelvic pain syndrome (PPS), inflammatory syndrome and a urinary tract infection (UTI) with E.coli. Local gynaecological exam reveals tenderness at digital vaginal examination, and a retro-uterine fixed mass is palpated. Computed tomography scan (CT) with intravenous contrast is ordered revealing in the ovarian fossae multilocular cystic masses with fluid content and hypervascular walls, aspect pleading for tubo-ovarian abscess (TOA). Diagnosis of pelvic inflammatory disease (PID) is suspicioned and urgent antibiotic treatment is commenced with an immediate good response. Five days later, pelvic MRI with intravenous contrast reveals each ovary fossae to have an inhomogeneous T2-hypointense stratified nodular lesion with T1-hyperintensity, a description typical of endometrioma. Significant pelvic adhesive disease, retrouterine-located and utherine-adhesing ovaries, and positive kissing ovaries sign are discovered as well. Uteralsacral ligaments appear thickened, probably secondary to deep endometriosis.

Summary. A 32 y.o. woman presents with fever, PPS, UTI and is suspected of TOA, after CT. Contrast-MRI uncovers a serious case of endometriosis, demonstrating the importance of MRI for differential diagnoses in soft-tissue diseases.

Conclusion. The similar clinical picture and imagistic appearance of endometriosis and TOA makes them challenging to differentiate on CT. Thus, MRI is vital for final diagnosis, in the absence of specific abscess signs on CT, and especially if the patients present with concomitant pelvic infection.

SIMULTANEOUS SURGERY FOR HEAD AND NECK TRAUMA

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Keywords. Subdural hematoma; Anterior spondylodesis; Simultaneous surgery

Introduction. In severe blunt trauma, when multiple injury sites require intervention, the sequence of treatment is the most important strategic decision. If multiple sites can be treated simultaneously, hemostasis and return of neurological function to all sites can be achieved in a shorter time.

Case description. A 67-year-old male presents with complaints about headaches and neck pain. Anamnesis suggests that the patient was beaten a few days ago. In the emergency department head and neck CT were performed. An extensive subdural hematoma along the left frontal and temporal lobe 2.2 × 2.7 cm and midline shift up to 0.4 cm as well as a vC-7 processus transversus dextra et sinistra fractures without significant dislocation and at the level of vC6-vC7, a traumatic anterolisthesis of ½ of the width of the vertebral body was visualised. Patient's neurological condition worsens, it is decided to perform surgical simultaneous therapy. Osteoplastic trepanation and subdural hematoma evacuation was performed, as well as C6-7 closed reposition and C6 -C7 microdiscectomy with anterior cervical spondylodesis using a cage. As the patient's neurological condition improves and the pain subsides, patient is discharged on the 16th postoperative day.

Summary. A 67-year-old man underwent simultaneous head and neck surgery. The patient's position was easily adjusted and there was no need for repositioning. It is therefore a very effective treatment option, but limited in its application.

Conclusions. In the case of trauma surgery, the circumstances in which simultaneous surgery can be applied are somewhat limited, but it can be an effective strategy to complete haemostasis in a shorter time and improve prognosis.

RECURRENT OSTEOSARCOMA EN-BLOCK RESECTION INVOLVING FEMUR, SOFT TISSUE, FEMORAL ARTERY AND VEIN

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Keywords. Orthopedics; Osteosarcoma; En-bloc resection; Reconstruction

Introduction. Osteosarcoma (OS) is the most common primary bone tumor, typically occurring in patients aged 10 to 30. It commonly affects the distal femur and proximal tibia. Conventional treatment involves chemotherapy and surgery, but recurrence rates can be as high as 20%.

Case Description. A 39-year-old female presented with recurrent right distal thigh OS which was first diagnosed in 2011. The patient had conventional treatment, knee replacement with endoprosthesis (EP). Revision surgery was performed in 2020 due to aseptic loosening of the prosthesis. In the summer of 2023 suspecting periprosthetic joint infection (PJI) the patient underwent revision surgery with DAIR, infection was not confirmed. In September there appeared dynamically progressing pain in the right medial femur with a palpable lump and local swelling. Radiological findings showed pathological 7,0 × 7,3 × 10,0 cm soft tissue mass, overgrowing bone, and femoral artery with vein. The patient received neoadjuvant chemotherapy, followed by en-bloc tumor resection in December. Initial incision was from lateral side for implant access, femur resection length was equal to femoral stem length. Through a second incision in the medial side of thigh was dissected vital structures, visualized blood vessels ligated femoral artery, and removed tumor with all adductor muscles and vastus intermedius. Knee joint reconstruction was performed using MUTARS hinge-type knee EP with extended pedicles for both components. Femoral artery reconstruction was done by a vascular surgeon using a saphena vein from the same extremity (surgery length 8h). An alternative was offered right leg exarticulation.

Summary. The reported case demonstrates successful surgical treatment of complicated high-grade OS, which was en-bloc resection with right knee EP and femoral artery reconstruction.

Conclusions. Postoperative period without complications. This case emphasizes the importance of timely recognition of tumor in young patient and evidence-based multimodal treatment to achieve adequate functional results.

TREATMENT METHOD FOR A COMMINUTED FRACTURE AND DISLOCATION OF THE RIGHT PROXIMAL END OF ULNA AND RADIUS

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Keywords. Osteosynthesis; Ulna; Olecranon; Arthrotomy

Introduction. Fractures of the proximal end of the ulna and radius are usually simple and treated with osteosynthesis, but sometimes endoprosthesis is suggested. Osteosynthesis is a type of reconstructive surgery aimed at stabilizing and joining the ends of a broken bone after a fracture, an osteotomy, or a separation from a previous fracture.

Case description. A 58-year-old man after a hypoglycemic attack collapsed on the street. The patient was brought to the hospital by ambulance. X-ray findings revealed a comminuted intraarticular fracture of the right head of the radius with dislocation and a comminuted intraarticular fracture of the right coronoid process with dislocation. CT scan showed a comminuted intraarticular fracture of the right coronoid process, olecranon process with dislocation, and a comminuted intraarticular fracture of the right head of radius with dislocation. The surgical manifestation was performed. The surgery included an arthrotomy of the right elbow joint and resection of a fragment of the proximal metaphysis of the radius head and ulna. The proximal metaphysis of the ulna was reconstructed with the olecranon with a 3.5 mm locked plate, reinsertion of triceps brachii, and fixation with transosseous sutures and 2 anchors. During the post-surgery period, the patient received analgetics and anti-inflammatory drugs. A scarf immobilization and plaster longette for 3-4 weeks was recommended. Gentle passive movements in the right wrist and right shoulder joint were recommended. Full load for the right arm was allowed after 6 months.

Conclusions. The specified surgery is an experimental new treatment. It requires a specialist and careful observation of the patient.

Summary. The current study describes a new method of surgical treatment of a comminuted intraarticular fracture of the right coronoid process, the olecranon process with dislocation, and a comminuted intraarticular fracture of the right head of radius with dislocation.

AVASCULAR NECROSIS OF THE FEMORAL HEAD

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Keywords. Avascular necrosis; AVN

Introduction. Avascular necrosis (AVN) is a condition caused by a disrupted blood supply to the bone leading to ischaemia and tissue death. Predominant causes for AVN are previous trauma to the bone, such as fracture, and chronic steroid use, although in a small percentage of cases the cause remains unknown.

Case description. A 35 year old female presented to her family physician with the main complaint of lower back pain radiating to her right hip joint, groin and down her right leg and expressed concern about paresthesias in her right foot. On a physical exam limping and hyperalgesia on the lateral side of the right leg was noticed. Suspecting lumbar disc pathology with radiculopathy, the family physician initiated treatment with B group vitamins, dexamethasone, NSAIDS and tinazidine. On pelvic X-ray no apparent pathology in acetabulofemoral joint was found but since the symptoms persisted, the patient underwent CT and MRI scans to look thoroughly for structural issues. The MRI revealed a slightly impacted Garden III type fracture of the base of the right femur neck with extensive bone marrow edema expressed in the affected area and synovitis of the right acetabulofemoral joint. Over the course of five months the patient was consulted by an orthopedic surgeon due to increasing symptoms, such as pain, loss of mobility and shortening of the affected leg. Treatment plan consisted of pain management, rest, appropriate orthopedic footwear and total hip replacement.

Summary. Avascular necrosis, a serious iatrogenic or post-traumatic complication may occur without any obvious trigger, therefore presenting diagnostic challenges due to its similarities to various frequently occurring neurological conditions. Appropriate diagnosis is essential in managing AVN and ensuring successful treatment and rehabilitation.

Conclusions. Extensive timely approach and appropriate differential diagnosis is important in managing AVN due to the possible debilitating outcomes if left untreated.

TREATMENT OF GRADE IIIC OPEN FRACTURE OF THE DISTAL PART OF THE LEFT TIBIA WITH A FRACTURE OF THE FIBULA. CASE REPORT

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Keywords. Open tibial fracture grade IIIC; Polytrauma

Introduction. Open tibia fractures, classified as Gustilo–Anderson grade IIIC, encompass a range of injuries affecting bone and soft tissues. Severe cases involve segmental bone loss and extensive soft tissue damage, risking limb loss due to infection, vascular, and nerve injuries. The primary therapeutic goal is effective soft tissue coverage, fracture healing, and infection prevention. Various approaches, including half-pin external fixation or plating, and primary or delayed intramedullary nailing, are suggested. Optimal management involves radical debridement, skeletal stabilization, and early soft tissue coverage with a vascularized muscle flap. Post-bone fixation, multiple debridements reduce infection risk and facilitate soft tissue coverage, often requiring plastic–reconstructive department involvement.

Case Description. A 52-year-old sustained multiple injuries in a paragliding accident. Stable hemodynamics, a 10×15cm contaminated tibial wound with soil, and venous-capillary bleeding were observed. The left foot had good microcirculation, but the anterior tibial artery was crushed. X-rays revealed multifragmentary fractures, dislocations, and a calcaneus fracture. Surgery involved revising the wound, repairing the artery, removing foreign bodies, and repositioning tibia fragments with external fixation. Soft tissue coverage used the anterior tibial muscle and a flexor retinaculum patch.

Summary. The case report emphasizes efficiently treating a polytrauma patient with a Gustilo–Anderson grade IIIC open tibial fracture.

Conclusion. The management involved urgent surgery, meticulous debridement, external fixation for fracture stabilization, and innovative soft tissue coverage. The multidisciplinary approach, combining orthopedic and plastic-reconstructive techniques, are essential to achieve favorable outcome in addressing both bone and soft tissue injuries.

CASE REPORTS, SMALL CASE SERIES

PAEDIATRICS

SEVERE COMBINED IMMUNODEFICIENCY: DIAGNOSIS, CLINIC AND TREATMENT OPTIONS

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Keywords. Severe combined immunodeficiency; SCID; Hematopoietic stem cell transplantation

Introduction. Severe combined immunodeficiency is a serious clinical condition caused by a variety of genetic defects that significantly impair the development and function of the immune system. This clinical condition can be fatal early in life if not diagnosed in time and infants do not receive appropriate treatment (urgent hematopoietic stem cell transplantation or gene therapy in specific cases).

Case description. This case report describes the clinical course of a one-and-a-half-year-old boy diagnosed with severe combined immunodeficiency (SCID) at 4 months. Initially healthy, the child was born following an uneventful pregnancy to a mother with no known history of genetic disorders. He was administered the BCG vaccine at 2 months. Post-vaccination, he developed erythroderma and a maculopapular rash, followed by pneumonia, acute bronchiolitis, and bacterial skin infection at 3 months. Subsequently, specific lymphadenitis developed following BCG vaccination. In the hospital immunological tests were performed. The immunological profile was atypical for SCID due to the presence of CD3+ 53% (abs.764) and CD4+ 52% (abs.748) cells, however, the absence of CD8+ 0,79% (abs.11) cells indicated a potential primary immunodeficiency. Additionally, the detection of Mycobacterium tuberculosis complex DNA in the stool confirmed the diagnosis of generalized tuberculosis. Finally, genetic testing confirmed the presence of a homozygous pathogenic variant in the DCLRE1C gene, leading to a diagnosis of SCID.

Summary. Results of immunological and genetic tests corroborated the diagnosis of DCLRE1C gene-related SCID. The patient urgently underwent stem cell transplantation.

Conclusions. SCID is a rare, but life-threatening condition, invariably fatal without treatment. Prompt diagnosis and immediate initiation of stem cell transplantation can be lifesaving. system, which may include urgent hematopoietic stem cell transplantation. This case underscores the critical importance of newborn screening for such conditions, a practice initiated in Latvia as of April 1, 2023.

CLINICAL PRESENTATION OF PATIENT WITH PAX-6 RELATED ISOLATED ANIRIDIA: CASE REPORT

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Keywords. PAX-6; Aniridia; Secondary glaucoma

Introduction. Congenital aniridia is rare genetic disorder affecting an estimated 1 in 64000-100000 live births. *PAX6* (OMIM#607108) is a gene that encodes transcriptional regulator involved in oculogenesis and correct formation of the multi-layered optic cup, lens, iris and corneal epithelium. We present observed *PAX-6* gene variant and its impact on patient's eyes.

Case description. We report a case of an infant admitted to pediatric ophthalmologist at 6-weeks of age due to dilated pupils, photophobia and nystagmus. Patient don't have any family history of ocular disorders. Anterior segment examination revealed complete aniridia, clear cornea and small spot of cloudiness on the lens capsule in both eyes. Horizontal nystagmus of low amplitude was noticed, the gaze was not fixed. At age of 5-months gaze was well fixed on light object at 30cm distance. Intraocular pressure was 29 mmHg in right eye and 27 mmHg in left eye. *Dorzolamidum*eye drops were prescribed. Absent macular reflex in both eyes. B-scan showed no retinal detachments, axial length 16mm on right eye and 17mm on left eye. The patient was kept under review at 1-month intervals. The diagnosis of sporadic aniridia panel was done. The genetic study revealed a nonsense heterozygous *PAX-6* gene [NM_000280.4] frameshift variant c.54_67del, p.Arg19LeufsTer32 and it was classified as pathogenic. Variant confirms aniridia 1 (OMIM:106210) diagnosis and is unique in GnomAD and ClinVar database.

Summary. The case demonstrates genetically confirmed *PAX-6 i*solated aniridia clinically presenting with nystagmus, photophobia and complicates with secondary cataract, secondary glaucoma and impaired visual acuity. Regular ophthalmological examinations and visual training excercises with specialist are done.

Conclusions. Complete isolated aniridia is rare condition with variable visual impairment and secondary complications. Early genetic testing is important for correct diagnosis and further management options in for patients with aniridia.

JUVENILE-ONSET RECURRENT RESPIRATORY PAPILLOMATOSIS: CASE REPORT

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Keywords. Recurrent respiratory papillomatosis; Human papillomavirus; HPV vaccine; CO2 laser ablation; immunotherapy; Bevacizumab; Tracheostomy; Antibiotics

Introduction. Recurrent respiratory papillomatosis is a rare disorder caused by Human papillomavirus (HPV) type 6 and 11. It is characterized by benign tumors that grow in the air passages, most commonly affecting the larynx. The infrequency of HPV infection manifestation in airways brings a great challenge to succesfully manage the condition.

Case description. A 5-year-old girl had been frequently hospitalised with acute respiratory infections due to difficulty breathing, hoarseness and coughing. The patient was treated for bronchial asthma and acute laryengitis. After unsuccessful attempts of curing the patient a bronchoscopy was performed revealing laryngeal papillomatosis and subcompensated laryngeal stenosis. The patient received multiple CO2 laser ablation surgeries with and without balloon dilation, immunisation with HPV 9-valent vaccine, however the diffucility breathing remained and permament trachesomy tube was inserted. Patient experienced complications due to bacterial colonisation of the respiratory tract and received antibiotics. Control bronchoscopy and computed tomography revealed papillomas in trachea and lungs. Due to inefficient response to previous treatments an immunotherapy with Bevacizumab was started, which proved to be effective.

Summary. This case report demonstrates usage of combined treatment for juvenile-onsent respiratory papillomatosis consisting of CO2 laser ablation surgery, immunisation with HPV 9-valent vaccine and immunotherapy with Bevacizumab, as well as symptomatic treatment for complications of the condition and medical interventions, such as tracheostomy and antibiotics.

Conclusions. Recurrent respiratory papillomatosis is a rare disorder that requires a multidisciplinary approach. Surgical approach decreases the symptoms, but fails to achieve long lasting effect. HPV vaccine and next generation immunotherapy drugs extend the effects of surgery by slowing the regrowth of papillomas. Bacterial colonisation and tissue scaring remains an issue.

FAMILIAL HEMOPHAGOCYTIC LYMPHOHISTIOCYTOSIS SECONDARY TO UNC13D MUTATION (FHL3) IN A 37-DAY-OLD GIRL WITH CMV INFECTION: A CASE REPORT

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Keywords. Familial Hemophagocytic Lymphohistiocytosis (FHL); Cytomegalovirus infection (CMV); UNC13D

Introduction. Familial Hemophagocytic Lymphohistiocytosis (FHL3) is a rare genetic disorder, characterized by primary innate immunodeficiency, resulting in heightened T-lymphocyte and macrophage activity leading to aberrant cell proliferation. This condition causes multiorgan damage and dysfunction, including the spleen, liver, bone marrow, and brain. We report the first confirmed case of FHL3 in Latvia.

Case Description. A 37-day-old girl was admitted to the Children's Clinical University Hospital with persistent fever, hoarseness, skin rash, and an enlarged spleen. Laboratory results revealed cytopenia involving more than two cell lines, hypertriglyceridemia, hypofibrinogenemia, hyperferritinemia, elevated CRP, IL-6, LDH, ALAT, ASAT, and increased D-dimers. Ultrasound revealed splenomegaly, gallbladder wall thickening and ascites. CMV DNA was detected in urine and blood. Following the diagnosis on September 21st, she underwent HLH-2004 protocol-based treatment, received intravenous Ganciclovir (when the CMV DNA copy number in the blood was above 1000), broad-spectrum antibiotics and antifungal therapy for severe neutropenia and fever. On October 26th liquor changes were observed. Genetic testing via the WES NGS confirmed FHL3 due to two pathogenic compound heterozygous germline variants in the UNC13D gene. The patient underwent a bone marrow transplant on December 15th, utilizing stem cells from a matched unrelated donor. The latest post-transplant chimerism is 99%. The patient is currently in recovery.

Summary. A 37-day-old girl presented with persistent fever, hoarseness, skin rash, and splenomegaly. Laboratory findings showed thrombocytopenia, leukopenia, neutropenia, elevated inflammatory markers and abnormal coagulation. CMV DNA was positive. Diagnosis of FHL3 was confirmed via genetic testing (UNC13D gene). Treatment included the HLH-2004 protocol. Hematopoietic stem-cell transplantation was performed for a curative approach.

Conclusions. Early diagnosis, adherence to the HLH-2004 protocol, and subsequent hematopoietic stem-cell transplantation are crucial in managing Familial Hemophagocytic Lymphohistiocytosis. This emphasizes the importance of prompt complex treatment initiation to improve outcomes.

UNDIFFERENTIATED NEUROBLASTOMA AND MEDULLOBLASTOMA IN A FANCONI ANEMIA PATIENT: A CASE REPORT

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Keywords. Medulloblastoma; Neuroblastoma; FA; BRCA2; TP53

Introduction. Fanconi anemia (FA) is a rare autosomal recessive genetic disorder, associated with hereditary anomalies, progressive bone marrow failure, higher risk for developing solid malignancies, including central nervous system tumors. Molecular genetic testing is a crucial factor in diagnostics of FA. Usual genetic features include mutations in FANCA, BRCA1, BRCA2, PALB2, BRIP1, RAD51, TP53 genes. Consecutive primary malignant tumors are rare and are often considered unfavorable prognosis factors.

Case description. We describe a 4-year-old female patient, who presented in 2021 with congenital hypothyroidism, short stature, multiple *cafe-au-lait* spots, clinodactyly, pancytopenia. Cytogenetics revealed normal karyotype 46,XX, spontaneous and DEB-induced chromosomal breakage. Next-generation sequencing showed pathogenic BRCA2 variant. FA was genetically confirmed. In June 2022 tumor in right temporal lobe was found on MRI. Histopathology, immunophenotype tests confirmed neuroblastoma. Bone marrow biopsy finding in July 2022 revealed neuroblastoma cell complexes, dissemination to bones, bone marrow. Resection of the primary tumor was performed. Proband sequencing established oncogenic mutation in TP53, MYCN amplification. The patient received induction chemotherapy according to COJEC protocol, dinutuximab. A new lesion appeared in left temporal lobe. Additional immunophenotype testing of cerebellar tumor was done in Lithuania, which verified positivity for Synaptosyn, NeuN, p53, Ki-67 40-50%. Primary medulloblastoma was confirmed according to histomorphology, flow cytometry. Medulloblastoma was resected and relapsed soon afterwards. In face of second malignancy developed on therapy, parents choose palliative care.

Conclusions. We report a patient with consecutive primary undifferentiated neuroblastoma, high-risk medulloblastoma associated with FA. Genetic testing revealed mutations of BRCA2, TP53 genes, MYCN amplification. In relation to MYCN amplification, TP53 mutation on poor outcome, novel treatments targeting MYCN, TP53 should be developed for pediatric patients with primary CNS tumors.

Summary. The current study highlights challenges of BRCA2, TP53 mutation, MYCN amplification presentations in FA patients, diagnosis, complications, management, surveillance.

TUBERCULOUS OTITIS MEDIA IN AN INFANT, THERAPY AND COMPLICATIONS. CASE REPORT

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Keywords. Tuberculous otitis media; Extrapulmonary tuberculosis; Tuberculosis in neonate

Introduction. Tuberculous otitis media (TOM) is a rare form of extrapulmonary tuberculosis, therefore making the diagnosis and therapy challenging. If left untreated, TOM may progress to serious complications and consequences such as hearing loss.

Case description. A 3-month-old boy presented to the Children's Clinical University Hospital with a prolonged purulent, haemorrhagic discharge from the left ear with the duration of 1 month and no signs of improvement after empiric antibiotic therapy with *Amoxicillinum*. The mother has been diagnosed with human immunodeficiency virus (HIV). Patient is unvaccinated due to unknown HIV status. Empiric therapy with *Cefuroxime* was started, and the patient showed minor signs of improvement. The conclusion of a computed tomography (CT) scan proposed a differential diagnosis of rhabdomyosarcoma. Histology revealed chronic granulomatous inflammation with epithelioid cells and giant Langerhans cells, which raised the suspicion of chronic otitis media with tuberculous aetiology. Chest radiograph suspected dissemination of tuberculosis. After transfer to the Centre of Tuberculosis and Pulmonary diseases anti-tuberculous therapy was started. A year after diagnosis a control CT was performed and revealed complete destruction of the auditory ossicles and middle ear fibrosis. Six years after initial treatment, the patient complained of recurrent purulent discharge from the ear and a mastoidantrotomy was performed. At the time of the research, the patient had mixed hearing loss in the left ear, he has received a hearing aid and has optimal language development.

Summary. This report demonstrates a rare case of a 3-month-old boy with tuberculous otitis media that results in fibromatous changes in the temporal bone and mixed hearing-loss after treatment. The boy has now received a hearing aid.

Conclusions. Awareness of uncommon clinical manifestations in paediatric patients at risk of tuberculosis is crucial for specialists to successfully diagnose and treat the disease.

OSTEOGENESIS IMPERFECTA IN CHILDREN. CLINICAL CASE ANALYSIS AND LITERATURE REVIEW

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Keywords. Osteogenesis imperfecta; Clinical features; Diagnosis; Treatment.

Introduction. Osteogenesis imperfecta (fragile bone disease) is a genetic disease characterized by bone fragility and risk of fracture. Osteogenesis imperfecta is usually caused by changes in type I collagen. It is a genetically and clinically heterogeneous disease with an incidence of approximately 1 in 10,000 to 1 in 20,000.

Case description. A 15-year-old teenager was examined, who was diagnosed with brittle bone disease - osteogenesis imperfecta. A one-year-old boy was delivered to the Children's Orthopedics-Traumatology Department of LSMUL Kaunas Clinics. He did not move both hands, he felt pain. An X-ray showed a non-displaced oblique fracture of the humerus. The traumatologist - orthopedist performed fixation of the long bones of both hands with intramedullary elastic nails. He was born at 40 weeks of pregnancy and weighed 3kg 740g. The boy had crepitus in the area of the right clavicle, the area of the right thigh and both calves since birth. There were no fractures or other significant health problems in the family. Blood tests showed decreased calcium levels.

Summary. During the treatment, drugs from the bisphosphonate group were prescribed. It was also suggested to continue calcium preparations, vitamin D. It was recommended to limit fast-absorbing carbohydrates (products and drinks with added sugar, flour products) to 1-2 per day, to drink enough fluids.

Conclusions. Osteogenesis imperfecta can be diagnosed with X-rays, bone density tests, and genetic testing. The late form of osteogenesis imperfecta is more favorable, although it limits the quality of life. The goals of treatment for osteogenesis imperfecta are to increase bone strength, reduce fracture risk, reduce pain, increase mobility and functional independence, and prevent long-term complications.

CONGENITAL INSENSITIVITY TO PAIN WITH ANHIDROSIS ACCOMPANIED BY HEMATOGENOUS OSTEOMYELITIS. A CASE REPORT

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Keywords. CIPA syndrome; Osteomyelitis; Compensated shock

Introduction. Congenital insensitivity to pain with anhidrosis (CIPA syndrome) is a rare autosomal recessive disease, characterized by inability to sweat and perceive pain and temperature sensations. Insensitivity to pain results in self-mutilations, risk of injury, burns, fracture, and infections. Patients with CIPA may have various orthopaedic complications such as recurrent fractures, neuropathic joints, and osteomyelitis which is a serious complication to be cautious about.

Case description. We report the case of a 3-year-old girl with clinical features of CIPA. The symptoms included profound loss of pain sensitivity, recurrent episodes of unexplained fever, anhidrosis, self-mutilation of fingers, tongue, and oral mucosa, failure to recognize burns and developmental delay. According to our knowledge this is one of the first reports of CIPA syndrome in Latvia. The patient was admitted to the Children's Clinical University Hospital department of Emergency Medicine with fever and unhealed fracture of proximal tibia. Left lower leg was erythematous and oedematous, patient was dehydrated and met SIRS criteria. On a day of admission MRI of was performed and showed signs of osteomyelitis. CIPA syndrome caused late recognition of infection resulting in compensated shock and septic pneumonia.

Summary. This case portrays a rare genetic disease which poses challenges for early diagnosis and treatment of its complications. This is one of the first reported cases of CIPA syndrome in Latvia, showing importance for healthcare providers to learn more about this condition.

Conclusions. Early recognition of CIPA syndrome patients could be useful in the reduction of frequency and severity of orthopaedic complications, accidental injuries, and monitoring wounds for infections. Therapeutic options are restricted to treatment of symptoms and staying safe.

PRESENCE OF HIGH PERIPHERAL BLAST COUNT IN A NEWBORN: A CASE REPORT

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Keywords. Newborn; Peripheral blasts; Transient abnormal myelopoiesis; 21 trisomy mosaicism

Introduction. Transient abnormal myelopoiesis (TAM) is a syndrome that uniquely occurs in neonates with Down syndrome or trisomy 21 mosaicism. It is characterized by a high peripheral blast count and can be accompanied by hepatosplenomegaly and a rash. In rare cases terminal liver failure and *hydrops fetalis* like symptoms can cause early death. The majority of patients achieve spontaneous remission without treatment. TAM is sometimes considered a preleukemic condition – some children develop acute myeloid leukemia in the first four years of life.

Case description. A pre-term newborn born at 36+4 gestational weeks in the Children's Hospital is transferred to NICU with respiratory distress, petechiae on body and extremities and hepatomegaly. Blood work revealed a peripheral blast count of 30, leukocytosis, anemia, and thrombocytopenia. The patient received several blood transfusions and antibacterial therapy was administered for 9 days due to concerns of early neonatal sepsis. Later karyotyping for trisomy 21 revealed trisomy 21 mosaicism and genetic testing showed clinically significant somatic oncogenic mutations in GATA1 and KRAS genes which allowed for the diagnosis of TAM. Blood work parameters showed positive dynamics and repeated USG showed hepatosplenomegaly with a tendency to decrease over the next month. No additional treatment, apart from breathing support, was needed. The patient was discharged at 1 month and 18 days.

Summary. A case of transitory abnormal myelopoiesis with spontaneous remission in a pre-term newborn with trisomy 21 mosaicism. The patient's condition remains stable and peripheral blast count gradually decreases and disappears completely within the first month of life.

Conclusions. TAM can present with a variety of non-specific symptoms which makes it challenging to diagnose. The severity of the disease can range from mildly symptomatic to life threatening.

AUTOSOMAL DOMINANT BERNARD-SOULIER SYNDROME CAUSED BY A RARE FAMILIAL GP1BA VARIANT

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Keywords. Bernard-Soulier Syndrome; GP1BA; Inherited platelet disorder

Introduction. Bernard-Soulier Syndrome (BSS) is a rare platelet adhesion disorder, caused by a variant in one the genes coding for the GPIb-IX-V platelet surface receptor, classically following an autosomal recessive inheritance pattern. While biallelic patients display hemostatic deficiencies, monoallelic patients are usually asymptomatic. Herein, we detail a case of symptomatic autosomal dominant BSS caused by a rarely-encountered GP1BA variant.

Case description. A 9-year-old female known for precocious puberty, menarche at the age of 9 and menorrhagia, leading to iron deficiency anemia (hemoglobin: 74 g/L), with ISTH Bleeding Assessment Tool (ISTH-BAT) score of 11, was consulted in our centre. Laboratory tests revealed normal platelet count with mean platelet volume at 10.9 fL; normal APTT, PT, fibrinogen tests; negative tests for von Willebrand disease; abnormal platelet function test (PFA-200); diminished response to low-dose ristocetin-induced aggregation, while platelet flow cytometry did not reveal characteristics typical of classic BSS. Next Generation Sequencing of blood DNA detected a heterozygous variant NM_000173.7:c.1036C>T, NP_000164.5:p.(Gln346Ter) in the GP1BA gene, whicch was not found in the gnomAD genomes and was classified as pathogenic by many in-silico predictors. During segregation analysis, identical variants were identified in the patient's mother, who had an ISTH-BAT of 8 and suffered from menorrhagia and persistent iron deficiency, and brother, who experienced several mild hemostatic challenges without any bleeding complications.

Summary. A rare monoallelic BSS variant was discovered in a girl presenting with menorrhagia.

Conclusions. Even though BSS is an already established disease in its homozygous and compound heterozygous forms, only a handful of symptomatic monoallelic forms have been reported in literature. In patients with bleeding symptomatology and ambiguous platelet test results, novel and rare monoallelic forms, such as the one discussed in this report, should be suspected and further investigated.

CENTRAL CORE DISEASE AS A FORM OF RYR1 GENE ASSOCIATED CONGENITAL MYOPATHY: CASE REPORT

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Keywords. Congenital myopathy-1B; RYR1-gene; OMIM#255320

Introduction. Congenital myopathy type-1B (CMYP1B) is an autosomal recessive disorder in RYR1-gene characterised by severe hypotonia and generalised muscle weakness emerging soon after birth. It presents with delayed motor development, generalised hypotonia, difficulty performing casual activities. In the US, prevalence of RYR1-associated myopathies is 1:90,000, with the central core disease subtype prevalence at 1:170,000.

Case description. Newborn female (G1P1; GA 41 weeks; BW 3980g) exhibited severe generalised hypotonia, markedly diminished neonatal reflexes, and minimal active movements. Inflammatory markers, USG and MRI showed no abnormalities. Initial treatment with Syr. Salbutamol for suspected congenital myasthenic syndrome yielded minimal improvement. At 1 month, profound hypotonia persisted, with patient unable to stabilise head, observing minimal movements in extremities. Due to insufficient bottle feeding a gastrostomy was performed. Genetic, metabolic, and infectious disease testing occurred during the first 2 months, with genetic testing in Germany at 2.5months confirming a heterozygous pathogenic variant in RYR1-gene. Personalised multidisciplinary rehabilitation plan was implemented. Alberta Infant Motor Scale scores were consistently below the 5th percentile at all observed ages, indicating delayed motor development. Until 2 years and 2 months of age, positive but delayed motor and cognitive development was observed. Milestones included full head rotation at 7 months, assisted sitting at 9 months, full-range hand-leg movements at 12 months, walking initiation at 19 months. Currently, patient actively engages in self-dressing, self-hygiene, eats and drinks independently, displays age-appropriate play and speech. Periodic observations include hyperhidrosis and intermittent gasping sounds.

Summary. This case report underscores a newborn diagnosed with CMYP1B, emphasising the importance of considering RYR1 mutations in CMYP cases. With a personalised rehabilitation plan, patient exhibited delayed yet positive motor and cognitive development, enhancing overall life quality.

Conclusions. Average CMYP prevalence is 1:26,000, with those due to RYR1 mutations being the most prevalent genetic subtype in various studies. Therefore, high degree of suspicion for RYR1 mutations is recommended in all genetically undefined CMYP cases.

COMPLICATED OTITIS MEDIA: SINUS SIGMOIDEUS THROMBOSIS AND CEREBELLITIS

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Keywords. Otitis media; Intracranial complications; Sinus sigmoideus thrombosis; Cerebellitis

Introduction. Otitis media (OM) is one of the most common pediatric diagnosis worldwide. Over 80% of children have acute OM once before age 3 and by age 7 over 40% have at least 6 recurrences. A prevalent misconception exists that intracranial complications (ICCs) associated with OM are only common in developing countries but these problems remain despite of advancements in antibiotic care and imaging methods. Common ICCs include meningitis, epidural or brain abscess, lateral and cavernosus sinus thrombosis. Acute cerebellitis as a complication of OM is considered a rare inflammatory condition with a highly variable clinical course.

Case description. This study presents a case report of a 4-year-old girl with an intracranial complications due to acute bilateral otitis media. Patient was primarily admitted to the Department of Emergency at regional hospital with no specific signs of central nervous system involvement. Due to clinical suspicion, CT and MRI imaging was made, revealing diagnosis of mastoiditis, left sigmoid sinus thrombosis and cerebellitis. After bilateral tympanostomy was performed patient was transferred to Children's clinical university hospital for a further treatment.

Summary. This research gives a detailed report on managing complicated otitis media with sinus thrombosis and cerebellitis highlighting the multidisciplinary approach. Medical management involves diagnostic imaging, laboratory investigations, intravenous antibiotics, anticoagulant therapy, surgical approach and other therapeutic modalities.

Conclusions. Due to the reasons that ICCs remains a rare manifestation of acute OM insights from this case report emphasizes the importance of diagnostic imaging, close monitoring and multidisciplinary approach.

CHALLENGES IN MANAGING PHYSIOLOGICAL AND PSYCHOLOGICAL MANIFESTATIONS OF WILSON'S DISEASE: A CASE REPORT

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Keywords. Pediatrics; Wilson's disease; WD

Introduction. Wilson's disease (WD) is a rare inherited disorder of copper metabolism in which copper builds up in the body. WD is caused by mutations of the gene ATP7B and due to its typical onset in early age, physicians should pay attention to the individual symptoms and perform the necessary tests for the accurate management.

Case Description. A 12-year-old boy presented to the physician complaining of emesis after eating, accompanied by abdominal pain, impaired walking, muscle weakness and elevated liver enzymes (the patient has been under the ongoing care of pediatric gastroenterologists due to recurrent abdominal pain and suspected WD). Genetic tests were performed (mutation of the ATP7B gene was found), brain MRI (no typical WD traits), electroneuromyography (acute denervation in the L3-S1 myotome muscles of the right leg), penicillamine test (significantly increased in daily urine - from 237.37 to 907.78 mcg in 24 hours) and the diagnosis of WD was confirmed. Recommended treatment included D-Penicillamine up to 375 mg 2 times/day with the use of vitamin B6 25 mg 1 time/day and Omeprazole 20 mg 2 times/day. After one month patient experienced liquid intolerance with rapid regurgitation, intensified pain beneath the right rib cage, dyspnea and was rehospitalized. Also, the patient's psychological condition has also worsened (anxiety, conflicts at school, episodic nocturnal enuresis), consequently a child psychiatrist's recommendations were given. While under hospital observation, the dose of D-Penicillamine was increased and the condition improved, therefore the patient was discharged for outpatient treatment.

Summary. While managing WD it is beneficial to leverage the expertise of multidisciplinary specialists in order to establish a precise diagnosis and determine an appropriate course of treatment.

Conclusions. In clinical practice, it is vital to carefully differentiate among rare illnesses through attentive consideration of individual symptoms, physical examination and laboratory assessments.

EVOLUTIVE POSSIBILITIES IN PEDIATRIC PATIENTS WITH RENAL TRANSPLANTATION-EXPERIENCE OF TWO CASES

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Keywords. Kidney transplantation; Chronic kidney disease; Polyomavirus; Vesical-ureteral reflux

Introduction. Renal transplantation stands as the most effective therapeutic intervention for children experiencing stage 5 chronic kidney disease (CKD). Although being the best method for renal replacement, it is not free from complications. This abstract aims to emphasize diverse outcomes and essential post-transplant complication management in pediatric patients with renal grafts.

Case description. Two distinct cases will be showcased, both involving renal transplantation from the same deceased donor, respecting the HLA matching. The patients, underwent identical immunosuppressive therapy (anticalcineurin inhibitors and antimetabolite). The first boy, aged 9.2 years old, presented with end-stage CKD following an episode of hemolytic-uremic syndrome. After transplantation, he experienced a Polyomavirus BK infection, leading to graft dysfunction. Due to rapidly increasing viremia, immunosuppressive doses were reduced, and intravenous immunoglobulins were administered, resulting in a favorable outcome. The second patient, aged 17 years old, had a neurogenic bladder with vesicoureteral reflux as the underlying condition, resulting in prolonged kidney impairment. After transplantation, he continues to experience persistent vesicoureteral reflux, leading to recurrent urinary tract infections that affect the graft and contribute to its rejection. Currently, the patient is undergoing hemodialysis.

Summary. These cases exhibit distinct post-transplantation evolution, influenced on one hand by the underlying disease and on the other hand by the complications arising post-procedure. There are numerous causes of graft rejection, and each pediatric transplant patient is unique. The body's response to the graft can vary significantly, making each post-transplantation outcome different and potentially unpredictable.

Conclusions. Managing pediatric transplant patients is a significant challenge due to aggressive immunosuppression, increasing susceptibility to infections, rejection risks, and post-transplantation complications. Despite impressive progress, post-transplantation care remains a serious and complex challenge demanding utmost attention.

MULTISYSTEM INFLAMMATORY SYNDROME IN CHILDREN (MIS-C): A COMPREHENSIVE CASE REPORT

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Keywords. MIS-C; Children; SARS-CoV-2; COVID-19

Introduction. Multisystem Inflammatory syndrome in children (MIS-C) is a rare and clinically serious condition occurring in fewer than 1% children with confirmed acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection. MIS-C was initially described for the first time in late April 2020 soon after first wave of SARS-CoV-2. First children cases reported unusual clinical manifestation presenting severe systemic inflammatory response with atypical features such as cardiogenic shock, myocarditis, and abdominal symptoms. Nowadays definition of MIS-C is based on following criteria: age, presence of fever, more than two organ system involvement, elevated inflammatory markers, evidence of recent COVID-19 infection and exclusion of other possible etiologies.

Case description. This study presents a comprehensive case report of a 7-year-old girl with MIS-C in a non-pandemic time. Patient demonstrated severe condition involving pericarditis, pleural effusion, abdominal symptoms, and skin lesions. Giving the severeness of the condition patient was admitted to the Intensive Care Unit. Timely diagnose was made through laboratory investigation and diagnostic imaging. Intravenous immunoglobulin, corticosteroid, aspirin and other therapeutic modalities were administrated. Following hemodynamic stabilization, the patient was transferred to the Infectious Diseases Department for further treatment.

Summary. In this case report patient demonstrates clinical manifestation of MIS-C presenting common and also uncommon signs, such as coronary artery involvement. This research involves detailed examination of the clinical presentation, diagnostic challenges, therapeutic interventions, and overall management of life-threatening condition.

Conclusions. Over time the incidence of MIS-C has been decreasing. Since the last COVID-19 pandemic wave and first descriptions of this clinical manifestation, MIS-C still appears to be uncommon and serious complication of COVID-19 affecting various organ systems and requiring a complex approach. Further investigation of MIS-C clinical presentation and severity is crucial for a better management and overall better patient outcomes.

CHALLENGES IN HEALTH CARE FOR AN EXTREMELY PREMATURE NEONATE SUFFERING WITH SEVERE BPD AND NEUROLOGICAL SEQUELAE DUE TO POST E.COLI HYDROCEPHALUS

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Keywords. Decision-making; Parent role; Preterm, newborn; Respiratory distress syndrome (RDS); Bronchopulmonary dysplasia (BPD); E.coli ESBL meningitis; Hydrocephalus; Ommaya reservoir

Introduction. Due to the ever-evolving neonatal intensive care, a higher number of extremely premature neonates survive. However, despite all our health care efforts, the course of extrauterine maturation could be severely complicated and therefore leads to both ongoing health care needs and ethical, socioeconomic challenges.

Case description. Extremely immature male newborn born at 23+6 weeks of gestation required extensive resuscitation at birth. He was managed for RDS and subsequently BPD that did not improve despite corticosteroid treatment. At 3-6 weeks he was treated for E. coli ESBL meningitis. He had several episodes of respiratory and haemodynamic instability, and therefore his parents were consulted regarding withdrawal of care. Following parental request patient was resuscitated and stabilized, however remained dependent on invasive respiratory support. Frequent seizures started to be detected and there was a significant dilation of his brain's lateral ventricles on USS. Shortly after cessation of antibiotic treatment, meningitis recurred and led to another failure, epileptic state and further infectious and ischaemic damage to patient's brain tissue. Due to deterioration of pre-existing post-infectious hydrocephalus and necessity to enable CSF clearance unilateral then bilateral Ommaya reservoirs were inserted. All complications and negative prognostic factors were repeatedly discussed with the patient's parents who insisted on full intensive care.

Summary. Complicated extended NICU stay of extremely premature neonate with BPD and post-infectious brain damage resulting in respiratory instability and irregular spontaneous breathing activity requiring ongoing invasive ventilation support. Due to severe neurologic sequelae there was also need for gastrostomy alimentation and antiepileptic medication, involvement of multidisciplinary team.

Conclusions. Although multidisciplinary discussions with parents about their child's treatment and their involvement in decision making process is important, it could carry several medical, ethical and socioeconomic challenges.

CASE REPORT: CONGENITAL MYASTHENIC SYNDROME

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Keywords. Myasthenic syndromes; Neonates; Muscle hypotonia; Neuromuscular junction disorder

Introduction. Congenital myasthenic syndrome (CMS) is rare cause of neuromuscular junction disorders that lead to hypotonia with prevalence of 9.2 per 1.000.000 children. The main cause of these conditions are genetic defects in neuromuscular junction components. Symptoms are usually present from birth and vary from mild to severe hypotonia and respiratory failure.

Case description. We present a case of an infant delivered on 37+1 gestational week, weight 3356g, Apgar score 3/6/6 with congenital hypotonia likely caused by myasthenic syndrome. The child was transferred to NICU for respiratory support and close monitoring. Neurologically patient was depressed and sedentary. 72h therapeutic hypothermia was performed because of suspected birth asphyxia. Due to persistent hypotonus patient was transferred to Children's hospital ICU for further diagnostics and therapy. On the 5th day the patient's muscle tone was decreasing - minimal limb and head movement, slow and delayed reflexes, no gagging or swallowing reflexes, breathing with little involvement of accessory muscles. During the therapy it improved and respiratory support was reduced. No pathology was found in brain ultrasound nor brain MRI. Genetic counselling was performed, and genetic tests were taken.

Summary. The patient was hospitalized for 42 days. After investigations the following diagnoses were set - Congenital myasthenic syndrome, congenital hypotonia of unknown ethiology, cerebral depression. Diagnostic modalities of choice were laboratory tests, brain MRI and genetic testing. Patient's condition has improved during the period of hospitalisation. We are currently waiting for gene test results, additional neurological examination in dynamics and electromyography to clarify precise diagnosis.

Conclusions. CMS is a rare condition which can cause severe disability in some of patients. Electrodiagnostic method and genetic tests are used to clarify the diagnosis of CMS. The treatment of CMS depends on subtype of the disorder, therefore, understanding the specific subtype is important for providing optimal treatment.

UNVEILING NOCTURNAL HYPOVENTILATION: A CASE OF TICK-BORNE ENCEPHALITIS IN A 15-YEAR-OLD BOY

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Keywords. Nocturnal Hypoventilation; Tick-borne encephalitis; Sleep studies; Paediatric

Introduction. Sleep-related hypoventilation is a serious and often undiagnosed condition that can have severe consequences on a child's health if left untreated. It is characterized by elevated blood carbon dioxide levels during sleep and may occur in children with respiratory disorders, neuromuscular diseases, and obesity. However, it manifests with no distinct symptoms, making it difficult to diagnose.

Case Description. This report describes a 15-year-old boy with tick-borne encephalitis, meningoencephalomielitis, tetraplegia, a tracheostoma, and chronic respiratory insufficiency. Despite not raising concerns about hypoventilation during wakefulness, sleep studies showed a different scenario.

Initial polygraphies with transcutaneous capnography (PG+trCO2) indicated severe obstructive sleep apnea and nocturnal hypoventilation, leading to the initiation of BiLevel positive airway pressure (BiPAP) ventilation via tracheostomy. Follow-up examinations confirmed effective sleep ventilation support. As the patient's condition improved, further sleep studies were conducted to evaluate the potential closure of the tracheostomy and transition to non-invasive ventilation (NIV). During these assessments, there was a noticeable reduction in sleep tachypnea and desaturation episodes, yet hypoventilation continued to be a concern. Consequently, prior to the 5th PG+trCO2 study, the tracheostomy was closed to test NIV using BiPAP through a nasal mask. This intervention led to a significant improvement in the patient's overall health, eventually allowing the patient to participate in daily activities without the dependence on tracheostomy or NIV.

Summary. Nocturnal hypoventilation can occur even if daytime respiratory symptoms are not distinct, as observed in this case. Comprehensive sleep studies using PG+trCO2 are crucial for accurate diagnosis, especially in vulnerable risk groups, since prolonged elevated levels of CO2 during sleep can have severe consequences.

Conclusions. Healthcare professionals should remain vigilant in monitoring respiratory function during sleep in patients with neurological impairments, as sleep-related breathing disorders can have significant implications for their health and well-being.

PAEDIATRIC BELL'S PALSY: COMPREHENSIVE CASE INSIGHT

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Keywords. Bell's palsy

Introduction. Bell's palsy is a neurological condition that poses a rare set of challenges. Characterized by sudden facial paralysis due to inflammation of the facial nerve, Bell's palsy display clinical symptoms visible as facial abnormalities. Although primarily considered of unknown origin, Bell's palsy can also be provoked by factors like viral infections, immune responses, or other underlying triggers.

Case description. A 11 year old boy presented to his family physician with a complaint of left-sided facial paralysis. Notably, the left eye couldn't fully close, the left eyebrow lacked elevation, and the left corner of the mouth drooped. The child's mother expressed concerns that a few days prior, the child had been experiencing a cold-like symptoms. Suspecting the facial nerve damage, the family doctor initiated treatment with Group B vitamins, Trental for improved blood circulation, Prednisolone to address inflammation and artificial tears for the eye unable to fully close. Additionally, the child was referred to a paediatric neurologist for further evaluation. Considering the recent onset of cold-like symptoms and newly emerged neurological symptoms, the paediatric neurologist diagnosed Bell's palsy, instructed to continue the prescribed treatment by the family physician and recommended to consult with the otorhinolaryngologist to identify the potential causes of facial nerve inflammation. Considering other underlying causes testing for Lyme disease was also recommended. Rehabilitation measures were also suggested for any motor impairments resulting from the facial paralysis.

Summary. Bell's palsy presents challenges marked by sudden facial paralysis attributed to facial nerve inflammation. While often idiopathic, it can be triggered by factors such as viral infections or immune responses. Appropriate treatment and rehabilitation are essential elements ensuring the success of the treatment.

Conclusions. A thorough diagnostic approach is essential when dealing with paediatric facial paralysis, requiring a comprehensive diagnostic approach due to the diverse potential causes.

FETOSCOPIC REPAIR OF OPEN SPINA BIFIDA IN TWIN PREGNANCY. CASE REPORT

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Keywords. Twin pregnancy; Open spina bifida; Fetal surgery

Introduction. Open spina bifida (OSB) - neural tube formation defect, occurring in 1–7/1000 newborns, characterised by a tear in the spine due to the vertebral arches not forming properly. After birth, OSB manifests as leg muscle weakness or paralysis, gait, sensory, defecation, and urination problems. While fetal surgery for OSB is gaining popularity, its benefits versus harms in twin pregnancies are debatable.

Case description. A 38-year-old woman (gravida 3, para 3) presented to Kaunas Clinics Hospital of Lithuanian University of Health Sciences with dichorionic diamniotic twins for a second trimester anomaly scan. Ultrasound scan revealed myelomeningocele in twin A's lumbosacral region, beginning at L5 vertebra, measuring 15,7 × 16,3 mm. Twin B was not diagnosed with any pathology. Information on postnatal surgery and fetoscopic repair for twin A, along with potential complications, was provided. Nevertheless, the patient insisted on fetal surgery. Prof. Thomas Kohl from the German Centre for Fetal Surgery and Minimally Invasive Therapy performed the successful fetoscopic repair of OSB using biocellulose patch technique for twin A at 28.1 w. At 29.1 w. preterm premature rupture of membranes was diagnosed and RDS prophylaxis, tocolysis and antibiotic prophylaxis were given. At 29.3 w. contractions started and c-section was performed. IV antibiotics for postpartum infection were administered for 9 days. Twin A 1020 g, Apgar 7/8/10 and twin B 1140 g, Apgar 7/8/9 were born. Twin A had no need for a repair site revision or experienced cerebrospinal fluid leakage at birth.

Conclusions. Fetal surgery, particularly in twin pregnancies, often leads to increased prematurity risk. Fetoscopic repair of open spina bifida using the biocellulose patch technique is feasible with an experienced team.

Summary. This report highlights a rare case of managing open spina bifida in twin pregnancy through fetal surgery.

CASE REPORTS, SMALL CASE SERIES
SURGERY I

AORTIC COARCTATION AND MUSCULAR VSD IN A NEONATE: A COMPLEX CASE REPORT

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Keywords. Aortic Coarctation; Ventricular Septal Defect; Prostin; Thoracotomy

Introduction. Aortic coarctation is a congenital narrowing of aorta, limiting blood flow to the lower body. Simultaneously, a ventricular septal defect (VSD) is characterized by a hole between heart's ventricles, causing abnormal blood shunting and overflow of lungs . Their co-occurrence, misdiagnosis, or delayed diagnosis in a neonate may exacerbate clinical condition and lead to possible death before surgery.

Case description. A one-month old neonate, sent to pediatric surgeon due to inguinal hernia, exhibited severe symptoms, including tachypnea, cyanosis, ascites and cold extremities. When admitted to hospital, echocardioscopy revealed aortic coarctation (<2mm), pulmonary artery dilation, and a 4.9mm muscular VSD with bilateral shunt. Hemodynamic compromise was evident with low amplitude systolic and diastolic flow (0.24m/s). Biochemistry showed hyperbilirubinemia (68.2umol/l) and hyperkalemia (6.86mmol/l). Mild metabolic acidosis with pH 7.224 and BE (B) -5.4 mmol/l was seen. Cardiac markers (CK-MB 10.7ng/ml, Troponins 427.4pg/ml), FS (17-29%) and ejection fraction (50-54%) indicated possible cardiogenic shock . Findings suggested high mortality rate during surgery therefore immediate stabilization with Prostin to dilate patent ductus arteriosus was done. Following week, left thoracotomy was performed, constricted aortic segment was removed and end to end anastomosis was created to improve circulation. Additionally pulmonary artery banding was done to increase resistance of blood flow to the lungs.

Summary. The neonate's postoperative course showed signs of recovery, leading to discharge. Six months later, transcatheter closure of VSD and balloon angioplasty to remove the pulmonary artery banding were performed, ensuring normal blood flow to the lungs.

Conclusion. This case emphasizes the importance of routine palpation of pulse in femoral arteries directly after birth followed by auscultation for possible murmurs which may have been missed or misdiagnosed in this patient. This ensures early intervention and improves prognosis of neonates with complex congenital heart defects.

A CASE REPORT OF ISOLATED ANEURYSM AND EXTRAVASATION OF THE EXTERNAL ILIAC ARTERY

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Keywords. Aneurysm; Extravasation; External iliac artery

Introduction. An aneurysm is an abnormal bulge in the wall of a blood vessel. A ruptured aneurysm causes bleeding inside the body which is called extravasation. Etiologies that have been reported to contribute to iliac aneurysmal dilatation include atherosclerotic changes, inflammation, wall tension, molecular genetic factors. The purpose of our report is to present a case of an isolated aneurysm of the external iliac artery (EIA) that caused urological complications for the patient.

Case description. 73-year-old male was hospitalized in a regional hospital with fever, pain of the left side of waist, anuria. Medical history revealed that patient had been diagnosed with terminal renal failure caused by diabetic nephropathy. Laboratory tests demonstrated high inflammatory indicators and renal dysfunction. The findings in ultrasound of abdominal organs were included hydronephrosis of the left kidney, dilated left ureter, in the left iliac region an inhomogeneous formation, similar to a hematoma. The patient with suspected internal bleeding was transferred to Lithuanian University of Health Sciences Hospital Kaunas Clinics for further investigation and treatment. Upon arrival, it was decided to perform a CT scan of the abdomen and pelvis, and extravasation of the left EIA with aneurysm was observed. Hematoma in the pelvis presses on the left ureter, which is expanded above the hematoma. The patient was consulted by surgeons, and it was decided to prescribed treatment with antibiotics and monitoring of the condition. Consultation with an interventional radiologist is indicated regarding the possibility of embolization and stenting.

Summary. This case report demonstrates what urological complications aneurysm of the EIA can cause.

Conclusion. Isolated EIA aneurysm and extravasation can cause complications such as ureteric compression and genitourinary system disorders, so it is important to diagnose an aneurysm in time, but it is difficult, because isolated aneurysms often are asymptomatic.

MASSIVE LEFT ATRIAL CARDIAC MYXOMA IN A 59 YEAR OLD FEMALE PATIENT - A CLINICAL CASE REPORT

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Keywords. Cardiac tumor; Myxoma

Introduction. Cardiac myxoma is the primary neoplasm of the heart and the most common cardiac tumor, however, it is a rare disease with an estimated prevalence of 0.03% in the general population predominantly found in female patients. Due to life-threatening complications associated with intracardiac obstruction or embolism, cardiac myxoma requires timely diagnosis and treatment.

Case description. A 59-year-old female was transferred from *Riga East Clinical University Hospital* to the *Pauls Stradins Clinical University Hospital* due to a large left atrial lesion. The patient had complained of fatigue, dyspnea, and arrhythmia for eight months, therefore transthoracic echocardiography was performed, where 60 × 55 mm lesion in the left atria was found. The lesion was attached to the atrial septal wall and was obstructing the mitral valve during the systole. Furthermore, left atrial dilatation, mild-to-moderate mitral and tricuspid valve insufficiency was seen. Patient underwent urgent left atrial lesion extirpation via right atriotomy and atrioseptostomy. The extirpated tissue sample was sent to the histological laboratory, where the diagnosis of myxoma was confirmed. The postoperative period was uneventful and the patient was discharged home on the 10th postoperative day.

Summary. Regardless of being biologically benign, cardiac myxoma exhibits a "functionally malignant" nature, causing life-threatening complications due to intracardiac obstruction or embolic events. Clinical presentations strictly depend on myxoma size, mobility, and relation to surrounding cardiac structures, therefore a prompt and accurate diagnosis is crucial to provide an opportunity for timely treatment.

Conclusion. Without adequate timely treatment, cardiac myxoma can progress to a life-threatening condition that could significantly affect patient morbidity and mortality.

THROMBOSED POPLITEAL VEIN ANEURYSM - THE CAUSE OF MULTIPLE PULMONARY EMBOLISMS: REPORT OF A RARE CARE

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Keywords. Thrombosed popliteal vein aneurysm; Recurrent pulmonary embolism; Vascular surgery

Introduction. Popliteal vein aneurysm (PVA) is a rare vascular pathology. The definition of a venous aneurysm remains controversial for a lack of comprehensive analysis and due to its low incidence. Usually described as twice the diameter of a non-aneurysmatic vein, for the popliteal vein if the diameter is greater than 20 mm. PVA can result in significant complications like a pulmonary embolism thus should be identified and treated.

Case description. A 48-year-old female was presented to the emergency department for recurrent pulmonary embolism. Physical examination revealed dilated superficial veins in the thigh and lower leg region, vascular surgeon was called in for a consult. Ultrasound examination showed 3,3 × 2,2 cm, partially thrombosed left popliteal vein aneurysm. Medical anamnesis showed dyslipidemia and rosuvastatin, apixaban use. To avoid embolic complications a percutaneous inferior vena cava filter was implanted. Surgery was the preferred treatment method. A vertical "Z" shaped incision was made over the left popliteal fossa, surrounding tissues were carefully dissected to avoid tibial nerve injury, and a tangential aneurysmectomy with lateral venorrhaphy was performed. In the first 24 hours a revision operation was carried out for bleeding from the surgical site and the hematoma was cleared out. Anticoagulants were indicated for at least 3 months and follow – up visits in 3, 6 and 18 months. 3 and 6 months after the operation normal venous outflow was identified.

Summary. Surgical popliteal vein aneurysm resection is an effective and optimal treatment method for a symptomatic popliteal venous aneurysm.

Conclusion. Although PVA is usually asymptomatic and found incidentally, it can cause serious life-threatening complications like pulmonary embolism (PE) and should be considered a differential diagnosis when no other more frequent etiology can be identified. PVA can be successfully treated surgically.

PREOPERATIVE ECMO AS A BRIDGE TO SURGERY FOR A CRITICAL PATIENT WITH POST-INFARCTION VENTRICULAR SEPTAL RUPTURE

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Keywords. Ventricular septal rupture; ECMO; Myocardial infarction

Introduction. Ventricular septal rupture is a rare but life-threatening complication of myocardial infarction. Nowadays the incidence is less than 0.5%, however intrahospital mortality remains high, reaching up to 50% due to a left-to-right shunt which leads to volume overload of right ventricle, reduced cardiac output and acute heart failure.

Case description. A 75-year-old male was admitted to Pauls Stradins Clinical University Hospital with a subacute myocardial infarction in the anterior wall of the left ventricle. Coronary angiography, which revealed occlusion of right coronary artery (RCA) and left anterior descending artery (LAD), was followed by failed PCI attempt. Six days after admission the patient abruptly developed dyspnoea and a harsh systolic murmur. Bedside transthoracic echocardiography showed a basal left-to-right shunt consistent with ventricular septal rupture, therefore an intra-aortic balloon pump (IABP) was implanted to prevent a progression of heart failure. Patient remained hemodynamically stable, until 21 days after admission a sudden deterioration with acute heart failure occurred. The patient was started on CVVHF and peripheral VA-ECMO was implanted. After 10 days of VA-ECMO support, the patient underwent a successful VSD repair, CABG, mitral annuloplasty and ECMO explantation. Despite a complicated postoperative period and a total of 91 days in the hospital (69 postoperative), the patient was transferred to a rehabilitation centre for further recovery. After 3 months, the patient returned for a follow-up appointment, demonstrating full recovery.

Summary. This case report presents a state-of-art management of post-infarction ventricular septal rupture and acute heart failure implementing preoperative VA-ECMO support, which, together with successful surgical intervention, resulted in full recovery.

Conclusion. This case underscores the severity of post-infarction ventricular septal rupture and the importance of preoperative ECMO as a bridge to successful surgery and positive outcome with full recovery.

RUPTURED MIDDLE COLIC ARTERY ANEURYSM : A CASE REPORT

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Keywords. Middle colic artery aneurysm rupture; Transverse colon; Vascular anomaly

Introduction. Middle colic artery aneurysm rupture, a rare abdominal vascular event, presents a formidable challenge due to its infrequency and diverse etiologies. This vascular anomaly, originating from the middle colic artery, a crucial branch of the superior mesenteric artery, poses a potential life-threatening occurrence for the transverse colon's vascular supply. A comprehensive understanding of surgical management methods is crucial for navigating the complexities associated with this condition.

Case description. A 65-year-old man presented to the ER with a two-week stomachache, hypotension episodes, diarrhea, and vomiting. Physical examination revealed abdominal tenderness without peritonitis signs. Imaging showed hemorrhagic fluid, an iliac artery aneurysm, and colon diverticula. Emergency surgery involved a midline laparotomy, revealing a ruptured middle colic artery aneurysm filled with old blood. Resection of the transverse colon was performed followed by anastomosis and drain placements. Postoperatively, the patient recovered gradually without complications.

Summary. This case illustrates the challenges of middle colic artery aneurysm rupture, emphasizing the pivotal role of prompt surgical intervention. The decision to perform the resection of transverse colon proved crucial for a successful outcome.

Conclusion. The comprehensive management of this complex case involving middle colic artery rupture showcases the critical role of swift and tailored surgical intervention. Excising the transverse colon while preserving vital circulation addressed the hemorrhagic crisis associated with the dilated branch artery. Meticulous surgical techniques and strategic drain placements contributed to a complication-free postoperative course. The patient's progressive recovery, marked by the resumption of normal gastrointestinal functions and the absence of infectious signs, underscores the effectiveness of the multidisciplinary therapeutic strategy in intricate vascular emergencies.

CASE REPORTS, SMALL CASE SERIES
SURGERY II

COLON SIGMOIDEUM CANCER MIMICKING BLADDER NEOPLASIA – DIAGNOSTIC DILEMMA

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Keywords. Bladder cancer; Colon sigmoideum cancer; Adenocarcinoma; Transurethral resection; Cystoprostatectomy

Introduction. Colorectal cancer is the 3rd most common cancer worldwide, as well as bladder cancer, which is the 10th. The involvement of the bladder by colorectal cancer is relatively rare, occurring in a minority of cases. Statistics indicate that bladder invasion occurs in approximately 4-7%. This complication highlights the importance of vigilant monitoring and early detection to enhance treatment outcomes.

Case description. In this case report a 43-year-old male presented with urinary difficulties and rapid weight loss at the urology department. US and CT imaging revealed a huge, vascularized neoplasm in the bladder, extending into the sigmoid colon. Subsequent CT scans identified invasive adenocarcinoma infiltrating the colon. Histological results after transurethral resection revealed high-grade, invasive adenocarcinoma of the bladder. Follow-up colonoscopy with multiple biopsies confirmed malignant tissue in the sigmoid colon, the primary localization of which is most likely the bladder. The patient underwent laparotomy, cystoprostatectomy and sigmoid resection with an ileal conduit. Final histology revealed pT4bN1 colon Grade-3 adenocarcinoma, tumor infiltration in pararectal tissue, bladder, anterior wall of bladder, without invasion into striated abdominal muscles.

Summary. In this case report we want to highlight that colon sigmoideum cancer can mimic bladder cancer. In advanced stages due to ingrowth into the bladder it causes urinary difficulties and pain. At the same time diagnostic challenges arise as imaging findings may appear similar, as well as inaccurate histopathological findings, potentially resulting in misdiagnosis. Due to overlapping symptoms and diagnostic challenges, distinguishing between the two cancers is crucial for accurate and timely intervention.

Conclusions. This research emphasizes the critical importance of aligning histopathological findings with clinical features to ensure precise diagnoses. We want to highlight the fact that it is uncommon for bladder cancer to ingrown into the sigmoid region.

CASE REPORT: LAPAROSCOPIC REPAIR OF RECURRENT ILEOSTOMAL PROLAPSE WITH MESH AFTER PREGNANCY IN PATIENT WITH PRIOR TOTAL COLECTOMY

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Keywords. Ileostomy prolapse after pregnancy; Ileostomy prolapse repair; Laparoscopic mesh repair; Ulcerous colitis

Introduction. Ileostomal prolapse occurs at a rate of 2-3%. Risk factors for stoma prolapse include conditions associated with increased intra-abdominal pressure, such as obesity, COPD, pregnancy and widened stoma trephine. Ileostomal prolapses with complications require surgical correction.

Case description. A 34-year-old female, who was diagnosed with ulcerative colitis in 2008 has a complex medical history including ineffective conservative treatment and multiple surgeries. An ileostomy was initially performed after subtotal colectomy, but as the patient still suffered from flare-ups, she had to receive total colectomy and intersphincteric abdominoperineal resection. Patient had such complications as small intestine volvulus, venous infarction, and multiple adhesion episodes, all of which were resolved through surgical interventions.Pregnancy in 2022 brought forth additional complications, including gallstones and a parastomal hernia and prolapse. Two months after giving birth, in March 2023, ileostomy prolapse did not resolve on its own. Also patient had episodes of colic, so she underwent laparoscopic cholecystectomy and unsuccessful ileostomy correction, that included extracorporeal small intestine resection. In May 2023 the ileostomy prolapse occurred again. Patient had approximately 30 cm of small intestine prolapsing through the stoma and diarrhea, indicating short bowel syndrome resulting from the last surgery. In October 2023 patient received surgical treatment for ileostomy prolapse with laparoscopic mesh repair, which is the most appropriate method based on scientific researches. In December 2023 patient reported no acute health issues after a successful laparoscopic parastomal hernia repair with mesh.

Summary. This case illustrates the intricate medical journey of a young female who had an ileostomy prolapse after pregnancy and only with the second surgery a successful laparoscopic repair with mesh.

Conclusions. It is vital to choose surgery method that is scientifically proven for the treatment of ileostomy prolapse.

EMBOLISATION OF PSEUDOANEURYSM IN CASE OF CHRONIC PANCREATITIS

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Keywords. Peripheral embolisation; Chronic pancreatitis; Pseudoaneurysm; Haemorrhage

Introduction. In the case of chronic pancreatitis, the development of pseudoaneurysm is one of the known complications. Damage to the arterial wall caused by digestive enzymes and inflammation results as blood build up between arterial wall layers, it can lead to rupture causing a life-threatening condition, requiring emergency invasive intervention.

Case description. A 40 year old woman was admitted to emergency department with sudden, acute abdominal pain, blood pressure 90/65 mmHg and previously diagnosed chronic pancreatitis. Computer tomography (CT) with intravenous contrast was performed and findings were pancreatic calcifications, pseudocysts, pseudoaneurysm with active extravasations signs. Additional finding includes the compression of the spleen vein. Pseudoaneurysm was visualized from one of the branches of left gastric artery. Based on CT imaging, patient was indicated for invasive intervention by digital subtraction angiography (DSA) with showing contrast extravasation from pseudoaneurysm and underwent following peripheral embolisation procedure with peripheral embolisation coils, histoacryl and lipiodol solution, stopping the bleeding completely as result from occlusion of pseudoaneurysm and an additional supply branch. The patient has no complications following the procedure.

Summary. Due to tissue damage by chronic pancreatitis, changes initially may be difficult to visualize, but there is a need for dynamic monitoring for timely and accurate diagnosis of pseudoaneurysm, avoiding increased size and reducing the risk of its rupture. Based on good treatment results, embolisation can be successfully used as an alternative to surgical therapy in patients with unstable haemodynamic and after rebleeding.

Conclusions. Pseudoaneurysm rupture is a rare complication of chronic pancreatitis, and its main treatment method is transcatheter arterial embolisation, which is highly effective in patients with an acute haemorrhage.

SUPERIOR MESENTERIC ARTERY SYNDROME WITH PREEXISTING CHRONIC PANCREATITIS

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Keywords. Superior Mesenteric Artery (SMA) syndrome; Aortomesenteric angle

Introduction. SMA syndrome is a disorder caused by the pathologic aortomesenteric angle. The angle smaller than 25 degrees create the pressure on the horizontal part of duodenum causing intermittent postprandial pain, weight loss and symptoms of proximal bowel obstruction.

Case description. A 40-year-old woman with a history of chronic alcohol abuse, depression, chronic pancreatitis, condition after resection of pancreatic head complained of epigastric pain, general weakness, nausea, vomiting, weight loss. The symptoms developed during the period of 3 years of abstinence. Initial bloodwork showed no pathologic changes except isolated severe hypokalemia 2.1 mmol/l. Gastric stasis, cholelithiasis was observed on abdominal ultrasound at the time of admission. During the hospitalization the symptoms used to intensify few hours after meals, pain severity reaching score of 9. Initial abdominal MRI showed only calcinates of pancreas. Abdominal CT scan with contrast showed signs of chronic pancreatitis and expanded duodenum. The aortomesenteric angle on the later view was 20 degrees. To confirm the diagnosis upper gastrointestinal radiography was performed. Lumen of horizontal duodenum narrowed to 0.8 cm compared to 3.7 cm of descending duodenum. During the laparotomy enlarged 2nd and 3rd segments of duodenum with a stenosis at the junction of aorta and superior mesenteric artery were observed. Duodenum was mobilized, duodenojejunostomy following Roux-en-y gastric bypass was formed. Postoperative period went without complications.

Summary. The case report presents a diagnosis of SMA syndrome in 40-year-old female with preexisting chronic pancreatitis and psychiatric disorder.

Conclusions. SMA syndrome manifest in non-specific gastrointestinal symptoms, without bloodwork abnormalities. As the specific radiologic imaging is needed, the diagnosis can be missed by healthcare specialists. Especially, when symptoms can be associated with other comorbidities, such as pancreatitis or anorexia.

ATYPICAL PRESENTATION OF A RARE PANCREATIC CANCER: A CASE REPORT

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Keywords. NET; Pancreatic neuroendocrine tumor; Pancreas atrophy

Introduction. Neuroendocrine tumors (NET) are a rare group of neoplasms, mostly arising from gastroenteropancreatic structures. Pancreatic NETs (pNET) represent about 1-2% of all gastrointestinal and pancreatic neoplasms. In rare instances, pNETs can cause atrophy of pancreas or imitate chronic pancreatitis. We present a case of an asymptomatic pNET with complete atrophy of pancreas in a young woman.

Case description. A 48 year old woman was admitted to the hospital for a planned hospitalization due to an asymptomatic pancreatic mass. 14 years ago the patient was diagnosed with pancreatitis and has since undergone routine follow-up ultrasound examinations. During the last few ultrasound examinations a growing mass in the pancreas was observed without any clinical symptoms. 4 months ago the patient was consulted by an abdominal surgeon and underwent magnetic resonance imaging, which detected atrophy of the tail and body of pancreas along with a mass in the body of pancreas. A multidisciplinary team recommended chromogranin A test and scintigraphy of the pancreas, suspecting a pNET. Scintigraphy confirmed the speculations, therefore a hemipancreatectomy was performed. During surgery a 2×2×2 cm tumor was resected and rapid pathohistological examination confirmed a pNET. The rest of the pancreas was completely atrophied. Histological examination conclusively confirmed the diagnosis of a pNET with infiltration of adipose tissue and regional lymph nodes.

Summary. We present a case of a pNET that exhibited no clinical symptoms. In addition, surgical intervention revealedtotal atrophy of the pancreas.

Conclusions. pNETs are uncommon neoplasms, that often show malignant behavior. Partial pancreatic atrophy of the tissues surrounding malignant tumors can be observed in pancreas cancer but a complete atrophy of pancreas ir an uncommon finding. Our case illustrates a rare example of a pNET with complete atrophy of pancreas followed by a successful surgical removal.

PHALLUS RECONSTRUCTION WITH A 3RD FINGER TRANSPLANT METHOD

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Keywords. Phallus reconstruction; 3rd finger flap; Radial flap

Introduction. There are currently many methods of phallus reconstruction, with their goal being formation of fully functional urethra, maintenance of tactile and erogenous sensitivity, sufficient strength and rigidity to restore sexual function of the phallus and aesthetical comprehensibility to both the patient and their partner. This method offers one stage intervention, using a finger complex in combination with either radial or thoracodorsal flap. It offers a possibility of inclusion of necessary volume of the tissues, high level of sensitivity restoration and avoids revision surgeries.

Case description. The patient was a 52-year-old male with penile resection after an oncological disease. The penile stump was 3 centimetres long. He underwent the surgery using a 3rd finger and a radial flap from a non-dominant hand. Neourethra was created by making a longitudinal incision in the palmar side of the 3rd finger. The skin was turned dorsally and sutured, thus creating a neourethra, which later was connected to the urethra from the penile stump of the patient. The finger bone is used to maintain rigidity. 12 days after the surgery the catheter was removed, and urinary function was restored. 1 month post-surgery sexual function was recovered as well. 10 years later during a follow-up it was confirmed that both sexual and urinary functions were still intact, and an X-ray showed that the finger bone was showing no signs of resorption.

Summary. 52-year-old male underwent a phallus reconstruction surgery using a 3rd finger transplant method.

Conclusions. Even though the patient lost his finger, he has regained full urinary and sexual function with only one stage intervention.

DIAGNOSTIC TRAP IN A PATIENT WITH NEONATAL CHOLESTASIS AND MULTIPLE RISK FACTORS: ALAGILLE SYNDROME CASE REPORT

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Keywords. Neonatal cholestasis; Risk factors; Alagille syndrome; Genetic variants

Introduction. Alagille Syndrome is a multisystemic disease with AD transmission (but with a 60 % chance of de novo variants) and is characterized by impressive clinical variability. The most common manifestations are neonatal cholestasis due to intrahepatic bile duct paucity, congenital cardiac defects, butterfly vertebrae, ophthalmologic abnormalities, and characteristic facial features.

Case description. A newborn boy, age 7 days, was admitted with the diagnosis of neonatal sepsis and cholestasis. The clinical exam revealed jaundice, abnormal facial features (low-set ears, hypertelorism, and triangular-shaped face), and a systolic cardiac murmur. His mother, age 40, declares that she followed her treatment with Olanzapine during the pregnancy, had a genital infection of unknown origin, and lost a previous child because of congenital cardiac malformation, all of which represent risk factors for neonatal cholestasis in different forms. Biliary atresia was ruled out, and cholestasis was, for that moment, considered to be caused by the sepsis and the mother's treatment. The patient was monitored, and due to the progression of cholestasis and malnutrition, the objectifying of pulmonary stenosis, the suggestive phenotype, and the father's specific facial characteristics, genetic testing was ordered, proving the JAGGED1 gene variant. Now, at the age of 2 years and 5 months, the patient presents with posterior embryotoxon, mixt severe hyperlipidemia with multiple xanthomas, treatment-refractory pruritus, malnutrition, rickets, and subclinical hypothyroidism. Due to progressive evolution under proper treatment, liver transplantation might become the last resort.

Summary. Multiple risk factors for neonatal cholestasis and an unknown familial status challenge the diagnosis of a rare case of Alagille syndrome.

Conclusions. Even though genetic testing has become more available, diagnosing rare genetic diseases should be performed starting from the clinical manifestations.

SURGICAL MANAGEMENT OF RECURRENT OBSCURE GASTROINTESTINAL BLEEDING IN A PATIENT WITH CHRONIC PANCREATITIS

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Keywords. Chronic pancreatitis; Gastrointestinal bleeding

Introduction. Chronic pancreatitis can manifest as a complex medical entity. When accompanied by recurrent gastrointestinal (GI) bleeding of difficult-to-determine origin, it can not only lead to serious conditions such as severe anaemia but can also present challenges in effective surgical management.

Case description. In 2007, the patient underwent Frey procedure for chronic pancreatitis. In 2014, he underwent exploratory laparotomy with intraoperative enteroscopy, which revealed bleeding ulcerative ileitis, leading to small bowel resection. Five months later, bleeding from the pancreaticojejunal anastomosis was visualised via CT angiography. A splenic artery branch was suspected as the origin of haemorrhage and, during emergency selective visceral angiography, embolisation of the branch was performed. Nevertheless, gastrointestinal bleeding recurred two months later with the source remaining elusive despite various diagnostic efforts, eventually resolving spontaneously. In 2016, the patient was hospitalised for suspicion of splenic artery pseudoaneurysm, which led to distal pancreatectomy and splenectomy, complicated by postoperative pancreatitis. In 2019, the patient presented with recurrent melena and severe anaemia (hemoglobin: 56 g/L), with no identifiable source found via angiography, enteroscopy, and esophagogastroduodenoscopy and spontaneous resolution. In 2023, a series of interventions, including gastroduodenal artery and pancreaticoduodenal artery embolizations, two relaparotomies with a repancreatojejunostomy were performed to address the recurrent bleeding.

Summary. We present a complex case of recurrent gastrointestinal bleeding in a patient with chronic pancreatitis who underwent numerous surgical interventions in an attempt to resolve the haemorrhage and underlying anaemia.

Conclusions. Albeit extensive diagnostic and surgical efforts, definitive resolution of the patient's pancreatitis-related complications could not be achieved. We emphasise the need for the refinement of surgical management strategies of pancreatitis-induced bleeding and highlight the importance of multidisciplinary approaches in navigating such complex clinical scenarios, where the coordinated efforts of surgeons and other medical specialists lead to favourable outcomes for the patient.

GALLSTONE ILEUS - A RARE TYPE OF INTESTINAL OBSTRUCTION

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Keywords. Intestinal obstruction; Gallstone ileus; Cholecystoduodenal fistula

Introduction. Gallstone ileus, constituting less than 1% of intestinal obstruction cases, results from gallstone impaction within the gastrointestinal tract, and is associated with significant morbidity and mortality. The signs and symptoms of gallstone ileus are non-specific, although 40–50% of patients may have a previous history of biliary colic, jaundice, or acute cholecystitis.

Case description. A 60-year-old man with underlying gout and cholelithiasis presented with nausea, vomiting, epigastric pain, abdominal distention, and no bowel movement for 3 days. He had a previous history of appendectomy for appendicitis and osteosynthesis due to left lower leg trauma. Examination revealed abdominal distension and epigastric tenderness. Computed tomography scan of the abdomen demonstrated a markedly dilated stomach and proximal loops of the small intestine, a calcified foreign body in the jejunum, and pneumobilia, suggestive of cholecystoduodenal fistula. The patient underwent exploratory laparotomy and enterolithotomy. A longitudinal incision was made on the antimesenteric border proximal to the site of gallstone impaction, extracting a 5 cm/d large gallstone. The jejunum was then closed transversally using interrupted sutures. The postoperative course was uneventful, and the patient was discharged on postoperative day 10.

Summary. We report the case of a 60-year-old male with features of a small bowel obstruction. Computed tomography scan of the abdomen showed pneumobilia, a cholecystoduodenal fistula, and small bowel obstruction features suspicious for gallstone ileus. The patient had a laparotomy and removal of one gallstones via an enterotomy without postoperative complications.

Conclusions. Gallstone ileus is a rare complication of cholecystolithiasis, and diagnosis can be challenging. Abdominal CT is the best modality for early diagnosis and better outcomes of gallstone ileus. Management of gallstone ileus is mainly surgical and the choice of surgical option relies on the preoperative medical status of the patient, the intraoperative findings, and surgeon skills.

19-YEAR SURVIVAL WITH METASTATIC LIVER ADRENOCORTICAL CARCINOMA: A MULTIDISCIPLINARY EFFORT

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Keywords. Adrenocortical carcinoma; Radiofrequency ablation; Cryoablation; Survival

Introduction. Adrenocortical carcinoma (ACC) is a rare and highly aggressive tumor associated with an unfavorable prognosis and high mortality rate. With up to 40% of cases progressing to metastatic disease, liver is a significant site of metastasis.

Case description. The patient, a 61-year-old female, sought treatment in 2010 for recurrent ACC liver metastases. Prior interventions included complete right adrenocortical gland resection in 2005 and a right hepatectomy for metastasis removal in 2007. In 2010, metastases recurred, for which the patient received chemotherapy (cisplatin + etoposide), however, with minimal effect. Multidisciplinary board made the decision to continue with the surgical resection of liver segments I and III, coupled with intraoperative ultrasound-guided radiofrequency ablation (RFA) for unresectable deep parenchymal metastases. Unfortunately, postoperative histological assessment revealed a positive resection margin in the resected III segment. Subsequent follow-up scans identified multiple new liver metastases in various segments, for which successful percutaneous RFAs were employed. A new 18 mm liver metastasis in segment III was discovered in a follow-up visit CT scan later in 2011, successfully treated with RFA. Surprisingly, no recurrent metastases were found in subsequent appointments until 2018, when a 10 mm liver metastasis was discovered and successfully managed with cryoablation. As of 2023, no new metastases have been identified during subsequent and the latest follow-up scans, demonstrating the patient's remarkable 19-year survival post-initial tumor diagnosis.

Summary. We present a peculiar case of a non-functioning adrenocortical carcinoma demonstrating remarkable long-term survival over 19 years, despite recurrent liver metastases.

Conclusions. While ACC is conventionally managed through surgical resection and chemotherapy, our case highlights the potential for new metastases despite comprehensive treatment. Minimally invasive options like radiofrequency and cryoablation play a crucial role when traditional excision is challenging, providing valuable alternatives in the management of ACC.

GIANT INTERMUSCULAR LIPOMA IN THE BREAST: A CASE REPORT

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Keywords. Intermuscular lipoma; Excision; Benign tumor

Introduction. Lipomas are non-malignant neoplasms that arise from the mesodermal germ cell layer, which most commonly occur in specific anatomical regions, including the thigh, shoulder, and trunk. Although lipomas affect ~1 % of the population, intermuscular lipomas IL are rare, representing only 0.3% of all lipomas.

Case description. A 75-year-old woman with a 3-month history of discomfort due to a lump in the left breast was admitted to the hospital. Palpation of the left breast evoked tenderness. The patient had no history of trauma and no family history of breast cancer. Mammography revealed a heterogeneous tissue composition. A partially encompassing fatty density structure of ~13 cm on the left was noted along the chest wall. Ultrasonography (US) revealed a substantial structure. Adjacent to and slightly above the nipple, mixed echogenicity was observed. MRI revealed a mass between the major and minor pectoral muscles in the left breast. Using BI-RADS, the left breast was 4a, indicating a probability of malignancy. The patient underwent surgical excision. Intraoperatively, an elevated major pectoral muscle was observed, with a soft mass. A 22 × 11cm lipoma was carefully excised by dissection following the trajectory of the major pectoral muscle toward the sternum, with a sharp separation of the medial edge. Histological analysis confirmed the diagnosis of an IL.

Summary. A 75-year-old woman with breast discomfort was admitted. Mammography showed a fatty density structure, and US revealed a large lipoma-like mass. MRI indicated a mass between pectoral muscles, categorized as BI-RADS 4a (probable malignancy). Surgical excision and histological analysis confirmed a 22 × 11cm lipoma.

Conclusions. Giant ILs between the major and minor pectoral muscles are rare but cause discomfort, pain, and sensory disturbances. US, MRI are valuable practical tools for diagnostic confirmation and surgical excision is the preferred treatment approach.

CASE REPORTS, SMALL CASE SERIES
UROLOGY

URETHRAL CARUNCLE MIMICKING URETHRAL MELANOMA

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Keywords. Urethral caruncle; Urethral melanoma; Urethral lesion

Introduction. Urethral caruncle is a rare benign urethral lesion, which is more common for women of postmenopausal age. Urethral caruncle may sometimes resemble other conditions such as urethral prolapse or malignant tumours, highlighting the importance of conducting a thorough investigation and histological examination to confirm the diagnosis and differentiate it from other similar conditions.

Case description. A 62-year-old woman presented with big urethral lesion, which caused dysuria and was originally taken for urethral melanoma. Additionally, the patient reported hearing impairment after recovering from otitis. Following surgical excision and subsequent administration of the specimen for histopathological examination, the histological assessment identified the lesion as a urethral caruncle.

Summary. In this case, the patient presented with a large urethral lesion, which was initially suspected to be a urethral melanoma. However, after thorough investigations and histological examination, the diagnosis was confirmed as a urethral caruncle and the surgical excision was performed.

Conclusions. A proper diagnosis and histological examination are critical for accurate management of urethral lesions. In this case, the patient was successfully managed by surgical excision of the lesion, and the diagnosis of urethral caruncle was confirmed through histopathological examination. Nevertheless, it is important to note that for all neoplasms, if it is not possible to verify the diagnosis through histological examination, they should still be treated according to oncological standards.

A CASE OF URETER NECROSIS IN THE EARLY POST-TRANSPLANT PERIOD

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Keywords. Hydronephrosis; Urinoma; Ureter necrosis

Introduction. There are various surgical difficulties in the early post-transplant period. Majority of complications consist of urinary tract problems like ureteral stricture, urine leakage, vesicoureteral reflux and et cetera. In this abstract, we analyze a case of kidney transplantation, which had to undergo a series of procedures, as hydronephrosis, hydroureter and urinoma were detected. Furthermore, during the reoperation graft ureter necrosis occured which led to reconstruction surgery.

Case description. A 40-year-old male was hospitalised for a cadaveric kidney transplantation. During outpatient visit 7 years ago 10 g/l of protein and 2 mg/l of blood were discovered in urine sample. After few months renal biopsy was performed and signs of IgA nephropathy were found. Patient's kidney function decreased significantly enough to initiate hemodialysis during the 4th year of having IgA nephropathy diagnosis. Medical history includes secondary hypertension, hypertensive cardiomyopathy, hypertensive retinopathy, secondary anemia and secondary hyperparathyroidism.

Summary. On the 10th post-operative period day patient expressed having pain in lower abdomen and urinary hesitancy. In addition, *Klebsiella pneumoniae* was found in urine sample. After antimicrobial therapy with meropenem ureteral stent was taken out. Sonography along with computed tomography indicated hydronephrosis, hydroureter and urinoma. During ureter reconstruction surgery a decision was made to resect an entire organ due to necrosis with perforation 5 cm down the pyeloureteral junction. Using recipient's own ureter urologists formed new anastomosis. For the following 2 months patient had persisting hydronephrosis and recurrent urinary tract infections (RUTI). Percutaneous nephrostomy and lymphocele drainage were done. Throughout another hospitalization transurethral resection of prostate and bladder were performed.

Conclusions. Urological complications present potential risk for graft function loss. Moreover, additional problems in urinary system like prostate hyperplasia and RUTI can aggravate it.

CORYNEBACTERIUM UREALYTICUM AS AN UNUSUAL PATHOGEN IN RECURRENT UTIS AND INCRUSTATION OF BLADDER: CASE REPORT

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Keywords. Urinary tract infection; Corynebacterium urealyticum; Bladder calculi

Introduction. Recurrent urinary tract infections with bladder mucosa encrustation pose a significant clinical challenge. Rare pathogens can complicate diagnosis and management, often specific treatment approach is needed. Multidrug resistant nosocomial infection agents are a challenge to healthcare system and threat to immunocompromised patients.

Case description. We present a case of 72-year-old male with history of benign prostate hyperplasia, vesical calculi, multiple urological interventions reported to urology department with complicated recurrent UTIs. Patient exhibited pain in perineum, lower abdomen, glans of the penis, discomfort during urination. Extensive diagnostic investigations were performed. Bladder encrustations and urethral prostatic part mucosa was detected. Urinalysis revealed cloudy acidic urine, leukocyturia, hematuria. Microbiological analysis confirmed the presence of Corynebacterium urealyticum, exhibiting resistance to Ciprofloxacin and Benzylpenicillin but sensitive to therapeutic doses of Vancomycin. The patient underwent cystolithotripsy, transurethral prostate resection, mucosal debridement. Perio- and post-operative antibacterial therapy for two weeks was administered. Pathohistological examination demonstrated benign prostate tissue with active inflammation. Postoperative care included recommendations for outpatient treatment with specific antibacterial agents. The patient had a follow-up consultation, reporting decreasing symptoms. A PSA control indicated positive dynamics. The patient was advised to continue treatment under the supervision of a family doctor and urologist, with a planned PSA analysis, follow-up consultation.

Summary. Multimorbid patient with excessive hospitalization history and frequently prescribed antibacterial therapy are prone to multidrug resistant iatrogenic infections. Long term antibacterial therapy, damaged bladder, urethral mucosa surgical removal are suggested in case of encrustation. Specific conditions and prolonged time required to cultivate C.urealyticum, a need for surgical interventions makes this infection treatment difficult.

Conclusions. This case highlights diagnostic and therapeutic complexities associated with recurrent UTIs caused by Corynebacterium urealyticum. Increased awareness of this uncommon pathogen and tailored treatment strategies are essential in managing such cases effectively.

ENHANCING QUALITY OF LIFE THROUGH PERSONALIZED MANAGEMENT: A CASE STUDY OF RECURRENT RENAL CELL CARCINOMA AFTER NEPHRECTOMY

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Keywords. Case report; Renal cell carcinoma; Solitary kidney; Recurrence of disease

Introduction. Renal cell carcinoma represents around 3% of all cancers and patients with localized renal cell carcinoma are at high risk of recurrence. The purpose of this review to show option of renal cell carcinoma recurrence management for patience after nephrectomy.

Case description. An eighty-year-old woman whose anamnesis includes left nephrectomy related to renal cell carcinoma – pT1bNoMoG2 in 2010. After thirteen years of follow-up visits woman came for another checkup. US and after MRI report - two formations in the upper pole of the renal parenchyma and in the middle third of the parenchyma medially, 3.3×3cm and 1.8×2cm respectively. Kidney function had a negative dynamic comparing to last checkup, but function is saved and had no effect of other analyses. For the patient's quality of life in the future consilium made a decision of nephron sparing surgery which was successfully preformed. Pathohistological answer – pT1amNoMoG1 renal cell carcinoma. Patient was discharged from the hospital after 10 days, patient's postoperative kidney function has improved after 1.5 months.

Summary. Patient with left nephrectomy in anamnesis after thirteen years of remission got diagnosed cancer recurrence. Partial nephrectomy for a single left kidney made an improvement in patients kidney function, reduce risk of cancer progression and need for haemodialysis in future.

Conclusions. Every patient needs personal admittance and even in severe cases there are possibilities to improve patient's oncological results and quality of life.

NAVIGATING TESTICULAR CANCER : INSIGHTS FROM A CASE STUDY EMPHASIZING FROZEN SECTION BIOPSY AND FAMILY HISTORY

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Keywords. Testicular cancer; Urologic tumors; Frozen section biopsy

Introduction. The most common type of testicular cancer is a germ cell tumor among males between 15 and 35 years of age. There are two main types of GCT: seminoma and non – seminoma. Known risk factors are cryptorchidism, prior testicular germ tumor, family history and high body weight. Treatment and management include inguinal orchiectomy, but testicular biopsy and sparing surgery can be performed in cases when is single testicle or tumor size is small and if not sure about diagnosis.

Case description. A 22 year old man presented with pain in the left testicle. Patient denied any injuries and infections. It is known from the family anamnesis that the oldest brother had seminoma. Patient is the youngest sibling. Tumor markers were negative. USG showed 2.5 cm diameter infraparenchymal testicular tumor with poor vascularization. Further tactics included tumors excision with frozen section biopsy. The aim was to save the testicle, because tumor can be benign. Frozen section histology conclusion was seminoma complex, that change a treatment tactic and orchiectomy was performed. Final histology results was pT1b seminoma with regression signs.

Summary. Need of orchiectomy and followed chemotherapy reduce reproductive and hormonal function of testis, shows the signification of management of diagnosis. In this case report we want to demonstrate the importance of frozen section biopsy and family history to chose the proper tactic for young men with testicular tumor even when tumor signs not classical (standard).

Conclusions. Organ sparing surgery become a standard for many tumor localization. USG and serum markers is the gold standard investigation for patients with suspected tumor. This research emphasizes shows the importance of all data collection findings with clinical features to ensure precise diagnoses to prove the best functional and oncological results.

SOLITARY FIBROUS TUMOR OF THE PROSTATE: CASE REPORT

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Keywords. Solitary fibrous tumor of the prostate

Introduction. Solitary fibrous tumor is a spindle-cell tumor typically found in the pleura. Prostate SFT extremely rare and poses diagnostic challenges due to histomorphological and immunohistochemical overlaps. Understanding its epidemiology, pathology, and clinical characteristics is unclear. This case highlights the need to differentiate it from BPH and other stromal tumors.

Case description. A 68-year-old male presented in October 2020 complaining of frequent and painful urination. Prostamol and ciprofloxacin showed no improvement. PSA - 1,069. Prostate examination revealed induration and a nodule above the right prostatic lobe, in connection with prostate, and MRI identified a lesion. Transrectal biopsy indicated benign prostatic hyperplasia (BPH). A targeted transabdominal biopsy was recommended after atypical MRI findings, confirming BPH. A year later, the patient sought help for urinary issues and retropubic prostatectomy was performed due to BPH. The resected prostate weighed 187g, pathology revealed a benign fibrous solitary tumor. Complications arose two weeks later with urination with blood clots, leading to urgent TURP. Histological findings of the clot and residual prostate showed SFT. CT scans showed multi-chamber fluid collections. Pelvic drainage, cistostomy were performed. The patient's condition deteriorated. Symptoms were similar to septicaemia but cultures were negative. Further investigation revealed lung metastasis with malignant sarcomatoid features. Multidisciplinary consultation decided that there is SFT with malignant sarcomatoid features and rapid progression. Worsening general condition precluded additional treatments. The patient passed away in July 2023.

Summary. This case shows the need for precise evaluation of pathological results in prostatic SFT. Correlating biopsy, MRI, and clinical course is important to prevent complications from inexperience.

Conclusions. SFT is rare, making its clinical course unpredictable. Immunohistochemistry, particularly STAT6 reaction, serves as the most accurate diagnostic tool. In cases with atypical MRI results, these markers aid in precise diagnosis for timely radical surgical treatment.

CLEAR CELL RENAL CELL CARCINOMA AND SEMINOMA

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Keywords. Clear cell renal cell carcinoma; Seminoma

Introduction. Clear cell renal cell carcinoma and seminoma, a testicular cancer, typically manifest independently. CcRCC is aggressive and treatment resistant tumor. Seminoma is highly sensitive to radiation and chemotherapy germ cell tumor. The simultaneous occurrence of these malignancies in a relatively young individual is uncommon.

Case description. In February 2023, a 40-year-old man presented to the clinic complaining of abdominal pain. 20-04-2023 urologist discovered a slightly smaller, soft left testicle and calcifications on scrotal ultrasound. No kidney abnormalities were found. 22-08-2023 a CT scan revealed a 1.4×1.2×1.3 cm heterogeneous structure in the lower pole of the left kidney. Later the MRI confirmed a tumor in the left kidney and enlarged paraaortic lymph nodes with necrosis. A lymph node biopsy was advised to differentiate from seminoma and lymphoma, affirming that the kidney tumor wouldn't induce pathological lymph nodes in the identified location. 22-06-2023 a laparoscopic left kidney resection and lymphadenectomy was performed. Pathological examination results: ccRCC (pT1aNxRo, G2), seminoma metastasis in the lymph nodes. Testicular cancer markers were negative. 20-07-2023 left orchiectomy was performed, revealing seminoma (pT1aN3). 14-08-2023 CT showed minor lymph nodes in the previously removed paraaortic lymph node area. 27-09-2023 due to rising AFP levels after lymphonodectomy (6.4 to 8.9) PET/CT was performed revealing a metabolically active lymph node in the right pelvis, resembling metastasis. 16-10-2023 the chemotherapy was initiated and now completed. AFP levels decreased from 8,9 to 7,1. The patient is currently under oncological surveillance.

Summary. This case illustrates the rare coexistence of ccRCC and seminoma. Negative testicular cancer markers led to an atypical approach: initial removal of metastatic lymph nodes, followed by the subsequent excision of seminoma.

Conclusions. The patient underwent successful kidney resection, lymphonodectomy, orchiophunylectomy. The chemotherapy therapy helped to decrease AFP, and ongoing surveillance ensures continued care.

RARE METASTASIS OF A PROSTATE CANCER RELAPSE: A CASE REPORT

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Keywords. Appendicitis; Prostate cancer; Metastatic prostate tumor

Introduction. Prostate cancer is one of the most prevalent cancer among men. The most common locations of spreading being lymph nodes, bones, or lungs. However, there are few cases described in the literature of prostate cancer metastasizing to the appendix. We present a case of acute appendicitis being the first and only symptom of prostate cancer relapse.

Case description. An 81-year-old male complaining of localized pain in the right lower quadrant presents to an emergency room. On examination, his abdomen was bloated and painful in the mentioned area. Emergency CT was performed, showing changes in the appendix, and suggesting gangrenous, perforating, or purulent appendicitis. Considering the patient's symptoms and CT findings, an emergency laparoscopic appendectomy was performed. The surgeons discovered the appendix to be 7 cm long, inflamed with a distal end enlarged up to 20 mm, where a tumor was first suspected. The patient had a prostatectomy due to cancer 10 years ago and was followed up with a repeat PSA test every year, that showed no signs of relapse. After histological examination metastasis of prostate cancer in the appendix was confirmed. Despite a normal PSA level, it was the first sign of oncological disease recurrence. After 2 years of follow-up after the appendectomy along with prostate cancer metastasis, the patient has no symptoms or signs of cancer recurrence.

Summary. In our case, metastatic prostate tumor caused an acute appendicitis and was the first symptom of relapse. There are only few cases in literature of metastatic prostate tumor spreading to the appendix.

Conclusions. Metastatic prostate tumors are significantly rare findings in appendectomy. Our case illustrates a rare example of cancer relapse being discovered by the metastasis causing acute appendicitis.

DIAGNOSTIC DILEMMAS. RARE CASE OF RENAL ANGIOSARCOMA

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Keywords. Renal hemangioma; Renal angiosarcoma; Metastases

Introduction. Renal hemangioma is an uncommon benign tumor that poses challenges in differential diagnosis as renal cancer is sometimes misdiagnosed as this condition. Primary renal angiosarcoma (RA) is an exceedingly rare and highly aggressive neoplasm, known for its high histological similarity to hemangioma.

Case description. A 58-year-old male with BMI- 43 kg/m2, presented with persistent dull pain in the right side of the waist region. A pelvic CT scan revealed an abnormal mass in the right kidney measuring 20,5 × 17,2 × 15,4 cm suggesting renal cell carcinoma. Nephrectomy was performed. Postoperative histological analysis confirmed the diagnosis of renal hemangioma. Three months after the procedure, the patient reported weight loss of 15 kg per 6 weeks with recurrent abdominal and right pain. The blood test demonstrated anemia. A follow-up CT scan revealed ascites, and multiple metastatic lesions in the lungs, liver, and peritoneum. The previous histological sample was re-evaluated due to suspicion of malignancy. Based on the findings of the CT scan and the histological examination, the diagnosis of renal angiosarcoma was confirmed. Preoperatively, approximately three liters of ascitic fluid were drained and a diagnostic laparoscopy was performed. The diagnostic surgery revealed active bleeding from the greater omentum, liver, and mesentery. The surgical treatment option was rejected. Four days after initiating conservative treatment, the patient died.

Summary. Primary RA is an exceptionally rare tumor prone to misdiagnosis. The diagnosis of RA heavily relies on the use of immunohistochemistry.

Conclusions. The treatment of choice for RA typically involves radical nephrectomy with adjuvant therapy such as radiation and chemotherapy. Despite the initial treatment strategies, challenges in subsequent management of the condition remain unresolved. Due to its rarity, there is a lack of standardized management protocols for RA.

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