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P001
PRESENTATION OF THE RESULTS OF PREGNANCY CHROMOSOMAL ABNORMALITIES IN PHO CLINICAL HOSPITAL BITOLA FOR 2020 YEAR

Biljana Ilkovska[1], Bisera Kotevska Trifunova[2]

[1]Department of Medical Biochemistry, PHO Clinical Hospital Dr. Trifun Panovski, Bitola, Macedonia
[2]Department of Dermato-venerology, Tokuda Hospital, Sofia, Bulgaria

Genetic screening for chromosomopaty is performed in the first trimester of pregnancy by determining fetal nuchal translucency and pregnancy associated plasma protein A and free human chorionic gonadotropin hormone in maternal serum. This study was performed in 2020 year in Clinical Hospital Bitola. A total of 503 pregnant women were screened during the first trimester. The serum was separated and pregnancy associated plasma protein-A and free beta human chorionic gonadotrophin hormone were measured. The ultrasound scan included a full structural survey, and nuchal translucency. Risks for chromosomal abnormalities were calculated using the software Prisca - mathematical model which gives individual risks for trisomy 21, 18 and 13.Screening was carried out in 503 pregnancies. Median maternal age was 22,98 ±0.37 years (range: 16 to 42 years). Among the 503 pregnant women overall, 63 (13%) fetuses had an estimated risk for trisomy 21 and trisomy 13/18. Of the 440 (87%) cases chromosomal abnormality was not found.Of utmost importance for pregnant woman and for the society is screened for chromosomal abnormalities in pregnancy and assessed the risk of Down syndrome, Edward syndrome and Patay. With this screening we are going to prevent their occurrence and we'll reduce the psychological and physical suffering of parents and society, especially in today's modern society, where there are the most developed technologies in the industry and prevention is really possible!

P001
PREZENTACIJA REZULTATA HROMOZOMSKIH ABNORMALNOSTI TRUDNOĆE U PHO KLINIČKOJ BOLNICI BITOLJA ZA 2020. GOD.

Biljana Ilkovska[1], Bisera Kotevska Trifunova[2]

[1]Odeljenje za medicinsku biohemiju, PHO Klinička bolnica Dr Trifun Panovski, Bitolj, Makedonija
[2]Odeljenje za dermato-venerologiju, bolnica Tokuda, Sofija, Bugarska

Genetski skrining za hromozomopatiju se sprovodi u prvom tromesečju trudnoće određivanjem fetalne nuhalne translucencije i plazma proteina A povezane sa trudnoćom i slobodnog humanog horionskog gonadotropina hormona u serumu majke. Studija je urađena 2020. godine u Kliničkoj bolnici Bitola. Ukupno 503 trudnice su pregledane tokom prvog trimestra. Serum je odvojen i izmereni su proteini plazme-A povezani sa trudnoćom i slobodni beta humani horionski gonadotropin hormon. Ultrazvučni pregled je uključivao potpuni strukturalni pregled i nuhalnu translucenciju. Rizici za hromozomske abnormalnosti su izračunati korišćenjem softvera Prisca – matematički model koji daje individualne rizike za trizomiju 21, 18 i 13. Skrining je sproveden u 503 trudnoće. Srednja starost majke bila je 22,98 ±0,37 godina (raspon: 16 do 42 godine). Među ukupno 503 trudnice, 63 (13%) fetusa je imalo procenjeni rizik za trizomiju 21 i trizomiju 13/18. Od 440 (87%) slučajeva hromozomska abnormalnost nije pronađena. Od najveće važnosti za trudnicu i društvo je skrining na hromozomske abnormalnosti u trudnoći i procenjen rizik od Daunovog sindroma, Edvardovog sindroma i Pataiovog sindroma. Ovim skriningom ćemo sprečiti njihovu pojavu i umanjiti psihičku i fizičku patnju roditelja i društva, posebno u današnjem savremenom društvu, gde postoje najrazvijenije tehnologije u industriji i prevencija je zaista moguća!

P002
THE INFLUENCE OF OBESITY TO INFLAMMATORY AND ANTIOXIDATIVE MARKERS IN UNIVERSITY STUDENTS WITH INCREASED CARDIOVASCULAR RISK

Emina Čolak[1], Dragana Pap[2], Ljubinka Nikolić[3], Vesna Dimitrijević Srećković[4]

[1]Institute of Medical Biochemistry, University Clinical Center of Serbia, Belgrade, Serbia
[2]Students Health Protection Institute, Department of Laboratory Diagnostics, Novi Sad
[3]Department for Hematology and Transfusion laboratory, Clinic for Gynecology and Obstetrics, University Clinical Center of Serbia, Belgrade, Serbia,
[4]Clinic for Endocrinology, Diabetes and Metabolic disorders, University Clinical Center of Serbia and School of Medicine, University of Belgrade, Belgrade, Serbia

The aim of this study was to assess the oxidative stress status through the values of inflammatory (CRP) and antioxidative parameters (SOD, GPx, GR and TAS), together with cardiovascular risk factors and anthropometric parameters in a group of obese University students. Study included 238 students (126 men and 112 women), with a mean age of 22.32±1.85 years. According to the body mass index (BMI) lower and higher than 25 kg/m^2 and waist circumference (WC) of less and more than 94cm (80cm for females) the whole group of 238 students was divided into 2 subgroups: the group at increased risk for CVD (n=164) and the group at lower risk for CVD (n=74). Reduced SOD and GPx and increased GR and TAS, inflammatory and lipoprotein parameters were obtained in the high risk group compared to the controls ($p<0.05$). Positive association of CRP, TAS and GR and negative association of GPx and HDL-cholesterol with cardiovascular risk were found in obese students. According to the ROC analysis, GR>44.8 U/L, TAS>1.35 mmol/L, CRP>1.71 mg/L and HDL-cholesterol<1.13 mmol/L had sufficient predictive ability for cardiovascular disease in obese students. Significant association of antioxidant defense parameters, anthropometric, lipid and inflammatory markers with increased cardiovascular risk suggest that screening of these parameters is necessary and highly recommended.

P002
UTICAJ GOJAZNOSTI NA INFLAMATORNE I ANTIOKSIDANTNE MARKERE KOD STUDENATA SA POVEĆANIM KARDIOVASKULARNIM RIZIKOM

Emina Čolak[1], Dragana Pap[2], Ljubinka Nikolić[3], Vesna Dimitrijević Srećković[4]

[1]Centar za medicinsku biohemiju Univerzitetskog kliničkog centra Srbije, Beograd, Srbija
[2]Zavod za zdravstvenu zaštitu studenata, odeljenje laboratorijske dijagnostike, Novi Sad
[3]Klinika za ginekologiju i akušerstvo Univerzitetskog kliničkog centra Srbije, odeljenje hematološke i transfuziološke laboratorije, Beograd, Srbija
[4]Klinika za endokrinologiju, dijabetes i bolesti metabolizma Univerzitetskog kliničkog centra Srbije i Medicinski fakultet Univerziteta u Beogradu, Srbija

Cilj ovog rada je bio da se utvrdi status oksidativnog stresa kroz vrednosti inflamatornih (CRP) i antioksidantnih parametara (SOD, GPx, GR i TAS), zajedno sa faktorima rizika za kardiovaskularne bolesti i antropometrijskim parametrima u grupi gojaznih studenata. U ovoj studiji je bilo uključeno 238 studenata (126 muškarac i 112 žena), prosečne starosti 22,32±1,85 godina. U odnosu na indeks telesne mase (BMI) manjeg ili većeg od 25 kg/m^2 i obima struka (WC) većeg ili manjed od 94 cm (za muškarce), odnosno 80 cm (za žene), celokupna grupa od 238 studenata je podeljena na 2 podgrupe: grupa sa povećanim kardiovaskularnim rizikom (n=164) i grupa sa snižem kardiovaskularnim rizikom (n=74). Značajno snižene vrednosti SOD-a i GPx-a a povećane vrednosti GR i TAS-a zajedno sa inflamatornim (CRP) i lipoproteinskim parametrima su dobijene u grupi gojaznih studenata u odnosu na kontrolnu grupu ($p<0,05$). Pozitivna asocijacija je dobijena za CRP, TAS i GR, a negativna za GPx i HDL-holesterol sa faktorima rizika za kardiovaskulane bolesti u grupi gojaznih studenata. ROC analiza je pokazala da su GR>44,8 U/L, TAS>1,35 mmol/L, CRP>1,71 mg/L and HDL-cholesterol<1,13 mmol/L značajni prediktori kardiovaskularnih bolesti kod gojaznih studenata. Značajna asocijacija koja je dobijena između parametara oksidativnog stresa, inflmacije, antropometrijskih i lipoproteinskih parametara, ukazuje na to da je screening ovih gojaznih ososba zaista potreban i preporučljiv.

P003
ABNORMALITIES IN LABORATORY PARAMETERS IN PATIENTS WITH COVID-19 – CASE STUDY

Roberto Cvetkovski[1], Snezhana Volcheska[2], Svetlana Cekovska[3]

[1]University Clinic for Infectious Diseases and Febrile Conditions, Skopje, Macedonia
[2]Institute of Medical and Experimental Biochemistry, Skopje, Macedonia
[3]Institute of Medical and Experimental Biochemistry, Skopje, Macedonia

Objective: COVID-19 (CoronaVIrus Disease 2019) is a respiratory and multiple organ disease caused by SARS-CoV-2. Virus member of the Coronaviridae. Immunocompromised patients, older people and people with chronic medical conditions/underlying conditions are at a higher risk of developing severe form. The objective of this paper is to present the Abnormalities in laboratory parameters in survived and in non-survived patients.
Material and methods: Average values of several serum biomarkers are shown in this paper: CRP, LDH, CK, ALT, AST, Urea, Creatinine, Total Bilirubin, Total proteins, Albumin, differential blood counts for 20 hospitalized patients: 10 recovered and 10 non-survivors. Biochemical analysis and blood tests were performed several times in different time intervals depending on the clinical course of the patients.
Results: Average results in recovered patients: Complete blood count: Hbg 132 g/L; Er 4.533×10 3 /μL; Leuk 7,1×10 3 /μL; Tromb 245×10 3 /μL; Hct 0,39%; Neutr 0,58%; Limf 0,30%; Mono 0,10%; Eoz 0,02%; Biochemical parameters: TBIL 9 μmol/L; UREA 4,2 mmol/L; CREA 50 μmol/L; GLUC 6 mmol/L; ALT 58 IU/L; AST 45 IU/L; LDH 273 IU/L; CK 41 IU/L; TP 68 g/L; Alb 36 g/L; CRP 22 mg/L. Average results in patients with fatal outcome: Complete blood count: Hbg 127 g/L; Er 4.422× 10^3/μL; Leuk 12,7×10^3 /μL; Tromb 256×10^3 /μL; Hct 0,38%; Neutr 0,84%; Limf 0,11%; Mono 0,05%; Eoz 0,01%. Biochemical parameters: TBIL 10 μmol/L; UREA 18,0 mmol/L; CREA 171 μmol/L; GLUC 8,5 mmol/L; ALT 79 IU/L; AST 84 IU/L; LDH 847 IU/L; CK 506 IU/L; TP 64 g/L; Alb 32 g/L; CRP 220 mg/L.
Conclusion: No significant changes/abnormalities were noticed in the blood count of recovered patients; serum biomarkers ALT, LDH, CRP were slightly elevated. In non-survived patients significant laboratory abnormalities were noticed; neutrophilia with lymphopenia, multiple elevated levels of LDH (4x), CK (3x) and CRP (20x).
Key words: COVID-19, blood count test, biochemical parameters.

P004
LIPID PROFILE IN GERIATRIC PATIENTS WITH VASCULAR DEMENTIA AND ALZHEIMER DISEASE

Jordan Petrov

PHI Specialized Hospital for Geriatric and Palliative Medicine »13 November« Skopje, North Macedonia

Lipids are part of the dry mass of the brain and are associated with healthy and pathologic functions of the brain. It is found that most common genetic risk factor of Alzheimer disease is ApoE e4 variant, lipids are also involved in blood-brain barrier function and processing of Amyloid precursor protein, inflammation, and energy balance. Most common types of dementia in our facility are Alzheimer and Vascular dementia. For this study we analyze lipid profile of 67 patients, 37 patients with Alzheimer disease and 30 patients with vascular dementia. 15 patients were male or 5 with AD and 10 with VD, and 52 female patients or 32 with AD and 20 with VD. Age range of patients was from 68 to 98 years. Serum samples were collected and we analyzed samples on Cobas Integra 400 automated clinical chemistry analyzer for total cholesterol, triglycerides, and high and low density lipoprotein. Results in two groups have lower levels for cholesterol, triglycerides and LDL, also was found that patients with Alzheimer disease have lower triglyceride levels from those with vascular dementia. Mean median for triglycerides in AD group was 1.12 mmol/L IQR=0.5 different from those with VD 1.41 mmol/L IQR=1.0. High density lipoprotein was significantly lower in patients with VD Mean Median 0.913 mmol/L IQR=0.6 and normal in AD patients 1.21 mmol/L IQR=0.3. From those results we can propose that high triglyceride levels are characteristic for vascular dementia and must consider the link between Stable levels of high density lipoprotein and Alzheimer Disease.

	Alzheimer disease	Vascular Dementia
Cholesterol	(4.1)	(3.79)
Triglycerides	(1.12) IQR=0.5	(1.41) IQR=1
HDL	(1.21) IQR=0.3	(0.913) IQR=0.6

P005
POREĐENJE KONCENTACIJA KALCIJUMA I MAGNEZIJUMA ODREĐENO U UZORCIMA HEPARINIZIRANE PUNE KRVI I PLAZME

Neda Milinković[1], Nevena Ivanović[2], Marija Sarić Matutinović[1], Ksenija Veličković[3], Brižita Đorđević[2], Branimir Radosavljević[4], Snežana Jovičić[1,5], Svetlana Ignjatović[1,5]

[1]Katedra za medicinsku biohemiju, Univerzitet u Beogradu-Farmaceutski Fakultet, Beograd, Srbija
[2]Katedra za Bromatologiju, Univerzitet u Beogradu – Farmaceutski Fakultet, Beograd, Srbija
[3]Katedra za biologiju ćelije i tkiva, Biološki fakultet Univerziteta u Beogradu, Beograd, Srbija
[4]Institut za hemiju u medicini, Medicinski fakultet Univerziteta u Beogradu, Beograd, Srbija
[5]Centar za medicinsku biohemiju, Univerzitetski klinički centar Srbije, Beograd, Srbija

Kalcijum (Ca) i magnezijum (Mg) su minerali od velikog značaja za regulaciju mnogih procesa u organizmu. Tradicionalno se koncentracije ukupnog Ca (uCa) i ukupnog Mg (uMg) određuju u serumu, što je i najčešći tip uzorka u medicinsko biohemijskoj laboratoriji. Jonizovani oblici ovih minerala (jCa i jMg) se određuju u uzorcima pune krvi. Iako je serum najčešći i osnovni uzorak za određivanje većine biohemijskih analita i dalje postoji kontinuirana naučna debata o tome koji tip uzorka može biti uzorak izbora. Cilj ovog ispitivanja je da se analiziraju parametri statusa Ca i Mg u uzorcima pune krvi i heparinizirane plazme. Istraživanjem je obuhvaćeno 87 uzoraka populacije zdravih studenata prosečne starosti od 23 godine. Ukupne koncentracije Ca i Mg određene su na biohemijskom analizatoru Olympus AU400 (Beckman Coulter Diagnostics, Hamburg, Nemačka) u uzorcima heparinizirane plazme. Koncentracije jCa i jMg izmerene su na Stat Profile Prime Critical Care Analyzer (New Biomedical Corporation, Waltham, MA, SAD) iz heparinizirane pune krvi. Indeksi uMg/uCa i jMg/jCa su izračunati računski. Izmerene koncentracije ispitivanih parametara, izuzev uCa, pratile su normalnu raspodelu podataka ($P > 0,05$). Dobijena je statistički značajna korelaciju između uCa vs jCa i uMg vs jMg (rho = 0,307; P = 0,004 i rho = 0,281; P = 0,008, redom). Utvrđeno je i da između vrednosti uMg vs jMg/jCa i jMg vs uMg/uCa postoji jaka pozitivna korelacija (rho = 0,286; P = 0,007 i rho = 0,267; P = 0,013, redom). Takođe je utvrđena značajna pozitivna korelacija između indeksa (rho = 0,312; P = 0,003). Međutim, konačno slaganje između ispitivanih parametara nije utvrđeno. Iako rezultati ovog ispitivanja ukazuju da postoji

P005
COMPARISON OF CALCIUM AND MAGNESIUM CONCENTRATIONS DETERMINED IN HEPARINIZED WHOLE BLOOD AND PLASMA SAMPLES

Neda Milinković[1], Nevena Ivanović[2], Marija Sarić Matutinović[1], Ksenija Veličković[3], Brižita Đorđević[2], Branimir Radosavljević[4], Snežana Jovičić[1,5], Svetlana Ignjatović[1,5]

[1]Department of Medical Biochemistry, University of Belgrade – Faculty of Pharmacy, Belgrade, Serbia
[2]Department of Bromatology, University of Belgrade – Faculty of Pharmacy, VBelgrade, Serbia
[3]Department of Cell and Tissue Biology, Faculty of Biology, University of Belgrade, Belgrade, Serbia
[4]Institute of Chemistry in Medicine, Faculty of Medicine, University of Belgrade, Belgrade, Serbia
[5]Center for Medical Biochemistry, Clinical Center of Serbia, Belgrade, Serbia

Calcium (Ca) and magnesium (Mg) are minerals of great importance for the regulation of many processes in the body. Traditionally, the concentrations of total calcium (tCa) and total magnesium (tMg) are determined in serum, which is the most common type of sample in the medical biochemical laboratory. Ionized forms of these minerals (iCa and iMg) are determined in whole blood samples. Although serum is the most common and basic sample for determining most biochemical analytes, there is still an ongoing scientific debate about which type of sample can be the sample of choice. The aim of this study was to analyze the parameters of Ca and Mg status in whole blood and heparinized plasma samples. The study included 87 samples of the population of healthy students with an average age of 23 years. Total Ca and Mg concentrations were determined on an Olympus AU400 biochemical analyzer (Beckman Coulter Diagnostics, Hamburg, Germany) in heparinized plasma samples. Concentrations of iCa and iMg were measured on a Stat Profile Prime Critical Care Analyzer (New Biomedical Corporation, Waltham, MA, USA) from heparinized whole blood. Also, tMg/tCa and iMg/iCa indices were calculated. The indices tMg/tCa and iMg/iCa were calculated. The measured concentrations of the examined parameters, except for tCa, followed the normal distribution of data ($P > 0.05$). A statistically significant correlation was obtained between tCa vs iCa and tMg vs iMg (rho = 0.307; P = 0.004 and rho = 0.281; P = 0.008, respectively). It was also found that there is a strong positive correlation between the values of tMg vs iMg/iCa and iMg vs tMg/tCa (rho = 0.286; P = 0.007 and rho = 0.267; P = 0.013, respectively). A

značajna korelacija između parametara statusa Ca i Mg izmereno u različitom tipu uzoraka, potrebne su buduće prospektivne, dobro kontrolisane studije, i na specifičnim populacijama ispitanika, kako bi se potvrdila značajna povezanost i slaganje i moguća predikcija vrednosti između ukupnih i jonizovanih oblika ovih minerala.

significant positive correlation was also found between the indices (rho = 0.312; P = 0.003). However, the final agreement between the examined parameters was not determined. Although the results of this study indicate that there is a significant correlation between Ca and Mg status parameters measured in different sample types, future prospective, well-controlled studies, and examination on specific patient populations, are needed to confirm significant correlation and agreement and possible prediction of values between total and ionized forms of these minerals.

P006
UTICAJ DUŽINE DIJALIZIRANJA NA PARAMETRE MINERALNO KOŠTANOG METABOLIZMA KOD BOLESNIKA NA HRONIČNOJ HEMODIJALIZI

Aleksandra Stefanović Tomić[1], Biljana Dapčević[2]

[1]Centar za laboratorijsku dijagnostiku
JZU Dom zdravlja Herceg-Novi
[2]Odjeljenje za hemodijalizu, JZU Dom zdravlja
Herceg-Novi, Crna Gora

Hronična bubrežna insuficijencija (HBI) je progresivno i ireverzibilno oštećenje bubrega uz smanjenje broja funkcionalnih nefrona koje dovodi do potupnog gubitka bubrežne funkcije i potrebe za liječenjem hemodijalizom. Jedna od komplikacija koja se javlja u sklopu HBI je i poremećaj mineralno-koštanog metabolizma što vremenom dovodi do koštane bolesti. Cilj istraživanja je bio procjena uticaja dužine dijaliznog staža na biohemijske parametre mineralno koštanog metabolizma kod pacijenata na hemodijalizi. Istraživanje je obuhvatilo 35 pacijenata prosječne starosti 62.94±14.85 godina, podjeljenih u 3 grupe u odnosu na dužinu dijaliznog staža (I grupa-do 5 godina, II grupa-5 do 10 godina; III grupa-preko 10 godina). Našim istraživanjem smo pokazali da su vrijednosti fosfora povišene kod gotovo svih pacijenata u svim grupama. Vrijednosti kalcijuma su približno iste u svim grupama. Vrijednosti PTH su niže kod pacijenata u I grupi u donosu na pacijente u II i III. Dok su vrijednosti ALP nešto visočije u I u odnosu na II i III grupu.

P006
INFLUENCE OF DIALYSIS LENGTH ON PARAMETERS OF MINERAL BONE METABOLISM IN PATIENTS ON CHRONIC HEMODIALYSIS

Aleksandra Stefanović Tomić[1], Biljana Dapčević[2]

[1]Center for laboratory diagnostics,
Primary Healthcare Center Herceg-Novi
[2]Hemodialisys Department, Primary Healthcare
Center Herceg-Novi, Montenegro

Chronic renal failure (HBI) is a progressive and irreversible damage to the kidneys with a decrease in the number of functional nephrons, which leads to a complete loss of kidney function and the need for hemodialysis treatment. One of the complications that occurs within HBI is a disorder of mineral-bone metabolism, which eventually leads to bone disease. The aim of the study was to assess the influence of the length of dialysis on the biochemical parameters of mineral and bone metabolism in patients on hemodialysis. The study included 35 patients with an average age of 62.94 ± 14.85 years, divided into 3 groups according to the length of dialysis (I group-up to 5 years, II group-5 to 10 years; III group-over 10 years). Our research has shown that phosphorus values are elevated in almost all patients in all groups. Calcium values are approximately the same in all groups. PTH values were lower in patients in group I compared to patients in groups II and III.

P007
STATUS VITAMINA D KOD BOLESNIKA SA KOVID-19 I UTICAJ NA TEŽINU BOLESTI

Marina Chubrinoska[1], Verica Jakjimoska[2]

[1,2]Centralna biohemiska laboratorija, Gradska opšta bolnica »8 Septembar« – Skoplje, Severna Makedonija

Vitamin D je uključen u modulaciju urođenog i stečenog imunog sistema, proizvodnju antimikrobnih peptida, kao i u ekspresiji gena uključenih u intracelularno uništavanje patogena. Nizak nivo 25-OHD u serumu se često nalazi kod starijih osoba ili kod onih sa hroničnim stanjima, koji su takođe prijavljeni kao loši prognostički faktori za COVID-19. Smanjenje ACE2 od strane SARS-CoV-2 dovodi do disregulacije sistema renin-angiotenzin, što doprinosi »oluji citokina« koja prethodi sindromu akutnog respiratornog distresa karakterističnom za teški oblik COVID-19. U tom smislu, vitamin D može inhibirati proizvodnju proinflamatornih citokina u ljudskim monocitima/makrofagima, a hronični nedostatak vitamina D može izazvati aktivaciju RAS, što dovodi do proizvodnje fibroznih faktora i, prema tome, oštećenja pluća. S obzirom na razlike u težini i fatalnosti COVID-19 u svetu, važno je razumeti razloge koji stoje iza toga. Poboljšanje imuniteta kroz bolju ishranu može biti značajan faktor. Ova studija je procenila korelaciju koncentracija vitamina D sa slučajevima COVID-19 i njegov uticaj na težinu i smrtnost od COVID-19. U studiju su uključena 83 pacijenta (55,2% muškaraca, prosečne starosti 57 godina i 45,8% žena prosečne starosti 56 godina) sa potvrđenom COVID-19 pneumonijom, dijagnostikovan i lečen, između 1. juna i 12. avgusta 2020. godine u Gradskoj opštoj bolnici »8. Septembra«-Skoplje. U celoj studiji primećen je veoma nizak nivo vitamina D kod oba pola. Medijan VitD je bio značajno niži kod žena (28,01 nmol/L) u odnosu na podgrupu muškaraca (43,96 nmol/L). Uočeno je da kod žena, iako je manji procenat hospitalizovanih od COVID-19, one imaju veću stopu mortaliteta koja iznosi 18,42%, u poređenju sa muškarcima kod kojih iako imamo veći procenat hospitalizovanih, mortalitet je manji i iznosi 8,9 % . Takođe, dužina hospitalizacije kod žena je duža, 19 dana, u odnosu na muškarce koja iznosi 15,5 dana. Ukratko, ova opservaciona studija među pacijentima sa COVID-19 koji su doživeli definitivan ishod, pokazuje povezanost između VitD statusa i težine i mortaliteta od COVID-19.

P007
VITAMIN D STATUS IN COVID-19 PATIENTS AND IT'S INFLUENCE ON DISEASE SEVERITY

Marina Chubrinoska[1], Verica Jakjimoska[2]

[1,2]Central Biochemical Laboratory, City General Hospital »8th September« – Skopje, North Macedonia

Vitamin D is involve in the modulation of the innate and acquired immune system and also in the production of antimicrobial peptides, as well as in the expression of genes involved in the intracellular destruction of pathogens. Low serum 25OHD levels are frequently found in elderly individuals or in those with chronic conditions, which have also been reported as poor prognostic factors for COVID-19. The downregulation of ACE2 by SARS-CoV-2 leads to a dysregulation of the renin–angiotensin system, which contributes to the »cytokine storm« that precedes the acute respiratory distress syndrome characteristic of the severe form of COVID19. In this sense, vitamin D can inhibit proinflammatory cytokine production in human monocytes /macrophages, and chronic vitamin D deficiency may induce RAS activation, leading to the production of fibrotic factors and, therefore, lung damage. Considering the differences in the severity and fatality of COVID-19 in the globe, it is important to understand the reasons behind it. Improvement of immunity through better nutrition might be a considerable factor. This study evaluated the correlation of vitamin D concentrations with COVID-19 cases and its impact on the severity and mortality of COVID-19. Included in the study were 83 patients *(*55.2% men, mean age was 57 years and 45.8% women mean age 56 years*)* with confirmed COVID-19 pneoumonia, diagnosed and treated , between 1 June and 12 August 2020 in City General Hospital »8th of September«-Skopje. In the entire study, very low vitamin D levels are observed in both genders. Median VitD level was significantly lower in the female (28.01 nmol/L) versus the male subgroup (43.96 nmol/L). It has been noticed that in women, althought the percentage of hospitalized from COVID-19 is lower, they have a higher mortality rate which is 18.42%, compared to men where althought we have a higher percentage of hospitalized, mortality is lower and is 8.9%. Also the length of hospitalization among women is longer, 19 days, compared to men which is 15.5 days. In summary, this observational study among patients with COVID-19 who have experienced a definite outcome, shows an association between VitD status and severity of and mortality from COVID-19.

P008
NEUTRALIZING ANTIBODIES (NABS) AFTER IMMUNIZATION WITH GAM-COVID-VAC VACCINE IN A SAMPLE OF HEALTHCARE WORKERS

Melda Emin, Hristina Ampova, Elena Petrusevska-Stanojevska, Irena Kostovska, Sonja Topuzovska, Jasna Bogdanska, Katerina Tosheska-Trajkovska

Institute of Medical and Experimental Biochemistry, Medical Faculty, University »Ss Cyril and Methodius«, Skopje, 50 Divizija No 6, 1000 Skopje

Background: The process of conferring immunity after vaccination for any virus can be best estimated by determining the levels of specific neutralizing antibodies (NAbs). The specific immune response can diminish over the course of few months, leading to uncertainty about how long the patients are protected. The aim of the present study is to evaluate the presence of NAbs after vaccination with the Gam-COVID-Vac vaccine (viral vector vaccine).
Material and Methods: The sample consisted of 131 healthcare workers (HCW), out of which 66 patients were female, while the median age of the sample was 36 years (IQR 32-42). At enrollment, patients provided baseline data and information about previous SARS-CoV-2 infections. Patients were examined 6 months after 2nd dose of vaccine for the presence of NAbs. The blood samples were analyzed by the CLIA method with the MAGLUMI 800 analyzer.
Results: From the whole sample, 38 patients reported previous known SARS-CoV-2 infection. Six months after the vaccination, all patients with previous infection achieved NAbs above the threshold value of 0.3 , while from the other group only two patients had NAbs levels below 0.3. The median value of the NAbs in the whole sample was 1.56 (IQR 0.42 – 5.73), while patients with previous SARS-CoV-2 infection had median value of 6.45 (IQR 4.16 – 9.03), reaching striking difference when compared to patients without previous infection ($p < 0.001$).
Conclusion: The immunization with the Gam-COVID-Vac produced NAbs titer above the threshold value in 98.5% of the participants, six months after the second dose. Participants with previous documented infection had substantially higher titer of NAbs, leaving room for further exploration on the best practice for immunization in this group of participants.
Keywords: MAGLUMI 800; neutralizing antibodies; SARS-CoV-2; Gam-COVID-Vac; immunization; vaccine

P009
EVALUATION OF ANTI-SARS-COV-2 ANTIBODY RESPONSES IN MACEDONIAN HEALTHCARE WORKERS: AN INTERIM ANALYSIS

Hristina Ampova, Melda Emin, Elena Petrusevska-Stanojevska, Irena Kostovska, Sonja Topuzovska, Jasna Bogdanska, Katerina Tosheska-Trajkovska

Institute of Medical and Experimental Biochemistry, Medical Faculty, University »Ss Cyril and Methodius«, Skopje, 50 Divizija No 6, 1000 Skopje

Amidst the COVID-19 pandemic, healthcare workers are exposed to an anticipated higher risk of infection with SARS-CoV-2 considering their work environment, than other members of society. Antibody testing and seroprevalence of COVID-19 antibodies can be a beneficial tool for comprehension of the incidence of disease exposure in this population. This study aims to examine and evaluate the level of SARS-CoV-2 antibodies among HCW in North Macedonia during the period from 28/05/2020 to 20/08/2020. A total of 2334 HCW have been tested for SARS-Cov-2 IgM and IgG antibody assays, using the Chemiluminescent (CLIA) method on the Maglumi 800 platform. Out of the 2334 HCW tested, 1676 (71.87%) were women and 656 (28.13%) were men. The age range was between 19 and 70 years old with the mean age being 45.23. A total of 195 HCWs tested positive for either IgM or IgG anti-SARS-CoV-2 serum antibodies. Of them, 167 individuals tested positive for IgM antibodies and 54 tested positive for IgG antibodies. The cumulative incidence during the period from 28/05/2020 to 20/08/2020 of anti-SARS-CoV-2 antibody response in HCWs was estimated at 8.355% (95% CI = 7.279–9.57%). HCWs represent a population predisposed to getting infected with COVID-19. We report a relatively low seroprevalence rate in the tested group among HCW, in the set period, which can be due either to an early test request by the participants or increased perception of risk and proper preventative behavior.
Keywords: SARS-CoV-2, health care workers, anti SARS CoV-2 IgM/IgG antibodies, CLIA, COVID-19

P010
VITAMIN D STATUS KOD PREDGOJAZNE I GOJAZNE ŠKOLSKE DJECE U PODGORICI

Marina Jakšić[1], Milica Martinović[2], Mirjana Nedović-Vuković[3]

[1]Klinički centar Crne Gore, Institut za bolesti djece, Odjeljenje za laboratorijsku dijagnostiku, Podgorica, Crna Gora
[2]Medicinski fakultet, Univerzitet Crne Gore, Katedra za patološku fiziologiju i laboratorijsku medicinu, Podgorica, Crna Gora
[3]Institut za javno zdravlje Crne Gore, Centar za evidenciju podataka i istraživanja u oblasti javnog zdravlja, Podgorica, Crna Gora

Brojne studije sugerišu udruženost gojaznosti i nedostatka vitamina D kod djece i odraslih. Kao objašnjenja se često navode pojačana akumulacija i izmijenjen metabolizam vitamina D u hipertrofičnom adipoznom tkivu. Cilj: ispitivanje serumskih vrijednosti vitamina D kod predgojazne i gojazne djece školskog uzrasta u odnosu na njihove normalno uhranjene vršnjake. Istraživanje je obuhvatilo 202 školske djece uzrasta 7–15 godina (63,9% dječaka, 36,1% djevojčica) iz Podgorice, Crna Gora. Učesnici su podijeljeni u 3 grupe prema nutritivnom statusu (kriterijumi International Obesity Task Force): normalno uhranjeni (42,1%), predgojazni (40,6%) i gojazni (17.3%). Antropometrijska mjerenja obuhvatila su tjelesnu masu i visinu, indeks tjelesne mase (BMI, kg/m^2), i obim struka. Ukupna količina tjelesne masti određivana je metodom bioelektrične impedance (Tanita BC-418, Tokio, Japan). Vrijednost 25(OH) vitamina D (nmol/L) određivana je iz seruma kod 176 djece (imunohemija, Cobas 6000, Roche, Manhajm, Njemačka). Deficijencijom su smatrane vrijednosti vitamina D ≤50 nmol/L. Medijana vrijednosti vitamina D za normalno uhranjenu djecu iznosila je 77,2 (interkvartilni rang (IR) 67,70–95,10), za predgojaznu 70,1 (IR 56,00–86,60) i gojaznu 69,6 (59,30–85,87); ova razlika je bila granično statistički značajna ($p < 0,046$). U grupi gojaznih, vrijednost vitamina D je negativno korelirala sa vrijednošću obima struka ($r = - 0,403$). Deficijencija vitamina D je utvrđena kod 4,3% normalno uhranjene, 16,0% predgojazne i 12,5% gojazne djece. Nije bilo statistički značajne razlike u učestalosti deficijencije vitamina D u odnosu na nutritivni status kod ispitivane djece ($\chi^2 = 5,185$, $p = 0,075$). Takođe, nije utvrđena statistički značajna korelacija između ukupne količine tjelesne masti kod predgojaznih i gojaznih, i vrijednosti vitamina D ($r = 0,133$. $r = - 264$). U zaključku, vrijednost vitamina D bila je niža u serumu predgojaznih i gojaznih u odnosu na normalno uhranjenu djecu i negativno je korelirala sa centralnom gojaznošću u grupi gojazne djece. Ipak, primjenom

P010
VITAMIN D STATUS IN OVERWEIGHT AND OBESE SCHOOLCHILDREN IN PODGORICA

Marina Jakšić[1], Milica Martinović[2], Mirjana Nedović-Vuković[3]

[1]Clinical Center of Montenegro, Institute for Children's Diseases, Center for Laboratory Diagnostics, Podgorica, Montenegro
[2]University of Montenegro, Medical Faculty, Department of Pathophysiology and Laboratory Medicine, Podgorica, Montenegro
[3]Institute for Public Health of Montenegro, Center for Data Evidence and Research in Public Health, Podgorica, Montenegro

Numerous studies suggest an association between obesity and vitamin D deficiency in children and adults. Increased accumulation and altered vitamin D metabolism in hypertrophic adipose tissue are often cited as explanations. Objective: to examine the serum levels of vitamin D in overweight and obese school aged children in relation to their normal weight peers. The survey included 202 schoolchildren aged 7–15 (63.9% boys, 36.1% girls) from Podgorica, Montenegro. Participants were divided into 3 groups according to nutritional status (International Obesity Task Force criteria): normal weight (42.1%), overweight (40.6%) and obese (17.3%). Anthropometric measurements performed: body weight and height, body mass index (BMI, kg/m^2), waist circumference. Total body fat was determined by bioelectrical impedance device (Tanita BC-418, Tokyo, Japan). The value of 25 (OH) vitamin D (nmol/L) was determined from the serum of 176 children (immunochemistry, Cobas 6000, Roche, Mannheim, Germany). Vitamin D values ≤50 nmol/L were considered deficient*. The median value of vitamin D for normal weight children was 77.2 (interquartile range (IR) 67.70–95.10), overweight 70.1 (IR 56.00–86.60) and obese 69.6 (59.30–85.87), this difference was borderline statistically significant ($p < 0.046$). In the obese group, the value of vitamin D was negatively correlated with the value of waist circumference ($r = - 0.403$). Vitamin D deficiency was found in 4.3% of normal weight, 16.0% of overweight and 12.5% of obese children. There was no statistically significant difference in the frequency of vitamin D deficiency in relation to the nutritional status of the examined children ($\chi^2 = 5.185$, $p = 0.075$). In addition, no statistically significant correlation was found between the total body fat in overweight and obese and the value of vitamin D ($r = 0.133$. $r = - 264$). In conclusion, the value of vitamin D was lower in the serum of overweight and obese compared to normal weight children, and negatively correlated with central obesity in

datog kriterijuma za deficijenciju vitamina D, nije utvrđena razlika u učestalosti deficijencije vitamina D između ispitivanih grupa.

*Holick MF et al. (2011). Evaluation, Treatment, and Prevention of Vitamin D Deficiency, JCEM; https://www.endocrine.org/clinical-practice-guidelines/vitamin-d-deficiency

the group of obese children. Nevertheless, by applying the given criterion for vitamin D deficiency, no difference was found in the frequency of vitamin D deficiency between the examined groups.

*Holick MF et al. (2011). Evaluation, Treatment, and Prevention of Vitamin D Deficiency, JCEM; *https://www.endocrine.org/clinical-practice-guidelines/vitamin-d-deficiency*

P011
CASE REPORT: SOLITARY MASTOCYTOMA DIAGNOSED SUCCESSFULLY WITH MEASUREMENT OF SERUM LEVELS OF TRYPTASE

Ljubica Adji Andov[1], Lidija Petrovska[2]

[1]Diagnostic Medicalbiochemistry Laboratory Ramus, Skopje
[2]Clinical Hospital, Department of Dermatovenerology, Shtip, Severna Makedonija

Solitary mastocytoma, a rare dermatological entity accounts for 10–15% of cutaneous mastocytosis. One of the most important blood tests in the field of allergy, mast cell tryptase has numerous diagnostic uses, particularly for anaphylactic reactions and for the diagnosis of mastocytosis. Hypertryptasemia (elevated serum tryptase levels) is present in multiple disorders like systemic mastocytosis, hematological malignancies, and chronic kidney disease. We represent a rare case of solitary bullous mastocytoma presenting at birth, diagnosed successfully with subsequent measurement of serum tryptase levels thus avoiding biopsy of the patient.

P011
PRIKAZ SLUČAJA: SOLITARNI MASTOCITOM USPEŠNO DIJAGNOSTIKOVAN MERENJEM NIVOA TRIPTAZE U SERUMU

Ljubica Adji Andov[1], Lidija Petrovska[2]

[1]Dijagnostička medicinskobiohemijska laboratorija Ramus, Skoplje
[2]Klinička bolnica, Odeljenje za dermatovenerologiju, Štip

Solitarni mastocitom, retki dermatološki entitet, čini 10–15% kožne mastocitoze. Serumska triptaza, jedan od najvažnijih testova krvi u oblasti alergije, ima brojne dijagnostičke upotrebe, osobito u anafilaktičke reakcije i u dijagnosticiranju mastocitoze. Hipertriptazemija (povišeni nivoi triptaze u serumu) prisutna je kod višestrukih poremećaja poput sistemske mastocitoze, hematoloških maligniteta i hronične bolesti bubrega. Predstavljamo redak slučaj solitarnog buloznog mastocitoma prisutan pri rođenju, uspešno dijagnostikovan uzastopnim merenjem nivoa triptaze u serumu, čime se izbegava biopsija pacijenta.

P012
OKSIDATIVNI STRES I STATUS VITAMINA D KOD COVID-19 PACIJENATA

Jovana Pantić[1], Irena Premović[1], Olivera Mirković[1], Marina Roksandić Milenković[2], Dejan Dimić[2], Nemanja Dimić[3], Ljiljana Timotijević[2], Danica Ćujić[4], Azra Guzonjić[1], Jelena Vekić[1], Nataša Bogavac-Stanojević[1], Jelena Kotur-Stevuljević[1]

[1]Katedra za medicinsku biohemiju, Farmaceutski fakultet, Univerzitet u Beogradu, Beograd, Srbija
[2]Gradski zavod za plućne bolesti i tuberkulozu, Beograd, Srbija
[3]KBC Dr Dragiša Mišović Beograd, Srbija, Medicinski fakultet Univerzitet u Beogadu
[4]Institut za primenu nuklearne energije, INEP, Zemun, Beograd

Koronavirusi pripadaju porodici Coronaviridae koji spadaju u jednolančane RNK viruse; SARS-CoV-2 je prvi put identifikovan u gradu Vuhanu u Kini 2019. godine nakon što je izazvao pandemiju COVID-19. Značajnu ulogu u razvoju i progresiji ove infekcije ima i razvoj oksidativnog stresa kao pratioca inflamacije, posebno u komplikovanijim oblicima ove bolesti. Ova studija je sprovedena s ciljem da ispita promene parametara oksidativnog stresa kod COVID-19 pacijenata. Parametri oksidativnog stresa su određivani u serumu 31 pacijenta, sa lakšim oblikom bolesti, lečenih ambulantno, u tri tačke (postavljanje dijagnoze, kontrola nakon 14 i nakon 21 dana). Parametri redoks statusa koji su određivani u ove tri tačke obuhvataju prooksidanse (totalni oksidativni status (TOS), superoksidni anjon radikal ($O_2^{\cdot -}$), prooksidantno -antioksidantni balans (PAB) kao i produkte njihovog delovanja: uznapredovali produkti oksidacije proteina (AOPP), malondialdehid (MDA), ishemijom modifikovan albumin (IMA)) i antioksidanse: totalni antioksidativni status (TAS), aktivnost enzima superoksid-dismutaze (SOD) i paraoksonaze 1 (PON1), odnos totalnog antioksidativnog i totalnog oksidativnog statusa (TAS/TOS), ukupne sulfhidrilne grupe (SHG). Svi prooksidansi i markeri njihovog delovanja su pokazali značajan pad tokom 14 dana trajanja studije, dok su antioksidansi istovremeno pokazali značajan rast što je ukazivalo na oporavak pacijenata. U prvoj tački ispitivanja određene su i vrednosti vitamina D kako bi se ispitala veza deficijencije vitamina D sa porastom oksidativnog stresa. Prema vrednostima vitamina D, pacijenti su podeljeni u tri grupe: ≤50 ng/mL, 51–70 ng/mL, 71 ng/mL. Primećeno je da pacijenti sa višim vrednostima vitamina D imaju i značajno veći

P012
OXIDATIVE STRESS AND VITAMIN D STATUS IN COVID PATIENTS

Jovana Pantić[1], Irena Premović[1], Olivera Mirković[1], Marina Roksandić Milenković[2], Dejan Dimić[2], Nemanja Dimić[3], Ljiljana Timotijević[2], Danica Ćujić[4], Azra Guzonjić[1], Jelena Vekić[1], Nataša Bogavac-Stanojević[1], Jelena Kotur-Stevuljević[1]

[1]Department of Medical Biochemistry, Faculty of Pharmacy, University of Belgrade, Belgrade, Serbia
[2]City Institute for Lung Diseases and Tuberculosis, Belgrade, Serbia
[3]KBC Dr Dragiša Mišović Belgrade, Serbia, Faculty of Medicine, University of Belgrade
[4]Institute for the Application of Nuclear Energy, INEP, Zemun, Belgrade

Coronaviruses belong to the family Coronaviridae which are single – chain RNA viruses; SARS-CoV-2 was for the first time identified in the city Wuhan in China 2019th causing a pandemic COVID-19. The important role in the development and progression of infection also has the development of oxidative stress as an inflammation consequence, especially in complicated forms of this disease. This study was performed with the aim of testing the oxidative stress parameters changes in COVID-19 patients. Oxidative stress parameters were determined in the serum of 31 patients, with a milder form of the disease, treated on an outpatient basis, at three time-points (diagnosis, control after 14 and after 21 days). The redox status parameters determined at these three points include prooxidants (total oxidative status TOS); superoxide anion radical ($O_2^{\cdot -}$); prooxidant – antioxidant balance (PAB); as well as products of their activity: advanced oxidation protein products (AOPP), malondialdehyde (MDA), ischemia – modified albumin (IMA) and antioxidants: total antioxidant status (TAS), superoxide dismutase (SOD) and paraoxonase 1 (PON1) activity, ratio of total antioxidant and total oxidative status (TAS/TOS), total sulfhydryl groups (SHG). All prooxidants and markers of their activity showed a significant decrease during the 14 days of the study, while antioxidants at the same time showed a significant increase, which indicated the recovery of patients. In the first point of the examination, the values of vitamin D were determined in order to examine the connection between vitamin D deficiency and the increase in oxidative stress. According to the values of vitamin D, patients were divided into three groups: ≤50 ng/mL, 51–70 ng/mL, 71 ng/mL. It was noticed that patients with

ukupni broj leukocita i više vrednosti $O_2^{\cdot -}$, dok su vrednosti TAS/TOS odnosa i PAB niže ($p<0,05$). Vitamin D utiče na funkciju imunskog sistema, sintetišu ga T i B limfociti, što omogućava njegovo autokrino delovanje. Deficijencija vitamina D povezana je sa razvojem težih oblika ove bolesti. Pored antivirusne, antibiotske, kortikosteroidne, antikoagulantne terapije u COVID-19 i terapija antioksidansima, mineralima i vitaminom D je bila deo protokola lečenja ovih pacijenata, čiju opravdanost potvrđuju rezultati naše studije.

higher values of vitamin D had a significantly higher total number of leukocytes and higher values of $O_2^{\cdot -}$; while the values of TAS/TOS ratio and PAB were significantly lower ($p<0.05$). Vitamin D affects the function of the immune system, it is synthesized by T and B lymphocytes, which enables its autocrine action. Vitamin D deficiency is associated with the development of more severe forms of this disease. Besides antiviral, antibiotic, corticosteroid, anticoagulant therapy in COVID-19 also therapy with antioxidants, minerals and vitamin D were the part of the treatment protocol of these patients, the justification of which is confirmed by the results of our study.

P013
EVALUACIJA TITARA ANTI-SARS-COV-2 S1-RBD IGG ANTITJELA KOD PRELEŽANIH I VAKCINISANIH ISPITANIKA

Suad Mešić[1], Violeta Filipče[2], Nada Minovska[2], Tatjana Baevska Vučković[1], Eleonora Lazarova[1], Gjurgjica Delenikova[2], Tijana Argirova[2], Sofija Cacanoska[2]

[1]PZU Nikob Medical, Skoplje, Severna Makedonija
[2]PZU Nikob Lab, Skoplje, Severna Makedonija

Cilj naše studije bio je uporediti titre anti-RBD antitjela kod preležanih, vakcinisanih i vakcinisanih ispitanika koji su preležali COVID-19. Naša studija je uključila 206 ispitanika; 73 preležanih, 71 vakcinisanih i 62 vakcinisanih sa preležanim COVID-19. Titar anti-SARS-CoV-2 S1-RBD IgG antitjela mjeren je u serumu ispitanika SARS-CoV-2 IgG Quant testom (metoda CMIA) na integrisanom imunobiohemijskom analizatoru Abbott Architect ci4100. Preležani ispitanici su imali najniži titar antitjela. BNT162b2 stvara viši titar antitjela u odnosu na preležane ($p=0,001$). BBIBP-CorV stvara niži titar antitjela u odnosu na preležane ($p=0,004$), ali znatno viši titar ukoliko su ispitanici i preležali COVID-19 ($p=0,009$). Ispitanici, vakcinisani koji su i preležali, imali su najviši titar antitjela ($p<0,001$). Titar antitjela pozitivno je korelirao sa godinama kod preležanih ($r=0,059$), negativno kod vakcinisanih ($r=-0,146$), i pozitivno kod preležanih i vakcinisanih ($r=0,146$). U odnosu na pol, u našoj studiji nije se pokazala statistički signifikantna razlika u titarima antitjela. Zaključujemo da preležani ispitanici vakcinisani protiv SARS-CoV-2 virusa imaju znatno viši titar u odnosu na sve druge grupe, nezavisno od primljene vakcine.

P013
EVALUTATION OF ANTI-SARS-COV-2 S1-RBD IGG ANTIBODY TITERS IN RECOVERED AND VACCINATED PARTICIPANTS

Suad Mešić[1], Violeta Filipče[2], Nada Minovska[2], Tatjana Baevska Vučković[1], Eleonora Lazarova[1], Gjurgjica Delenikova[2], Tijana Argirova[2], Sofija Cacanoska[2]

[1]PZU Nikob Medical, Skopje, North Macedonia
[2]PZU Nikob Lab, Skopje, North Macedonia

The aim of our study was to compare the titers of anti-RBD antibodies in COVID-19-recovered individuals, vaccinated and in vaccinated individuals with past-COVID-19. Our study included 206 participants; 73 recovered, 71 vaccinated and 62 vaccinated with past COVID-19. The titers of nti-SARS-CoV-2 S1-RBD IgG antibodies were measured in the sera of participants using the SARS-CoV-2 IgG Quant test (CMIA method) on the integrated Abbott Architect ci4100 analyser. Recovered participants had the lowest titters. BNT162b2 elicited higher titters compared to recovered participants ($p=0.001$). BBIBP-CorV elicited lower titters compared to recovered participants ($p=0.004$), but higher titters if they also had past COVID-19 ($p=0.009$). Participants, vaccinated and with past COVID-19 had the highest titters ($p<0.001$). Antibody titters correlated positively with age in the recovered group ($r=0.059$), negatively in the vaccinated group ($r=-0.146$), and positively in the vaccinated with past COVID-19 group ($r=0.146$). There was no statistically significant difference in the titters based on gender. We conclude that COVID-19-recovered individuals that have been vaccinated against SARS-CoV-2 have significantly higher titers compared to all other groups regardless of the vaccine received.

P014
KONCENTRACIJA HEPCIDINA KOD ŽENA SA IZOSTALIM ABORTUSOM

Ana Ćuk[1], Ivanka Mikulić[1], Ivona Cvetković[1], Nikolina Penava[2], Ante Pušić[1], Kristina Ljubić[1], Vinka Mikulić[1]

[1]Zavod za laboratorijsku dijagnostiku, Sveučilišna klinička bolnica Mostar, BiH
[2]Klinika za ginekologiju i opstetriciju, Sveučilišna klinička bolnica Mostar, BiH

Iako je poznat značaj gvožđa za zdravlje majke, rast i razvoj placente, embriona i fetusa, još uvek postoje mnoge nejasnoće u razumevanju regulacije gvožđa tokom (ab)normalne trudnoće. Nije poznato da li izostali pobačaj uzrokuje poremećaj homeostaze gvožđa ili obrnuto, da li poremećena homeostaza gvožđa pre začeća može doprineti pobačaju. Postoji 11–22% rizika od pobačaja do 20. nedelje trudnoće, pri čemu je rizik od pobačaja najveći do 14. nedelje. Izostali pobačaj je abortus kod kojeg postoji asimptomatska ili »odložena«smrt embriona ili fetusa bez dovoljnih kontrakcija materice za izbacivanje fetusa. Hepcidin je peptidni hormon i glavni je regulator gvožđa koji kontroliše apsorpciju i distribuciju gvožđa u tkivu. Određivanje koncentracije hepcidina u serumu u normalnoj ranoj trudnoći i ranom izostalom pobačaju je prvi korak ka boljem razumevanju homeostaze gvožđa u ovimuslovima. U ovu studiju su uključene ukupno 72 ispitanice, od čega 36 žena u kontrolnoj grupi (normalna trudnoća) i 36 žena u studijskoj grupi (izostali spontani pobačaj), do 14. nedelje gestacije. Za ovo istraživanje pribavljena je saglasnost Etičkog povjerenstva Sveučilišne kliničke bolnice (SKB) Mostar, a svi ispitanici su prije uzimanja krvi potpisali informirani pristanak. Uzorak krvi ispitanika je uzet nakon ultrazvučno potvrđenog izostalog pobačaja ili normalnog toka trudnoće. Kriterijumi isključenja za obe grupe: krvarenje, anemija, hipertenzija, dijabetes, endokrine abnormalnosti, ultrazvučno vidljive abnormalnosti fetusa, disfunkcija štitne žlezde, infekcija urinarnog trakta, malformacije materice, onkološke bolesti, stečena i nasledna trombofilija, autoimune bolesti, veštačka oplodnja, suplementacija. Uzorci seruma su dobijeni nakon koagulacije i centrifugiranja pune krvi bez antikoagulansa u trajanju od 10 minuta na 3500 rpm i čuvani na -80 °C do analize. Koncentracija hepcidina je određena imunohemijskom ELISA metodom (engl. Enzyme Linked Immunosorbent Assay). Statistička analiza (MedCalc verzija 20.027) pokazala je da je koncentracija hepcidina statistički značajno veća od koncentracije hepcidina kod žena sa normalnom trudnoćom ($P < 0,05$). Srednja koncentracija hepcidina kod žena sa normalnom

P014
HEPCIDIN CONCENTRATION AMONG WOMEN WITH MISSED ABORTION

Ana Ćuk[1], Ivanka Mikulić[1], Ivona Cvetković[1], Nikolina Penava[2], Ante Pušić[1], Kristina Ljubić[1], Vinka Mikulić[1]

[1]Department of Laboratory Diagnostic, University Clinical Hospital Mostar, Bosnia and Herzegovina
[2]Department of Gynaecology and Obstetrics, University Clinical Hospital Mostar, Bosnia and Herzegovina

Although it is well known how important iron is for maternal health, growth and development of the placenta, embryo and fetus, there are still many ambiguities in the regulation of iron during (ab)normal pregnancy. It is unknown whether missed abortion causes disorder of iron homeostasis or vice versa, whether disturbed iron homeostasis may contribute to spontaneous abortion before its onset. There is 11–22% risk of miscarriage up to the 20th week of pregnancy, with the risk of miscarriage being highest up to the 14th week. Missed abortion is an abortion inwhich there is asymptomatic or »delayed« death of the embryo or fetus without sufficient uterine contractions to expel the fetus. Hepcidin is a peptide hormone and isa major regulator of iron that controls the absorption and distribution of iron in tissue. Determining serum hepcidin concentrations in normal early pregnancy and early missed miscarriage is the first step toward a better understanding of iron homeostasis in these conditions. A total of 72 respodents were included in this study: 36 women in the control group (normal pregnancy) and 36 women in the study group (missed abortion), up to the 14th week of gestation. The consent of the Ethics Committee of the University Clinical Hospital (UCH) Mostar was obtained for infomed consent before blood sampling. The bloog sample of the respodents was sampled after ultrasound-confirmed of missed abortion or the normal course of pregnancy. Exclusion criteria for both groups: bleeding, anemia, hypertension, diabetes, endocrine abnormalities, ultrasound visible fetal abnormalities, thyroid dysfunction, urinary tract infection, uterine malformations, oncological diseases, acquired and hereditary thrombophilia, autoimmune diseases, artificial insemination, iron supplementation. Serum samples were obtained after coagulation and centrifugation of whole blood without anticoagulant for 10 minutes at 3500 rpm and stored at -80 °C until analysis. Hepcidin concentration was determined by immunochemical ELISA (*Enzyme Linked Immunosorbent Assay*). Statistical analysis (MedCalc version 20.027) showed that the concentration of hepcidin was statistically significantly higher than the

trudnoćom bila je 3,4895 (1,3825–5,1580) ng/mL, a srednja koncentracija hepcidina kod žena sa odloženim pobačajem bila je 5,0130 (3,2880–7,8265) ng/mL. Iako je poremećena homeostaza gvožđa uključena u mnoga patološka stanja i bolesti, malo se zna o ulozi poremećene homeostaze gvožđa u abnormalnim trudnoćama. Učinjeni su brojni pokušaji da se odrede prognostički markeri koji bi ukazivali na pojavu pobačaja u ranoj trudnoći kod žena. Ovde smo pronašli poremećenu homeostazu gvožđa kod žena sa izostalim pobačajem, o čemu svedoče povišene koncentracije hepcidina u serumu. Regulatorni mehanizmi homeostaze gvožđa u ovim uslovima zahtevaju dalja istraživanja.

concentration of hepcidin in women with normal pregnancy ($P < 0.05$). The median hepcidin concentration in women with normal pregnancies was 3.4895 (1.3825–5.1580) ng/mL, and the median hepcidin concentration in women with delayed miscarriage was 5.0130 (3.2880–7.8265) ng/mL. Although disturbed iron homeostasis is involved in many pathological conditions and diseases, there are limited information available about the role of disturbed iron homeostasis inabnormal pregnancies. Numerous attempts have been made to determine prognostic markers to indicate the occurrence of miscarriage during early pregnancy inwomen. In this research, we found disturbed iron homeostasis in women with missed miscarriage, which is proven by elevated serum hepcidin concentrations. The regulatory mechanisms of iron homeostasis in these conditions require further research.

P015
THE POTENTIAL OF SALIVARY PROTEOME IN LABORATORY ANALYSIS OF SJOGREN'S SYNDROME

Marija Hiljadnikova-Bajro, Angela Simovska

Faculty of Pharmacy, Ss. Cyril and Methodius University in Skopje, Skopje, Republic of North Macedonia

Detection of pathological processes at an early stage can significantly affect the clinical course and outcome of the disease, and hence the choice of appropriate therapeutic intervention. In order to achieve this and avoid invasive sampling procedures like surgical biopsy and repeated phlebotomies which introduce additional stress and safety issues in patients, research is greatly focused on identifying alternative samples and novel biomarkers for advanced laboratory analysis. Since many oral but also systemic pathological processes are being reflected in the salivary composition, it is getting increasing attention as an alternative sample to blood, especially for some population groups like children, adolescents, geriatric or psychiatric patients, where blood sampling is often compromised by insufficient cooperation from the patients or individual factors related to the patiens' health. Sjögren's syndrome (SS) is an autoimmune disease with an insidious onset, variable course and clinical presentation, so its diagnosis is usually established about 6 years after the initiation of the disease and based on the detection and quantification of circulating autoantibodies such as: anti-Ro/SSA, anti-La/SSB, anti-muscarinic receptor antibodies, anti-nuclear antibodies and rheumatoid factor. Apart from molecular diagnostics and

P016
PCOS AND ISULIN RESISTANCE

Danche Kolarovska, Marija Hristovska, Hristijan Trpchevski

Hospital Plodnost Bitola, North Macedonia

Polycystic ovary syndrome (PCOS) is a hormonal disorder common among women of reproductive age. Women with PCOS may have infrequent or prolonged menstrual periods or excess male hormone (androgen) levels. Due to the recent research that PCOS is probably caused by insulin resistance, we are beginning to check insulin in blood in patients who have at least 2 of 3 features irregular periods, excess androgen (high levels of »male« hormones in y our body) and polycystic ovaries. We examine hormones in blood in 86 patients between ages 21 to 43 years old on t hird day of menstrual cycle, opposite to a control group of 30 patients in same conditions: LH, FSH, testosterone, DHEAS and insulin with automates the immunoassay reactions utilizing electrochemiluminescence (ECL). LH/FSH ratio was 2,6:1 with mean values in LH 14,65 mIU/mL+/ 4,2; FSH 5,6 mIU/mL +/ 1,9; the levels of testosteron 77,5 ng/dL,+/ 23,8; DHEAS 450,7 µg/dL +/ 203,0 and insulin 24,75 µU/mL +/ 10,7. Many women with PCOS 68,2% have higher levels of insulin which had not been diagnosed. There are sta tistic significant $p< 0.01$ in levels in testosterone, DHEAS and insulin. PCOS cannot be diagnosed by symptoms alone. PCOS is a very complicated endocrine disorder. Blood tests to measure hormone levels, an US of reproductive organs and genes personal and family histories should be completed before a PCOS diagnosis is confirmed. 68% of women with PCOS have insulin resistance which increases risk for type 2 diabetes.

nanotechnology, several new approaches emerge for detecting even subtle alterations of the salivary constituents, like proteins which are employed in the proteomic analysis. Numerous proteomic studies involving sophisticated methodology like LC-MS/MS have identified aberrant expression of specific proteins in saliva of SS patients, making them potential markers of the disease and indicators of progression. Beside cytokines, many other proteins involved in the inflammatory process are upregulated vs proteins associated with the salivary production which are downregulated. Further to changes in salivary concentrations of MMP9, Complement factor B, Azurocydin Kallikrein, many other proteins including proteases like Trypsin, Catepsin, and Myeloblastin, inhibitors of Cystein proteases, Calreticulin, Protein 29, -amylase precursor of carbonanhydrase VI, -2 microglobulin, enolase etc. have shown aberrant expression in saliva from SS patients and a recent study has even proposed the combination of serum anti-SSA/Ro and upregulated salivary TRIM29, as an optimal marker with high diagnostic accuracy for fast and noninvasive diagnosis of SS. But, in patients with SS, efficient saliva collection is difficult because saliva secretion is significantly reduced. Therefore, when examining the scientific potential of this diagnostic sample, stimulated saliva is mainly used. Additionally, the great heterogeneity of the results among various studies is greatly attributed to variations in the preanalytical procedures as well as the analytical methodology itself. Hence, further studies with larger cohorts applying consensual study protocols are needed to validate the currently proposed and identify new potential markers in saliva for diagnosis, monitoring of SS or be used as targets in drug design in accordance with the precise medicine initiatives.

P017
VERIFICATION OF VIDAS 3® SARS-CO-V-2 IGG II TEST USING ENZYME LINKED FLUORESCENT ASSAY (ELFA) TECHNIQUE

Elena Petrushevska Stanojevska, Hristina Ampova, Melda Emin, Irena Kostovska, Sonja Topuzovska, Jasna Bogdanska, Katerina Tosheska-Trajkovska

Institute of Medical and Experimental Biochemistry, Medical Faculty, University »Ss Cyril and Methodius«, Skopje, 50 Divizija No 6, 1000 Skopje

COVID-19 is unfortunately still present and continues to spread worldwide. The use of serological tests is intended to determine if individuals have developed a humoral immune response to SARS-CoV-2. The verification of the SARS-CoV-2 IgG II test was conducted, as part of the laboratory's quality control procedure before introducing a new test in the scope of our lab. The precision of the test VIDAS 3® SARS-CoV-2 IgG II was performed following the CLSI EP05-A3 recommendations. Two panels of human pool serum samples (HPSs) representing negative (N) and positive (P) level indexes (i) were performed to evaluate the variability of the assay within and between day. The tests were performed into two-levels, over five days, each panel in triplicate. According to the manufacturer the acceptable level of precision is fixed at 20% CV (and in our case corresponds to 7.27% and 12.31% for P and N HPSs, respectively. Moreover, the estimated within-run precision of our lab was 5.98% which is less than the claimed one (6.10%) with SD index of 0.293 (claimed- 0.50). N/A data for N HPSs to compare. The daily variance was estimated as 1.27% and 0.51% for P and N HPSs, respectively. The findings have demonstrated that imprecision and repeatability are in compliance with the manufacture claims, therefore the test is suitable for use. The obtained data represent a prerequisite for appropriate utilization of immune response to RBD/spike viral protein.

Keywords: SARS CoV-2 IgG II, quality control, ELFA

P018
SERUMSKI NIVOI IL-1β I IL-1RA KOD PACIJENATA SA GREJVSOVOM ORBITOPATIJOM

Sarić Matutinović M[1], Nedeljković Beleslin B[2,3], Ćirić J[2,3], Žarković M[2,3], Ignjatović S[1,4]

[1]Univerzitet u Beogradu-Farmaceutski fakultet, Beograd, Srbija
[2]Univerzitetski klinički centar Srbije, Klinika za endokrinologiju, dijabetes i bolesti metabolizma, Beograd, Srbija
[3]Univerzitet u Beogradu – Medicinski fakultet, Beograd, Srbija
[4]Univerzitetski klinički centar Srbije, Centar za medicinsku biohemiju, Beograd, Srbija

Grejvsova orbitopatija (GO) predstavlja inflamatorni poremećaj orbite koju karakteriše specifičan lokalni citokinski milje. Narušavanjem ravnoteže između interleukina- β (IL-1β) i njegovog prirodnog anatagoniste, antagoniste receptora interleukina-1 (IL-1RA) gubi se prirodni regulatorni mehanizam, čime se stvara proinflamatorni fenotip orbitalnih fibroblasta koji koordiniše dalje procese u osnovi ove bolesti. Cilj naučnog istraživanja je bio da se analizira povezanost IL-1β i IL-1RA sa kliničkim oblikom GO. Istraživanjem je obuhvaćeno 65 pacijenata sa klinički prisutnom GO, lečenih na Klinici za endokrinologiju, dijabetes i bolesti metabolizma, Univerzitetskog kliničkog centra Srbije. Pacijenti su klasifikovani prema aktivnosti i težini GO, kao pacijenti sa aktivnim ili neaktivnim, odnosno blagim ili umerenim do teškim oblikom GO. IL-1 β i IL-1RA su analizirani u uzorcima seruma pacijenata, primenom komercijalnih enzimskih imunohemijskih testova (ELISA), prema preporukama proizvođača. Serumska koncentracija IL-1β bila je statistički značajno viša, a IL-1RA granično niža u grupi pacijenata sa aktivnom GO u odnosu na pacijente sa neaktivnom GO (4,86 (4,25–5,66) pg/mL i 3,83 (2,96–4,83) pg/mL, p = 0,027; 487 (285–694) pg/mL i 618 (359–812) pg/mL, p = 0,059, za IL-1β i IL-1RA, redom). Dodatno je uočena i pozitivna korelacija IL-1β sa vrednostima skora kliničke aktivnosti (ρ = 0,261, p = 0,036). Težina GO nije bila značajno povezana sa vrednostima IL-1β i IL-1RA u ispitivanom uzorku pacijenata. Rezultati ovog istraživanja ukazuju na mogućnost upotrebe IL-1β kao značajnog biomarkera aktivnosti i kliničkog toka GO. Kombinovana primena IL-1β i IL-1RA, zajedno sa tradicionalnim parametrima, mogla bi unaprediti laboratorijsku dijagnostiku ove kompleksne patologije.

P018
SERUM LEVELS OF IL-1β AND IL-1RA IN GRAVES' ORBITOPATHY PATIENTS

Sarić Matutinović M[1], Nedeljković Beleslin B[2,3], Ćirić J[2,3], Žarković M[2,3], Ignjatović S[1,4]

[1]University of Belgrade, Faculty of Pharmacy, Belgrade, Serbia
[2]Clinic for Endocrinology, Diabetes and Metabolic Disorders, University Clinical Center of Serbia, Belgrade, Serbia
[3]University of Belgrade, Medical Faculty, Belgrade, Serbia
[4]Center for Medical Biochemistry, University Clinical Center of Serbia, Belgrade, Serbia

Graves' orbitopathy (GO) is an inflammatory disorder of the orbit characterized by a specific local cytokine milieu. By disrupting the balance between interleukin-β (IL-1β) and its natural antagonist, the interleukin-1 receptor antagonist (IL-1RA), the natural regulatory mechanism is lost, thus creating a proinflammatory phenotype of orbital fibroblasts that coordinates further processes underlying this disease. Aim of the study was to analyze the association of IL-1β and IL-1RA with the clinical form of GO. A total of 65 consecutive patients presented with GO were enrolled in the study. All patients were regularly treated at the Clinic for Endocrinology, Diabetes and Metabolic Diseases, University Clinical Center of Serbia. Patients were classified according to the activity and severity of GO, as patients with active or inactive, and mild or moderate to severe form of GO. IL-1 β and IL-1RA were analyzed in patient sera, using commercial enzyme-linked immunosorbent assays (ELISA), according to the manufacturer's instructions. Significantly higher IL-1β and marginally lower IL-1RA serum concentration was observed in patients with active GO, compared to patients with inactive GO (4.86 (4.25–5.66) pg/mL vs. 3.83 (2.96–4.83) pg/mL, p = 0.027; 487 (285–694) pg/mL vs. 618 (359–812) pg/mL, p = 0.059, for IL-1β and IL-1RA, respectively). Additionally, IL-1β concentration positively correlated with the clinical activity score (ρ = 0.261, p = 0.036). There was no significant association between IL-1β and IL-1RA values, and the severity of GO in the analyzed patient sample. Results of this study indicate the possibility of using IL-1β as a significant biomarker of the activity and the clinical course of GO. The combined application of IL-1β and IL-1RA, along with traditional parameters, could substantially improve the laboratory diagnosis of this complex pathology.

P019
OKSIDATIVNO-STRESNI STATUS KOD PACIJENATA NA HEMODIJALIZI

Nina Mitić[1], Jasmina Ivanišević[1], Tamara Milošević[2], Azra Guzonjić[1], Sanja Vujčić[1], Jelena Kotur-Stevuljević[1], Snežana Pešić[3], Radomir Naumović[3]

[1]Katedra za medicinsku biohemiju, Farmaceutski fakultet, Univerzitet u Beogradu, Srbija
[2]Medicinsko-biohemijska laboratorija, KBC »Zvezdara«, Beograd, Srbija
[3]Bolnica za nefrologiju i metaboličke bolesti »Prof. dr Vasilije Jovanović«, KBC »Zvezdara«, Beograd, Srbija

Poslednji stadijum bolesti bubrega karakteriše se brzinom glomerularne filtracije manjom od 15 mL/min/1,73 m^2 zbog čega su potrebni tretmani koji zamenjuju renalnu funkciju poput hemodijalize (HD) ili transplantacije bubrega. Dvogodišnji nivo rizika od smrtnog ishoda (engl. *mortality risk score*) se zasniva na više laboratorijskih, kliničkih i parametara HD. Zbog starosti i pojave drugih komorbiditeta, pacijenti na HD su osetljiviji na oksidativni stres. Povećan oksidativni stres može da doprinese i povećanom riziku od mortaliteta. Cilj naše studije je bio da se odrede parametri oksidativno-stresnog statusa pre i posle HD i 6 meseci nakon tretmana, kao i promena ovih parametara u zavisnosti od nivoa rizika od smrtnog ishoda. U studiji je učestvovalo 130 pacijenata na hemodijalizi. Parametri oksidativno-stresnog statusa: uznapredovali produkti oksidacije proteina (AOPP), prooksidativni-antioksidativni balans (PAB), superoksidni anjon ($O_2^{\cdot -}$), malondialdehid (MDA), ishemijom modifikovan albumin (IMA), superoksid-dizmutaza (SOD) i sulfhidrilne (SH) grupe su odre eni spektrofotometrijskim metodama na ILAB 300+ analizatoru. Vrednosti parametara $O_2^{\cdot -}$ ($P<0,05$), IMA ($P<0,01$), AOPP, SOD, SH gr, PAB i MDA ($P<0,001$) 6 meseci nakon tretmana su bile značajno različite u pore enju sa vrednostima dobijenim pre i/ili posle HD. Umereni i najviši nivo rizika od smrtnog ishoda se karakterišu značajno različitim koncentracijama SH grupa, PAB-a ($P<0,05$) i $O_2^{\cdot -}$ ($P<0,001$), u odnosu na grupu pacijenata sa najmanjim rizikom. Dobijeni rezultati pokazuju da bi hemodijaliza mogla značajno da utiče na oksidativno-stresni status pri čemu je i rizik od smrtnog ishoda povezan sa različitim nivoima oksidativnog stresa.

P019
OXIDATIVE-STRESS STATUS OF HEMODIALYSIS PATIENTS

Nina Mitić[1], Jasmina Ivanišević[1], Tamara Milošević[2], Azra Guzonjić[1], Sanja Vujčić[1], Jelena Kotur-Stevuljević[1], Snežana Pešić[3], Radomir Naumović[3]

[1]Department of Medical Biochemistry, Faculty of Pharmacy, University of Belgrade, Serbia
[2]Medical-biochemistry laboratory, CHC »Zvezdara«, Belgrade, Serbia
[3]Hospital for nephrology and metabolic disorders »Prof. dr Vasilije Jovanović«, CHC »Zvezdara«, Belgrade, Serbia

The last stage of kidney disease is characterized by a glomerular filtration rate less than 15 mL/min/1.73 m^2. As a consequence, treatments such as hemodialysis (HD) or kidney transplantation are necessary to substitute for the lost function. The two-year mortality risk score is based on multiple laboratory, clinical and HD parameters. Patients on HD treatment are susceptible to oxidative stress due to aging and other comorbidities. Increased oxidative stress can also contribute to an increased risk of mortality. The aim of our study was to determine the parameters of oxidative-stress status before and after HD and 6 months after treatment, as well as the changes of these parameters depending on the levels of risk of death. The data from 130 patients on HD treatment were collected in this study. The parameters of oxidative-stress status as: advanced oxidation protein products (AOPP), prooxidant antioxidant balance (PAB), superoxide anion ($O_2^{\cdot -}$), malondyaldehide (MDA), ischemia modified albumin (IMA), superoxide-dismutase (SOD), and sulfhydryl (SH) groups were determined using spectrophotometric methods on ILAB 300+ analyzer. The results of $O_2^{\cdot -}$ ($P<0.05$), IMA ($P<0.01$), AOPP, SOD, SH gr, PAB and MDA ($P<0.001$), six months after treatment, were significantly different compared to the values obtained before and/or after HD. The moderate and the highest mortality risk levels were characterized by significantly different concentrations of SH groups, PAB ($P<0.05$) and $O_2^{\cdot -}$ ($P<0.001$) compared to the group of patients with the lowest risk. The obtained results show that hemodialysis could significantly affect the oxidative-stress status and the risk of death is associated with different levels of oxidative stress.