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Contents

ORAL PRESENTATIONS

FOREIGN BODIES OF THE LOWER RESPIRATORY TRACT IN ESTONIAN CHILDREN IN 2012 – 2021

Authors: Veronica Rähesoo, Tiia Voor, Merle Benström, Silvi Plado, Tuuli Metsvaht, Siiri Paas, Mari-Liis Ilmoja, Karin Puks.

Scientific research supervisor: Dr. Tiia Voor, Head of Department of Children's and Youth Allergy Centre, Tartu University Hospital

Keywords: Foreign bodies, lower respiratory tract, children

Objectives: The aim of this study was to determine the epidemiology, success of bronchoscopy and other treatment modalities among children with foreign body (FB) aspiration in Estonia.

Methods: Data from medical records with ICD-10 codes T17 from Children's Hospital of Tallinn and Tartu University Hospital were retrospectively collected from 2012 – 2021. These are the only hospitals in Estonia where bronchoscopies are performed in children. Patients aged 0 – 18 years were included. Patients with ICD-10 codes T17.4; T17.5; T17.7; T17.8 and bronchoscopy-confirmed FB in the lower respiratory tract were included in the study.

Results: In total 101 cases of FB aspiration were identified of which 25 cases were from Tartu University Hospital and 76 cases from Tallinn Children's Hospital. The incidence was higher among boys (n= 68, 67%) in every age group except among over 10 year olds. The incidence was higher under the age of 2 y (n= 72, 71%). The overall incidence increased during the study period: 3,5 cases per 100 000 children in 2012 and 4,0 cases per 100 000 children in 2021 (R^2= 0,0452). In 13 children (13%) the correct diagnosis was not made at the first encounter. A classical aspiration episode occurred in 82 (81%) patients. Other common symptoms were an episode of cough (n= 72, 71%) and wheezing (n= 69, 68%). Chest X-ray was performed in 99 (98%) patients and 33 (33%) of them were normal. The most common type of FB was food (n= 80, 79%), predominantly nuts. In 44 cases (44%) the FB was located on the right and in 38 cases (38%) on the left side of lung. Removal of FB on first try was successful in 82 (81%) cases, 8 (8%) developed complications. Overall, 39 repeated bronchoscopies were performed in 35 (35%) patients with the main indication of partially removed FB. Late complications due to FB occurred in 20 (20%) patients. In total 86 (85%) patients received medications. Antibiotics (n= 80, 79%) and inhaled beta-agonists (n= 72, 71%) were most commonly used.

Conclusions: FB aspiration incidence was higher among boys, under 2 year olds and it has gotten higher within the 10-year period. Most children had a typical aspiration episode. The normal X-ray did not exclude FB as in study group 1/3 of the cases had no radiological signs. The most common type of FB were different kinds of nuts and FB's were more commonly located on the right side. Bronchoscopy is an important intervention in children with FB aspiration. However, repeated procedures were required in up to 1/3 and pharmacological treatment needed in the majority of cases. FB induced complications occurred in one-fifth of the patients. In conclusion, as FB aspiration is associated with different complications and almost all children need treatment, it is very important to educate parents and prevent FB aspirations altogether.

BREASTFEEDING PRACTICES IN LITHUANIA: A CROSS-SECTIONAL STUDY

Author: Sandra Ribikauskaite, Vilnius University

Scientific research supervisor: prof. dr. Vaidotas Urbonas, Vilnius University

Keywords: Breastfeeding; exclusive breastfeeding; breast milk; infant; Lithuania

Objectives: To identify breastfeeding practices among healthy, full-term infants aged 0-12 months in Lithuania and to compare breastfeeding practices by mother‘s socio-demographic factors and type of delivery.

Methods: A cross-sectional retrospective study was conducted from July to November 2023. An original questionnaire was created and distributed in various Lithuanian health care institutions in written form and online through “Facebook”. We interviewed mothers who raised healthy full-term, 1-2-year-old children. A total of 327 respondents participated in the study. The statistical analysis of data was performed using nonparametric tests and Pearson‘s X^2 test.

Results: The mothers exclusively breastfed for 6 months 33.64% (n=110), and at least for 4 months 63.01% (n=206). Mother’s milk did not get 6.73% (n=22) of infants. The average duration of exclusive breastfeeding was 3.87 months. Before the initiation of complementary feeding, 59.63% (n=195) of infants were exclusively breastfed and 33.64% (n=110) were on mix feeding. During complementary feeding, 69.11% (n=226) of mothers continued breastfeeding and the majority of children were breastfed for 12-24 months (53.52%; n=175). Vaginally born children were more likely to be exclusively breastfed until the beginning of complementary feeding (65.1%; n=162), and more likely to be continuously breastfed (73.9%; n=184) than those born by cesarean section (42.3%; n=33 and 53.8%; n=42 respectively) ($p<0.001$). The median of exclusive breastfeeding for vaginal births was 5 months, and the median for cesarean section births was 3 months ($p<0.001$). 52.4% (n=100) of mothers with a first child, 70.5% (n=74) of mothers with a second child, and 67.7% (n=21) of mothers with a third or more children were exclusively breastfeeding until the beginning of complementary feeding ($p=0.035$). Breastfeeding alongside complementary foods was continued by 78.2% (n=151) of mothers with university education, 62.0% (n=49) of mothers with college education, and 47.3% (n=26) with secondary or vocational education ($p<0.001$). Mother’s age did not affect breastfeeding practices ($p>0.05$).

Conclusions: The majority of infants were exclusively breastfed for at least 4 months or longer. The type of delivery, the number of children, and the level of education were significant factors influencing breastfeeding practices.

ACUTE DIALYSIS IN CHILDREN: DATA OF TERTIARY HOSPITAL

Author: Rokas Abaturovas, Vilnius University

Scientific research supervisor: Prof. Dr. Augustina Jankauskienė, Faculty of medicine, Medical academy, Vilnius University; Clinic of Pediatrics, Institute of Clinical Medicine, Vilnius University

Keywords. Acute kidney injury, kidney replacement therapy, dialysis

Objectives. Acute kidney injury (AKI) is a severe complication associated with high morbidity and mortality. The incidence of the need for kidney replacement therapy (KRT) in AKI is uncommon. There is no consensus concerning the optimal dialysis strategy. This study aimed to analyse 2017 data on the use of KRT in pediatric patients with AKI in tertiary hospital and compare results with European data.

Methods. Analysis was performed on pediatric patients treated at the Vilnius University Hospital Santaros Klinikos in 2017. We identified 12 pediatric patients that had developed AKI requiring KRT. A descriptive method was used for the assessment of the results. This study was approved by the Vilnius Regional Biomedical Research Ethics Committee (approval no. 2016-12-13- No15820016--888-393) and conducted in accordance with the principles of the World Medical Association Helsinki declaration as well as local law. All participants provided written informed consent.

Results. Among 12 patients, 67% were males. The median age was 64.4 months (range 0.16 to 215 months). The causes of AKI were represented by prerenal (N=11/ 92%) and renal (N=1/ 8%) AKI. Prerenal AKI causes were: sepsis (N=5/ 42%), cardiac surgery (N=4/ 25%), 1 case each of hypovolemic shock and dehydratation. In 1 case AKI was caused by hemolytic uremic syndrome. A total of 83% had comorbidities. Peritoneal dialysis (PD) (N=7) and continuous KRT (CKRT) (N=5) were the only modalities used for KRT (58% and 42% respectively). Continuous hemodiafiltration (CHDF) was the only type of CKRT. Dialysis modalities were replaced in 3 cases: in two cases PD was changed to CHDF due to peritoneal adhesions or catheter misplacement and in one case CHDF was changed to PD according to clinical indications. The average dialysis duration was 7.08 days (range 1-16 days). The improved kidney function (IKD) (N=9) and death (N=3) were two reasons for dialysis termination with an overall survival rate of 75%. Comparing our results with the EurAKId study, the higher prevalence of KRT use in AKI was among males. Renal cause (52%) in the EurAKId was the most common cause of AKI requiring KRT, on the contrary, our study found prerenal causes (92%) in higher prevalence. The survival rate of the two studies were 75% and 65%.

Conclusions: The main cause of pediatric AKI is prerenal. The usage of PD and CHDF in AKI appears at a similar rate. IKD is the most common reason for dialysis termination. Due to the small sample size more research should be done to support our results.

A SINGLE-HOSPITAL RETROSPECTIVE SURVEY OF THE RULE OF 2 OF MECKEL'S DIVERTICULUM COMPLIANCE AND THE RELATIONSHIP BETWEEN ATOPIC HISTOLOGICAL FINDINGS AND COMPLICATIONS

Author: Paula Elvira Robezniece, Riga Stradins University

Supervisor: Asoc. prof. Zane Abola, Children's Clinical University Hospital; Dr. Janis Karlsons, Children's Clinical University Hospital

Keywords. Pediatric Surgery, Meckel's Diverticulum, rule of 2, retrospective study.

Objectives. Meckel's Diverticulum (MD) is the most common gastro-intestinal congenital malformation in children. The Rule of two is commonly used to describe the characteristics of MD. In retrospective studies, the most common complications vary, most commonly anemia or obstruction being number one. There is evidence in studies proving the correlation between ectopic mucosa and complications.

Methods. A retrospective, descriptive and analytical study, included 55 patients age 0-17 with SSK-10 classification code of MD diagnosis from 01.01.2014. – 01.04.2023. Patients were divided into two groups, based on the presence or absence of symptoms. Symptoms were classified into 3 groups: intestinal occlusion, intestinal bleeding, and inflammation. The main sections of data were gender, age of presentations, clinical characteristics, length of MD, diagnostics, complications, and histological findings. Data was analyzed using SPSS. Also, the correlation between ectopic mucosa and complications was analyzed using Chi-squared test with Yates correction.

Results: The results revealed that the main complication of MD is obstruction 33.3 % (n=17), and anemia as a complication is only 9.8% (n=5) of the cases. Only 37.3 % (n=19) patients presented before the age of two. Mean age was 6.4 ± 5.8. The lenght of MD was less than 2 cm in 24.4% (n=10) of the cases. Mean lenght was 3.8 ± 2.0.. The male to female ratio was 4:1 (n=41 and n=10). There was a significant correlation ($p<0.05$) between ectopic mucosa and complications. 75% of patients with ectopic mucosa (n=8) presented with complications but only 29% of patients with intestinal mucosa (n=34).

Conclusion. This single-centered retrospective study demonstrates the limits of the rule of 2. In population of Latvia rule of two is not precise and the data differs significantly. It is possible to misdiagnose children with non-specific symptoms if the doctor relies on the rule of two. Ectopic mucosa plays a significant role in the development of complications. Ultrasound is a subjective method with low specificity and sensitivity.

PERITONITIS IN CHILDREN ON CHRONIC PERITONEAL DIALYSIS: A SINGLE CENTRE 5-YEARS EXPERIENCE

Author: Kamilė Donielaitė-Anisė

Supervisor: prof. Augustina Jankauskienė, Vilnius University, Vilnius university Hospital Santaros Klinikos

Keywords: children, peritoneal dialysis, peritonitis

Objectives: Peritoneal dialysis (PD) is the preferred dialysis modality for children requiring renal replacement therapy, with peritonitis being one of the most frequent complications of PD. International Society of Peritoneal Dialysis (ISPD) recommended for overall peritonitis rate should be no more than 0.40 episodes per year and culture-negative peritonitis should be less than 15% of all peritonitis episodes. The aim of the study was to evaluate peritonitis frequency, causative agents and outcomes and compare with the data of the international pediatric peritoneal dialysis network (IPPN).

Methods: All patients undergoing PD at Vilnius University Hospital Santaros Klinikos between January 1, 2018 and December 31, 2022 were included. Patient data, microbiological results and final outcome were collected from the IPPN registry via an internet-based web platform (www.pedpd.org) as our center is the member of IPPN.

Results: Seven patients (5 males) with a mean age at the start of PD 10.1 ± 6.4 years were involved in the study. Causes of end-stage kidney disease were: congenital anomalies of the kidney and urinary tract (CAKUT) (3/7), glomerular and tubular diseases (2/7), inherited renal disorders (2/7). Five patients (71%) had comorbidities, 3 had more than one. Average PD duration was 15.1 ± 12 months. During the observation period of 106 PD months, 7 peritonitis episodes were diagnosed (1/15.1 months). Three patients developed a total of 7 episodes of peritonitis, 2 of them suffered from more than one episode, all these patients had comorbidities. Peritonitis incidence was 0.57 episodes/patient year. Gram positive bacteria were responsible for 2 peritonitis episodes, in the rest 3 episodes the culture was negative. Full functional recovery without temporary discontinuation occurred in 80% of peritonitis episodes, there was none of permanent PD discontinuation. At the end of 2022, 3 patients remained on PD, 4 underwent renal transplantation, none of the patients had to change dialysis modality and there was no fatal outcome. Based on the data from the IPPN registry, the peritonitis rate worldwide was reported as 0.44 per patient year. Notably, 83% of cases achieved full functional recovery, while 9% resulted in permanent discontinuation of PD.

Conclusions: Our study revealed a slightly higher prevalence of peritonitis compared with international data, although final outcomes were similar. All patients who developed peritonitis had comorbidities. Unfortunately, the target rate of culture-negative peritonitis was not achieved.

SUICIDE ATTEMPTS BY POISONING AMONG YOUTH IN TALLINN CHILDREN`S HOSPITAL AND CHILDREN'S CLINIC OF TARTU UNIVERSITY HOSPITAL DURING 2019-2021

Authors: Helke Nurm 1; Margit Raud 2; Birgit Vaher 1; Elisabeth Tamm 1; Triin Ventmann 2; Alina Roštšinskaja 2; Roza Oganesjan 1; Inga Vainumäe 2,3: 1 Tallinn Children's Hospital, 2 Children's Clinic of Tartu University Hospital, 3 Department of Pediatrics, University of Tartu

Keywords: poisoning, suicide attempt, COVID-19 pandemic

Objectives: to study the epidemiology of suicide attempts by poisoning among youths in Estonia in 2019-2021 and to estimate the influence of COVID-19 pandemic on admissions.

Methods: all cases according to ICD-10 were identified from the databases of two tertiary pediatric hospitals. Retrospective analysis of the electronic charts was performed.

Results: 263 children (64, 100 and 99 respectively) were admitted during the three study years. Median age was 15.3 years and 85.9% were girls. Of all cases 47.9% were recurrent and 79.5% of patients had previous history for a psychiatric disorder. Psychotropic drugs (61.5%) were presented most commonly, followed by paracetamol (17.8%) and alcohol (15.9%). In 65% of the cases, patients had taken their own medications.

Out of all patients 60.8% were admitted within 4 hours, 82.1% by ambulance. Poison Control Center was contacted in 24.7% of cases. The Ask Suicide-Screening Questions introduced in Tallinn Children's Hospital in 2021 was used in 84.1% of cases.

The main first aid that was given before hospitalisation was intravenous fluid therapy, followed by no treatment at all and treatment with activated charcoal. The condition of the patients on admission was mostly stable, but gastrointestinal and neurological symptoms were also common.

Inpatient care was provided in 92.0% of cases, 6.1% were transferred to the ICU. Hospital stay varied from 0.5-24 days (median 2.4 days). Intravenous fluid therapy was the most common treatment given in the hospital. Counselling by a mental health nurse was provided in 17.5% of patients. From all the cases 47.1% were transferred to the psyhiatric hospital. One child died.

Conclusion: During the COVID-19 pandemic more adolescents with suicide attempts due to poisoning were hospitalised compared to year prior. Most of the patients had history of psychiatric disorder and more than half had ingested their own medications. Psychotropic medications were the most common. About a half of all the cases were referred to a psychiatric hospital.

DIAGNOSTIC CHARACTERISTICS OF CHILDREN AFFLICTED WITH INFLAMMATORY BOWEL DISEASES

Author (s): Adelė Gudynaitė, Rūta Petrikėnė

Scientific research supervisor, affiliations: prof. Rūta Kučinskienė, Hospital of Lithuanian University of Health Sciences, Kaunas Clinics, Pediatric Department

Keywords: Children; Inflammatory bowel disease; Crohn's disease; Ulcerative colitis

Objectives: This single centre study was performed to define demographic features and clinical characteristics of Lithuanian pediatric patients with IBD.

Methods: 58 patients with ulcerative colitis and Crohn's disease, who have been referred to Lithuanian University of Health Sciences Kaunas Clinics during a 5-year period (2017 – 2022), were enrolled in this study. The data was gathered by reviewing their medical records.

Results: In total, 58 patients were included in the analysis. The female/male ratio for IBD was 55.2 / 44.8%, respectively. Between 2017 and 2022, 8 patients (13.8%) were diagnosed between 2 to less than 10 years of age, while 50 patients (86.2%) were aged between 10 and 17 years. An estimated 28 patients (48.3 %) had ulcerative colitis, and 30 patients (51.7 %) had Crohn's disease. Pancolitis was the most prevalent type of UC at 53.3%, while enteritis accounted for 39.3% of Crohn's Disease (CD) regardless of the age at onset. The most common symptoms were abdominal pain (42.1%), diarrhea (61.4%) and blood in stools (63.2%). The duration of symptoms varied from less than 2 months to up to two years, with the majority (31%) experienced symptoms for 2-6 months before seeking medical treatment. Elevated CRP levels were observed in 48.1% of all IBD patients, while 82.2% showed calprotectin levels exceeding 150 μg/mg. Perianal complications were diagnosed in 17,2% of cases with highest prevalence in Crohn's disease. Iron-deficiency anemia was the most common complication, occurring in 53,4% of cases, ranging from mild (61,3%) to severe (3,2%). Although a significant occurrence of iron-deficiency anemia is observed, only 34.5% reported observing blood in their stool. 19.0% of patients who did not notice blood still demonstrated iron-deficiency anemia.

Conclusions: Most of the pediatric patients with IBD, whether in the younger or the older age group, had extensive bowel involvement at the time of diagnosis. The analysis of our IBD cohort demonstrated remarkably high rate of iron-deficiency anemia.

Consequently, symptomatic children should be screened for fecal occult blood which could be useful for health care workers in prompt diagnosis.

METABOLIC DISBALANCE IN CHILDREN WITH ACUTE LYMPHOBLASTIC LEUKEMIA AND LARGE TUMOR MASS

Author: Erika Alisauskiene, Vilnius University

Scientific research supervisor: Assoc. prof. Goda Elizabeta Vaitkeviciene, Vilnius University, Vilnius University Hospital Santaros Klinikos

Keywords. Acute lymphoblastic leukemia; children; tumor lysis syndrome; high tumor burden; acute kidney injury.

Introduction. Acute lymphoblastic leukemia (ALL) is the most common oncological disease in children. Around 13-18 new cases of ALL are diagnosed per year in Lithuania. Contemporary treatment protocols lead to cure rates reaching 90%. However, both the disease and treatment complications can be fatal. Large leukemia tumor burden manifesting as hyperleukocytosis (WBC >100x10^9/L) can lead to respiratory failure, cerebral hemorrhage and can be fatal. In addition, the intense proliferation of leukemic cells results in the release of intracellular metabolites, such as high levels of uric acid, phosphates and potassium. Similar processes are induced by chemotherapy when large numbers of leukemic cells are killed. This leads to life-threatening complications such as acute kidney injury or cardiac arrest. We have analyzed changes in leukemic blasts metabolites during the first 14 days after diagnosis and compared natural versus treatment-induced cell lysis process.

Objectives and methods. We analyzed data from the initial 14 days in children diagnosed with ALL and leukocyte count at diagnosis ≥100x10^9/L who were treated between 2008 and 2022. Clinical symptoms, leukocyte count, tumor lysis metabolites and treatment administered was analyzed. Kidney injury was evaluated by assessing of glomerular filtration rate. Descriptive statistical analysis was employed for comprehensive evaluation.

Results. The study involved 33 patients (median age 5.4 years) with ALL. Supportive care started immediately after hospitalization included oral allopurinol and abundant fluid infusion (mean volume: 3257.3 ml/m^2). For 66.7% of patients full chemotherapy commenced within 48 hours, and later for the remaining 33.3%. Hyperuricemia was detected at the time of hospitalization for 73.9% (17/23) of patients and normalized in 6/17 cases after start of fluid infusion. For the remaining 11/17 cases, it ked on the first day of chemotherapy and normalized within 1-2 days. Nine patients presented with kidney injury caused by high leukemic blast mass infiltration. In 7/9 cases, glomerular filtration rate normalized within 2-4 days after treatment was started. Hyperphosphatemia (max. 4.8 mmol/l) occurred on the third chemotherapy day in 57.6% of cases, resolved after on average after two days.

Conclusion. Metabolic imbalance induced by the initiation of chemotherapy was mild and transient. Kidney injury, caused by leukemic cells infiltration, normalized soon after chemotherapy was commenced. No hyperkalemia developed after start of chemotherapy. This suggests that risk for the death threatening events is more often associated with high tumor burden rather than chemotherapy induced tumor lysis.

ANALYSIS OF PATHOGENS OF BLOOD STREAM INFECTIONS AND ANTIMICROBIAL RESISTANCE IN IMMUNOCOMPROMISED PEDIATRIC PATIENTS TREATED FOR ONCOLOGICAL DISEASES

Author: Greta Urbonavičienė, Vilnius University, Vilnius University Hospital Santaros Klinikos

Scientific research supervisors: Inga Ivaškevičienė, Dr., Assoc. Prof. Vilnius University, Vilnius University Hospital Santaros Klinikos, Goda Vaitkevičienė, Dr., Assoc. Prof. Vilnius University, Vilnius University Hospital Santaros Klinikos.

Keywords: antimicrobial resistance, blood stream infection.

Antimicrobial resistance (AMR) is one of the major threats for public health. According to WHO report, in 2019, 1.27 million deaths worldwide were directly related to AMR. AMR is even more threatening in immunocompromised patients. Overall survival rates in children with cancer surpass 80%. Infections, including blood stream infections (BSI), remain the leading cause of morbidity and mortality.

Aim. To analyze BSI microbiological profile, AMR and multiresistant gut microbiota translocation to bloodstream. Results were compared with the data from previous period when antimicrobial treatment was changed due to high resistance.

Methods. An audit of positive blood and feces cultures was performed from 2018-2022 period. Results were compared with the 2010-2016 period.

Results. A total of 205 BSI episodes were identified in 84 consecutive patients. Most episodes (N=159) developed in patients with severe neutropenia (SN) <0.5x10*9/L (77.6%). *E.coli* predominated among gram-negative (GNB) (N=21/64, 31.2%) and coagulase-negative *Staphylococcus* (CoNS) among gram-positive bacteria (N=70/139, 50.4 %), respectively. GNBs showed highest resistance to piperacillin/tazobactam (PIP/TAZ) (7/40, 17.5%), whereas only 3/43 (6.9%) were resistant to meropenem. As compared to 2010-2016, resistance to meropenem increased from 2.2% to 6.9% and decreased to PIP/TAZ from 34.5% to 17.5%. In 22 cases from 13 patients likely bacteria translocation was identified where blood and feces cultures were positive for the same pathogen. SN was confirmed for 73% (N=16) of these patients. *K.pneumonia* (N=9/22) was resistant to trimethoprim/sulfamethoxazole (TMP-SMX) (N=7/8 of tested cultures) and PIP/TAZ (N=5/7). *E.coli* (N=5/22) showed resistance to TMP-SMX (3/4). **Conclusions.** GNB sensivity to PIP/TAZ improved over time after discontinuation as a first-line agent for febrile neutropenia. Multiresistant microorganisms in feces might translocate to BSI in immunocompromised patients. Monitoring of AMR and subsequent corrections of the empiric antimicrobial treatment guidelines is necessary.

ASSESSING FACTORS FOR CORTICOPHOBIA AMONG PARENTS OF CHILDREN WITH ATOPIC DERMATITIS

Authors: Julija Pargaliauskaitė, Inga Kisielienė, prof. dr. Matilda Bylaitė-Bučinskienė, Vilnius University Faculty of Medicine

Scientific research supervisor: prof. dr. Matilda Bylaitė-Bučinskienė, Vilnius University

Keywords: Atopic dermatitis; corticophobia; pediatrics; topical steroids; Topicop

Objectives: To measure the level of corticophobia in parents of children with atopic dermatitis(AD) and to identify factors associated with higher risk of corticophobia.

Methods: Single-center cross-sectional study conducted between December 2020 and December 2022, of patients (0–17 years), diagnosed with AD and healthy children (control group), recruited through consecutive sampling during dermatology outpatient clinic appointments. Enrolled participants completed self-report questionnaires, including original questionnaire (demographic, treatment information), Patient-Oriented Eczema Measure (POEM), and the adapted Lithuanian version of the TOPICOP questionnaire. TOPICOP responses were scored on a four-point Likert scale, with a maximum cumulative score of 36. Scores were further categorized as low (≤23), intermediate (24-50), and high (>50) for effectivestratification. The study conducted statistical analyses using Microsoft Excel and R Commander package for R. Hypotheses were tested for two groups comparison, Student's T- Test, Mann-Whitney U test was used. A p-value <0.05 was considered significant. Study was approved by Biomedical Ethics Committee (Approval No. 2020/8-1251-733).

Results: We analyzed 296 TOPICOP questionnaires. 82% (n=244) of questionnaires were completed by parents of children with AD. 96% (n=283) of questionnaires were filled by mothers and 4% (n=13) by fathers. Girls represented 48% (n=25) in the control group and 49%(n=119) in the AD group. Mean age of patients was 6,84±4,43 years in AD and 10,5±3,1 yearsin control group. The prevalence of corticophobia in our study population was 55% (n=126). It was found that 32% (n=76) of the AD group and 14% (n=5) of the control group had a highrisk, 46% (n=109) of the AD group and 50% (n=18) of the control group had an intermediate risk of corticophobia. Corticophobia was not related to the respondents' education (p=0.5672),severity of AD according to the POEM (p=0.314), parental gender (p=0.416), previous use oftopical steroids (p=0.9764), participation in educational programs (p=0.8789). There was no statistical difference between groups. We found that the mean TOPICOP score differed only between the AD and control groups (42,68±44,51 vs. 30,11±19,27, p=0.0481).

Conclusions: The study revealed that corticophobia is prevalent among both regular and non-regular corticosteroid users. Notably, gender, disease severity, prior corticosteroid use, and participation in specialized patient education programs showed no significant influence on corticophobia. We therefore suggest that the diagnosis of AD alone may increase the risk of corticophobia significantly.

POSTER PRESENTATIONS

RECURRENT SECONDARY IMMUNE THROMBOCYTOPENIC PURPURA IN AN UNVACCINATED PEDIATRIC PATIENT

Authors: Ance Kazuša, Agnese Grinēviča

Scientific research supervisor: Dr.med. Gunta Laizāne

Keywords: Immune thrombocytopenic purpura (ITP), immunization not carried out, viral infections.
Objectives: ITP is a hematological disease that usually is asymptomatic and self-limiting but in some cases can cause severe bleeding that can be life-threatening. It can be caused by viral infections, so it is important to be protected from them to also avoid complications such as ITP.

Methods: Our patient is 15 year old boy. He is unvaccinated because of his parents decision and has a history of hospitalization because of multiple gastroenteritis, ARVI, streptococcal tonsilitis, and EBV till the age of 10. He first presented with ITP at the age of 11 while he was sick with chickenpox. Among the Varicella lesions, there were also petechiae, his platelet count went down to $16x10^9$/L. First relapse of ITP happened at the age of 13 while he was infected with Influenza A virus. Boy presented with multiple petechiae, his platelet count was $2x10^9$/L. Both times he was effectively treated with IVIG. On the second relapse of ITP boy was 14 years old, diagnosed with Covid-19 infection He presented with platelet count of $2x10^9$/L, and multiple petechiae on his back and lower extremities. Corticosteroids were used as treatment this time.

Results: Treatment methods that were used - IVIG and corticosteroids - both improved the patient's condition: platelet count normalized and petechiae disappeared. Between episodes and right now patient is recommended to continue platelet count control in dynamics, regularly check in with a hematologist, and go to emergency care if the platelet count is under $20x10^9$/L.

Conclusions: This clinical case highlights the importance of immunization in preventing viral diseases such as Varicella, Influenza, and Covid-19 have a significant role in protecting against complications as ITP.

NAVIGATING COMPLEXITY: LYME BORRELIOSIS IN A PEDIATRIC CASE - ARTHRITIS, NEUROPATHY, AND CEREBRAL VENOUS SINUS THROMBOSIS

Authors: Alise Skoromka, Rīga Stradiņš University

Scientific research supervisor: Dr. Sandis Kovaļovs, Rīga Stradiņš University, Children's Clinical University Hospital

Keywords: Lyme disease, arthritis, cranial neuropathy, cerebral venous sinus thrombosis**Introduction:** Lyme borreliosis is a complex infectious disease with diverse manifestations affecting the skin, neurological, skeletal, and muscular systems. Cerebral venous sinus thrombosis, albeit rare, represents a severe complication of otomastoiditis.

Case Description: This case study presents a 1-year and 11-month-old boy with subfebrile body temperature, gait disturbance, and left foot placement difficulty. Diagnostic imaging revealed features of septic arthritis in the left hip joint, prompting arthrotomy. Subsequently, after surgery, left facial nerve neuropathy manifested. Head MRI disclosed 7th and 8th nerve neuritis, labyrinthitis, left-sided mastoiditis, and partial venous sigmoid sinus thrombosis. Cerebrospinal fluid (CSF) analysis indicated pleocytosis with lymphocytic predominance, and B. burgdorferi IgM antibodies were detected in CSF and serum (ELISA, Immunoblot). Bacteriological cultures from the hip joint and middle ear were negative. Comprehensive findings led to a diagnosis of Lyme disease with acute hip arthritis, cranial neuropathy, concomitant clinically asymptomatic otomastoiditis, and cerebral venous sinus thrombosis.

Therapeutic intervention comprised a 21-day course of ceftriaxone for B. burgdorferi infection, anticoagulation therapy for 3 months with rivaroxaban for venous sinus thrombosis, and tympanotomy for otomastoiditis. A follow-up brain MRI after 3 months demonstrated improvement with no observed thrombotic masses, and the child's health remained stable, with age-appropriate psychomotor development throughout the therapy.

Summary: This case illustrates a patient with two rare diseases simultaneously - acute Lyme disease with manifestations of acute arthritis, cranial neuropathy, and cerebral venous sinus thrombosis.

Conclusions: Early diagnosis of Lyme disease and cerebral venous sinus thrombosis is imperative for timely and effective treatment to achieve a favorable outcome for the patient. Both Lyme disease and cerebral venous thrombosis may present diversely. Our case study describes a patient with Lyme disease manifesting as acute monoarthritis and cranial neuropathy, along with asymptomatic cerebral venous thrombosis.

DUAL MOLECULAR DIAGNOSIS - MODERATE MENTAL RETARDATION INHERITED FROM BOTH PARENTS. CLINICAL CASE REPORT

Authors: Evita Kokina, Rīga Stradiņš University, Dr. Marija Rozevska, Rīga Stradiņš University,, Dr. Gita Tauriņa.Children's Clinical University Hospital

Supervisor: Asist prof Madara Auzenbaha, Rīga Stradiņš University, Children's Clinical University Hospital

Keywords. Dual genetic diagnosis. Intellectual development disorders

Objectives: According to data from a study conducted in Finland 75% of allelic variants in genes that cause intellectual delay occur as de novo mutations during foetal development. Delayed intellectual development is rarely inherited from parents - only 25% of cases. Dual molecular diagnosis, when the allelic variant in one gene is inherited from one parent and the allelic variant in another gene from the other, is even rarer – 2 % of inherited cases. Creating more detailed clinical case descriptions can lead to more accurate phenotypical descriptions. As of 2019, fewer than 12 people in the world had been identified with a change in the WDFY3 gene. ATP2B1 gene mutations occur more often, but exact incidence is unknown.

Methods: This study was designed as a clinical case study using data collected from the electronic system of Children's Clinical University Hospital "Andromeda".

Case presentation: A nine-year-old boy whose parents and kindergarten teachers were concerned that he was still unable to speak and walk reciprocally at the age of 3. According to the Munich Functional Developmental Diagnostic scale, all his scores were below the 95th percentile - at 43 months (3 years and 7 months), his motor development was 36 months, his relational perception was 32 months, and his social age was 31 months. The boy has dysmorphic features such as down-slanted palpebral fissures, full eyelids, thick earlobes, mild 2-3rd toe syndactyly, and smaller great toes. He also has tension-type headaches, and his brain MRI shows a type I Chiari malformation.

The child's treatment was initially managed by a psychiatrist and neurosurgeon, but later a geneticist joined the team. At age 7 he had chromosomal microarray analysis (CMA) and next generation sequencing (NGS) performed. CMA did not reveal any pathogenic deletions or duplications in a male profile, and NGS revealed three variants of uncertain significance. Since these findings could not explain the patient's condition, family segregation was performed for both patient's parents. It revealed that he has inherited two autosomally dominant pathogenic alleles, each from a different parent: the frameshift variant of the *ATP2B1* gene inherited from the mother and the missense variant of the *WDFY3* gene inherited from the father. The patient's phenotypic features correspond to both genetic variants. Severely impaired expressive language development and dysmorphic features could be explained by harboured gene *ATP2B1,* and disorders of neuronal development could be explained by harboured gene *WDFY3*. Both *ATP2B1* and WDFY3 gene allelic variants are associated with mental retardation. After genetic testing, a careful phenotypic examination of both parents was performed, which revealed that both parents show symptoms of gene-related conditions: both have mild cognitive dysfunction, but no other phenotypic features.

Conclusions: The genetic information obtained enables the focus on the most important aspects of follow-up of the patient. It is essential to perform genetic tests on both parents, whenever possible, to avoid missing a dual molecular diagnosis. This clinical case shows the importance of different types of genetic testing. A diagnosis may be missed when a single test is performed.

ADRENOLEUKODYSTROPHY: LITERATURE REVIEW AND CASE STUDY

Author: Laura Regelskyte, Vilnius University

Scientific research supervisor: dr. Ruta Praninskiene, Vilnius University

Keywords: X-linked adrenoleukodystrophy, cerebral form, adrenal gland damage, stem-cell transplantation, newborn screening

Objectives: The main objectives were to analyze the symptoms and the time of onset of X-adrenoleukodystrophy, explore treatment possibilities at different stages of the disease and examine the results of newborn screening in various countries.

Methods: The literature search was performed in the PubMed bibliographic database. Two filters were applied: articles published within the last five years and written in English. Used keywords: X-linked adrenoleukodystrophy, adrenoleukodystrophy, ALD, symptoms, signs, diagnostics, treatment, stem-cell transplantation, cord blood transplantation, mesenchymal stem-cells, management, outcome, newborn screening. 45 articles were fully reviewed after the initial selection.

Results: A literature review indicated that the mean age of X-adrenoleukodystrophy onset was approximately 7.64 years (standard deviation ± 2.64 years). Most patients underwent magnetic resonance imaging evaluation with Loes score >9. Primary symptoms were categorized into six groups: sensory disorders (hearing and visual loss), behavior changes, nerve-muscle system disorders, neurological impairment, nonspecific symptoms, and other systemic disorders. Visual impairment, learning difficulties, skin hyperpigmentation, and seizures, as a late symptom, were the most common manifestations. Better outcomes were observed in patients with early-stage X-adrenoleukodystrophy who underwent allogeneic hematopoietic stem-cell transplantation or autologous hematopoietic stem-cell transplantation with Lenti-D gene therapy. Other treatment methods as intrathecal allogeneic mesenchymal stem-cell transplantation, vorinostat, and rituximab were reported as unsuccessful. Supportive treatment is recommended for cases with advanced disease. The newborn screening indicates the X-adrenoleukodystrophy incidence rate 1:4845-17 000, the highest positive prognostic value with a C26:0 Lyso-phosphatidylcholine value of 0.3-0.36 μmol/L and a three-tier screening algorithm. We report a case of 7-year-old boy affected by X-adrenoleukodystrophy. The patient developed gait difficulties, hearing and visual loss within a few months after the onset of initial symptoms. Positive family history revealed undiagnosed demyelination in the patient's grandmother. Magnetic resonance imaging and neurological function assessments classified the disease as advanced, and specific treatment was not administered.

Conclusions: X-adrenoleukodystrophy should be suspected in preschool patients with normal development and sudden changes in behavior, learning, hearing and vision, and skin hyperpigmentation. Early detection of this disease is crucial in order to administer specific and effective treatment. Early detection of X-adrenoleukodystrophy is only possible through newborn screening.

MULTIDISCIPLINARY APPROACH OF PAIN MANAGEMENT FOR PATIENT WITH SUSPECTED AUTOIMMUNE ENCEPHALITIS

Author: Mareks Marčuks, Rīga Stradiņš University

Scientific research supervisor: Dr. Jānis Kolbergs, Rīga Stradiņš University, prof. Ināra Logina, Rīga Stradiņš University

Keywords. Autoimmune encephalitis, MOGAD disease, pain management.

Objectives. Autoimmune encephalitis is a rare diagnosis with challenging diagnostics and therapeutic management. Patients often complain not only of impaired motor and behavioral symptoms but also autonomic disturbances, including allodynia and other hyperreactions to sensorial stimuli. Rapid causal treatment may not be possible, however emphasis on symptomatic therapy by multidisciplinary team is crucial for patients' wellbeing and quality of life.

Methods. Information about hospital course of the patient was collected from medical records from Hospital of Rēzekne patients' medical history and Andromeda electronic system Children's Clinical University Hospital, Riga.

Results. A 15-year-old female patient admitted to regional hospital of Rēzekne with complains of inability to fall asleep, inadequate irritability, pain and hypersensitivity to different sensory stimuli. Almost two weeks prior patient had acute viral self-limiting infection. Initially patient had leukocytosis with neutrophilia, otherwise normal laboratory parameters, head CT and lumbar puncture showed no pathology. With unclear diagnosis patient was transferred to Children's Clinical University Hospital where autoimmune encephalitis or primary manifestation of psychiatric condition was suspected. Head MRI with intravenous contrast showed left hemisphere frontal lobe dorsal scarring with dilatation of left lateral ventricle. Patient had positive anti-MOG antibodies indicating possible MOGAD disease. Treatment with intravenous methylprednisolone pulse was initiated. Symptomatic treatment was managed by intensive care, neurology, algology specialists and psychiatrists. For allodynia, insomnia and irritability patient received alternating hhloral hydrate, lorazepamum, midazolamum, haloperidolum. Continuous treatment with olanzepinum, cyclodolum, clonazepamum was prescribed. The patient is still undergoing treatment.

Conclusion. Proper identification and differentiation of clinical presentation for autoimmune encephalitis and its symptoms is crucial for early diagnostics and initiation of therapy. Nowadays autoimmune encephalitis can be treated if recognized in time, however treatment and rehabilitation can take months. Pain management for these patients might not respond to typical analgesics and combined psychiatric therapy may lead to efficient results.

RELATION BETWEEN SOLITARY FUNCTIONING KIDNEY AND OTHER CONGENITAL ANOMALIES IN CHILDREN

Author: Vaiva Čenkutė

Scientific research supervisor: Augustina Jankauskienė, Karolis Ažukaitis, Vilnius University

Keywords: Solitary functioning kidney, children, CAKUT, extrarenal anomalies

Objectives: Congenital solitary functioning kidney (SFK) is a common congenital anomaly and observed in about 1 in 1500 births. Up to 30 % of SFK have other congenital anomalies of kidney and urinary tract (CAKUT). CAKUT may also be associated with abnormalities of other organ systems, including cardiovascular, central nervous, musculoskeletal system and digestive tract. We aimed to identify the frequency of CAKUT or congenital anomalies of other organs in children with SFK.

Methods: A single-center prospective cross-sectional study of children (>2 years) with SFK (congenital or acquired; excluding nephrectomies due to malignancy) was performed. The study was approved by Vilnius regional biomedical research Ethics committee (no 2020/11-1283-764).

Results: 45 children (8 [5.1-14.1]; 49 % boys) were included. Most common primary cause of SFK was agenesis: 34 (76%), 9 children had multicystic dysplastic kidney and in 2 cases cause was unknown. Seventeen children (38%) had impaired kidney function. Ten patients (22%) had anomalies of SFK, such as dilated renal pelvis (n=1), duplex kidney (n=3), dystopic kidneys with cysts (n=2), kidney cysts (n=1), vesicoureteral reflux (n=1), ureterohydronephrosis (n=1), triple arteries (n=1). A total of 16 (36%) children presented with extrarenal abnormalities, 4 of them also having SFK anomalies. 5 children had urinary tract anomalies such as ureterocele (n=1), posterior urethral valves (n=3) and large urethra with anterior uretharl valves (n=1). Two of these children also presented with SFK anomalies. Cardiovascular abnormalities were most frequent and were observed in 6 children, such as atrial or ventricular septal defects (n=3), patent foramen ovale (n=1), aortic valve stenosis with ascending aortic dilatation (n=1) and aortic coarctation with ventricular septal defect (n=1).Other extrarenal anomalies were found in 4 children (10 %.): neurological anomalies (Corpus Callosum agenesis), genital anomalies (bicornuate uterus), extra splenule and one patient presented with preauricular pits and bilateral neck fistulas. Three patients had genetically confirmed syndromes (VACTERL, BOR Herlyn Werner Wunderlich syndrome).

Conclusions: Our data showed that up to one third of children with SFK exhibit extrarenal anomalies and indicates the need for increased clinical awareness.

ASTHMA AND COVID-19 IN CHILDREN. A LITERATURE REVIEW

Author: Rokas Česynas, Vilnius University Faculty of Medicine

Scientific research supervisor: MD, PhD Agnė Jagelavičienė

Keywords: Asthma, COVID-19, children, lower respiratory tract diseases.

Objectives: To determine relationship between asthma and COVID-19 in pediatric population.

Methods: Literature review was done using Pubmed database. Clinical, observational and comparative studies, meta-analyses and systematic reviews of the last 5 years were indexed. Only articles which included children population were selected.

Results: Using filter for meta-analyses and systematic reviews, 35 theses were found. 19 were excluded after screening titles and abstracts, as they were not relevant to objectives. There is a limited amount of clinical, retrospective or observational studies regarding this issue. 51 articles were found, but 48 were excluded after review of the titles. At least one systematic review considers that asthma is not a risk factor for a severe COVID-19 outcome in children and associates inhaled corticosteroids with risk reduction. However, another systematic analysis reported that asthma is a risk factor for COVID-19 mortality, but it's estimates combined both risk of an infection and a risk of death once infected. On the other hand, at least three reviews conclude, that risk of severe COVID-19 infection in children with asthma might be less than anticipated. One retrospective review concluded that pediatric patients with asthma were less likely to be seen in an emergency department because of COVID-19 related symptoms, but were more likely to require hospitalization or intensive care, thus indicating severe COVID-19 infection. However, there was no patient grouping based on age, nor on asthma phenotype, so it is possible, that the results were impacted due to it. Other 2 observational studies concluded that childhood asthma neither posed a significant impact on the COVID-19 severity and outcome, nor the COVID-19 infection itself posed a significant risk on asthma exacerbations. Though, the samples of both studies were small: 30 children with asthma and 32 without for the first one, and 60 children with asthma, of which 10 were diagnosed with COVID-19, for the second one. In addition, 2 meta-analyses reported that there was a significant improvement in pediatric asthma control during the COVID-19 pandemic. Some of the reasons might be lockdown measures, which limited exposure to other viral infections or other outdoor allergens, and increased treatment adherence.

Conclusions: The relationship between asthma and COVID-19 in children appears to be bidirectional. The conflicting results of analyses might be attributed to the heterogeneity of asthma phenotypes. Conclusion from the collected studies is that allergic phenotype asthma corelates with lower COVID-19 infectivity and lower risk of complications. The pandemic lockdown measures also positively impacted control of pediatric asthma.