Abstracts of the International Medical Students' Congress Sarajevo (SaMED) 2021

01. THE ASSESSMENT OF HYPOXIC ISCHEMIC BRAIN INJURY IN NEWBORNS WITH HISTORY OF PERINATAL ASPHYXIA USING MAGNETIC RESONANCE IMAGING

VIKTORIJA ALEKSEJEVA[1], Natalija Merkla[2]
[1] Riga Stradins University, Riga, LV-1007, Latvia
[2] Children's Clinical University Hospital, Riga, LV-1004, Latvia

BACKGROUND: HIE is a significant brain injury due to perinatal asphyxia. The diagnosis of HIE is based on neurological and radiological examinations. MRI can be utilized to evaluate extent of injury, while MRS is widely used to assess the level of metabolites in the brain. **AIM:** To select patients diagnosed with perinatal asphyxia and evaluate the frequency of MRI use, results, and associations with clinical symptoms and the neurologist's conclusion regarding HII. **METHODS:** This retrospective study was developed by analysing the CCUH database for medical histories of patients diagnosed with perinatal asphyxia (ICD-10 P21.0), born .37th week between 2015 and 2019. MS Excel, IBM SPSS Statistic 26.0 were used for data analysis. **RESULTS:** Of 172 patients, 82% (n = 141/172) underwent MRI, generally performed on the 5th day of life. 20.3% (n = 27/133) of MRI findings constituted to HII, while 79.7% (n = 106/133) had other findings. There was no statistically significant association between MRI findings and seizures, neonatal reflex pathologies, changes in muscle tone (p› 0.05). Of 27 patients with HIE-specific findings on MRI, cytotoxic oedema was detected in 87% (n = 20), while elevated lactate metabolite levels on MRS in 76.9% (n = 10). A statistically significant association between signs of cytotoxic oedema on MRI, elevated lactate metabolite levels on MRS, and diagnosis of HIE by a neurologist was found (p = 0.018, p = 0.001, respectively). There was a statistically significant association with 5-minute APGAR score (p = 0.005). **CONCLUSION:** Most patient with prenatal asphyxia underwent MRI. No statistically significant association between clinical symptoms and MRI findings was observed. The most characteristic findings of HIE were cytotoxic oedema and elevated lactate metabolite levels in the brain, which in turn had a statistically significant association with the neurologist's conclusion. A statistically significant association was observed between MRI findings and 5-minute APGAR score.

Key words: hypoxic ischemic encephalopathy (HIE), magnetic resonance imaging (MRI), magnetic resonance spectroscopy (MRS), hypoxic ischemic injury (HII)

02. COVID-19 AND BREASTFEEDING; COULD THE VIRUS BE SPREAD THROUGH LACTATION?

RADU MARIAN FLOREA[1]
[1] Faculty of Medicine, "Carol Davila" University of Medicine and Pharmacy, Bucharest, Romania

BACKGROUND: SARS-CoV-2 is a new betacoronavirus, a positive-sense single-stranded RNA-virus, member of the Coronaviridae family. The first cases were reported in Hubei province, China, and it continued spreading uncontrollably worldwide, currently having affected almost 55 million people, of whom more than 1.3 million died. **AIM:** The virus is likely transmitted through air droplets. However, there have been reported cases where SARS-CoV-2-RNA was found in other samples, such as blood or stool. Nonetheless, there is limited information concerning the presence of viral-RNA in pregnancy-related samples, specifically breast-milk. However unlikely, there is still uncertainty regarding the possibility of vertical-transmission from mother to infant through breastfeeding. This review aims to synthetize the literature written so far on this topic. **METHODS:** Electronic databases such as PubMed, SCOPUS, Embase have been reviewed. Search strategies included using keywords such as: "SARS-CoV-2", "COVID-19", "breastfeeding", "pregnancy", "vertical transmission" etc. The articles obtained were case reports, case series and reviews on pregnant women infected with SARS-CoV-2, or of infants born of COVID-19-positive mothers. **RESULTS:** Despite not being extensively researched, vertical transmission through breast-milk seems unlikely. Case series showed that milk samples from mothers with COVID-19 were almost entirely negative. So far there have been only 8 recorded cases of viral shedding in milk samples, uncertain however of the viability of the particles. Furthermore, WHO and UNICEF strongly encourage commencing breastfeeding after parturition, underlining the benefits of lactation on both mother and infant. Moreover, some studies have proven the existence of IgG and IgA anti-SARS-CoV-2-antibodies in the maternal milk that could possibly play an important part in the neonate's protection against the virus. **CONCLUSION:** Vertical transmission through lactation seems unlikely. However, for a better understanding of the topic, further larger-scale researches need to be performed in order to clarify a yet uncertain matter.

Keywords: breastfeeding, COVID-19, newborn, pregnancy, SARS-CoV-2

03. HOW MUCH DOES EXTENDED SCAN RANGE INFLUENCE THE EFFECTIVE DOSE RECEIVED DURING PAEDIATRIC HEAD COMPUTED TOMOGRAPHY?

DĪNA REITERE[1], Ilze Apine[2], Ainārs Āboltiņš[2]
[1] Riga Stradins University, Riga, LV-1007, Latvia
[2] Children's Clinical University Hospital, Riga, LV-1004, Latvia

BACKGROUND: Head Computed Tomography (CT) is a standard choice for paediatric head trauma evaluation. In fear of missing a neck pathology, radiographers often include vertebrae in the scan, however guidelines suggest scanning only the target area, in order to reduce effective dose (ED) received during the examination. **AIM:** Our aim was to calculate extra ED received by the patient when excessive neck area is scanned. **METHODS:** This study included head CTs performed on infants (0-12 months old) after head trauma in a children hospital from January of 2016 until September of 2020. Scan ranges were measured, dose length products (DLPs) were registered and EDs received were calculated for the scanned area and for tissues exposed to scattered radiation. For each excess centimetre, extra DLPs and ED were calculated. A dedicated software was used for calculating the ED. **RESULTS:** Only two of 131 examinations were performed with an appropriately scanned neck area, the excess scan lengths of other 129 patients were 1-6 cm, the DLP range was 200.6-767.2 mGy*cm. ED of the head slightly excels the annual natural background radiation, however, ED of the salivary glands, skeleton, thyroid, bone marrow, skin and lymph nodes exceeded ED of the head 8.5, 4.9, 4.7, 2.8, 2.4 and 1.6 times, respectively. Each excess centimetre increased ED by 0.06-1.68 mSv, depending on the tissue type. **CONCLUSION:** Even with one extra centimetre scanned DLPs exceed Paediatric Diagnostic Reference Levels. ED from scattered radiation may be several times higher than the ED for the scanned area, although while increasing the scan range, the rise in secondary radiation is relatively low. The scan range is most easily changeable parameter to decrease CT doses.

Keywords: CT, paediatrics, dosimetry, effective dose

04. RISK FACTORS FOR NECROTIZING ENTEROCOLITIS IN MODERATELY PRETERM NEONATES: A FOUR-YEAR RETROSPECTIVE STUDY

EMINA SARAJLIĆ[1], Amina Blekić[1], Emina Hadžimuratović M.D. PhD[2]
[1] University of Sarajevo, Faculty of Medicine, Sarajevo, 71000, Bosnia and Herzegovina
[2] University Clinical Center Sarajevo, Pediatric Clinic, Sarajevo, 71000, Bosnia and Herzegovina

BACKGROUND: Necrotizing enterocolitis (NEC) is the most common gastrointestinal emergency in neonates, with extremely preterm neonates (EPT , 28 weeks) considered at highest risk. With increasing gestational age, the risk for NEC decreases. **AIM:** Our aim was to identify the risk factors for NEC in moderately preterm (MPT) neonates (28-34 weeks). **METHODS:** This is a retrospective study done in a four-year period from 2015 to 2019. The only inclusion criterium was clinical presentation and radiologic confirmation of NEC. Radiologically proven 53 NEC cases were observed in our study, however only risk factors for MPT neonates were assesed in this study. The Bell criteria which are based on clinical, radiologic and laboratory

findings were used to stage the severity of NEC cases. We reviewed the medical records of NEC cases in the aforementioned period on Neonatal intensive care unit (NICU) of Pediatric Clinic University Medical Center Sarajevo. **RESULTS:** Classification of infants according to gestational age is: EPT (, 28 weeks), MPT (28-34 weeks), LPT (late, 35-37 weeks) and T (term neonates, >37 weeks). Majority of the infants with NEC were EPT (66.03%). The percentage of MPT, LPT, and term neonates with NEC was 22.6%, 7.5%, 3.7%, respectively. Mean gestational age at onset of NEC was 31 weeks, average age 12 days, and mean birth weight, 1,460 g. The most common age (mode) at onset of NEC was 3 days. Of the survivors, 3% had recurrent disease 1-20 days after reinitiation of enteric feeding. Among MPT neonates, maternal hypertensive disorders (34%) and small for gestational age (SGA-21%) were more common than in EPT neonates (10.5 and 4.2%, respectively). **CONCLUSION:** SGA MPT neonates born to mothers with hypertensive disorders should be closely monitored for signs of NEC. Identifying the risk factors specific to each gestational age may help clinicians to prevent NEC.

Keywords: NEC, maternal hypertension, neonates, Small for Gestational Age

05. OUTCOME OF SMALL FOR GESTATIONAL AGE INFANTS BORN BEFORE 32 GESTATIONAL WEEKS

EDNA SUPUR[1], Sabina Terzić[2]
[1] Faculty of Medicine, University of Sarajevo, Sarajevo, 71000, Bosnia and Herzegovina
[2] Neonatal Intensive Care Unit, Pediatric Clinic, UCC Sarajevo, Sarajevo, 71000, Bosnia and Herzegovina

BACKROUND: The most common cause of letal outcomes in neonatal period is premature birth. When it is combined with small for gestational age (SGA), those infants have tendency to develop more complicated clinical course. **AIM:** Determine the impact of SGA on the outcome of preterm infants born before 32 gestational weeks. **METHODS:** The research was conducted in the NICU, Pediatric Clinic, UCC Sarajevo. The inclusion criterion was met by 371 patients. The informations on birth weight, gestational age, NEC, sepsis, PDA, congenital anomalies and outcome were collected. **RESULTS:** Out of 371 patients, 192 (51.75%) are males. According to the birth weight and gestational age, the respondents were divided into two groups: AGA and SGA. The SGA group consists of 17 patients (4.58%), with the average birth weight 854.71 g (500- 1180g) and average gestational age 29.95 weeks. As expected, there was a significant difference betwen SGA and AGA group considering birth weight ($p<0.05$). Statistically significant difference was found in the frequency of sepsis, persistent arterial duct (PDA) and necrotising enterocolitis (NEC) ($p<0.05$). Comparison beetwen genders did not reveal any significant difference in representations three listed conditions ($p>0.05$). Our data didn't show significant difference in survival rate ($p= 0.052$). This may be repercussion of a small SGA sample, but as it is very close to significant level, we can consider this parameter as significant. SGA infants who have died are 13.33 time more likely to have had NEC, CI 95% (1.07- 166.37) and 6 times more likely to have had sepsis, CI 95% (0.72- 49.84). The most common associated congenital anomaly was atrial septal defect (ASD). **CONCLUSION:** SGA is associated with several life-threatening illnesses, including sepsis, NEC and PDA, as well as undesirable outcome. These findings highlight the importance of detecting and preventing factors that may lead to SGA.

Key words: preterm infants, small for gestational age, appropriate for gestational age

06. ESTIMATE OF CERVICAL CANCER INCIDENCE IN ZENICA-DOBOJ CANTON

MERVANA HALILOVIĆ[1], Izet Eminović[2], Mirsad Halilović[3], Emil Eminović[4] Rijad Halilović[5]
[1] Faculty of Medicine University of Sarajevo, Sarajevo, 71000, Bosnia and Herzegovina
[2] Faculty of Science University of Sarajevo, Sarajevo, 71000, Bosnia and Herzegovina
[3] Public Health Centre, Department of Gynecology, Ključ, 79280, Bosnia and Herzegovina
[4] Clinical Center of the University of Sarajevo, Clinic for Obstetrics and Gynecology, Sarajevo, 71000, Bosnia and Herzegovina
[5] Faculty of Medicine Sarajevo School of Science and Technology, Sarajevo, 71000, Bosnia and Herzegovina

BACKGROUND: Cervical cancer is a type of cancer that occurs uncontrolled growth of cells in the lower part of uterus. The risk factor for this malignant disease is infection caused by various strains of the human papillomavirus (HPV). Cervical cancer ranks second, both in frequency and mortality, from gynecological cancers, just after breast cancer. **AIM:** The study has 3 aims. First was to present the most common age interval for this malignant disease. Second was to resolve the prevalence of cervical cancer in Zenica-Doboj Canton by municipalities in period of 5 years. Third aim was to determine positive and negative Pap tests presence in the Canton through a given period and to compare it. **METHODS:** Used data were from the Public Health Institute of the Zenica-Doboj Canton and Central Laboratory for Screening of the Cantonal Hospital in Zenica. Five age groups of patients were considered. The number of reported cases of malignant neoplasm covers the period of 2007 to 2012. Descriptive statistical data was performed. Cervical swabs were used as a material in this research. The methods we came up with for statistics inserted the results of the Pap test. **RESULTS:** The interval from age 46 to 60 represent the period of the most frequent incidence of cervical cancer. The presence of malignant cervical neoplasm is the highest in the municipality of Zenica, Zavidovići, Tešanj and Maglaj, comparing to the number of inhabitants and registered patients. There were 85,1% negative Pap tests and 14,9% positive Pap tests, which we have divided in 7 subgroups, 3 for negative diagnoses and 4 for positive diagnoses. **CONCLUSION:** The correct incidence of cervical cancer in Bosnia and Herzegovina is unknown as there is no National Cancer Register. Therefore, study has shown urgent require of quality registry for future prevention and treatment.

Keywords: cervical cancer, Human Papillomavirus, Pap test, incidence

07. MULTISYSTEM INFLAMMATORY SYNDROME IN CHILDREN ASSOCIATED WITH COVID-19 – META-ANALYSIS

AMRA BEGIC [1], Izeta Hamza [1], Velma Selmanovic, Pediatric, Rheumatology and Clinical Immunology MD,MSc[1,2]
[1] School of Medicine, University of Sarajevo, Sarajevo, 71 000, Bosnia and Herzegovina
[2] Pediatric clinic, University Clinical Center Sarajevo, Sarajevo, 71000, Bosnia and Herzegovina

BACKGROUND: Multisystem inflammatory syndrome in children (MIS-C) is a serious condition that appears to be associated to coronavirus disease 2019 (COVID-19). Most children that become infected with COVID-19 virus have only a mild disease. But, in children who go on to develop MIS-C, some organs and tissues become severely inflammed. **AIM:** systematical analisis of demographics, clinical features, management and outcomes. **METHODS:** We conducted a metaanalysis searching PUBMED electronic database from June 14th to November 19th, 2020, following the Preferred Reporting Items for Systematic Reviews and Metaanalyses guidelines. **RESULTS:** The term that was used for the search is Multysistem inflammatory syndrome in children. Out of 249 identified articles, 25 retrospective, prospective, and cohort studies with 1489 participants were included in the final analysis. Sixty-six percent of patients were previously healthy, and 33% percent had comorbidities (chronic lung diseases 66%; obesity 55%). SARS-CoV-2 infection was confirmed in most participants (53,9% had serology tests positive, 34,9% were positive by RT-PCR, and 3,9% had both). The most common clinical presentations of MIS-C were: fever, gastrointestinal symptoms, mucocutaneous signs, and hypotension. Prime laboratory parameters were elevated inflammatory markers (CRP, ESR, ferritin), leukocytosis with lymphopenia; mild anemia, thrombocytopenia, elevated transaminases, abnormal coagulation (prolonged APTT, D-dimer), and elevated markers of cardiac dysfunction (BNP or pro-BNP and troponin). Currently, the most widely used medications to treat MIS-C are intravenous immunoglobulins (56% of patients), 51% enoxaparin, 35% corticosteroids, 29% acetylsalicylic acid, 6% recombinant IL-1 receptor antagonist and 2% monoclonal IL-6 receptor antibody. Seventeen patients (1,1%) had a lethal outcome. **CONCLUSION:** MIS-C is a serious and potentially life-threatening condition mostly described in previously healthy children. If recognised and treated on time, in most cases had a short-term favorable outcome. Questions for future studies still remain regarding risk factors, pathogenesis, management, and long-term outcome of MIS-C.

Keywords: MIS-C, SARS-CoV-2, COVID-19, Kawasaki disease, toxic shock syndrome

08. ANEMIA IS ASSOCIATED WITH CARDIAC DYSFUNCTION IN PATIENTS WITH ACUTE CORONARY SYNDROME

FARUK OSMANKADIĆ[1], Alma Pecikoza[1], Emina Hrnjić[1], Sara Hodžić[1], Prof. Amina Valjevac[2]

[1] Medical Faculty, University of Sarajevo, 71000 Sarajevo Bosnia and Herzegovina

[2] Department of Physiology, Medical Faculty, University of Sarajevo,71000 Sarajevo, Bosnia and Herzegovina

BACKGROUND: Anemia can aggravate a myocardial injury in patients with an acute coronary syndrome (ACS), through both decreased oxygen supply and increased oxygen demand resulting from increased cardiac output. **AIM**: To investigate the effects of anemia on the cardiac function and cardiac damage in patients with ACS. **METHODS:** The study was designed as a cross-sectional, observational study which included 82 patients (mean age 68.1±12.1) presenting with ACS at the Clinical Center University of Sarajevo. STEMI was diagnosed in 43, NSTEMI in 25, and unstable angina in 13 patients. Blood pressure, blood count, C-reactive protein, and cardiac damage markers were determined. Anemia was defined if hemoglobin values were ‹12g/dL for females and ‹13g/dL for males. Doppler echocardiography was used to assess the left ventricular function (LVF). The degree of LV dysfunction was determined by ejection fraction (EF) as normal (›50%), mildly (41% to 50%), moderately (31% to 40%), or severely (‚30%) decreased. **RESULTS:** The prevalence of anemia in ACS patients was 29.3%. Anemia was more frequent in patients with NSTEMI (54.3%) compared to patients with STEMI (25.0%) and unstable angina (20.8%)($X2$=11.6; p=0.003). The median EF was significantly lower in patients with anemia [0.35 (0.3–0.4] vs. 0.41 (0.3–0.48); p=0.031]. The systolic dysfunction and combined systolic/diastolic dysfunction was present in 87.5% and 66.7% of patients with anemia (p‹0.05). Hemoglobin values were significantly negatively associated with the degree of LV systolic dysfunction (rho=-0.27; p=0.014). Patients with anemia had significantly higher CRP levels compared to patients without anemia [22.5 (10.9–51.1) *vs.* 8.5 (3.3–25.0) mg/L; p=0.023]. However, no significant difference in cardiac damage markers between patients with and w/o anemia was observed. **CONCLUSION:** Anemia is associated with both systolic and combined systolic/diastolic dysfunction suggesting that anemia might present an additional risk factor for comorbidities related to the left ventricular dysfunction in patients with an acute coronary syndrome.

Keywords: anemia, acute coronary syndrome, ST-segment elevation myocardial infarction, non ST-segment elevation myocardial infarction, unstable angina, C-reactive protein

09. AMIODARONE PRETREATMENT FOR DIRECT CURRENT CARDIOVERSION IN PATIENTS WITH ATRIAL FIBRILLATION – EFFECT ON SHORT-TERM SINUS RHYTHM MAINTENANCE

BAIBA KOKINA[1], Oskars Kalejs[2,3]

[1] State University of Piauí [1] Faculty of Medicine, Riga Stradins University, Riga, LV-1007, Latvia

[2] Department of Internal Diseases, Riga Stradins University, LV-1007, Latvia

[3] Latvian Centre of Cardiology, Pauls Stradins Clinical University Hospital, LV-1002, Latvia

BACKGROUND: Direct current cardioversion (DCCV) for atrial fibrillation (AF) is commonly facilitated by antiarrhythmic drug (AAD) premedication, nevertheless early arrhythmia recurrence poses problem. Amiodarone is widely used, however its major adverse effects, i.e., pulmonary, thyroid, hepatic, ocular toxicity, should be emphasized, especially considering its potential for accumulation. **AIM:** To evaluate the effect of amiodarone premedication and the impact of its dosing regimen on short-term (one-month) sinus rhythm maintenance after DCCV in patients with persistent AF. **METHODS:** Study was conducted among patients with persistent AF hospitalized for elective DCCV in Latvian Centre of Cardiology. Enrolled patients were taking AADs preprocedurally, without long-term amiodarone intake history. Baseline interview with 1-month follow-up was conducted to compare amiodarone and other AADs effectiveness in sinus rhythm maintenance. For dose-dependent evaluation, total received amiodarone dose prior to DCCV was taken into account, with cutoff value of 4000 mg, corresponding to its common preprocedural regimen – 200 mg b.i.d. for 10 days. Software SPSS was used for statistical evaluation and logistic regression analysis was conducted to obtain main results (significance level α=0.05). **RESULTS:** Among 94 patients, one-month sinus rhythm maintenance rate was 80.9%, with corresponding value of 84.4% among amiodarone users specifically. Amiodarone intake (31.9% patients) prior to DCCV, compared to other AADs (sotalol, propafenone, ethacizine), demonstrated no statistically significant superiority for sinus rhythm maintenance likelihood (OR 1.964, 95%CI 0.685–5.632, p=0.209). When evaluating dose-dependent outcomes among patients taking amiodarone, total received dose exceeding 4000 mg did not result in statistically significantly improved sinus rhythm maintenance prospects (OR 1.160, 95%CI 0.301–4.475, p=0.829). **CONCLUSION:** Compared to other AADs, amiodarone premedication did not show any superiority, and, additionally, no beneficial effect on arrhythmia recurrence prevention in patients taking its higher dosage was established. Results highlight necessity of thorough consideration of patient eligibility for alternative AADs, or, at least, of favour of amiodarone lower-dose therapy.

Keywords: atrial fibrillation, direct current cardioversion, antiarrhythmic drugs, amiodarone

10. METHOD OF DIFFERENTIAL DIAGNOSIS AND PROGNOSIS OF FAILURE ATTEMPTS OF EXTRACORPORAL FERTILIZATION IN WOMEN WITH THROMBOPHILIA

KHUSHBOO KALANI[1], Diana Tarawneh[1], Keshav Kumar[1]

[1] Kharkiv National Medical University, Kharkiv,61000, Ukraine

BACKGROUND: Over recent years, the point of active discussion of researchers is the issue of improving IVF cycles effectiveness. Relation between thrombophilia and failed IVF attempts is actively discussed in the literature, but the mechanisms of thrombophilia effect on IVF results are still unclear. **AIM:** Development of a method for differential diagnosis and prognosis of failed IVF attempts based on determination of pathological markers of thrombophilia, which lead to pathological changes in endometrium and to impossibility of implantation of an embryo in uterine cavity. **METHODS:** We examined 48 women with thrombophilia participating in the IVF program. Twenty of them have failed IVF attempts (Group 1) and 28 women who became pregnant after IVF program (Group 2). Patients underwent laboratory studies: analysis of the hemostasis system, detection of genetic forms of thrombophilia by PCR (mutations of MTHFRC-677T, prothrombin (G20210A), Factor V Leiden mutation, polymorphism in PAI, polymorphism in the glycoprotein gene, polymorphism in the angiotensinogen gene, polymorphism in the fibrinogen gene, tissue plasminogen activator); determination of the concentration of AFA and coagulation factors in blood plasma. **RESULTS:** According to our data, we have found a significantly higher frequency of various structural forms of thrombophilia in patients of the Group 1 compared with the Group 2, namely: presence of a high percentage of AFA (40 %), hyperhomocysteinemia (23.5 %), Factor V Leiden heterozygous mutations (10.0 %), MTHFR-C677T (60.0 %), PAI-1 polymorphism (70.0 %), heterozygous form of polymorphism ‘807 G/T of platelet receptor GP Ia’ (55.0 %), polymorphism ‘1166 A/C’ in angiotensin II receptor gene. **CONCLUSIONS:** Thus, hereditary thrombophilia predominates in patients with a history of failed IVF attempts, with severe mutations in the hemostasis genes being more common than in patients with high IVF efficacy.

Keywords: Extracorporeal Fertilization, thrombophilia, hemostasis genes, failure attempts of IVF

11. KNOWLEDGE, ATTITUDES AND BEHAVIOUR REGARDING ANTIBIOTIC USE AMONG GENERAL POPULATION OF HERZEGOVINA REGION

Leonora Bedekovic[1], MONIKA GLIBIC[1], Mirko Maglica[1], Ilija Marijanović[1],Mirko Janković[2], Damir Vukoja[1,3]

[1] The School of Medicine University of Mostar, Mostar, 88000, Bosnia and Herzegovina

[2] The Faculty of Humanities and Social Science University of Mostar, Mostar, 88000, Bosnia and Herzegovina

[3] Health Center Grude, Grude, 88340, Bosnia and Herzegovina

BACKGROUND: Bacterial resistance to antibiotics emerges as one of the leading global health issues in recent years. Thus, the awareness and comprehension of the community regarding their proper use becomes a major factor in respond to this public health concern. **AIM:** This study aims to determine the level of knowledge as well as attitudes and behavior regarding the use of antibiotics among general population of Herzegovina region based in its main city of Mostar. **METHODS:** A questionnaire-based survey was conducted from January to November 2020 by convenience sampling technique among people who visited health centers, malls and also via web. Out of 1209 distributed questionnaires, 920 questionnaires were completed with response rate 76.1%. Statistical analysis was performed to process the results. **RESULTS:** Average age of the participants

was 39.3±14.3. Among them, 65.2% were women. The median antibiotic knowledge score was 9 out of 12. Accordingly, 76.5 % showed adequate knowledge. The significant difference was shown in gender and education in favor of women and higher education degree. Although 84.8% of respondents claimed that antibiotic treatment should be started after a visit to a doctor and receiving a prescription, up to 36% of respondents used antibiotics without prescription. The prevailing reason for taking unprescribed antibiotics was sore throat. Only 43.6% of respondents kept taking antibiotic therapy as doctor advised even though therapy showed no noticeable effect. Participants with a health worker in family tend to use antibiotics without prescription more often. **CONCLUSION:** While a large number of respondents show adequate knowledge regarding the use of antibiotics, there are obvious behavioral mistakes. Measures should be taken with emphasis on additional education to better prevent antibiotics overuse, consequently providing better status of antibiotics in the future.

Keywords: antibiotics, resistance, global health, education

12. INFLUENCE OF GESTAGENS USED IN HORMONAL CONTRACEPTION AND BODY MASS INDEX ON MENTAL AND SEXUAL SIDE EFFECTS

ZUZANNA AURAST[1], Karolina Godlewska[1]
[1] Poznan University of Medical Sciences Poznan, 60-806, Poland

BACKGROUND: Medical products containing estrogen and progesterone components are, apart from their common use as hormonal contaception, also used to regulate the monthly cycle and to alleviate undesirable symptoms associated with it, as well as to treat other hormonal disorders. . However, they cause many adverse effects. **AIM:** The aim of the research was to explore mental and sexual health adverse effects associated with single or multiple use of hormonal contraception in women. **METHODS:** Our research relies on a detailed online survey distributed among Polish women aged 17 to 55 years who use or once used hormonal contraception. Survey was divided into five sections as follows: characteristics of the respondent, hormonal products used mental state and mood changes while using hormonal contraceptives,sexual life and other side effects. Women were divided into subgroups depending on the type of gestagen component of the preparation used as well as on body mass index (BMI). **RESULTS:** In total, 629 women who have ever used hormonal contraception took part in survey. Of them, 63,7% used the combined hormonal pill, 18,7% used progestin-only pill and a lower percentage of women used other contraceptives (vaginal ring 5,2%, intrauterine contraceptive device 5,7%, contraceptive patch 5,3%, implant and injection both por 0,7%) . 64,4% of women experienced mental or sexual side effects while using hormonal contraception. Most commonly mentioned adverse effects were dicreased libido (40,6%) and mood swings (39,3%). 2,4% mentioned appearance of suicidal thoughts. Women who took medications containing desogestrel experienced the least side effects (70% reported no side effects) while women who took specifics with etonogestrel reported the most side effects (reported by 91,6%). Correlation between woman's Body Mass Index and occurrence of side effects wasn't proved in our research (p value 0,95). Despite side effects, only 35,5% of women report their complaints to doctor. **CONCLUSION:** Hormonal contraceptives impact the mood and sexual health of the majority of women who took part in the survey. Frequency of side effects vary depending on gestagenic component and woman's BMI. Based on our results, we can make a conclusion that However, despite side effects, only 35,5% of women report their complaints to doctor.

Keywords: hormonal contraception, gestagens, mental health, sexual health

13. THE KNOWLEDGE, ATTITUDES, AND PRACTICES TOWARD COVID-19 AND COVID-19 VACCINE AMONG STUDENTS OF THE UNIVERSITY OF SARAJEVO

Mirza Čakarić[1], Emin Zaimović[1] Enisa Ademović[2]
[1] Faculty of Medicine, University of Sararajevo, Sarajevo, 71000, Bosnia and Herzegovina
[2] Department of Epidemiology and Biostatistics, Faculty of Medicine University of Sarajevo, Sarajevo, 71000, Bosnia and Herzegovina

BACKGROUND: Global pandemic of SARS-CoV-2 has shown the importance of educating each country's citizens on measures to prevent the spread of the virus. Since the discovery of the COVID-19 vaccine, the next major step in controlling the pandemic is vaccination, with its own set of questions and misconceptions. **AIM:** The purpose of this study was to assess the knowledge, attitudes, and practices toward COVID-19 among students of the University of Sarajevo, as well as their knowledge and attitudes towards the COVID-19 vaccine and to identify factors related to them. **METHODS:** The cross-sectional study was conducted among students of the University of Sarajevo (February 5th to February 10th). Using purposive sampling, the link of specially design anonymized questionnaire for this study was sent out to each faculty's student association then distributed among its students. Descriptive and inferential statistical analyses were performed by using Microsoft Excel and SPSS statistical package, version 20. **RESULTS:** Out of 782 students who completed the online administrated questionnaire, 579 (74.4%) were female. Among them, 221 (28.3%) and 207 (26.5%) of students were from the second and third year, respectively. The preliminary results show adequate knowledge related to the mode of transmission, symptoms, and preventive measures of COVID-19, and nearly half of the students said they would not get vaccinated or would not get vaccinated except if it would be mandatory for travel, work, and attending to public events. **CONCLUSION:** Education about COVID-19 has shown its importance over the last 12 months and data that was acquired will greatly help create educational programs for our students focused on providing scientifically proven findings and breaking misconceptions about the disease and its vaccine.

Keywords: COVID-19, vaccine, knowledge, practice, attitude, university students.

14. MID-UPPER-ARM CIRCUMFERENCE AND MID-UPPER-ARM-TO-HEIGHT RATIO AS INDICATORS OF CENTRAL OBESITY IN HEALTHY YOUNG ADULTS: A CROSS-SECTIONAL STUDY FROM BOSNIA AND HERZEGOVINA

ADELA TATLIĆ[1], Selma Spahić[2], Amela Dervišević MD, PhD[2]
[1] Faculty of Medicine, University of Sarajevo, Sarajevo, 71000, Bosnia and Herzegovina
[2] Department of Human Physiology, Faculty of Medicine, University of Sarajevo, Sarajevo, 71000, Bosnia and Herzegovina

BACKGROUND: Most commonly used measurement for analyzing central obesity is Waist Circumference (WC) which is affected by respiratory movements and postprandial abdominal distension. Mid-upper arm circumference (MUAC) and ratio of mid-upper-arm circumference-to-height (AHtR) are independent of these factors and ought to be further investigated as indicators of central obesity in young adults. **AIM:** The aim of this study was to estimate relationship between MUAC and AHtR and other anthropometric measurements in order to determine whether these are superior in assessment of central obesity. **METHODS:** Study was established as cross-sectional study that included 252 students and was conducted from February to April 2019. at the Department of Human Physiology, Faculty of Medicine, University of Sarajevo. MUAC was measured with subject in standing position at the midpoint between the olecranon and acromial process on relaxed right arm. AHtR was calculated as MUAC (cm) to height (cm). Other parameters were performed following the WHO guidelines. Receiver operating characteristic (ROC) curve analysis was used to determine the suitable cut-off of MUAC and AHtR for central obesity. **RESULTS:** MUAC was significantly correlated with BMI ($r=0.696$; $p<0.0005$ in males; $r=0.819$, $p<0.0005$ in females) and WC ($r=0.677$, $p<0.0005$ in males; $r=0.783$, $p<0.0005$ in females). A significant positive correlations were seen between AHtR and BMI ($r=0.699$; $p<0.0005$ in males; $r=0.801$, $p<0.0005$ in females) and WC ($r=0.600$, $p<0.0005$ in males, and $r=0.718$, $p<0.0005$ in females). The best cut-off of MUAC to identify participants with central obesity were . 32.55 cm (AUC=0.870; $p<0.0005$) and . 26.95 cm (AUC=0.862; $p<0.0005$) among the males and females respectively. AHtR . 17.68 (AUC=0.847; $p<0.0005$) for males and . 16.55 (AUC=0.813; $p<0.0005$) for females were the optimal cut-off values to determine subjects with central obesity. **CONCLUSION:** Obtained results suggest that MUAC and AHtR should be considered as an alternative to WC in detecting central obesity among healthy young adults.

Keywords: Mid-upper arm circumference, Mid-upper-arm circumference-to-height ratio, Central obesity

15. OBESITY-RELATED INFLAMMATION AND ITS IMPACT ON DEPRESSION AND ANXIETY TRAITS IN ADOLESCENTS

LEAH KOMER[1], Samantha Dockray,MD[2]
[1] School of Medicine University College Cork, Cork, T12 AK54, Ireland
[2] School of Applied Psychology University College Cork, Cork, T12 K8AF, Ireland

BACKGROUND: The prevalence of overweight and obese teens in Ireland is increasing. There is also increasing recognition of mental health needs within this adolescent population. Obesity and mood disorders are

associated with increased levels of the pro-inflammatory cytokine, TNF-alpha. Based on this association, TNF-alpha can potentially be used as a biomarker for depression and anxiety. **AIM:** To investigate the relationship of obesity-mediated TNF-alpha with depression and anxiety traits in adolescents. **METHODS:** This was a cross-sectional study which recruited 50 adolescents between 10-14 years of age. 50% of the recruited participants were female, and 50% of the participants were overweight or obese. Participants had their TNF-alpha levels, Body Mass Index (BMI) percentiles, state and trait anxiety and depression scores measured, along with their Revised Children's Anxiety and Depression Scale (RCADS) depression and anxiety scores. Linear regression models were performed on SPSS. **RESULTS:** 39 participants completed the study, 21 males and 18 females. Mean age in months was 148 months. Mean BMI percentile was 57.69%. After controlling for age in months, sex, positive and negative affect scores, there was a correlation between BMI percentile and TNF-alpha levels with RCADS depression score (r=.59; p=.022). There was also a correlation between BMI percentile and TNF-alpha levels with RCADS total anxiety scores (r=.75; p=.001). However, negative affect scores had the greatest association with the RCADS depression scores (beta coefficient=.588) and RCADS total anxiety scores (beta coefficient=.741). The regression showed that TNF-alpha was not significantly associated for either RCADS depression scores or RCADS anxiety scores. **CONCLUSION:** Our study revealed there is no significant difference between increased levels of TNF-alpha and higher levels of both depression and anxiety traits in adolescents. This association is largely influenced by negative affect scores. This demonstrates the complexity of mood disorders within adolescents and further studies are warranted to determine if inflammation plays a role.

Keywords: pediatric obesity, mood disorders, inflammation

16. IMPACT OF FAMILY FUNCTION AND PSYCHOSOCIAL FACTORS ON ANXIETY AND DEPRESSION IN POPULATION OF MEDICAL STUDENTS

Delila Lisica[1], Amela Džubur[1], ELMA RAMAKIĆ[2]

[1] Department of Public health, Medical Faculty, University of Sarajevo, 71 000 Sarajevo, Bosnia and Herzegovina

[2] Medical Faculty, University of Sarajevo, 71 000 Sarajevo, Bosnia and Herzegovina

BACKGROUND: Anxiety and depression are common mental disorders in the student population. Among university students, mental disorders can cause different problems, affecting motivation, perception of self-worth, and basic daily activities. **AIM:** This study aimed to explore the presence of anxiety and depression symptoms in first year medical students and investigate how family cohesion, flexibility and psychosocial factors influence anxiety and depression. **METHODS:** 149 medical students (76.5% female and 23.5% male) took part in a cross-sectional study. All participants were in the first year of education at the Medical Faculty University of Sarajevo. The survey was conducted via the sociodemographic questionnaire, Multidimensional Scale of Perceived Social Support, Rosenberg Self-esteem Scale, the short version of Loneliness Scale, Family Adaptability & Cohesion Scale, Beck Anxiety Inventory, and Beck Depression Inventory. **RESULTS:** The prevalence of moderate and severe anxiety and depression symptoms among medical students was 53.8% and 19.5%, respectively. Female students experienced higher levels of anxiety and depression compared to their male colleagues. Students who practice sport activities at least once a week showed significantly lower anxiety and depression scores. Anxiety and depression were positively associated with loneliness and negatively associated with perceived social support from family and self-esteem. Depression was also negatively associated with family cohesion and adaptability. Moreover, the results revealed that family cohesion was a strong predictor of the severity of depression symptoms. **CONCLUSION:** This study shows that variables such as gender, sports activities, feeling of loneliness, low self-esteem, and perceived social support from family play an important role in the experience of anxiety and depression among medical students. Family environment, especially cohesion, is a strong predictor of depressive symptoms. This study raises awareness about mental disorders in medical students, especially anxiety and depressive, and invites the placement of these problems among the top priorities of public health policies.

Keywords: anxiety, depression, self-esteem. cohesion, students

17. MULTIPLE SYSTEM ATROPHY - CASE REPORT

ADMIR RAMUSOVIĆ[1], Emin Širbegović[1], Amel Amidžić[2], Merita Tirić-Čampara[2]

[1] Faculty of Medicine, University of Sarajevo, Sarajevo 71 000, Bosnia and Herzegovina

[2] General Hospital „Prim.dr. Abdulah Nakaš" , Sarajevo 71 000, Bosnia and Herzegovina

INTRODUCTION: Multiple system atrophy is adult onset, fatal neurodegenerative disease characterized by progressive autonomic failure, parkinsonian and/or cerebellar features with pyramidal features in various combinations. **CASE DISCUSSION:** A 61 year old women was admitted to Department of Neurology,General hospital „Prim.dr.Abdulah Nakaš" in September 2019 due to speech impairment, unsteady gait, progressive weakness of both extremities and urinary incontinence. Her family noticed irritability and depression. Symptoms lasted for 2-3 years and the deterioration occurred in the last year. Levodopa and ropinirole were without effect as was an operation due to urinary incontinence. Orthostatic hypotension and hypothyroidism were previously diagnosed. In neurological examination mildly dysarthric and reducted speech were found. Cognitive functions were well preserved. Hypomimia was present without abnormalities in the cranial nerves. On the extremities there was spastic quadriparesis with hyperreflexia(++), more pronounced on right side with reduction of muscle strength(3-/5) on both arms and legs. Babinski sign was billateraly positive. Cerebellar coordination tests were normal. Bradykinesia and axial stiffness were present as well as orthostatic hypotension and urinary incotinence. Cranial MRI suggested early cortical atrophy due to microischemic lesions. DAT scan showed hypometabolism pattern in left nigrostriatal complex. Laboratory findings were normal. **DISCUSSION:** Patient's medical history, physical signs and auxiliary examinations suggested MSA-P (parkinsonian) type was most likely diagnosis. The diagnosis is based on a clinical picture that represents a combination of autonomic failure and parkinsonism or cerebellar symptoms. Early autonomic failure as well as poor response or lack of response to levodopa are mandatory diagnostic critetion for multiple-system atrophy diagnosis which our patient met. **CONCLUSION:** In this case, the onset of the patient's disease was concealed because her condition worsened gradually, and she was mistakenly diagnosed as idiopathic Parkinson disease. Therefore, the proposed therapy was not effective. Further monitoring of patient is necessary as well as possible therapy adjustments.

Key words: Parkinson plus, multiple systemic atrophy, MSA, dat scan.

18. THE RELATIONSHIP BETWEEN INSOMNIA SEVERITY AT THE START OF THE SEMESTER AND DURING THE EXAM PERIOD IN MEDICAL STUDENTS FROM THE FIRST TO LAST YEAR

ZLATKO GVOZDENOVIĆ[1], Džana Badžak[1], Maida Rakanović-Todić, PhD[1]

[1] Faculty of Medicine, University of Sarajevo, Sarajevo 71000, Bosnia and Herzegovina

BACKGROUND: Insomnia is a sleep disorder in which you have trouble falling and/or staying asleep. Students can often suffer from insomnia due to their lifestyle, exams, daily stress and worries. **AIM:** The aim of this study was to determine the existence and/or worsening of insomnia in medical students comparing the two weeks at the beginning of the year and two weeks into the exam period. Our secondary goal was to determine if stress combined with CNS stimulating substances plays a role in the day-to-day life of a medical student. **METHODS:** The study was designed as a cross-sectional study that included 418 respondents, aged 19 to 36 from the 1st to the 6th year of the Faculty of Medicine, University of Sarajevo, conducted through a Google Forms survey, with 16 questions. Insomnia questions were done following the official "Insomnia Severity Index" (ISI) questionnaire which offers an objective score for the severity of this condition. **RESULTS:** Paired Samples t Test was used to test statistical difference between two time points. ISI score worsened from pre-exam (M= 1.72, SD= 0.84) to during the exam period setting (M=2.57, SD=1.02). This change was statistically significant t (419) = -18.093,p=0.001.The relationship between variables was assessed using Pearson correlation analysis. Test showed low but significant positive association between worsening of ISI score during the exam period and students of female gender (r=0.223, p=0.0001). There was low negative correlation between worsening of ISI score and following variables: student's age (r=-0.107, p=0.029), frequency of nicotine consumption (r=-0.183, p=0.0001) and ISI score pre-exam (r=-0.162, p=0.001). **CONCLUSION:** With all

of this data, we conclude that, stress suffered during medical exams, combined with the intake of CNS stimulating substances, has a positive effect when it comes to the worsening of sleep and life quality in medical students.

Keywords: insomnia, insomnia severity index, CNS stimulation

19. ASSESSING IMPACT OF COVID-19 ON THE CHRONICALLY ILL PATIENTS: SARAJEVO CANTON EXPERIENCE

Clara Pinheiro[1], DINA NEIROUKH[1], Sanja Granov-Grabovica[1]
[1] Sarajevo School of Science and Technology, Sarajevo 71000, Bosnia and Herzegovina

BACKGROUND: Since the first confirmed case was reported on 5 March 2020, there has been over 113,000 cases and 4200 deaths. Bosnia and Herzegovina have been fairly affected by the COVID-19 epidemic. Thus, it is important to determine patients' perception and experience towards their access to healthcare facility during COVID-19. Due to restrictions on movement and physical interaction among the population, online survey has been an effective tool for this purpose. **AIM:** Our objective is to assess and compare changes in the access number of chronically ill patients who require continuous treatment and checkups in public and private health institute from 2019 and 2020. **METHODS:** Between December 2020 and January 2021, an online survey was distributed via public and social posts on patients' perception and experience in Sarajevo canton health facilities. The convenience online survey method of nonprobability sampling was used, the mean responses were calculated as overall percentage score. Further data about hospital visits within 2019 and 2020 have been attained from several public and private medical institutes in Sarajevo. **RESULTS:** The response rate was 27.6% (52/188). Baseline survey characteristics showed that 72% of participants had concerns visiting health care units and 43% postponed their visits due to exposure of COVID-19 and from low protective measures of their surroundings. Furthermore, we identified a significant raise in visit to private clinics, nearly no change in hospital visits, whereas outpatient clinics had reduced number of patient visits. **CONCLUSION:** Despite the uncertainty and concerns in visiting hospitals, participants have still met their health needs. Moreover, they were tentative about the health facility not taking the necessary steps to ensure a safe and healthy work environment during COVID-19. Online population surveys could be used as a fast and cheap approach to improve healthcare system toward hospital staff and patients' satisfaction, safety, cooperation, and treatment.

Keywords: COVID-19, survey, healthcare, chronic patients

20. PSYCHOLOGICAL DISTRESS IN PEOPLE WITH MULTIPLE SCLEROSIS DURING COVID-19 PANDEMIC

HANA UZUNOVIC[1], Selma Spago[1], Selma Sabanagic – Hajric[1,2]
[1] Faculty of Medicine, University of Sarajevo, Sarajevo, 71 000, Bosnia and Herzegovina
[2] Clinic of Neurology, Clinical Center University of Sarajevo, Sarajevo, 71 000, Bosnia and Herzegovina

BACKGROUND: COVID-19 pandemic affects people's mental health by increasing the rate of psychological distress including depression, anxiety and sleeping problems. Individuals with multiple sclerosis (MS) already have maladaptive coping strategies which make them more sensitive to the psychological effects of the outbreak. **AIM:** The aim is to evaluate psychological distress caused by COVID-19 outbreak in MS patients. **METHODS:** Search algorithm was obtained by combining terms „multiple sclerosis", „COVID-19", "depression" and „anxiety". We searched PubMed and found 14 applicable articles published from April 2020 to January 2021. **RESULTS:** Studies show that MS patients are more prone to become depressed and anxious during COVID-19 pandemic which is followed by the increased use of antidepressants. Females and the younger population are at higher risk of developing psychological distress. MS patients with somatic and psychiatric comorbidities are more susceptible for serious psychological consequences. Also, patients with MS are reporting poorer sleep quality. The quality of life before and during the lockdown is reduced in terms of health changes and emotional problems causing limitations. On the contrary, some patients with relapsing-remitting MS experience better quality of life considering social functioning and sexual satisfaction, especially females. But, people with progressive MS report little or no change in mental health since they are used to take extra careful preventive measures that are possibly reducing psychological distress. Also, due to considerable physical disability there are no extreme and forceful changes in everyday lives in MS patients with progessive disease. They were already socially isolated before the pandemic and have already lived with increased uncertainty due to the unpredictable nature of their condition. **CONCLUSION:** MS patients, especially females, younger people, and those with additional comorbidities are at higher risk of developing psychological distress, while patients with progresive type of disease are less prone to supplemental psychological distress caused by COVID-19 pandemic.

Keywords: multiple sclerosis, COVID-19, psychological distress, depression, anxiety

21. THE PREVALENCE OF NEUROTIC LEVEL'S DISORDERS DURING THE COVID-19 PANDEMIC

DARIA BOECHKO[1]
[1] Tyumen State Medical University, Tyumen, 625013, Russia

BACKGROUND: In the context of the global expansion of the COVID-19, all the experienced negative emotions result in a stress, i.e., a physiological adaptation process, which arises as a response to assumed and real threats. New evidence from psychiatrists evidence that we are currently on the verge of a pandemic of mental disorders. **AIM:** to assess the prevalence of anxiety and depressive disorders in patients with COVID-19 and in people who have not had COVID-19. **METHODS:** the analysis of anonymous questionnaires (n = 200) using the HADS scale from June until November, 2020.**RESULTS:** the patients were divided into 2 groups. The first group (n = 100) included patients who underwent COVID-19. The prevalence of increased levels of anxiety and depression (.8) in the study group was 72%.The prevalence of increased levels of anxiety and depression (.8) in the comparison group was 60%. The pre-pandemic results in our region for depression and anxiety before the pandemic were 30.2% and 31.5%, respectively. In our study, the prevalence of these conditions (average of two groups by results of HADS scale) is 1.8 and 1.3 times higher than before the pandemic. **CONCLUSION:** The prevalence of anxiety-depressive disorders in patients who underwent a COVID-19 is 2 times higher than in patients before the pandemic. Also, patients who underwent COVID-19 of are significantly more likely to suffer from symptoms of clinical anxiety and depressive disorders.

Keywords: depression, anxiety, HADS, COVID-19

22. AN EVALUATION OF SURGICAL TECHNIQUES FOR THE TREATMENT OF DECUBITAL ULCERS

SUNITA MEHIĆ[1] , Malik Jakirlić, MD[2]
[1] Faculty of Medicine University of Sarajevo, Sarajevo, 71 000, Bosnia and Herzegovina
[2] University Clinical Center Sarajevo, Clinic for Plastic Surgery , Sarajevo, 71 000, Bosnia and Herzegovina

BACKGROUND: The medical management of decubitus ulcers became an important issue in recent years because they still represent a serious surgical problem with frequent complications and recurrence. Choosing the appropriate surgical technique is essential for proper healing, which could be postponed due to the patient's coexisting pathology. Myocutaneous and fasciocutaneous flaps are the most commonly used reconstructive techniques. **AIM:** This study aimed to evaluate the advantages of myocutaneous flaps for the treatment of patients who developed stages III and IV decubital ulcers compared to fasciocutaneous flaps and free skin grafts. **METHODS:** In a retrospective clinical study we analyzed 40 patients with decubital ulcers who were surgically treated at the Clinic for Plastic and Reconstructive Surgery in the period from January 1st 2014 to December 31st 2018. **RESULTS:** Decubital ulcer was more common in men with 55% of cases. When it comes to age, 40% of cases were in the age group of 40 to 60 years. In 57.5% of cases, neurological disorders were the most common cause of plegia or paresis. The most common location of the decubital ulcers was the sacral region in 41% of cases. Musculocutaneous flaps were used in 57% of cases for the reconstruction of decubital wounds. 32.5% of patients had early complications, while late complications occurred in 17.5 cases. **CONCLUSION:** Stages III and IV of deep decubital ulcers require surgical treatment. The best results in the reconstruction of decubital wounds can be achieved with the use of musculocutaneous flaps. This surgical technique reduces a big number of complications.

Keywords: decubital ulcer, surgical treatment, musculocutaneous flap

23. COMPARISON OF LAPAROSCOPIC SENTINEL LYMPH NODE IDENTIFICATION AND OPEN PELVIC LYMPHADENECTOMY IN LOW-RISK UTERINE CANCER

TAUTVYDAS PETKUS[1], Urtė Žakarytė[1], Živilė Gudlevičienė[2], Rūta Čiurlienė[3], Diana Žilovič[3]

[1] Vilnius university Medical faculty, Vilnius, 03101, Lithuania
[2] The Biobank of National Cancer Institute, Vilnius, 08660, Lithuania
[3] National Cancer Institute, Vilnius, 08660, Lithuania

BACKGROUND: uterine cancer is one of the most common cancers in the world. In order for women to experience as few complications as possible, alternative surgical treatments have been sought. **AIM:** to compare treatment outcomes in laparoscopic hysterectomy with sentinel lymph node (SLN) and open hysterectomy with systemic pelvic lymphadenectomy in patients with low-risk uterine cancer. **METHODS:** data of women with low-risk uterine cancer treated in National Cancer Institute from 2019 was retrospectively analyzed. Data differences were considered statistically significant with p <0.05.**RESULTS:** 76 patients were divided into two groups: patients who underwent laparoscopic hysterectomy with SLN removal (N = 29) and patients who had hysterectomy with systemic pelvic lymphadenectomy (N = 47). SLN was found in 29 of 29 patients (100%). 86.2% patients had SLN on both sides and 13.8% patients had SLN detected only on one side. In the second group, the average of lymph nodes removed was 11.1 ± 5.96. LNMets were not found in either group. The average duration of surgery in the first group was 160.5 ± 42.52 minutes, in the second 124.1 ± 40.53 (p = 0.00039). No complications were found in the SLN group while 12.8% patients in the second group experienced complications (p <0.05) and were evaluated according to the Clavien-Dindo classification and corresponded to: two 4a, two 3a and two 2. The average number of bed days in the first group was 6 ± 3.06 days, in the second group 8.9 ± 3.4 days (p = 0.00168).**CONCLUSION:** endoscopic surgery is the first-line method for the treatment of early-stage uterine body cancer. Identification of the sentinel lymph node is an alternative way of surgical staging of low-risk uterine cancer. Considering the frequency of complications and hospitalization time, a minimally invasive technique is superior to an open surgery.

Keywords: sentinel lymph node, uterine cancer

24. APPLICATIONS OF ARTIFICIAL INTELLIGENCE TO DERMATOLOGY

AYİLKİN ÇELİK[1], Asst. prof. M. S. Sen[1]

[1]Medical University - Pleven, Pleven, 5800, Bulgaria

BACKGROUND: Artificial intelligence (AI) has contributed to dramatic progress in medicine via convergence of the availability of large data sets and graphics-specific computer hardware. Global healthcare augmented reality market is anticipated to quadruple from 2020 to 2025. Dermatologists are expected to encounter such technologies to a greater extent due to the visual focus of the field, which is associated with opportunities and challenges. **AIM:** Aim of this research is to inspire future medical professionals to understand the basic features of AI for effective utilization in clinical practice, collaborating with experts in AI research, and playing an active role in policy making to ensure patient safety. **METHODS:** Research databases of PubMed, Central and Google Scholar are searched with the keywords AI, deep learning, virtual reality, augmented reality, dermatology. Results are grouped and analysed in compliance with the fields of application, current challenges and points for potential growth, educational and medicolegal context, as well as interpreted and illustrated accordingly.**RESULTS:** Deep learning tools produce higher diagnostic consistency and accuracy, and provide an opportunity for earlier diagnosis, treatment, and improved access to dermatologic care. Most prevailing applications analyze and classify images differentiating between benign and malignant skin lesions and measuring precise wound boundaries, distinguishing the types of tissue involved. In addition, other dermatologic tools such as risk assessment calculators, allergen exposure and gene expression profiling are becoming increasingly available. **CONCLUSION:** AI technologies outperform physicians under certain conditions and promise substantial development for future dermatological care. Nevertheless, there are crucial limitations pertaining to these advancements such as selection bias, generalizability and standardization predicaments, lacking holistic approach and insufficiency of the black box rationale. In an attempt to overcome these obstacles, beyond the most prevailing current research consisting of in silico studies, it is necessary to arrange further research prospectively validated in real-world clinical settings with the contribution of dermatologists.

Keywords: artificial intelligence, augmented reality, virtual reality, innovation, dermatology.

25. SIGNIFICANCE OF DIAGNOSTIC MODALITY PET/CT IN PATIENTS WITH DIFFERENTIATED THYROID CARCINOMA

SUKEJNA SLJIVO[1], Sejla Ceric[1,2]

[1]Faculty of Medicine, University of Sarajevo, Sarajevo, 71 000, Bosnia and Herzegovina
[2]Clinic for Nuclear Medicine, Clinical Center University of Sarajevo, Sarajevo, 71 000, Bosnia and Herzegovina

BACKGROUND: Positron emission tomography/computed tomography (PET/CT) is a valuable imaging technique which is an important tool in oncology. While PET reveals the metabolic abnormalities, CT is used to locate the anatomical abnormalities, so combined functional and anatomical imaging techniques can improve the ability to detect thyroid recurrence/metastases. **AIM:** The aim is to evaluate significance of diagnostic modality PET/CT in patients with differentiated thyroid carcinoma (DTC). **METHODS:** We are reviewing available literature and published studies (database PubMed). We used methods of analysis of 7 pivotal studies. **RESULTS:** Studies are showing that PET/CT is significant for early detection and monitoring and follow up of patients with DTC. PET/CT has the ability to identify cases of recurrence / metastasis of the DTC after thyroidectomy where are elevated thyroglobulin (TG) and negative Iodine 131 whole-body scanning (WBS) Patients in stage 3 and 4 are at higher risk of recurrence and metastasis. A positive fluorine-18-fluorodeoxyglucose (F18 FDG) PET / CT is also a good tool for poorly differentiated thyroid cancer, because the level of FDG uptake shows the process of dedifferentiation. Therefore, this method can serve as an early predictor for therapeutic management. Not only that, it can change the patient's current aspect of the treatment. For example, radioiodine (RAI) treatment is usually given after thyroidectomy, however if these cells are poorly differentiated iodine cannot enter it and kill the cancer cell. Based on this, we can use PET/CT as one of the decision tools to make treatment decisions. Otherwise, the exclusion of this treatment was based on clinical manifestations which in this case may mean disease progression. **CONCLUSION:** PET / CT can be considered in the case of radioiodine – negative DTC patient with elevated and rising TG.

Keywords: PET/CT, differentiated thyroid carcinoma, metastasis, treatment

26. PATIENT WITH MULTIPLE NEUROENDOCRINE TUMORS WITH POSSIBLE MULTIPLE ENDOCRINE NEOPLASIA TYPE 1 SYNDROME-CASE REPORT

EMIN ŠIRBEGOVIĆ[1], Admir Ramusović[1], Aida Toskić[1], Azra Spahić[1], Ismar Rašić[2]

[1] Faculty of Medicine, University of Sarajevo, 71 000, Bosnia and Herzegovina
[2] Department of Surgery, General Hospital "prim. dr. Abdulah Nakaš", Sarajevo, 71 000, Bosnia and Herzegovina

INTRODUCTION: Neuroendocrine tumors (NETs) are neoplasms of neuroendocrine system mostly located in gastroenteropancreatic tract. All NETs can be classified in two main groups: functioning or non-functioning NETs. Multiple endocrine neoplasia type 1 (MEN1) syndrome is characterized by a trias: parathyroid and pituitary adenomas with NETs. Incidence of MEN1 syndrome is 0,25% and the prevalence is 2/100 000 capita. **CASE DESCRIPTION**: We present the case of 33 year-old female patient with DM type 1, sideropenic anemia, Hashimoto thyroiditis, pituitary microadenoma and C677T mutation of MTHFR gene. In 2018, esophagogastroduodenoscopy procedure showed a gastric polypoid formation that turned out to be a NET (Grade 1;Ki-67<20%; synatophysin positive). Two years later, a new polyp was found, that once again was a NET (Grade 1; Ki-67<5%; Chromogranin A (ChA) and synaptophysin positive). Whole body PET/CT Ga^{68} DOTA-TATE scan showed malignant soft tissue lesion located in fatty planes adjacent to stomach that was a metastasis of NET in omental lymph node. Because of oval hypoechoic area found on thyroid ultrasound, fine needle aspiration (FNA) was indicated and it couldn't confirm either follicular hyperplasia of parathyroid gland or a metastasis of NET (ChA negative, CD56+ positive). Serum chromogranin levels were always higher than normal. After third recidive, it is concluded that therapy with octreotide is needed. In few months, after second parathyroid biopsy, it'll be known if it's MEN 1 syndrome or metastasized neuroendocrine tumor. **DISCUSSION:** In regards of producing active substance or not, NETs elicit symptoms of carcinoid syndrome that our patient didn't show. Constant high levels of chromogranin would correlate with tumor burden and bad prognosis. **CONCLUSION**: The diagnostic and therapeutic approach has to be multidisciplinary with laboratory, imaging and endoscopic procedures to

determine NETs. NETs can be discovered with their mitotic activity, Ki-67 index, synaptophysin and ChA markers. Chromogranin is recommended as general serum marker for NETs.

Keywords: Neuroendocrine tumors, MEN 1 syndrome, chromogranin A

27. BECOMING A SURGEON: WHAT DRIVES MEDICAL STUDENTS' CAREER CHOICES?

IZABELA KARPIŃSKA[1], Urszula Skorus[1], Anna Kominko[1], Michał Romaniszyn[1]
[1] Department of Medical Didactics, Jagiellonian University Medical College, Cracow, 30-688, Poland

BACKGROUND: The interest of medical students in surgical career is constantly declining. In the face of growing demand for surgical procedures it is essential to find the reasons responsible for that situation. **AIM:** The aim of the study was to identify the level of interest in surgery career among medical students and to identify factors influencing their decisions. **METHODS:** The anonymous questionnaire distributed electronically among students from 16 medical universities. Comparison between surgical and non-surgical groups was established using Mann–Whitney U and Chi-square tests. **RESULTS:** We surveyed 595 individuals (190 male and 405 female). 48% of students declared interest in surgical subspecialty as a career whereas 65% considered it before medical school. Surgery was chosen more frequently by male individuals at the beginning of studies (2nd year: 67% vs 33%, p=0.002; 3rd year: 62% vs 38%, p=0.005). Students interested in surgery tend to assess their predispositions as very good (21% vs 5%, p<0.001). Additionally, they were more likely to perform practical activities and be involved in research work (54% vs 44%, p=0.026). Significantly more students choosing surgery reported positive experience with surgical environment (83% vs 52%, p<0.001). Whilst most of students considered surgery at least interesting (59%), surgical education was described as insufficient (49%). Students who considered it poor were more likely to choose non-surgical specialty (1% vs 16%, p<0.001). The most appreciated features of surgery were: rapid effects of treatment (85%), job satisfaction (83%) and using manual skills (67%), while the most discouraging were standing position (82%), work-life balance (73%) and high stress level (66%). **CONCLUSION:** Most medical students are interested in pursuing a surgical specialty at some time during their education. However, being discouraged by surgical training quality and working conditions, they often resign from such career path.

Keywords: surgery, surgical education, risk factors, career choice, medical students

28. INTESTINAL OBSTRUCTION WITH TWO INTESTINAL NEOPLASMS

PIOTR WIĘSYK[1], Grzegorz Mizerski[1], Maciej Dobosz[1], Zuzanna Chilimoniuk[1], Piotr Wójcik[1], Maciej Sobczyk[1], Małgorzata Słaboń[1]
[1] Student Research Group at the Chair and Department of Family Medicine, Medical University of Lublin, Lublin, 20-032, Poland

INTRODUCTION: In geriatric patients, mechanical bowel obstruction is one of the most common reasons for hospital presentation and in 50% of cases, the reason for emergency surgery. Mechanical intestinal obstruction is most often caused by colorectal cancer, intestinal herniation or intra-abdominal adhesions. The clinical presentation of a patient with intestinal obstruction consists of symptoms such as emesis and nausea, colicky pain and lack of bowel movement. Computer tomography and endoscopy serve as useful in locating intestinal obstruction. **CASE DESCRIPTION:** A case of an 85-year old man, admitted to a surgical department because of bowel obstruction. The patient shares symptoms such as: emesis, nausea, lack of bowel movement and oliguria. The research was extended by computed tomography with contrast, which showed a tumor in the recto-sigmoid area and distension of the caecum. Huge distension (up to 11-12 cm) and profuse vomiting required emergency surgery. The patient was qualified for laparotomy, during which two intestinal tumors were found: rectal tumor which closed the lumen of the intestine and a second tumor in the small intestine. A loop sigmostomy was made to decompress the intestines and excise the neoplastic lesion of the small intestine.The next stage was colonoscopy with biopsy, which showed a cauliflower rectal tumor covering the entire circumference of the intestine without the possibility of the endoscope to pass. The patient was qualified for another laparotomy, which was performed using the Hartmann method. **DISCUSSION:** A main impediment in these surgeries was the abnormal width of the patient rectum (12 cm) in CT result. Additionally, the presence of two tumors in the intestinal is uncommon for the intestinal obstruction. **CONCLUSION:** Nowadays it is necessary to get as much preoperative data as possible with preoperative extensive diagnostics in order for the surgeon to be as little exposed to surprises as possible during the operation.

Keywords: colorectal cancer, ileus, intestinal obstruction

29. THE ROLE OF CYTOGENETIC METHODS IN THE DIAGNOSIS OF HAEMATOLOGICAL DISEASES

AMINA AŠČERIĆ[1], Mirela Mačkić-Đurović[2], Hilada Nefić[1]
[1] University of Sarajevo, Faculty of Science, Sarajevo, 71000, Bosnia and Herzegovina
[2] Center for Genetics, Medical Faculty, University of Sarajevo, Sarajevo, 71000, Bosnia and Herzegovina

BACKGROUND: Conventional cytogenetics by the use of standard karyotyping allows the study of numerical and structural chromosomal aberrations. Hematological malignancies include a number of cancer types that originate in the blood cells of the bone marrow or of the lymphatic system. In the diagnosis of hematological diseases, cytogenetic methods are used for the sake of diagnosis and prognosis. **AIM:** The aim of this study was to evaluate the role of cytogenetic methods in the diagnosis of hematological diseases. **METHODS:** We performed a statistical analysis of cytogenetic findings of 200 patients with various hematological diseases. All of the findings were made over a period of three years at the Center for Genetics at the Medical Faculty of the University of Sarajevo. **RESULTS:** Our results show that the use of conventional cytogenetic analysis is a good diagnostic method for 43% of our subjects (86/200 patients) in whom chromosomal aberrations were detected. **CONCLUSION:** Cytogenetics remains the most comprehensive method for assessing chromosomal abnormalities and is an important aid in the detection and diagnosis of hematological diseases. However, in clinical practice, conventional and molecular methods complement each other and should be performed simultaneously for optimal results.

Keywords: cytogenetics, chromosomal aberrations, diagnostics, hematological diseases

30. CASE REPORT: BALANCED TRANSLOCATIONS 46,XY, t(8;17)(p23;q11) IN BROTHERS WITH AZOOSPERMIA

NEJLA ĐIKIĆ[1], Sabina Džehverović[1], Mirela Mačkić-Đurović [1]
[1] Faculty of medicine, University of Sarajevo, Bosnia and Herzegovina

BACKGROUND: Reproductive failures include a wide variety of problems such as infertility, pregnancy loss, abnormal pregnancy, and birth defects. Infertility is one of the most significant human health problems of the reproductive years. The causes of infertility are diverse and numerous-including non-genetic and genetic factors. **CASE DESCRIPTION**: A balanced translocation was found in two brothers diagnosed with azoospermia. The older brother's wife had one miscarriage and could no longer conceive. The younger brother and his wife, after being unable to conceive, did an IVF, which unfortunately failed. After the cytogenetic analysis was performed in both pairs, it was shown that the cause of their infertility was the same balanced translocation in the brothers. The females showed a normal (46, XX) karyotype whereas the males were found to carry balanced reciprocal translocation [46, XX, t(8;17)(p23;q11)]. **DISCUSSION**: The studies agree that the most common structural rearrangement is a translocation, found in about 5% of couples experiencing repeated losses. This is the first time that this translocation has been described in men with infertility. In the literature, this translocation was described twice, both time in women who had multiple miscarriages. **CONCLUSION**: Our study supports a correlation between balanced translocation and azoospermia. Therefore, patients with azoospermia and other reproductive problems should do cytogenetic analysis and genetic counseling, as this would allow them to have healthy offspring.

Key-words: balanced translocation, azoospermia, karyotype

31. MAXILLARY SINUS LIFT - TECHNIQUES, INDICATIONS AND CONTRAINDICATIONS

Selma Šujić[1], Amila Weiler[1], JENNA SANCHEZ [2], Lejla Kazazić[3]
[1] Faculty of Dentistry with clinics, University of Sarajevo, Sarajevo, 71 000, Bosnia and Herzegovina
[2] Faculty of Medicine, University of Sarajevo, Sarajevo, 71 000, Bosnia and Herzegovina
[3] Faculty of Dentistry with Clinics in Sarajevo, Department of Dental Prosthetics with Dental Implantology

BACKGROUND: Sinus lift is a procedure which, by subantral augmentation, by inserting a bone graft between the floor of the sinus and the sinus mucosa, provides the necessary amount of foundation for the installation of endosseous implants. **AIM:** This paper presents indications and contraindications, various sinus lift techniques, advantages and disadvantages of these techniques, and the complications that can occur due to this procedure through a systematic review of the literature. **METHODS:** Analysis of the available literature and articles, articles published within the databases of Google Scholar and PubMed, and on the topic of sinus lift, were reviewed. **RESULTS:** Literature research on the topic of sinus lift shows that this technique is a relatively simple procedure with good results. The degree of resorption of the alveolar bone directly affects the planning of the surgical technique of sinus augmentation and the application of the most suitable material for grafting. Allogeneic and autologous bone, alloplastic bone substitues and a combination of these materials are used for sinus grafting. **CONCLUSION:** The sinus lift technique is widespread among clinicians, is very often practiced, and shows very good results, provided that the basic principles of the technique are strictly adhered to. The risks involved are minute, with possible postoperative complications which can be treated with medication and / or surgery.

Keywords: maxillary sinus, maxillary sinus augmentation, direct lateral window, sinus lift technique, dental implants

32. HEREDITARY HEMORRHAGIC TELANGIECTASIA (RENDU-OSLER-WEBER SYNDROME) RELATED TO IRON DEFICIENCY ANEMIA

SARA BELČIĆ[1] , David Zahirović[1] , Maja Mrak[1] , Emil Klarić[1] , Jakov Končurat[1], Duška Petranović, MD[2]
[1] University of Rijeka, Faculty of Medicine, 51 000 Rijeka, Croatia
[2] Clinical Hospital Center Rijeka, 51 000 Rijeka, Croatia

INTRODUCTION: Hereditary hemorrhagic telangiectasia (HHT) or Rendu-Osler-Weber syndrome is a rare genetic disorder with autosomal dominance, characterized by the typical pathological and clinical findings as telangiectasias and arteriovenous malformations. Epistaxis is often the first and leading manifestation. In this case will be presented a male patient with iron deficiency anemia as a result of multiple angiodysplasic injuries. **CASE DESCRIPTION:** A 78-year-old patient presented to the Department of Hematology, due to severe shortness of breath and fatigue, with worsening of the clinical picture in the past month, having had epistaxis episodes. Symptoms were followed by low hemoglobin level 69 g/L, serum iron 2 mol/L, ferritin 9 g/L and decreased levels of hematocrit 0.2 L/L, demonstrating iron deficiency anemia. During the physical exam, we noticed telangiectasia throughout his face, ears and hands. Computed tomographic scan showed hypodense liver and spleen structures that were described as telangiectasias. Next, endoscopy was performed. The results indicated multiple gastric and duodenal angiodysplasias with recent bleeding. Therapy approach included catheter ambolization, proton pump inhibitors, oral iron supplementation and red blood cell transfusion. **DISCUSSION:** Data from the personal history of our patient revealed episodes of repeated periodic palpitations, a fatigue, dizziness and severe shortness of breath. Recidivant epistaxis episodes, resulting from telangiectasia of the nasal mucosa, up to 90% during infancy, are usually misdiagnosed. This condition led to hypoxemia, dyspnea and especially iron deficiency anemia as a result of intermittent gastrointestinal bleeding, caused by angiodysplasia lesions. Gastrointestinal angiodysplasias occurs in 11-40% of the patients and are more commonly situated in the stomach or duodenum than in the colon. **CONCLUSION:** To conclude, clinical manifestations of this disease are often under- recognized so it is crucial to perform correct diagnosis to prevent systemic complications. We emphasise awareness-raising in the clinical management and improvement of quality of life for those patients.

Keywords: angiodysplasia; epistaxis; iron deficiency anemia; telangiectasia

33. RESULTS OF SPLENIC ARTERY ENDOVASCULAR EMBOLIZATION IN PATIENTS WITH TRAUMATIC SPLEEN RUPTURE

Ilva Kristiāna Langrate[1],Dr. Sanita Ponomarjova[1,2], Dr. Patrīcija Ivanova [1,3], Dr. Aina Kratovska[1,2]
[1] Riga Stradins University, Faculty of Medicine, Latvia
[2] Riga East Clinical University Hospital, Department of Interventional Radiology, Latvia
[3] University of Latvia, Faculty of Medicine, Latvia

INTRODUCTION: Splenic artery embolization (SAE) is a common treatment of low-grade traumatic splenic rupture (TSR) (I-II), whereas in hemodynamically unstable patients or high-grade TSR (III-V) open surgery is preferred. **AIM:** To compile reasons of TSR in Latvia. To evaluate injury grade (IG) distribution in patients receiving SAE and to analyze association between splenic IG and changes of blood analysis before/after SAE. **MATERIALS:** In this single centre, retrospective case control study patients with TSR treated by SAE between 2014 and 2020 were included. IG was assesed with *American Association for Surgery of Trauma* (AAST) scale. Blood sample analysis performed on admission and 1st, 4th, 7th, 10th hospitalization days. Data analyzed by IBM SPSS program. Statistical significant confidence level of 90 % was chosen ($p < 0.01$). **RESULTS:** 20 patients were included in this study: 5 (25%) female and 15 (75%) male. Mean age was 45.30 (SD ±17.35, range 23- 88). In 50% of TSR polytraumatic event registered, fall from height-35%, forensic trauma-15%. According to AAST scale: 5% (n=1) had I IG, 15%(n=3) - II IG, 45%(n=9)- III IG, 35%(n=7) - IV IG. SAE was performed mean 2,6 days after admission (range 0-5 days). Patients with IV IG had the highest rate of progressive anemia ($p<0.01$) thus requiring SAE. 7 (35%) of all patients received erythrocyte mass transfusion. Highest trombocytosis level and increased post-treatment inflammatory activity was found on 7th day after SAE in III IG. One patient developed splenomegaly followed by splenectomy; no other cases of signifficant complications requiring laparotomy after SAE were found. **CONCLUSION:** The most common reason of TSR in Latvia is polytraumatic event. SAE can be used in both low-grade and high-grade TSR with minor rate of complications. Further studies are necessary to compare postoperative results of SAE versus open surgery in patients with equal TSR grades.

Keywords: trauma, splenic artery, embolization

34. A CASE REPORT OF GIANT LEFT VENTRICULAR THROMBUS IN PATIENT WITH ULCERATIVE COLITIS

ANTONELA GEBER [1], Vesna Galjuf [1], Jozica Šikić [2]
[1] School of Medicine, University of Zagreb, Zagreb, 10000, Croatia
[2] Department of Cardiovascular Disease, Clinical hospital "Sveti Duh", Zagreb, 10000, Croatia

INTRODUCTION: Giant intracardial thrombosis is a rare condition usually connected with hypercoagulable state. Its incidence is very low in young population with normal systolic function. Ulcerative colitis is a form of inflammatory bowel disease (IBD) which targets predominantly the gastrointestinal tract. Cardiovascular manifestations are mostly considered immune-related. Among others, patients have increased risk endomyocardial fibrosis (EM) which is a form of restrictive cardiomyopathy of unknown etiology. **CASE DESCRIPTION:** A 36-year-old male patient previously diagnosed with ulcerative colitis presented with chest discomfort and fever. Cardiac enzymes were elevated and electrocardiography showed negative T-wave in precordial leads V3-6. Echocardiography revealed normal systolic function of the left ventricle with gentle hypokinesia of septal part, without "strain" signs for ischemia and showed the suspected thrombi. Coronarography showed normal epicardial artery. CT showed three masses up to 2 cm in diameter. MRI confirmed mild apex hypokinesia but presented a single 22x8 mm triangular thrombus. Therefore, MRI proved to be more precise. Fibrotic changes in the apex endocardium suggested possible endomyocardial fibrosis. Patient was identified as MTHFR heterozygous for C677T and homozygous A1298C variant indicating higher risk for blood clots. He was treated with β-blockers, antibiotics and initially with Heparin and then with Warfarin. During the hospitalization patient developed an embolus in popliteal artery, threated with embolectomy. **DISCUSSION:** Cases of intracardial thrombosis in young population are rarely described in literature. They are often associated with pre-existing hypercoagulable state or cardiac disease. In this case endomyocardial fibrosis damaged heart wall making it susceptible to thrombus formation. Furthermore, MTHFR mutations resulted in higher risk for clotting as well. **CONCLUSION:** In rare cases with multiple risk factors combined, such as endomyocardial fibrosis and inherited MTHFR mutations, giant ventricular thrombus may be formed

in patients with normal systolic function. It is crucial to start prompt treatment to prevent further thrombus growth and possible embolic events.

Keywords: left ventricular thrombus, ulcerative colitis, endomyocardial fibrosis, MTHFR mutations

35. DIFFERENCES BETWEEN NON-OPERATIVE AND OPERATIVE TREATMENT OF PROXIMAL HUMERAL FRACTURES IN ELDERLY PATIENTS

EMIL KLARIĆ[1], Maja Mrak [1], Jakov Končurat [1], Sara Belčić [1]
[1] Faculty of Medicine, University of Rijeka, Rijeka, 51000, Croatia

BACKGROUND: Proximal humeral fractures (PHF) are fractures of the proximal third of the humerus. These fractures commonly occur in older age adults, mostly over age of 60. Treatment options for PHF are conservative and surgical. While conservative approach is approved for non-displaced PHF, approach for comminutive and displaced fractures is still to be determined. **AIM:** The aim of this study is to provide information about comparison of conservative and operative treatment. **METHODS:** This study is based on literature review of studies comparing operative and non-operative treatment, performed in January 2021, with a focus on effectiveness of both types of treatment in older patients. **RESULTS:** The review included 6 randomized clinical trials (RCTs) and one meta-analysis which involved 1208 patients with mean age of 69,91 years. Majority of patients were women (f: 948, m: 260). 503 patients were treated surgically while 565 received conservative treatment. There is no shown statistically significant difference between groups operative and non-operative treatment. Previous studies showed no statistical difference between conservative and operative treatment in elderly patients in a time range from 6 months to 5 years. Studies from 1997, 2001 and 2009 showed no statistical difference in functional ability between conservative and non-operative group. A study from 2019 showed no statistical difference between 2 groups consisting of 44 patients each treated conservatively and operatively. **CONCLUSION:** Studies so far show that non-operative treatment for PHF can be as effective as operative treatment. Considering complications connected with operative treatment and emotional stress we should start to consider non-operative treatment as a primary treatment. Studies with bigger test groups are needed to determine if there are any statistical differences between the two approaches. If the non-operative treatment should be proven more beneficial the new protocol for assessing and treating PHF in elderly patients should be constructed.

Keywords: proximal humeral fracture, conservative treatment, surgery

36. TREATMENT OF A PATİENT WITH LATE PRESENTİNG SEVERE BİLATERAL CLEFT LİP AND PALATE

LUKA MILOVIĆ[1] , Prof.Hakan Agir, MD,PhD[2]
[1] Medical Faculty, University of Montenegro, Podgorica, 81000, Montenegro
[2] Aesthetic, Plastic and Reconstructive Surgery Acibadem Altunizade Hospital, Istanbul, Turkey

INTRODUCTION: Of all congenital anomalies of the oral cavity, one of the most severe from an aesthetic, functional and sociological point of view is the cleft lip and soft palate. This phenomenon occurs due to disorders of embryonic development during the first three months of intrauterine life. **CASE DESCRIPTION:** Male patient,9 years old,from a very remote mountain area of East Turkey, presented with a severe bilateral cleft lip and palate. Neglected due to socioeconomic and geographical reasons. Non syndromic, otherwise healthy, speech is disordered; low intelligibility, eating and drinking well. During the examination wide cleft lip and palate ,severely protruded premaxilla and dento maxillary development is in normal range compared to his peers.Laboratory and radiology otherwise nonspecific. Two stage surgical closure,first stage lip closure along with projected premaxillary setback and the second stage total palate closure along with radical veloplasty.Full recovery without any complications.Patient gone back home 3 months later , doing better socially and speech is much more understandable. **CONCLUSION:** Services and treatment can vary depending on the severity of the cleft; the child's age and needs; and the presence of associated syndromes or other birth defects, or both. The surgical approach to each child is individual, but the main goal is to achieve anatomical muscle reconstruction, also to ensure normal breathing, swallowing and speech, as well as to prevent hearing damage.

Keywords:cleft, defect, lip, palate, veloplasty

37. LIVER TRANSPLANTATION AFTER COMPLICATED CHRONIC HEPATITIS B, FOLLOWED BY COVID-19

MAJA PERICA[1], Katarina Radoš[1], Adriana Vince[1,2]
[1] School of Medicine, University of Zagreb, Zagreb, 10 000, Croatia
[2] University Hospital for Infectious Diseases 'Dr. Fran Mihaljević', Zagreb, 10 000, Croatia

INTRODUCTION: We present a case of a 75-year old male with chronic, HBeAg negative hepatitis B who developed complications of chronic liver disease, despite the long-term antiviral therapy and undetectable HBV DNA, and underwent orthotopic liver transplantation (OLT). Afterwards, patient got mild COVID-19 and recovered. **CASE DESCRIPTION:** The patient was diagnosed with chronic hepatitis B in 2009, presenting with compensated liver cirrhosis (Child Pugh score 6). The antiviral treatment with lamivudine was started and switched to tenofovir disoproxil fumarate in 2013 achieving complete HBV DNA suppression ever since. In 2019 he presented with symptoms of a first stage encephalopathy, was hospitalized and underwent diagnostic workup. MSCT of the abdomen showed a solitary hypervascular area (3 cm) which was later diagnosed as hepatocellular carcinoma meeting Milan criteria for liver transplantation. He underwent 2 cycles of transarterial chemoembolization and OLT afterwards. Patient is under immunosuppression, takes prophylactic therapy for PCP and CMV and has continued with tenofovir. One month after OLT patient was diagnosed with mild COVID-19 and fully recovered. **DISCUSSION:** This is a rare case of a patient in a good physical condition despite consecutive severe diseases and operative procedures. Liver transplantation solved both of his chronic hepatitis complications; liver failure and hepatocellular carcinoma. It is also one of the rare reported cases of COVID-19 in liver transplant patients. Although this patient has fully recovered, reported mortality rate of transplanted immunosuppressed patients with COVID-19 is up to 30%. **CONCLUSION:** Chronic hepatitis B is a progressive disease with oncogenic potential. One fourth of those with chronic hepatitis B develop cirrhosis, liver failure or cancer, which demand liver transplantation. Those who undergo transplantation, need constant monitoring and therapy for HBV as well as immunosuppressive and prophylactic therapy. Because of immunosuppressive therapy, patients are often more susceptible to infectious diseases, such as COVID-19 and therefore special precaution is needed.

Keywords: COVID-19, hepatitis B, liver transplantation

38. A RARE CASE OF COLLET-SICARD SYNDROME SECONDARY TO BOERHAAVE'S SYNDROME

RAHUL PENUMAKA[1]
[1] Imperial College London, London, SW7 2BU, United Kingdom

INTRODUCTION: We report a case of a patient presenting with Boerhaave's syndrome who developed a rare neurological complication, Collet-Sicard syndrome. **CASE DESCRIPTION:** A 30-year-old male presented with a two-day history of acute onset, severe abdominal pain, and vomiting. On admission, he was pyrexic and tachycardic. A CT of the chest, abdomen, and pelvis showed air in the mediastinum and upper abdomen as well as considerable mediastinitis extending into the neck. CT with gastrografin showed extravasation of contrast into the mediastinum, indicating an oesophageal perforation. The patient was diagnosed with Boerhaave's syndrome and admitted to the ITU. The patient then underwent a diagnostic laparoscopy with washout and drain placement, followed by an OGD with insertion of a fully covered oesophageal stent. The stent was removed after two weeks but the patient had residual dysphagia related to neuromuscular palatal and tongue dysmotility. **DISCUSSION:** The patient was diagnosed with Collet-Sicard syndrome, a very rare condition involving unilateral palsy of the lower cranial nerves. In this patient, it was likely caused by mediastinitis that extended to the internal jugular foramen and led to temporary paralysis of cranial nerves IX, X, XI, and XII. Eventually, control of the perforation led to the patient regaining normal neurological function. Known causes of Collet-Sicard syndrome include various tumours, traumatic events, and inflammatory processes. However, we believe this to be the first case highlighting that Collet-Sicard syndrome can arise as a complication of an oesophageal perforation and its treatment. **CONCLUSION:** Clinicians should consider this possible complication when managing patients with oesophageal perforations.

Keywords: Boerhaave's syndrome, Collet-Sicard syndrome, cranial nerve dysfunction, oesophageal perforation

39. HICCUPS: PSYCHOSOMATIC SYMPTOM, ATYPICAL SYMPTOM OF COVID-19 INFECTION OR SIDE EFFECT OF DEXAMETHASONE – CASE REPORT

DORA HERCEG[1]
[1] School of Medicine, University of Zagreb, Zagreb, 10 000, Croatia

INTRODUCTION: As the coronavirus pandemic continues to ravage worldwide, new data shows a multitude of symptoms that were not reported previously. Persistent hiccups were also reported as an unusual COVID-19 symptom as a first case published in American Journal of Emergency Medicine. Hiccups are involuntary spastic contractions of the diaphragm and intercostal muscles followed by the rapid closing of the glottis and, generally, a self-limited disorder. **CASE DESCRIPTION:** A 68-year-old male with a past medical history of obesity, hypertension and stroke had COVID-19 infection. He was febrile to 38.6 °C and mildly tachycardic with a heart rate of 110 beats per minute. He was placed on contact and airborne isolation and started on 500 mg paracetamol and 10 mg dexamethasone twice daily. Symptomatic care was continued and the patient was emotionally altered and anxious due to the disease. Two days after starting therapy he started to have persistant hiccups. **DISCUSSION:** In this case, the question of the cause of hiccups arises. Is it an atypical symptom of COVID-19 infection, a side effect of dexamethasone, or is it a psychosomatic symptom due to the patient's strong anxiety and fear related to the infectious disease. The patient did not respond to conventional clomipramine therapy. However, the patient responded well to treatment with the atypical antipsychotic sulpiride with continued dexamethasone and paracetamol therapy. Regardless of what caused the hiccups, the antipsychotic sulpiride proved to be the drug of choice. It is a low-potent atypical antipsychotic which acts as a neurovegetative stabilizer when applied in low doses in the range of 50-200 mg. **CONCLUSION:** Psychosomatic disorder should be considered in the underlying cause of intractable hiccups. Antipsychotic therapy can be considered for patients with intractable hiccups refractory to conventional therapy.

Keywords: antipsychotics, corticosteroids, COVID-19 infection, hiccups

40. PALLIATIVE AND SUPPORTIVE THERAPY FOR PATIENT WITH CANCER OF UNKNOWN PRIMARY - CASE REPORT

LUKA MATANOVIĆ[1], Iva Andrašek[2], Lidija Beketić-Orešković[2, 3]
[1] Student of University of Zagreb, School of Medicine, Zagreb, Croatia
[2] Division of Oncology and Radiotherapy, University Hospital for Tumors, Sestre milosrdnice University Hospital Center, Zagreb, Croatia
[3] Department of Clinical Oncology, University of Zagreb, School of Medicine, Zagreb, Croatia

INTRODUCTION: Cancer of unknown primary (CUP) is a clinico-pathological syndrome characterized by a histologically proven metastatic cancer without a clinically found primary site of origin. In 2017., 604 newly diagnosed patients with CUP accounted for 2.4% of all newly diagnosed cancer patients in Croatia. Of these, patients with squamous cell carcinoma accounted for about 5–8%. **CASE DESCRIPTION:** A 53-year-old male presented with a large cervical mass (10x15cm) on the left side of the neck. After the examination by ENT specialist, MSCT imaging revealed an extensive conglomerate of cervical lymph node masses, infiltrating the surrounding tissue and with foci of necrosis. A cytological needle aspiration was performed and a metastatic squamous cell carcinoma was identified. Even after a detailed clinical and radiological investigation, a primary origin of cancer could not be identified. The patient was in a good overall clinical condition but had lost 20kg in the past 3 months due to the inability to eat solid food as a result of the tumor expansion. For this reason, nasogastric tube was inserted and nutritional support was introduced. Palliative radiotherapy (RT) with 39Gy divided in 13 fractions was performed. **DISCUSSION:** RT was used as a palliative therapy for this patient. Other palliative treatment modalities include surgery and/or chemotherapy. Multimodal approach represents the best treatment modality for patients with CUP. However, combined therapy is associated with enhanced mucosal toxicity; loss of 8 to 10 percent of body weight is common, even with early nutritional support. Immunonutrition refers to enteral formulas that are supplemented with L-arginine, RNA nucleotides, and omega-3 fatty acids. RT combined with immunonutrition seems like a promising approach for CUP patients. **CONCLUSION:** RT combined with immunonutrition was beneficial for this patient. However, decisions still need to be undertaken on a case-by-case basis.

Keywords: cancer of unknown primary, head and neck tumor, immunonutrition, radiotherapy

41. PRESENTATION OF A YOUNG PATIENT WITH EAR FULLNESS AND TINNITUS DUE TO A RARE TUMOR

DAMIR MIŠURA[1], Mislav Sekulić[1], Jakov Ajduk[1,2]
[1] School of Medicine, University of Zagreb, Zagreb, 10000, Croatia
[2] Sestre milosrdnice University Hospital Center, Department of Otorhinolaryngology and Head and Neck Surgery, Zagreb, 10000, Croatia

INTRODUCTION: We present a case of a young female patient (19 years old), who experienced ear fullness and tinnitus regarding her right ear which were present for one year. **CASE DESCRIPTION:** The patient reported unilateral ear fullness and tinnitus in the last year. She had no other medical or family history. The pure tone audiometry showed normal hearing on the left while on the right ear hearing was normal in lower frequencies and sensorineural hearing loss was present at 4kHz of 90 dB. Tympanometry showed no abnormalities. Otoscopy discovered red discoloration under the eardrum. MR imaging of the head was done earlier and showed no abnormalities. Due to the clinical image and because the symptoms did not abate, another MR image was performed, but this time MR of the temporal bone with contrast. A formation dimensions 8x5 mm in middle ear was discovered. Surgical procedure was indicated. It included exploration and extirpation of the tumor. **DISCUSSION:** Middle ear adenoma is a rare benign tumor that develops from the epithelial mucosa. It can occur at any age with no age predilection. Furthermore, it has no specific signs or symptoms, making the diagnosis difficult. It is necessary to perform PHD and immunohistochemical tests for the confirmation of the diagnosis, after the suspicion of the disease was set based on the clinical findings, audiometry and imaging (CT, MR). The differential diagnosis to cholesteatoma and other tumors (schwannoma, meningioma) is important due to the mode of treatment. **CONCLUSION:** Adenomas of the middle ear are rare. Since the clinical presentation is not specific, the diagnosis is challenging and even microscopic examination and immunohistochemistry sometimes do not give the clear diagnosis. Surgical exploration and extirpation is the treatment choice and regular follow-up including clinical examination and MR imaging are recommended.

Keywords: impaired hearing, tinnitus, adenoma

42. NEUROLOGIC SIGNS AND SYMPTOMS IN PATIENTS POSITIVE FOR COVID-19

BERINA MAHMUTOVIC[1], Medina Mujcin[1], Enis Hadzic[1], Edina Djozic[1], Merita Tiric-Campara[1]
[1] Sarajevo School of Science and Technology, Sarajevo, 71 210, Bosnia and Herzegovina

BACKGROUND: Infectious disease, caused by the most recent strain of coronavirus, SARS-CoV-2, first appeared on 31st of December, 2019., in Wuhan, China. By March 2020 it had spread over the globe. Various symptoms have been associated with it, including neurologic. **AIM:** To examine frequency of neurologic symptoms during the COVID-19 infection; and to create statistics for B&H. **METHODS:** By using online questionnaire we have collected data necessary for the statistics. Prior to answering questions, examinees had been well-informed about the project and had been given the chance to ask questions. Informed consent has been obtained. Research has excluded juveniles. Project has been approved by Bioethical commitee of SSST. **RESULTS:** Research has included 155 examinees; 128 women (82.6%) and 27 men (17.4%). Majority of the examinees (36.8%) were of age range 31-44. The most common first symptoms were: fever (59.4%), body aches (51.6%), headache (49%), generalized weakness (48.4%), cough (26.5%), loss of taste (ageusia, 11.6%), loss of smell (anosmia, 22.6%) or loss of both (59.4%) . For the majority of respondents (72.3%), the symptoms of COVID-19 had persisted for 1-5 days before the infection has been confirmed by the PCR test, and in 3.2% of respondents the symptoms had persisted for more than 15 days. During the infection, other neurologic symptoms appeared. Disorders of concentration were noted in 62% of examinees, dizzeness in 54.2%, confusion in 52.9%, discoordination in 34.1%. **CONCLUSION:** This statistic has confirmed increased frequency of neurologic symptoms in patients positive for COVID-19 in our population. Some other studies have shown the same and suggest that SARS-CoV-2 can reach the central nervous system and peripheral nervous system most likely from the bloodstream or olfactory pathway. For the particular mechanism and more detailed data, further research is required.

Keywords: COVID-19, neurologic signs and symptoms, SARS-CoV-2

43. PULMONARY THROMBOSIS/EMBOLISM IN A PATIENT WITH CORONAVIRUS DISEASE-2019 (COVID-19)

MAŠA PULJIZ[1], Domagoj Tomasović[2]
[1] School of Medicine, University of Zagreb 1, Zagreb, 10 000, Croatia
[2] University Hospital for Infectious Diseases „Dr. Fran Mihaljević" 2, Zagreb, 10 000, Croatia

INTRODUCTION: Several reports have described significant procoagulant events, including pulmonary embolism (PE) in patients with coronavirus disease-2019 (COVID-19). **CASE DESCRIPTION:** A 61-year-old female, RT PCR positive for SARS-CoV-2 was admitted to the University Hospital for Infectious Diseases „Dr. Fran Mihaljević" Zagreb for fever and nonproductive cough lasting for 14 days. In the last 2-3 days she complained of shortness of breath and vomiting. Her medical history was unremarkable. On admission, the clinical examination showed altered general health status, dyspnea, tachypnea and low an 0_2 saturation in hemoglobin (SaO_2) of 86%. The pathological findings of the laboratory tests consisted of slight C-reactive protein (49.3 mg/L) elevation and increased plasma level of d-dimer (>4.45 mg/L). Chest radiograh revealed bilateral interstitial infiltrates. Multi-slice computer tomography (MSCT) pulmonary angiography revealed multiple larger postcontrast filling defects in the distal portion of the right main pulmonary artery, right interlobar artery, right upper lobe and middle lobe segmental branches. Smaller filling defects were seen in the left main pulmonary artery as well as upper and lower lobe segmental branches. Postcontrast filling defects are probably consistent with large vessel pulmonary embolism and distal pulmonary microvascular occlusion. In the pulmonary "parenchymal" window, subpleural "ground glass" and "crazy paving" opacities are seen in all pulmonary segments, bilaterally. Parenchymal consolidations are present bilaterally in the posterior segments of lower lobes. **DISCUSSION:** We found out in our study that patient with COVID-19, without risk for developing PE, are more susceptible to get PE during the second and third week of the disease. Clinical deterioration with elevated value of CRP and D-dimer suggests possible PE and requires urgent MSCT pulmonary angiography to confirm or exclude PE. **CONCLUSION:** Our study suggests that COVID-19 patient, without risk factors, can develop acute PE during the second and third week of the disease due to procoagulant effect of SARS-CoV-2.

Keywords: Covid-19, pulmonary embolism, MSCT pulmonary angiography

44. UNUSUAL CASE OF FACIAL NERVE NEUROMA AND FACIAL REANIMATION AFTER REMOVAL

MARCELA ROMIĆ[1], Maja Perica [1], Jakov Ajduk[1,2]
[1] School of Medicine, University of Zagreb, Zagreb, 10 000, Croatia
[2] Sestre Milosrdnice University Hospital Centre, Department of Otorhinolaryngology and Head and Neck Surgery, Zagreb, 10 000, Croatia

INTRODUCTION: We present a case of a 38-year-old male with unilateral facial palsy persisting after treating acute otitis media. **CASE DESCRIPTION:** A 38-year-old male patient was admitted to our department for the treatment of unilateral acute facial palsy. For 10 days he had been treated in another hospital for acute otitis media with parenteral antibiotic therapy but the facial palsy persisted. This was the second time in 5 years he had facial palsy caused by otitis media. The first time it caused a slight sensorineural hearing loss which was still present. Otoscopy showed macerated ear canal and eardrum. Peripheral facial palsy was graded 4/6 on the House-Brackmann scale. Myringotomy was immediately performed, unknown mass was noticed in the middle ear. MSCT and MR imaging suggested cholesteatoma. Tympanoplasty was performed, no cholesteatoma was found, but inflammated mucosa and unknown tissue in projection of the facial nerve. Pathohistological diagnosis was schwannoma. In the next surgical procedure the tumor was removed from the internal auditory canal to the mastoid. Facial reanimation was performed using anastomosis of the distal part of the facial nerve with the masseteric nerve. **DISCUSSION:** Facial nerve neuromas are uncommon benign neoplasms of Schwann cells. They compose 0.8% of all temporal bone tumors. Depending on the localization, which can be anywhere along its pathway, they can cause different symptoms including facial palsy, dizziness, hearing loss, tinnitus and taste disorder. The most common approaches for reconstruction are direct facial nerve repair with or without grafting, nerve transfer, cross-facial nerve grafting, and muscle transfer. **CONCLUSION:** Facial nerve neuromas are rare tumors. They can be treated surgically or using gamma knife and are followed-up using MR imaging. Facial nerve reconstruction after removal of the tumor should be performed.

Keywords: facial palsy, facial reanimation, neuroma

45. NON MELANOMA SKIN CANCER IN HEART TRANSPLANT PATIENT

LORENA KARLA RUDEŽ[1], Tin Šklebar[1], Romana Čeović[1,2]
[1] University of Zagreb School of Medicine, Zagreb, 10000, Croatia
[2] Department of Dermatovenerology, Clinical Hospital Centre Zagreb, Zagreb, 10000, Croatia

INTRODUCTION: Nonmelanoma skin cancers (NMSC) are the most frequent malignancies in solid organ transplant recipients. Most common type of NMSC in these patients are squamous cell carcinoma (SCC) and they tend to be more aggressive compared to general population. **CASE DESCRIPTION:** A 71-year-old Caucasian male was admitted to Department of Dermato-oncology with a crusty, scaly lesion which was located all throughout midscalp of his head, with the exception of the place where skin graft has previously been inserted. Before coming to our clinic, the patient has already undergone 3 surgical removals of SCC on his scalp. Surgical removal of the new lesion was no longer possible because of its size and localization so radiotherapy was suggested as the treatment of choice. 11 years prior to his first dermatological examination at our unit, the patient has had a heart transplant. Because of that, he has been undertaking continuous immunosuppressive therapy (Cyclosporine 2x150mg, Prednisone 10mg and Azathioprine 2x10mg daily). Biopsies were taken from three different locations on the lesion and pathohistological analysis confirmed the diagnosis of SCC. The whole area affected by SCC was successfully treated by superficial x-ray therapy (SXRT) with a total dose of 60 Gy. The primary lesion healed adequately, but in the following year five more SCCs occurred throughout the patient's head and body and all of them were removed surgically. **DISCUSSION:** Patients after heart transplantation are at higher risk of developing skin cancer in comparison to other transplant patients. They occur because chronic immunosuppression can lead to decreased immune-mediated tumour surveillance. Surgery is usually first line-therapy for SCC, but in our patient, radiotherapy was administered because, after three surgical removals, SCC relapsed and spread throughout the scalp. **CONCLUSION:** Management of NMSC in organ-transplant recipients should focus on aggressive treatment of established malignancies, regular full-skin examination, educating post-transplant patients, and prophylactic measures.

Keywords: non melanoma skin cancer, heart transplant, immunosuppressants, radiotherapy

46. THE ROLE OF MACHINE LEARNING IN CONSTRUCTION OF PREECLAMPSIA PREDICTION MODELS

MISLAV SEKULIĆ[1], Damir Mišura[1], Petra Sulić [2], Marija Škoro[3]
[1] School of Medicine, University of Zagreb, Zagreb, 10000, Croatia
[2] General practitioner's office MD, Marija Petrovčić, Zagreb, 10000, Croatia
[3] Department of Emergency Medicine Vukovar-Srijem County, Vinkovci, 32100, Croatia

BACKGROUND: Preeclampsia is a pregnancy-associated disorder with new-onset hypertension, which occurs most often after 20 weeks of gestation and frequently near term. The estimated prevalence is 2-8% and attributes to 16% of maternal deaths. Machine learning (ML) is a computer science discipline focused on algorithms that improve automatically through the experience without being explicitly programmed. **AIM:** Literature review of machine learning generated models for preeclampsia prediction.**METHODS:** The searches using a combination of "machine learning", "deep learning", "vector machine", and "preeclampsia" as topics were conducted through Web of Science, including all bases. The search yielded 39 results from which 9 were included in this paper. Only full-text articles that developed prediction models for preeclampsia were included. **RESULTS:** All of the reviewed studies established models for the prediction of preeclampsia. Studies included one prospective cohort, four retrospective cohort, two nested case-control, and two case-control studies, with sample sizes ranging 77-58276 patients. Smaller sample sizes limited the power of machine learning, as overfitting of a model could have occurred. Eight of nine studies divided data into training and test sets. Four studies constructed models using electronic health records, with the remaining five studies using novel concepts with urinary proteins, plasma metabolites, DNA microarray data, cell-free DNA, or circulating-RNA as their model-building data. The replicability of the four studies was questionable as protocols and data used for model construction are complex. The models examined accuracies of 72-100% with AUC ROC ranging from 0,57-0,964. One study examines conventional regression methods yielding a more accurate

preeclampsia prediction, being the only study with such results. **CONCLUSION:** Results of the reviewed studies indicate the need for reevaluation of the current risk assessment guidelines. Validation of models and the replication of studies on larger cohorts is needed, where machine learning would operate better. Novel biomarkers can also serve in further research into preeclampsia pathogenesis.

Keywords: preeclampsia, machine learning, prediction model

47. CEREBRAL DURAL ARTERIOVENOUS FISTULA: A CASE REPORT

KATARINA RADOŠ[1], Marcela Romić[1], Ivan Jovanović[2]
[1] School of Medicine, University of Zagreb, Zagreb, 10 000, Croatia
[2] University Hospital Centre Zagreb, Department of Diagnostic and Interventional Neuroradiology, Zagreb, 10 000, Croatia

INTRODUCTION: We present a case of an older woman who developed symptomatic intracranial dural arteriovenous fistula following chronic transverse sinus thrombosis. **CASE DESCRIPTION:** A 73-year-old female patient was hospitalized in another regional hospital after experiencing an ischaemic stroke presented with dysphasia and confusion. Resolution of symptoms was observed during the hospital stay. MR showed no signs of acute ischemia. CTA and MRA were then performed, showing dural arteriovenous fistula (dAVF) of the left transverse sinus and the absence of the ipsilateral sigmoid sinus. After transfer to our Hospital, digital subtraction angiography (DSA) was performed for detailed characterization of the dAVF. Via the transarterial approach, an extensive dAVF of the left transverse sinus was visualized, vascularized predominately by the left middle meningeal artery (MMA). Total occlusion of the left sigmoid sinus with the retrograde flow into the dilated and tortuous cortical veins was shown. The fistula site was reached through the MMA and two ampules of endovascular nonadhesive embolic agent were injected. Postembolization angiograms showed complete occlusion of the fistula. **DISCUSSION:** Intracranial dural arteriovenous fistulas are abnormal shunts between dural arteries and dural sinuses, cortical or meningeal veins. They are mostly idiopathic, although sinus thrombosis, previous trauma or craniotomy can trigger their formation. Symptomatology depends on the fistula site and pattern of venous drainage. Our patient had hypoperfusion symptoms of the left temporal and occipital lobe due to venous stasis and consequently reduced arteriovenous pressure gradient which caused less arterial blood to be delivered. Treatment-wise, the endovascular approach has become the mainstay in the past few decades. **CONCLUSION:** Cerebral dural arteriovenous fistulas are a complex pathology that requires comprehensive knowledge of anatomy, pathophysiology, pathology and neurology. It is essential to keep them in mind as they can cause impressive clinical presentations but could be treated successfully in most cases and reverse the clinical course.

Keywords: cerebral dural arteriovenous fistula, sinus thrombosis, endovascular treatment

48. ACUTE SOLAR MACULOPATHY – CASE REPORT

MAJA MRAK[1], Sara Belčić[1], Emil Klarić[1], Jakov Končurat[1], Bernarda Mrak[1], Miro Kalauz[2], Bernard Mrak[3]
[1] Medical faculty University of Rijeka, Rijeka, 51000, Croatia
[2] Department of Ophthalmology, Zagreb University Hospital Centre, Zagreb, 10000, Croatia
[3] Department of Ophthalmology, Clinical Hospital Centre Rijeka, Rijeka, 51000, Croatia

INTRODUCTION: Acute solar maculopathy is a result of acute harmful photochemical effects of focused sunlight on the photoreceptors and retinal pigment. Risk factors for developing solar maculopathy include young age, clear intraocular lens, photosensitizing drugs and psychiatric diseases. Although solar maculopathy is an acute accident, it is interesting because of its acute changes and possible connections with chronic changes associated with permanent solar exposure and recently more frequent screen and technical light exposure (microscope, lasers, etc.). **CASE DESCRIPTION:** A 35-year-old woman presented with acute, bilateral vision loss after staring directly at the sun for several minutes in the Alps in summer, while performing solar yoga for the first time. On examination a day after, her visual acuity (VA) was 4/25 in both eyes, which caused her panic. A small, yellow-brown, round foveal lesion was identified in both fundi. Amsler grid testing revealed a bilateral central scotoma. Spectral-domain optical coherence tomography (SD-OCT) showed a bilateral foveolar cyst. Treatment was macular supplementation rich with beta carotenoids, lutein, and zinc. At the three-month follow-up, the patient's VA was restored to 20/20; the retinal SD-OCT exam showed regular anatomy. **DISCUSSION:** SD-OCT exam macular cyst changes strictly followed the visual improvement of this patient. Restitiutio ad integrum was the final SD-OCT finding. **CONCLUSION:** SD-OCT technique was shown as a great diagnostic tool in diagnosing, predicting and follow up for solar maculopathy damage and healing dynamics.

Keywords: optical coherence tomography, solar maculopathy, sunlight adverse effects

49. CANCER TREATMENT-INDUCED ARRYTHMIA CASE REPORT

JAKOV KONČURAT[1] , Emil Klarić[1] , Maja Mrak[1] , Sara Belčić[1]
[1] Faculty of Medicine, University of Rijeka, Rijeka, 51000, Croatia

INTRODUCTION: Atrial fibrillation (AF) is the most sustained supraventricular arrhythmia. Symptoms that can occur are palpitations, weakness, shortness of breath and pre-syncope. Cardiac conditions connected to the etiology of the AF are hypertension, congestive heart failure, rheumatic heart disease and ischemic heart disease. Non-cardiac conditions having a significant impact on the prevalence of the AF are hyperthyroidism, hypoxemia, alcohol intoxication and the use of some chemotherapeutics (anthracyclines, antimetabolites and antimicrotubule drugs). **CASE DESCRIPTION:** A 69-year old patient presented to the emergency room with tachycardia and high blood glucose levels (24.6 mmol/L). The patient was complaining on the pain in the right knee and oedema of both legs, without chest pain. Blood pressure was 130/70 mmHg, pulse 160bpm, sp02 92%. From chronical treatment refers bisoprolol, pantoprazol, moxonidine. The data of history revealed adenocarcinoma (most likely originated from kidney), metastasis in bones, mediastinum, right hilar lymph nodes, arterial hypertension. Radiotherapy of the thoracic vertebrae (Th1-2), lumbar (L1) and left scapular area 40 days prior to admission was administered. Two weeks prior to admission patient underwent a first cycle of chemotherapy using vinblastine. The diagnosis of deep venous thrombosis was ruled out in hospital emergency ward. On admission to hospital, ECG analysis showed Atrial fibrillation of unknown time of origin (CV4). **DISCUSSION:** The patient was treated with radiotherapy and chemotherapy. Theoretically, both treatments can cause AF. In this case, the dose of radiation used for radiotherapy was too low to have an impact on AF. Considering that antimicrotubule drugs (in this case vinblastine) can affect heart conduction, cause T-wave changes, QTc interval prolongation. We conclude that vinblastine had an impact on newly diagnosed AF. **CONCLUSION:** To conclude, not enough studies have been made on this topic, therefore a connection between these entities is not defined. Hence, we are proposing a connection between treatment with vinblastine and AF.

Key words: arrhythmia, atrial fibrillation, oncology

50. COCHLEAR IMPLANTATION AFTER DEAFNESS CAUSED BY MENINGITIS

REBEKA BAREŠIĆ[1], Matea Kuna[1], Jakov Ajduk[1,2]
[1] School of Medicine, University of Zagreb, Zagreb, 10 000, Croatia
[2] Sestre Milosrdnice University Hospital Centre, Department of Otorhinolaryngology and Head and Neck Surgery, Zagreb, 10 000, Croatia

INTRODUCTION: We are presenting a case of a 53-year-old female with deafness after Streptococcus pneumoniae meningitis. **CASE DESCRIPTION:** A 53-year-old female patient was admitted to our department for urgent cochlear implantation. 5 months ago, the patient had meningitis caused by S. pneumoniae. She was in a coma and was mechanically ventilated. After one month she became conscious but paraplegic and communication was very difficult. After three weeks of physical therapy, she could move but hemiplegia was still present. Pure tone audiometry showed sensorineural deafness. MRI of the head and temporal bone showed a high signal intensity in both cochleas but higher in the right cochlea, which is a sign of postinfectious fibrosis. Otoscopy was normal. We decided to perform an urgent cochlear implantation in the left ear, where were still signs of fluid inside the cochlea which indicated only partial fibrosis. Intraoperatively full insertion could not be performed due to fibrosis but partial insertion was performed. After activation of the cochlear implant, she showed significant improvement and after a month she could communicate. **DISCUSSION:** Meningitis, especially bacterial, can result in severe sensorineural hearing loss. Hearing loss can occur immediately or it can progress during the following weeks and months. After the acute stage, the inflammation may progress to fibrosis and ossification of the cochlea lumen. This can make

cochlear implant placement difficult or even impossible. **CONCLUSION:** Sensorineural deafness can occur after bacterial meningitis. It is important to perform an MRI scan of the temporal bone as soon as possible, before the complete fibrosis of the cochlea occurs. If the fibrosis is complete cochlear implantation is not possible.

Keywords: deafness, cochlear implant, meningitis

51. ENDOMETRIAL STROMAL SARCOMA MISTAKEN FOR TWIN PREGNANCY

ALEKSANDRA GŁADYCH[1]
[1] Poznań University of Medical Sciences, Poland

INTRODUCTION: Up to 10% of all uterine sarcomas are endometrial stromal sarcomas. Although it is mainly diagnosed in the age group of 40-50 years old, the number of cases reported in younger women seems to be increasing rapidly. ESSs classification is based on cell morphology and mitotic count into low-grade and high-grade tumors. **CASE DESCRIPTION:** A 27-year-old female presented to the Gynecology Outpatient Clinic due to massive uterine bleeding. Ultrasound examination showed extended endometrium with hypoechoic fluid. Abnormal twin pregnancy was diagnosed and patient was admitted to the hospital. β-hCG test was negative. During endometrial abrasion procedure suspicious mass of uterine was found. Assumed to be the stromal myoma. It was treated with GnRH agonist. Histopathological test was not clear due to scanty biopsy material. After three months of observation and hormonal therapy patient underwent a hysteroscopic removal of tumor. Histopathological examination revealed endometrial stromal sarcoma. Additional cytogenetic test was performed and YWHAE-FAM22 gene fusion characteristic for high grade EES was found. After total abdominal hysterectomy with bilateral salpingo-oophorectomy patient underwent combined chemotherapy. **DISCUSSION:** It is challenge to diagnose ESS correctly. Clinical manifestation is nonspecific, with wide range of symptoms such as abnormal uterine bleeding, pelvic mass or abdominal pain. Well-prepared, representative biopsy material is necessary for correct diagnosis. Cytogenetic tests enable to distinguish low and high grade tumors. **CONCLUSION:** A prompt diagnosis and timely intervention are keys to success, especially in oncology cases. Hence, it is necessary to consider this diagnostic despite the nonspecific symptoms even in younger women.

Keywords: endometrial stromal sarcoma, myoma, pregnancy

52. WARTHIN LIKE VARIANT OF PAPILLARY THYROID CANCER. UNUSUAL FORM OF NEOPLASM: CASE REPORT

SARA HODŽIĆ[1], Emina Hrnjić[1], Edna Hodžić[1], Asst.prof.Edina Lazović Salčin MD[1]
[1] Faculty of Medicine University of Sarajevo, Sarajevo 71000, Bosnia and Herzegovina

INTRODUCTION: Papillary thyroid cancer (PTC) is a common form of thyroid cancer and accounts for 75-85% of all thyroid cancers. The Warthin-like variant of papillary carcinoma (WLPTC) is a rare and unusual form of thyroid cancer described in 1995 by Apel. This carcinoma resembles the Warthin tumor of the salivary glands. It has recognizable features of the papillary architecture with prominent lymphocytic stroma in fibro-vascular cores. WLPTC has similar or less aggressive clinical outcomes same as PTC. **CASE DESCRIPTION:** We present a case of WLPTC, located in the left thyroid lobe in a 57-year-old woman, with a history of diffuse multinodular goiter. Thyroid function test results showed marginal hypothyroidism. The patient was treated with 50 mg of levothyroxine-sodium. Thyroid ultrasound revealed roughly slurried echostructure. On both sides, multiple smaller hypoechoic nodules were detected. In the left lobe was present one large inhomogeneous hypoechoic nodule (28mm in diameter). Neck lymph nodes showed neither lymphadenopathy nor pathological changes. FNA cytopuncture results came back as "suspicious" for a diagnosis of papillary thyroid cancer. A total thyroidectomy was performed. The pathology report showed a circumscribed tumor with papillary architecture that looks like a Warthin-like variant of papillary carcinoma. **DISCUSSION:** Nine main histopathological variants of papillary thyroid cancer were described by WHO. The Warthin-like tumor was classified as the oncocytic variant. A distinct histological feature that differentiates WLPTC from other types or subtypes of thyroid cancer is lymphocytic stroma which may present as a hypoechoic part in the nodule on ultrasound. Some authors consider lymphocytic thyroiditis or Hashimoto thyroiditis as an indicator of a better prognosis. **CONCLUSION:** Age group, gender distribution, treatment guidelines and good prognosis are the same for all variants of papillary thyroid carcinomas.

Keywords: thyroid carcinoma, papillary carcinoma, warthin-like

53. PAPILLOMATOUS NEVUS THAT MIMICS BASAL CELL CARCINOMA IN YOUNG LADY

DARJA ARĪNA MIŠKINA[1], Pāvels Srebnijs[1], Andrejs Srebnijs[2]
[1] University of Latvia, Faculty of Medicine, Rīga, Latvia
[2] Department of Breast Surgery, Oncology Centre of Latvia, Riga Eastern Clinical University Hospital, Riga, Latvia

INTRODUCTION: Papilloma is caused by infection with the human papillomavirus (HPV). There is association of basal cell carcinoma(BCC) with HPV. Visual manifestations of BCC vary therefore early diagnosis is crucial for best disease-free outcomes. **CASE DESCRIPTION:** In December 2020 23-year-old woman presented with main complaint of shiny bump ~0,5 cm on the left cheek. Patient noted that first time she discovered nodule on her skin was in the summer 2020, but in October 2020 bump started to progress rapidly and appearance has changed (a crust appeared on the lesion, began to increase in size and irritated area appeared around the bump). Patient was referred to a surgeon, who made an excision of bump, due to it doubtful appearance- similar to basal cell carcinoma. Tissue was sent to patohistological examination. Patohistological conclusion: Lesion is made of squamous epithelial cells with focal papillomatous acanthosis, dyskeratosis, basal spongiosis and basal layer hyperchromatism. Morphological findings confirm solar type lentigo – benign keratinocyte proliferation with secondary chronic inflammation, that refutes basal cell carcinoma diagnosis. Post operative period was without complications, patient recovered well, wound healed with tiny scar. **DISCUSSION:** Diagnostics of basal cell carcinoma should be administred as soon as possible, if it allowed to grow, lesion can become dangerous and destroy surrounding structures. Due to basal cell carcinomas different visual manifestations it is very important to examine similar changes in the skin as in this case study. **CONCLUSION:** When evaluating bump-like lesions, patient's risk factors, history and progression rate must be taken into consideration. As BCC can mimic many of visual manifestations, early diagnosis and treatment is crucial.

Keywords: basal cell carcinoma, papilloma, skin cancer, BCC

54. METASTASIS OF RENAL CELL CARCINOMA 25 YEARS AFTER RADICAL NEPHRECTOMY

EWELINA TRUSZKOWSKA[1], Cyntia Szymańska[1]
[1] Student's scientific group of gastroenterology and dietetics, Poznań, 60-355, Poland

INTRODUCTION: Metastatic pancreatic tumours are rare, accounting for 2-5% of all pancreatic malignancies. Renal cell carcinoma is the most common, even though only 1-2% of RCC metastasis occur there. Importantly, RCC metastasis can appear years after nephrectomy. Long term follow up is implemented in some centres, however according to ESMO guidelines there is still no evidence that this way of conduct is beneficial for patients. **CASE DESCRIPTION:** 81 years old male patient was admitted to the Gastroenterology Department for further diagnostics. Previously, he was hospitalized in a local hospital where a pancreatic tumour was found. Patient had a right nephrectomy done due to RCC in 1995. His medical history is complex, since he had as well thyroidectomy because of follicular adenoma and right-side hemicolectomy, again for the reason of neoplasia (adenocarcinoma). His main complaint was fatigue and he did not report any other symptoms. When it comes to laboratory results, GGT, creatinine and alkaline phosphatase were elevated. Abdominal ultrasound, MRI, CT and EUS were performed. Their consistent results show two lesions, one in the head of pancreas and another in its body. The rest of the body and the tail were atrophic. The common bile duct and the duct of Virsung were dilated. PET scan found neoplastic infiltrations in the pancreas and metastatic abdominal lymph nodes. Histopathology examination confirmed suspicion of late RCC metastasis to the pancreas. The patient was referred to the Oncology Department for further treatment. **DISCUSSION:** Metastasis is common in RCC, since ⅓ of patients have metastatic disease at the time of diagnosis and more develop them later, accounting for up to 50% cases. However, pancreas is a rare site. **CONCLUSION:** In our case, metastasis occurred 25 years after cancer treatment, which shows the importance of a patient's medical history in differential diagnosis.

Keywords: metastasis, RCC, tumor

55. TRANSVERSE COLON VOLVULUS IN A NEUROLOGICAL IMPAIRED GIRL

Karavdić Kenan[1], HIBIC HARISA[2]
[1] Clinic for Pediatric Surgery, Clinical Center of University Sarajevo, Patriotske lige 81, 71000 Sarajevo, Bosnia and Herzegovina
[2] Faculty of Medicine, University of Sarajevo, Čekaluša 90, 71000 Sarajevo, Bosnia and Herzegovina

INTRODUCTION: Transverse colon volvulus in children is a rare entity. It has been found 40 cases reported in the worldwide literature. It is presented with abdominal pain and vomiting, with a history of chronic constipation. Mental retardation can be predisposing factor for TCV. **CASE DESCRIPTION:** We present a case of transverse colon volvulus in a 14-year-old girl with mental retardation. On admission the patient presented with abdominal pain, vomiting and constipation that last 4-5 days. Vomiting was once a day. She was sub febrile up to 37.6 °C. Her abdominal examination revealed distended, tense, diffusely painful abdomen. Operative findings showed a 360-degree trasverse colonic volvulus (TCV). After the reduction of volvulus, loop ileostomy was formed. The occlusion of the ileostmy and biopsy of the rectum were done on the 20th postoperative day. Biopsy showed the presence of ganglia cells. The patient was discharged 1 month after surgery. **DISCUSSION:** It is a great challenge to make an accurate diagnosis of transverse colon volvulus. Majority of cases are diagnosed intraoperatively. Transverse colon volvulus represents only 1.5% of LBV in children. Chronic constipation in neurologically impaired patients was a risk factor predisposing to volvulus. **CONCLUSION:** Pediatric patient with neurological conditions and mental retardation present an increased risk of colon transversum volvulus due to chronic obstruction.

Keywords: transverse colon, mental retardation, bowel obstruction, volvulus

56. CASE REPORT: ECTOPIC ACTH SECRETION IN A OLD FEMALE PATIENT WITH HIDDEN LUNG TUMOR

Vanja Karlović[1], EDINA KOVAČ[2]
[1] Endocrinology Clinic University Medical Center Sarajevo, Bolnička 25, 71 000 Sarajevo, Bosnia and Herzegovina
[2] Faculty of Medicine , University of Sarajevo, Čekaluša 90, 71 000 Sarajevo, Bosnia and Herzegovina

INTRODUCTION: Ectopic adrenocorticotropic hormone (ACTH) secretion was the first paraneoplastic endocrine syndrome described in the literature. The most common tumors associated with ectopic ACTH production are small cell lung cancer and atypical carcinoids. The localization of the source of ectopic ACTH can be problematic. **CASE DESCRIPTION:** A 76 years old woman who is a patient of *Covid* isolators of the Clinical Center of the University of Sarajevo at *Podhrastovi, presented* to the Endocrinology clinic *bec*ause of *uncontrolled hyperglycemia*. A physical examination revealed mild hypertension, truncal obesity, hyperglycaemic and normokalaemic at the time of hospitalization. An endocrinological investigation, which was performed in the morning, showed that the patient's plasma cortisol was 3250nmol/L and plasma ACTH 15.2pmol/L. CT scan of the lungs revealed a spot in the laterobasal segment of the right lung, with lymphadenopathy of the mediastinum. She was not deemed fit enough for nodule biopsy due to her breathing difficulties. Long active insulin has been very effective in controlling blood glucose. The clinical picture was so intense but with limited response to the conventional therapy. The patient was discharged to home treatment on hospital day 47 with the recommendation for biopsy. **DISCUSSION:** Localisation of the source of ectopic ACTH can be problematic. The lung is the most likely organ to harbor an ectopic source of ACTH, being the origin of over 45% of tumors followed by the thymus (11%) and pancreas (8%). As our case showed, it is necessary to suspect the disease at the initial view to improving the poor clinical outcome. The possibility of hypercortisolism caused by malignancy should be considered in a patient presenting with hypertension, diabetes, hypokalemia and metabolic alkalosis with a high cortisol level. **CONCLUSION:** Ectopic Cushing syndrome is a complicated medical problem especially when identifying the ectopic spot. The surgical treatment could be curative when the spot is determined.

Keywords: Cushing's syndrome, ectopic ACTH, case report

57. HIRSUTISM IN POSTMENOPAUSAL WOMEN - A DIAGNOSTIC CHALLENGE

KAROLINA GASZ[1]
[1] Medical Centre of Postgraduate Education, Warsaw, 01-813, Poland Medical University of Warsaw, 02-091, Poland

INTRODUCTION: Hirsutism in postmenopausal women, defined as an increase in the terminal hair growth, is a common medical presentation to physicians. Androgen excess is responsible for most cases. However, in clinical practice, we often observe a moderate relationship between the severity of hirsutism and androgen levels. Here we describe two patients from our Clinic with different underlying conditions and no correlation between serum androgen levels and the grade of hirsutism. **CASE DESCRIPTION:** Case 1: A 65-year-old woman was admitted to the Endocrinology Department with severe hirsutism (score 20 in The Ferriman-Gallwey scale) and adenoma of the left adrenal gland. The excessive hair growth and irregular menstrual cycles had begun in puberty. Case 2: A 62-year-old woman was referred because of a two-year history of the progressive development of mild hirsutism (score 8) and androgenetic alopecia. **DISCUSSION:** Case 1: The blood tests did not reveal elevated androgen levels. Ovarian tumour was ruled out and adenoma turned out to be non-functioning. Prediabetes was diagnosed based on OGTT results. Suspecting PCOS, spironolactone and metformin were administered. Case 2: The blood tests revealed severely increased testosterone levels (2,8 ng/ml; ref 0,1-0,7) as well as elevated urinary excretion of 17-ketosteroids (21,8 mg/24h; ref 2,2-7) which were not suppressed during dexamethasone suppression test. Prediabetes was diagnosed. Abdominal and pelvic CT was performed. In result, an adrenal tumour was excluded. Ultrasonography showed bilaterally enlarged ovaries with hyperechogenic stroma indicating hyperthecosis. **CONCLUSION:** Diagnosis of hirsutism in postmenopausal women may be challenging, especially when the laboratory findings do not correspond with clinical manifestations. Nevertheless, the development of hirsutism or alopecia should not be considered normal in postmenopausal women. It may be associated with androgen-secreting tumours or with benign conditions. To determine the actual diagnosis we should try to find the potential source of androgens - usually adrenals or ovaries and rule-out drug-related causes.

Keywords: endocrinology, hirsutism, gynaecology, alopecia, postmenopause

58. RITUXIMAB AS A TREATMENT OPTION FOR IMMUNE THROMBOCYTOPENIA

EMINA MAMELEDŽIJA[1], Jasmina Halilović[1], Ajla Nizić[1], Ariana Nuspahić[1], Meliha Sakić PhD[2]
[1] Faculty of Medicine University of Sarajevo
[2] Clinical Center University of Sarajevo, Sarajevo, 71000, Bosnia and Herzegovina

INTRODUCTION: Immune thrombocytopenic purpura (ITP) is one of the most common hematological pediatric diseases. ITP is an autoimmune disease with detectable antibodies against several platelet surface structures leading to platelet destruction. Corticosteroids have been the starting therapy for the past 50 years. Other treatment options include intravenous immunoglobulin (IVIg), various immunosupressants, thrombopoietin receptor agonists, splenectomy and biologic (rituximab). **CASE DESCRIPTION:** The patient whose case we present is a 16 year old girl. In June 2019 patient was admitted to Hematooncology department due to profuse vaginal bleeding and profound low platelet count (6 x 10^9 / L). Tests confirmed antiplateled antibodies and ITP was diagnosed. Treatment included blood derivatives, IVIg and corticosteroids. Since patient was resistant to given therapy, rituximab was succesfully applied (standard regime weekly 375 mg/m^2 body weight). **DISCUSSION:** In typical cases of ITP in children treatment include corticosteroids or IVIg. In rare cases of ITP as in our patient biological therapy such as rituximab is a treatment option. It is a monoclonal antibody that interacts with CD20 receptor on the surface of B cell inducing B cell depletion. After four doses of rituximab, patient's platelet count reached a value of 259 x 109 / L. Patient complitely responded to therapy. Monitored parameter was an increase in platelet count. Within the one-year-follow-up, no relapse was recorded. **CONCLUSION:** Rituximab is valuable treatment option for children with ITP refractory to steroids and IVIg. One year follow –up showed no bleeding, and the findings of a complete blood count have been in reference values.

Keywords: immune thrombocytopenic purpura, rituximab, children

59. A CASE OF PLEURAL EFFUSION DUE TO PNEUMONIA COMPLICATIONS DURING COVID19 PANDEMIC IN A 23-YEAR-OLD PATIENT NEGATIVE FOR SARS-CoV-2 ANTIBODIES

SELMA TERZIĆ[1], Faris Salihbašić[1], Sunita Mehić[1], Prim.Muhamed Salihbašić, MD[2]

[1] Faculty of Medicine University of Sarajevo, Sarajevo, 71000, Bosnia and Herzegovina

[2] Private internal medicine practice dr. Salihbašić, Gračanica, Bosnia nad Herzegovina

INTRODUCTION: Pleural effusions are a frequent finding in patients with bacterial pneumonia and this complication is called a parapneumonic pleural effusion. Pathogenetically, it can occur as a complication of bacterial pneumonia, chest injury or fluid accumulation, viral infections, systemic infections or pneumonia. Although a number of these patients can be treated with antibiotics alone, there is a part of these cases that can present with severe complications. The correct diagnosis can only be made with a detailed history, physical examination, chest radiography and diagnostic thoracentesis. **CASE DESCRIPTION:** In this case we will present a 23-year-old medical student S.F. The patient stated that he had felt dull pain in his right shoulder and neck, light sweating at night and a temperature up to 37.2°C for about ten days before the initial examination. After 6 days, the pain had spread into his right scapular and right pectoral region. The patient started to feel intense pain in the aforementioned regions, he started sweating more intensely and his temperature was 38.4°C. Three different COVID tests showed the patient was negative for SARS-CoV-2 antibodies. **DISCUSSION:** Pleural infections have a high mortality rate and knowing if a pleural effusion will progress into a complicated effusion or empyema is very difficult. An early diagnosis is important because an effective antibiotic regimen can be commenced as soon as possible. In this case, a thoracic surgeon was consulted and we were advised not to do a diagnostic thoracentesis due to the small amount of liquid. We proceeded with empirical antibiotics with regular ultrasound and X-ray monitoring. **CONCLUSION:** The differential diagnosis of a parapneumonic effusion is very diverse. The entire world is fighting the coronavirus pandemic, and thinking of this virus as the cause of this pathology is logical. However, a bacterial infection demands a prompt response and antibiotics should be given early.

Keywords: COVID19, pleural effusion, pneumonia, lung ultrasound

60. NONINSULINOMA PANCREATOGENOUS HYPOGLYCEMIA - A RARE CASE OF NESIDIOBLASTOSIS IN AN ADULT WITH TYPE 2 DIABETES MELLITUS

ANNA MARIA ZIÓŁKOWSKA[1], Magdalena Peikert [1], Mikołaj Radziszewski, MD[1]

[1] Department of Internal Medicine and Endocrinology, Warsaw, 02-097, Poland

INTRODUCTION: Nesidioblastosis (NB) is a rare cause of hyperfunctioning pancreatic β cells, usually associated with excessive insulin secretion and hypoglycemia. This condition results in a disease called noninsulinoma pancreatogenous hypoglycemia (NIPH) which incidence in adults is estimated at 0.5–15% of organic hyperinsulinemias. **CASE DESCRIPTION:** 53-year-old patient was admitted to our Clinic to diagnose the cause of hypoglycemic episodes. According to the patient, in the previous 3-4 months he has experienced symptomatic events of hypoglycaemia, documented by glucometer measurements, which made it impossible to continue his professional career. He was previously diagnosed with type 2 diabetes mellitus and treated with metformin for approximately 2 years. Neither anamnesis nor physical examination were significant. Initially, the decision to discontinue the treatment was made. Unfortunately, the symptoms did not improve. Therefore, a supervised 72 hour fast was performed twice, which ended in symptomatic hypoglycaemia. Laboratory tests showed the following results - glucose level at 41 mg/dl, insulin at 12 mIU/L and C-peptide at 3 ng/ml. Additionally, imaging studies revealed no abnormalities. Eventually, pancreatic biopsy was performed, presenting spilled proliferation of abnormal β cells. Hence, NIPH in course of nesidioblastosis was diagnosed. After distal resection of the tail and part of the pancreatic shaft, a significant clinical improvement was noticed. The patient was discharged in general good condition with a satisfactory glycemic control. **DISCUSSION:** In this report we present rather unusual case of adult onset of NB resulted in NIPH. The golden diagnostic standard is histopathological examination and the treatment entails surgical intervention. An important diagnostic clue may be the fact that postbariatric surgery patients and families affected by this disease are more likely to develop nesidioblastosis. **CONCLUSION:** NIPH is a rare condition, which requires thorough diagnosis as clinical manifestations vary widely. Thus, after excluding the most common causes of hypoglycemia, we should remember about nesidioblastosis.

Keywords: noninsulinoma pancreatogenous hypoglycemia, NIPH, nesidioblastosis

61. MANAGING TUBERCULOUS MENINGITIS IN CHILDREN: CASE REPORT

Edna Hodžić[1], SELEN ČOVIĆ[1], Meliha Hadžović – Čengić, MD[2]

[1] Faculty of Medicine University of Sarajevo, Sarajevo 71000, Bosnia and Herzegovina

[2] Clinic of Infectology, University Clinical Center Sarajevo,Bosnia and Herzegovina

INTRODUCTION: Tuberculous meningitis is a highly devastating central nervous system disease caused by Mycobacterium tuberculosis. Most children present with symptoms such as headache, fever, vomiting and irritability. Children with more advanced disease may have signs of meningeal irritation, raised ICP, cranial nerve palsies, neurological deficits, altered sensorium and movement disorders. Mortality rates of this condition in children vary between 5 and 23 per cent. **CASE DESCRIPTION**: We report a case of 2-year old toddler presenting with a convulsive seizure, foaming at the mouth and unresponsiveness at the time of admition. 2 weeks prior the patient had a thoraco-cervical rash and a 38 C° axillar temperature. MRI on admission showed arachnoidal infra and supratentorial changes typical for meningeal tuberculosis. The patient was successfully treated with Isoniazid, Rifampin, Ethambutol and Pyrazinamide for 2 weeks before being released with a dual antibiotic treatment. **DISCUSSION**: The peak incidence of Tuberculous meningitis occurs in younger children who are less than five years of age, and most children present with late-stage disease. Early diagnosis and treatment of Tuberculous meningitis plays a vital role in determining the disease outcome. This is challenging given that, early symptoms are often non-specific, so high degree of suspicion is required. The various methods used in the diagnosis of Tuberculous meningitis include cerebrospinal fluid cellular and biochemical analysis, microbiologic confirmation and other testing such as neuroimaging. **CONCLUSION**: Managing tuberculous meningitis in children , especially in cases with other tuberculosis hotspots in the body is still a difficult task.This is proven by high mortality rates and complications of this disease. However , new diagnosis and treatment protocols with the collaborative knowledge of previous cases bring new hope for the future of these patients.

Keywords: child, tuberculous meningitis, central nervous system

62. TEMPOROMANDIBULAR JOINT DYSFUNCTION AS A RARE MANIFESTATION OF LYME DISEASE

PAULINA RATAJSKA[1], Joanna Łańczak[1], Aleksandra Rosiejewska[1], Oskar Komisarek[2]

[1] Students Scientific Society of Maxillofacial and Orthognathic, Poznan University of Medical Sciences, Collegium Maius, ul. Fredry 10, 61-701 Poznań

[2] Department of Maxillofacial Orthopaedics and Orthodontics, Poznan University of Medical Sciences, Collegium Maius, ul. Fredry 10, 61-701 Poznań

BACKGROUND: Lyme disease is a tick-borne disease caused by Gram-negative Borrelia spirochetes. The clinical manifestations of Lyme borreliosis are varied, they can affect many systems and organs. Clinical presentation of the first stage of the disease is erythema migrans, which often goes unrecognized. The joint manifestation primarily involves the knee joint, but all joints can be affected. The diagnosis is made on the basis of the clinical picture, serological tests are an auxiliary criterion and their negative result does not exclude infection. Temporomandibular joint disorders (TMD) occur in up to 15% of the general population, most often in people aged 20-40 and twice as often in women. They are characterized by disturbed joint function with limited range of motion or joint pain, pain in chewing muscles and nerve endings that innervate the muscles of the head and neck. In 40% they disappear spontaneously. **AIM:** The aim of the study is to draw attention to the rare manifestation of Lyme borreliosis in the form of TMD. **METHODS:** After an analysis of the PubMed database using the temporomandibular with borrelia or borreliosis or Lyme keywords assuming its presence in the titles or abstracts of the publications found thirty eight papers were obtained. After reviewing the literature, five publications relating to temporomandibular joint disorders caused by B. burgdorferi infection were qualified for the paper.**RESULTS:** TMD are a rare manifestation of Lyme disease as indicated by the low number of available literature on this issue. **CONCLUSIONS:** In the case of TMD, considering the ineffectiveness of the current treatment and the epidemiological situation at the patient's

place of residence, B. burgdorferi infection should be considered as an etiological factor. Only early diagnosis and thus the start of antibiotic therapy is effective and prevents the long-term consequences of Lyme disease.

Key words: temporomandibular, borrelia, borreliosis, Lyme

63. CLINICAL CHARACTERISTICS, DIAGNOSIS AND MANAGEMENT OF OCULAR SARCOIDOSIS

PLEH HAJRIJA[1], Kalogeropoulos Dimitrios[2], Kalogeropoulos Chris[3]
[1] Faculty of Medicine, University of Sarajevo, 73000, Bosnia and Herzegovina
[2,3] Department of Ophthalmology, Faculty of Medicine, School of Health Sciences, University of Ioannina, Ioannina, 45500, Greece

BACKGROUND: Sarcoidosis is a multysistem autoimmune disease presenting with the formation of noncaseating granulomas in different tissues, including the eye. Any structure of the eye and its adnexal tissues can be affected. Ophthalmic manifestations can be isolated, or presenting simultaneously with other organ involvement. A wide range of treatment modalities is available for the management and long-term control of the inflammatory process in ocular sarcoidosis which is critical in order to prevent complications and visual impairment. **AIM:** To review the current knowledge on the diagnostic and therapeutic approach of ocular sarcoidosis, with emphasis on the importance of clinical examination, multidisciplinary approach and the role of new therapeutic modalities. **METHODS:** A thorough systematic literature search was performed in electronic databases using a combination of "ocular sarcoidosis", "sarcoid uveitis", "diagnosis of ocular sarcoidosis", "ocular sarcoidosis AND immunosuppression/biologic agents" search items. We reviewed multicentre studies, large retrospective cohorts and reviews published between 1990 and 2021. Only studies in English were included. **RESULTS:** Uveitis is the most common feature of ocular sarcoidosis, followed by conjunctival and lacrimal gland involvement. Complications, such as cataract and glaucoma, may be a result of the inflammatory process or adverse effects from therapy. Diagnosis is based on medical history, clinical, imaging and laboratory examinations, whereas histological confirmation from the affected tissue(s) remains the gold standard. Topical and systemic corticosteroids are used as the first-line therapy for sarcoid uveitis. Biological and immunosuppressive agents serve as an advanced solution in the management of chronic and persistent cases. **CONCLUSION:** The diagnostic and therapeutic modalities for ocular sarcoidosis have evolved over time, providing a more efficient approach. However, the management of disease still remains challenging in several cases. Setting an early diagnosis and starting appropriate therapy are crucial for preventing complications. Future studies should aim to develop more sensitive biomarkers and more effective and safe immunomodulatory agents.

Keywords: ocular sarcoidosis, granuloma, uveitis, biopsy, immunosuppression

ISSN 2076-6327

This journal is published by the University Library System, University of Pittsburgh as part of the Digital Publishing Program and is co-sponsored by the University of Pittsburgh Press.

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