POSTERSKE SEKCIJE

POSTER SESSIONS

UDK 577.1 : 61 **ISSN 1452-8258**

J Med Biochem 31: 389–423, 2012

Poster sessions
Posterske sekcije

P001
MERENJE LIPIDNE PEROKSIDACIJE I ANTIOKSIDATIVNE ZA[TITE ZASNOVANE NA]ELIJSK OJ MEMBRANI

Veroljub Knežević, Jasmina Đinđić, Sandra Živanović

Služba za laboratorijsku dijagnostiku,
Služba za pedijatrijsku dijagnostiku,
Služba za reumatološku dijagnostiku,
Dom zdravlja Kragujevac, Kragujevac, Srbija

U mnogim bolestima sr eće se povišena lipidna peroksidacija, gde slobodni radikali oštećuju ćelijske membrane. Nezasićene masne kiseline oksidišu u prisustvu kiseonika, na primer posle iniciranja pe - roksida i u prisustvu tranzicionih metala, gvožđa i bakra. Potrošnja prirodnih antioksidanata, uključujući one koji se vezuju za metale i radikale, može da smanji brzinu lipidne per oksidacije. Za pr oučavanje i identifikaciju novih antioksidanata uvedena je metoda bazirana na ćelijskim mikropločama (*Cellular Lipid Peroxidation Antioxidant Activity; CLPAA*) ćelija jetr e (Hep G2) gde se meri br zina lipidne per oksidacije. Metoda *CLPAA* zasniva se na rastvor ljivosti ćelijske membrane i veoma oksidacijski osetljivoj fluorescentnoj u cr venom spektru, 5 mmol/L C11-BODIPY medijumu. Lipidna per oksidacija izaziva se dodava - njem lipofilnog kumen-hidr operoksida (cum OOH), kao i formiranje zelenih fluorescentnih C11-BODIPY proizvoda oksidacije koji se mer e pomoću ploče za očitavanje. Rezultati pokazuju da mer enje brzine formiranja zelenih C11-BODIPY oksidacijskih pr o- dukata funkcioniše bolje nego mer enje gubitka crvenog neoksidovanog C11-BODIPY. Prema testovima za doze antioksidanata u odnosu na velike koncentracijske intervale, obračunava se koncentracija za inhibitorni efekat 50% (IC50-vr ednost) i mogu da se upoređuju različiti antioksidanti. Metoda se izvodi direktnim upoređivanjem diferioksaminom (DFO) koji vezuje gvožđe i flavonoid luteolina, koji mogu da vezuju metale i da neutrališu slobodne radikale. Posle jednog sata inkubacije luteolin je proizveo veći zaštitni antioksidativni efekat (IC50=5,21 nmol/L) nego DFO (IC50=784 nmol/L).

P001
MEASUREMENT OF LIPID PEROXIDATION AND ANTIOXIDANT PROTECTION BASED ON THE CELL MEMBRANE

Veroljub Knežević, Jasmina Đinđić, Sandra Živanović

Department of Laboratory Diagnostics,
Department of Pediatrics,
Department of Rheumatology,
»Health Center Kragujevac«, Kragujevac, Serbia

Increased lipid per oxidation is found in many di - seases, where free radicals damage cellular membrane. Unsaturated fatty acids ar e oxidized in the presence of oxygen, for example, af ter the initiation of peroxide in the presence of transition metals, copper and ir on. Consumption of natural antioxidants, including those that bind to metals and radicals, may reduce the rate of lipid per oxidation. the study and identification of new antioxidants a new method has been introduced based on cellular micr o plates (Cellular Lipid Peroxidation Antioxidant Activity; CLPAA) of liver cells (Hep G2) wher e speed is measur ed by lipid peroxidation. The method is based on the solubility CLPAA of the cell membranes and the highly sensitive fluorescent lipid in the r ed spectrum, 5 mmol/L C11-BODIPY medium. Lipid-BODIPY peroxidation and the for mation of gr een fluorescent BODIPY-C11 oxidation products which are measured with the readout plate are caused by adding lipophilic cumene hydroperoxide (OOH cum). The r esults show that measuring the speed of for mation of C11-BODIPY green oxidation pr oduct works better than measuring the loss of red non-oxidized C11-BODIPY. According to tests for the doses of antioxidants in relation to the large concentration interval, the calculated 50% inhibitory concentrations (IC50-value) and various antioxidants may be compar ed. The method is performed by comparing the dir ect desferrioxamine (DFO), which binds ir on and the flavonoid luteolin, which can bind metals and neutralize fr ee radicals. After one-hour incubation, luteolin pr oduced a higher antioxidant pr otective effect (IC50=5.21 nmol/L) than DFO (IC 50 = 784 nmol/L).

P002
VREDNOSTI GLUKOZE IZ KAPILARNE KRVI KOD PACIJENATA KOJI PRIMAJU GLUKOZU ILI INSULIN

Veroljub Knežević

Služba za laboratorijsku dijagnostiku,
Dom zdravlja Kragujevac, Kragujevac, Srbija

Kod kritično bolesnih pacijenata koji dobijaju intravenozno glukozu ili insulin, glukoza se prati često i zdravstveni radnici za praćenje između ostalog koriste glukometre za merenje glukoze iz kapilarne krvi koji su pristupačni pacijentu. Mi smo ispitivali da li korišćenje glukometra može da bude pogodno kao metoda analize za ovu vrstu pacijenata kada je krv uzeta iz kapilara. Analize iz kapilarne krvi su izvedene po sistemu Accu-Chek Performa od Novartisa. Arterijska i venska krv uzete su istovremeno za analizu laboratorijskim referentnim metodama (Novartis), kao i apparatom za biohemijske analize «Architect-c8000». Dodatno, merena je zapremina eritrocita (MCV). Ukupno je obrađeno 26 uzoraka krvi. Glukoza merena pomoću Accu-Chek Performa od Novartisa pokazuje vrednosti 7,9 (4,8–15,8) i 8,1 (4,6–16,7) mmol/L. Referentna metoda i biohemijski analizator je izmerili su prosečnu vrednost glukoze 8,6 (4,3–17,4) i 8,6 (4,6–17,1) mmol/L. Izmerene vrednosti glukoze pokazale su signifikantnu razliku iz među laboratorijskih referentnih metoda i glukometra ($p<0,05$). Glukometri ne zadovoljavaju zahtev koji se postavlja u ISO 15197. Niske vrednosti MCV (<0,40) potcenjuju vrednosti glukoze za 10%. Pomoću standardizovanih metoda dokazane su signifikantne razlike između glukometra i laboratorijskih referentnih metoda. Uslov glukometra za tačnost merenja nije održiva a istovremeno izmerene vrednosti glukoze se potcenjuju kada pacijent ima nisku vrednost MCV. Zbog toga nije sigurno da je merenje glukometrom dovoljno tačno za korišćenje kod kritično obolelih pacijenata.

P002
GLUCOSE VALUES FROM CAPILLARY BLOOD IN PATIENTS RECEIVING GLUCOSE OR INSULIN

Veroljub Knežević

Department of laboratory diagnostics,
»Health Center Kragujevac«, Kragujevac, Serbia

Critically ill patients receiving glucose/insulin treatment need close glucose control. Point-of-care testing (POCT) devices are commonly used to monitor blood glucose levels. The purpose of our study was to see if capillary glucose measured with a POCT device is acceptable for this group of patients. Glucose values were obtained with POCT devices Accu-Chek Performa and Novartis from fingerstick. The values were compared with arterial/venous glucose values obtained by laboratory analysis (Modular) and a biochemistry instrument (Architect-c8000). In addition, hematocrit (hct) was measured. A total of 26 sample were included. Mean glucose levels obtained by Accu-Chek Performa and Novartis were 7.9 (4.8–15.8) and 8.1 (4.6 –16.7) mmol/L. Mean glucose was 8.6 (4.3–17.4) and 8.6 (4.6–17.1) mmol/L based on the laboratory (Modular) and the biochemistry instrument (ABL 725). Significant differences were found between glucose values obtained by the POCT devices and by the reference laboratory methods ($p<0.05$). POCT devices do not satisfy the requirements from ISO 15197. Low hematocrit values (HCT<0.40) underestimated the glucose values by 10%. Under standardised conditions there was a significant difference between the glucose results obtained by the use of POCT devices and those obtained by reference laboratory methods. POCT devices do not meet the accuracy requirements and glucose values are underestimated in patients with low hematocrit. Therefore it is uncertain whether POCT devices are precise enough to be used for critically ill patients.

P003
UTICAJ INTERFERENATA NA ODRE\IV ANJE AKTIVNOSTI SERUMSKE LIPAZE POMO]U DVE RAZLI^ITE METODE

Bratislav B. Dejanović,
Vesna D. Vuković-Dejanović

Vojnomedicinski centar »Karaburma«,
Institut za rehabilitaciju, Beograd, Srbija

Za određivanje aktivnosti lipaze u serumu najčešće se koriste turbidimetrijska i spektrofotometrijska metoda. U ovom radu prikazani su uticaji

P003
IMPACT OF INTERFERENCES ON THE DETERMINATION OF SERUM LIPASE ACTIVITY WITH TWO DIFFERENT METHODS

Bratislav B. Dejanović,
Vesna D. Vuković-Dejanović

Military Medical Center »Karaburma«,
Institute for Rehabilitation, Belgrade, Serbia

Commonly used methods for the determination of lipase activity in serum are the turbidimetric and spectrophotometric. In this work the influences of

lipemije, ikterije i hemolize na odr eđivanje lipaze pomoću turbidimetrijske (koja koristi triolein kao supstrat) i spektr ofotometrijske metode (koja koristi 1,2-o-dilauril-rac-glicero-6'-metilrezorufin estar glutarne kiseline kao supstrat). U ovu svr hu je sakupljen serumski *pool*, u koji su dodavane rastuće koncentracije ispitivanih interferenata. Kao suplementi su korišćeni serumi sa vidljivom lipemijom i ikterijom, kao i hemolizat opranih eritr ocita. Aktivnost lipaze je merena pomoću obe metode na analizator u Hitachi 912 (Roche). Nakon oduzimanja suplementa odr eđen je uticaj ovih inter ferenata na aktivnost enzima. Rezultati pokazuju da hemoglobin prisutan u serumu utiče na određivanje lipaze pomoću obe metode. Sa porastom koncentracije holester ola, aktivnost lipaze opada ako se odr eđuje spektrofotometrijskom metodom. Porast koncentracije triglicerida povećava aktivnost lipaze pri turbidimetrijskom odr eđivanju. Ukupan i direktan bilirubin prisutni u uzorku ne utiču na određivanje lipaze pomoću obe metode. Ukupan bilirubin do 37,5 μmol/L, direktan bilirubin do 18,7 μmol/L, holesterol do 4,5 mmol/L i trigliceridi do 1,76 mmol/L ne interferiraju ni sa jednom od ove dve metode za određivanje lipaze u serumu. Hemoglobin u koncentraciji većoj od 7,5 g/L inter ferira sa turbidimetrijskom metodom, dok u koncentraciji većoj od 3 g/L interferira sa spektrofotometrijskom metodom.

lipemia, icterus and hemolysis on lipase deter mination with the turbidimetric (using triolein as substrate) and spectrophotometric method (using 1,2- o-dilauryl-rac-glycero-3-glutaric acid-(6'-methylresorufin) ester as substrate) ar e presented. For this purpose a serum pool was collected. Incr easing concentrations of the tested interferences were added to the pool. Serum samples with visible lipemia and icterus, and the hemolysate of washed er ythrocytes were used as supplements. Lipase activity was measured with both methods on a Hitachi 912 analyzer (R oche). After subtraction of the added supplement, the impact of these interferences on the deter mination enzyme activity was defined. R esults show that hemoglobin present in the sample influences lipase determination using both methods. W ith an incr easing cholesterol concentration, lipase activity decr eases in the spectrophotometric method. An increasing concentration of triglycerides incr eases the activity of lipase as de - termined turbidimetrically. Total and dir ect bilirubin present in the sample do not affect the determination of lipase in either method. Total bilirubin up to 37.5 μmol/L, direct bilirubin up to 18.7 μmol/L, cholesterol up to 4.5 mmol/L and triglycerides up to 1.76 do not interfere with either of the methods for lipase determination in ser um. Hemoglobin at concentrations above 7.5 g/L inter feres with the turbidimetric method, and above 3 g/L interferes with the spectrophotometric method.

P004
PRA]ENJE MARKERA METABOLI^KE BOLESTI KOSTIJU KOD PACIJENATA NA HEMODIJALIZI

Ljiljana Bačvanski, Rosa Jelašić, Gordana Stepanov, Mira Savić

Kliničko-biohemijska laboratorija, Interno odeljenje – odsek hemodijalize Opšta bolnica Zrenjanin, Srbija

Sa propadanjem bubrežne funkcije dolazi do razvoja sekundarnog hiperparatireodizma sa hipokalcemijom i hiperfosfatemijom. Poremećaj je posebno izražen kod pacijenata na hemodijalizi i r edovno ga prati metaboličko mineralno oboljenje kostiju. P osledica poremećaja su komplikacije u kar diovaskularnom i drugim sistemima i or ganima. U našem radu pratili smo 62 pacijenta na hemodijalizi. U periodu od godinu dana obavljene su četiri kontr ole. U uzorcima pre dijalize određivani su biohemijski parametri: Ca, P, albumin, intaktni PTH, alkalna fosfataza (AF), na biohemijskom analizatoru Architect ci 8200, dok je acidobazni status odr eđen na aparatu ABL80 flex. Prema vrednostima iPTH pacijenti su podeljeni u dve gr upe. Prva grupa od 38 pacijenata imala je

P004
MONITORING OF METABOLIC BONE DISEASE MARKERS IN HEMODIALYSIS PATIENTS

Ljiljana Bačvanski, Rosa Jelačić, Gordana Stepanov, Mira Savić

Clinical Biochemistry Laboratory, Internal Medicine Ward – Hemodialysis Unit General Hospital Zrenjanin, Serbia

Renal failure results in the occurrence of secondary hyperparathyroidism with hypocalcemia and hyperphosphatemia. This disor der is especially distin c- tive in hemodialysis patients and is regularly followed by mineral metabolic bone disease. Complications in the cardiovascular and other systems and or gans occur as a consequence of the disor der. The paper presents the monitoring of 62 hemodialysis patients. There were four controls during a one-year period of time. The following biochemical parameters wer e determined in the samples taken befor e dialysis: Ca, P, albumin, intact PTH, alkaline phosphatase (AF), by using a biochemical analyzer Architect ci 8200, while the acid-alkaline status was deter mined by using an ABL80 flex. The patients wer e divided into two

vrednosti u skladu sa preporukama KDIGO (vrednost iPTH 2–9 puta veća od gor nje referentne vrednosti testa). Druga grupa od 24 pacijenta imala je vr ednosti iPTH iznad gor nje preporučene vrednosti. Između grupa, vrednosti za Ca, P, albumin ne po - kazuju statistički značajne razlike. R ezultati za AF u drugoj grupi bili su značajno viši ($p<0,001$), što ukazuje na izmenjenu koštanu aktivnost, koja dir ektno ili indirektno upućuje na rizik od ranih kalcifikacija mekog tkiva, sitnih kr vnih sudova i potrebnu dalju dijagnostičku obradu–biopsiju kostiju. Dobijeni r ezultati su pokazali da je od rđivanje biohemijskih parametara značajno i važno za pr ocenu metaboličkog poremećaja kostiju, dijagnostikovanje tipa oboljenja, primenu supstitucione terapije i dr ugih procedura lečenja, prevenciju kardiovaskularnih i drugih oboljenja kao i za smanjenje ko morbiditeta i mortaliteta pacijenata, što je i bio cilj rada.

groups according to iPTH values. The first gr oup of 38 patients had values in accordance with the KDIGO recommendations (iPTH value 2–9 times higher than the upper r eference value of the test); the other group of 24 patients had iPTH values higher than the upper recommended values. Ca, P and albumin values reveal no statistically significant differ ence between the two groups. However, AF results were significantly higher in the second group ($p<0.001$), which indicates modified bone activity that dir ectly or indirectly suggests the risk of early calcification of sof t tissue and small blood vessels and requires further diagnostics – bone biopsy. The obtained results showed that the determination of biochemical parameters is highly significant and important for metabolic bone disorder estimation, diagnosis of disease type, application of substitution therapy and other tr eatment procedures, cardiovascular and other diseases pr evention and for the reduction of comorbidity and mortality of patients, which was the objective of this paper.

P005
NASLEDNA BISALBUMINEMIJA DETEKTOVANA ELEKTROFOREZOM NA GELU AGAROZE – PRIKAZ SLU^AJA

Ivana Jagličić, Olivera Savić

Institut za transfuziju kr vi Srbije, Beograd, Srbija

Bisalbuminemija (aloalbuminemija) je nasledni ili stečeni poremećaj koji se odlikuje elektr oforetskim nalazom dve frakcije albumina u serumu. Ova pojava je najčešće benigno stanje. Nasledna bisalbuminemija je redak genetski poremećaj koji se nasleđuje autozomno kodominantno (isti ili različit intenzitet frakcija) i otkriva se slučajno. Stečena bisalbuminemija je opisana u nekim patološkim por emećajima (prekomerna upotreba beta-laktamskih antibiotika, ketoacidoza). Pacijentkinja stara 25 godina upućena je, od strane endokrinologa, u našu laboratoriju u okvir u ispitivanja poremećaja sinteze imunoglobulina. U ispitivanje su uključeni otac i sestra pacijentkinje. Za ispitivanje opisivanje frakcija pr oteina seruma korišćene su metode elektr oforeze na agar gelu po Tise - liusu i mikr omodifikacija imunoelektroforeze po Scheideggeru. Koncentracije proteina su određivane imunonefelometrijom. Nalaz elektr oforeze pacijentkinje je dokazao prisustvo dve frakcije albumina, normalnu i sporiju frakciju. K od oca pacijentkinje je takođe dokazana bisalbuminemija, dok je sestrin uzorak pokazao jednu elektr oforetsku frakciju albumina. Na imunoelektroforezi upotrebom antihumanog i specifičnog antialbuminskog antiseruma pokazana je

P005
HEREDITARY BISALBUMINEMIA DETECTED BY AGAROSE GEL ELECTROPHORESIS – CASE REPORT

Ivana Jagličić, Olivera Savić

Blood Transfusion Institute of Serbia, Belgrade, Serbia

Bisalbuminemia (alloalbuminemia) is an inheri - ted or acquir ed abnormality of the albumin characterized by the pr esence of two differ ent electrophoretic fractions. It is mostly benign state. Her editary bisalbuminemia is a r elatively rare genetic disor der, inherited in an autosomal codominant pattern (equal or unequal amounts of electr ophoretic fractions), usually detected accidentally. So far, acquired bisalbuminemia has been described in several pathological conditions (r eceiving high doses of β-lactam antibiotics, diabetic ketosis). A 25-year old female was referred by endocrinologist to our laborator y for a diagnostic work up on immunoglobulin pr ofile. Father and sister wer e also examined. Detection of protein fraction was per formed by Tiselius agar ose gel electrophoresis and by Scheidegger micr o modification of immunoelectr ophoresis. Protein concentrations were detected by immunonephelometr y. Patient's serum electrophoresis revealed two distinct albumin bands, nor mal and slow -migrating. The patient's father was also bisalbuminemic, while her sister's serum revealed no electrophoretic abnormalities. Immunoelectrophoresis with antihuman and special antialbumin antisera showed one pr ecipita-

samo jedna precipitaciona linija albumina. Svi uzorci su testirani u pravcu isključivanja monoklonske gamapatije. Koncentracije imunoglobulina su bile u normalnim opsezima. Ovo je prvi slučaj opisane nasledne bisalbuminemije u našoj laboratoriji. Nalaz bisalbuminemije obavezuje na kliničko ispitivanje propratnih patoloških stanja i laboratorijsko ispitivanje krvnih srodnika.

tion line. All samples were also tested in order to exclude monoclonal gammopathy. Immunoglobulin concentrations were within normal ranges. This is the first described case of bisalbuminemia in our laboratory. Finding of bisalbuminemia compels clinical doctors to investigate the occurrence of the accompanying pathological disorders in patient, as well as laboratory doctors to detect bisalbuminemia among relatives.

P006
ODRE\IVANJE FIBRINOGENA: PORE\ENJE TRI METODE

Milena Stavrić, Vesna Subota, Svetlana Vujanić, Janko Pejović, Zoran Mijušković, Ivana Milanović

Institut za medicinsku biohemiju, Vojnomedicinska akademija, Beograd, Srbija

Testovi za određivanje fibrinogena imaju veliki značaj u laboratorijama za hemostazu kao skrining alat za koagulacione bolesti. Kako je fibrinogen pokazatelj rizika za kardiovaskularne bolesti, to se njegovo merenje sve češće traži u rutinskim laboratorijama za hemostazu. Premda je više različitih metoda na raspolaganju, ne postoji konsenzus po pitanju koja je metoda najbolja. Cilj ove studije je bio da izvrši poređenje tri različite metode. Rađena su dva funkcionalna aktivaciona testa koja se zasnivaju na vremenu potrebnom za formiranje fibrinskog ugruška: modifikacija von Clauss- ove metode i metod izvedenog fibrinogena iz protrombinskog vremena i antigenski imunonefelometrijski test. Petnaest uzoraka plazme, sa normalnim vrednostima fibrinogena i dvadeset sa visokim vrednostima fibrinogena su analizirana na Siemens aparatima (BCS- XP koagulometar i BN II nefelometar). Kalibracija testova izvršena je prema preporukama proizvođača. Citratna plazma je sakupljana od zdravih pacijenata i pacijenata sa simptomima akutno-fazne reakcije. Statistička analiza metoda izvedena je jednofaktorskim ANOVA poređenjem. Funkcionalni testovi su bili sličnih srednjih vrednosti (5,06 i 5,10 g/L) i distribucije, dok je imunonefelometrijski test imao blago, ali ne statistički značajno niže srednje vrednosti (4,38 g/L). Ustanovljeno je zadovoljavajuće slaganje između sve tri metode (F 1,25 < F crit 3,09). Zaključak ove studije je da su sve tri metode koje se primenjuju u laboratoriji za rutinsku hemostazu brze, jednostavne za izvođenje i što je najvažnije, veoma pouzdane.

P006
FIBRINOGEN ASSAYS: COMPARISON OF THREE DIFFERENT METHODS

Milena Stavrić, Vesna Subota, Svetlana Vujanić, Janko Pejović, Zoran Mijušković, Ivana Milanović

Institute of Medical Biochemistry, Military Medical Academy, Belgrade, Serbia

Fibrinogen assays are important screening tool for blood coagulation disorders. Because it is an indicator of risk of cardiovascular diseases, its measurement is performed more and more frequently in hemostasis laboratory. Although different methods are available, no consensus has been reached as to which method is preferable. The aim of this study was to compare three different methods. Functional assay based upon the time for fibrin clot formation, A: Modification of the von Clauss, and B: Prothrombin time-derived methods based on the optical density change prothrombin time (activity assays) and immunological assays C: immunonephelometric method (antigen assay). The same plasma samples, 15 with normal and 20 with high contents of fibrinogen, were analyzed with assays examined on Siemens (BCS-XP coagulometer and BN II nephelometer Dade Behring, Siemens). Assays and analyzers were calibrated according to manufacturer's instruction. Venous blood anticoagulated with trisodium citrate was collected from healthy individuals and patients with clinical conditions known to be associated with the acute-phase reactions. A comparison method was performed according to ANOVA: single factor statistical evaluation. Two assays of clottable fibrinogen (von Clauss and Prothrombin time-derived) showed similar mean values (5.06 and 5.10 g/L) and distributions, whereas the immunonephelometric assay showed slightly lower mean values (4.38 g/L), but not significantly different. There was a significant agreement between all three assays (F 1.25 < F crit 3.09). To conclude, all methods used in our routine coagulation laboratory are rapid, simple to perform, and, most significantly, reliable.

P007
UTICAJ HEMOLIZE NA RUTINSKE BIOHEMIJSKE PARAMETRE

Marija Vasić-Lazić, Tamara Anđelić, Vesna Subota, Janko Pejović, Tatjana Đurašinović, Marina Peruničić-Lučić

Institut za medicinsku biohemiju, Vojnomedicinska akademija, Beograd, Srbija

Hemoliza, razgradnja membrane eritrocita, izaziva oslobađanje hemoglobina i ostalih elemenata eritrocita u okolni prostor. To je najčešća preanalitička greška sa velikim uticajem na kvalitet laboratorijskih rezultata. Cilj ove studije je da potvrdi ovu tvrdnju. Trideset pacijenata Urgentnog odeljenja (ED) Vojnomedicinske akademije je učestvovalo u ovoj studiji. Venepunkciju je izvršilo osoblje ED. Hemoliza, vidljiva po crvenoj obojenosti seruma, nastala je usled neadekvatnog uzorkovanja i neadekvatnog rukovanja uzorcima. Nakon ponovljene venepunkcije od strane edukovanih laboranata, dobijeni su uzorci seruma bez prisutnog hemoglobina u njima. Na osnovu koncentracije hemoglobina, hemolizovani uzorci su podeljeni na šest grupa: Grupa I: 0,0–1,0 g/L, Grupa II: 1,01–2.50 g/L, Grupa III: 2,51–3,00 g/L, Grupa IV: 3,01–3,5 g/L, Grupa V: 3,60–5,0 g/L i Grupa VI: 5,01–6,00 g/L. Biohemijski parametri su određeni na aparatu Dimension RxL Max (Siemens), statistička obrada podataka je izvršena studentovim t-testom iz razlike između parova. Statistički značajna razlika između hemolizovanih i ne-hemolizovanih uzoraka je ustanovljena kod aspartat aminotransferaze (AST), laktat dehidrogenaze (LDH), alanin aminotransferaze (ALT), kreatin kinaze (CK), kreatin kinaze MB (CK-MB) kao i kod kalijuma (K), uzrokujući veće vrednosti ovih parametara kod hemolizovanih uzoraka. Uticaj interferencije je linearno zavisan od koncentracije hemoglobina u uzorku. Nije nađen statistički značajan uticaj hemolize na vrednosti glukoze i bilirubina. Hemoliza značajno utiče na određivanje rutinskih biohemijskih parametara i moguće rešenje je upozoriti kliničare na hemolizu i ponovno uzorkovati krv pacijentu. Ova studija takođe ukazuje na značaj edukacije flebotomista za dobijanje kvalitetnog uzorka krvi.

P007
THE EFFECTS OF HEMOLYSIS ON ROUTINE BIOCHEMISTRY PARAMETERS

Marija Vasić-Lazić, Tamara Anđelić, Vesna Subota, Janko Pejović, Tatjana Đurašinović, Marina Peruničić-Lučić

Institute of Medical Biochemistry, Military Medical Academy, Belgrade, Serbia

Hemolysis, the breakage of the erythrocytes membranes, causes the release of hemoglobin and other internal components into the surrounding fluid. It is the most common preanalytical error with the strong influence on result reliability. The aim of this study was to confirm this statement. Thirty emergency department (ED) patients from Military Medical Academy were included in this study. Venipuncture was done by the ED personnel. Hemolysis, which is visible by the red color of the serum, was the result of inappropriate specimen collection and handling. After repeated venipuncture by trained laboratory technicians, hemoglobin-free specimens were obtained. According to hemoglobin concentration, hemolyzed samples were divided into six groups: Group I: 0.0–1.0 g/L, Group II: 1.01–2.50 g/L, Group III: 2.51–3.00 g/L, Group IV: 3.01–3.5 g/L, Group V: 3.60–5.0 g/L and Group VI: 5.01–6.00 g/L. Biochemical parameters were analyzed by Dimension RxL Max (Siemens) and statistical analysis was done by student t-test: paired two samples for means. Significant difference was found in aspartate aminotransferase (AST), lactate dehydrogenase (LDH), alanine aminotransferase (ALT), creatine kinase (CK) creatine kinase MB (CK-MB) and potassium (K) between the hemolyzed and non hemolyzed samples, resulting in higher values of these parameters in hemolyzed samples. The effect of interference linearly depended on the degree of specimen hemoglobin concentration. In addition, there was no significant interference of hemolysis with glucose and bilirubin. Determination of routine biochemistry parameters is strongly affected by hemolysis and the solution might be in alerting the clinicians and blood resampling. Moreover, this study showed the importance of training the phlebotomist for obtaining adequate blood specimen.

P008
PREPORUKE ZA PREVENTIVNU STRATEGIJU PROTIV KARDIOVASKULARNIH BOLESTI U STUDENTSKOJ POPULACIJI

Dragana Pap[1], Emina Čolak[2], Nada Majkić-Singh[2], Gordana Grubor-Lajsic[3], Nikola Jojić[4], Sanja Vicković[5]

[1]Zavod za zdravstvenu zaštitu studenata, Odeljenje laboratorijske dijagnostike, Novi Sad
[2]Institut za medicinsku biohemiju, Klinički centar Srbije, Farmaceutski fakultet, Univerzitet u Beogradu
[3]Prirodno-matematički fakultet, Departman za biologiju i ekologiju, Novi Sad
[4]Medicinski fakultet, Univerzitet u Novom Sadu, Novi Sad
[5]Klinički centar Vojvodine, Institut za anesteziologiju i intenzivnu terapiju, Novi Sad, Srbija

Kardiovaskularne bolesti (KVB) glavni su uzr ok morbiditeta i mortaliteta u mnogim populacijama, posebno u razvijenim zemljama. Multifaktorijalna etiologija KVB je dobr o proučena i uključuje multiple genetske (HLA-DR klasa II genotip) i faktor e spoljne sredine. Rizični faktori spoljne sredine obuhvataju pol, rasu, ishranu, gojaznost, fizičku neaktivnost, pušenje, hipertenziju, diabetes mellitus i dislipidemiju. Cilj rada je procena lipidnog statusa u studentskoj populaciji sa povećanim rizikom za KVB i komparativna analiza u odnosu na studente bez povećanog rizika za KVB kao i utvr đivanje novih ciljeva za kar diovaskularnu prevenciju. Za ovu studiju je izabrano 238 studenata novosadskog univerziteta oba pola (126 muškaraca i 112 žena), star osti 22,32±1,85 godine. P rema indeksu telesne mase (BMI) nižem ili višem od 25 kg/m^2 i obimu str uka (OS) nižem ili višem od 94 cm za muškarce (80 cm za žene) cela grupa od 238 studenata je podeljena na dve podgr upe: grupu sa po - većanim rizikom za KVB (gr upa 1) i gr upu sa sma - njenim rizikom za KVB (grupa 2). U svim uzorcima su urađene sledeće analize: ukupni holester ol (UH), trigliceridi (TG), lipoproteini velike gustine (HDL-hol), lipoproteini male gustine (LDL -hol), lipoproteini vrlo male gustine (VLDL-hol), indeks ateroskleroze (IA) i utvrđeni su faktori rizika (FR). UH i TG odr eđeni su standardnim enzimskim metodama. HDL -hol određen je dir ektnom metodom. LDL-hol je izračunavan pomoću Friedewaldove formule. Nivoi VLDL-hol, IA (LDL-hol/HDL-hol), FR (UH/HDL-hol) i non HDL-hol, kao i non HDL/HDL-hol dobijeni su računskim putem. Rezultati su pokazali da su vr ednosti UH, non-HDL-hol, LDL-hol, VLDL-hol i TG bile statistički zna čajno više u grupi 1 u por eđenju sa gr upom 2 (P<0,001). IA, non-HDL-hol/HDL-hol i FR-UH/HDL-hol značaj-

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RECOMMENDATIONS FOR PREVENTIVE STRATEGIES FOR CARDIOVASCULAR DISEASE IN THE STUDENT POPULATION

Dragana Pap[1], Emina Čolak[2], Nada Majkić-Singh[2], Gordana Grubor-Lajsic[3], Nikola Jojić[4], Sanja Vicković[5]

[1]Students Health Protection Institute, Department of Laboratory Diagnostics, Novi Sad
[2]Institute of Medical Biochemistry, Clinical Center of Serbia and University of Belgrade School of Pharmacy
[3]Faculty of Natural Sciences, Department of Biology and Ecology, Novi Sad
[4]Faculty of Medicine, University of Novi Sad, Novi Sad
[5]Clinical Centre of Vojvodina, Department of Anesthesiology and Intensive Care, Novi Sad, Serbia

Cardiovascular disease (CVD) is a major cause of mortality and morbidity in many populations, especially in developed countries. The multifactorial etiology of CVD is well known and r esults from the interactive effects of envir onmental and multiple genetic factors (HLA-DR class II genotype). Risk factors generally include sex, age, diet, obesity, physical exercise, cigarette smoking, hypertension, diabetes mellitus and hyperlipidemia. The aim of the study was to analyze the lipid status in a student population at incr eased risk for CVD in comparison with students who are not at incr eased risk for CVD and to establish novel tar gets for cardiovascular prevention. This study included 238 students fr om the University of Novi Sad, of both sexes (126 men and 112 women; mean age 22.32±1.85 years). A ccording to the body mass index (BMI) lower and higher than 25 kg/m^2 and waist circumference (WC) lower and higher than 94 cm (80 cm for females) the whole group of 238 students was divided into 2 subgroups: the group at increased risk for CVD (Gr oup 1) and the gr oup at lower risk for CVD (Gr oup 2). Total cholesterol – T CH, triglycerides – TG, high density lipoprotein cholesterol – HDL-c, low density lipoprotein cholesterol – LDL-c, and very low density lipoprotein cholesterol – VLDL -c concentrations were determited and the in dex of atherosclerosis – IA, established risk factors – RF , TCH/HDL-c ratio and non-HDL-c/HDL-c were mathematically calculated. The values of TCH, LDL-c, non-HDL-c, VLDL-c and TG were significantly higher in Group 1 compared to Group 2 (P<0.001). IA, non-HDL-c/HDL-c and RF– T CH/ HDL-c ratio wer e also significantly higher (P<0.001), while HDL -c was significantly lower (p<0.01) in Group 1 as compared to controls.

no su viši (P<0,001), dok je HDL -hol značajno niži (p<0,01) u gr upi 1 u por eđenju sa kontr olnom grupom. Na ispitivane parametr e u obe gr upe nije uticao pol ispitanika. Dobijeni r ezultati ukazuju na to da su povećani antr opometrijski parametri praćeni povećanim lipoproteinskim statusom u gr upi studentske populacije sa povećanim rizikom za KVB i da je skrining lipidnog statusa neophodan, pogotovo kod studenata koji imaju povećani rizik za KVB, kao i da treba primeniti mere primordijalne i primarne prevencije kroz promenu načina života, pr omociju zdravog načina života i modifikovanje faktora rizika.

The results were not influenced by gender in both groups of subjects. Our data suggest that incr eased anthropometric parameters ar e followed by in creased lipoprotein status in the gr oup of students at increased risk for CVD and screening of the lipid status is necessar y in students, especially in those at increased risk for CVD. Furthermore, primordial and primary prevention are very important and can be achieved through lifestyle changes, pr omotion of a healthy way of life and modifications of risk factors.

P009
MIKROALBUMINURIJA KOD BOLESNIKA SA DIJABETES MELITUSOM TIP JEDAN (T1DM) I TIP DVA (T2DM)

Slađana Đorđević-Cvetković

Zdravstveni centar Kruševac, Srbija

Mikroalbuminurija (MA) označava izlučivanje 30–300 mg albumina/24h u bar dva od tri uzastupna uzorka urina. P risustvo trajne mikr oalbuminurije predstavlja najraniju fazu bubr ežnog oštećenja u šećernoj bolesti, koja pr edhodi pojavi klinički manifestne dijabetesne nefropatije. Cilj rada je da se utvrdi uticaj star osti bolesnika i trajanja dijabetesa na pojavu mikroalbuminurije kod bolesnika sa T_1DM i T_2DM. Ispitano je 150 bolesnika, 80 sa T_1DM i 70 sa T_2DM. Mikroalbuminurija je određivana u 24h-om urinu metodom nefelometrijskog imunoeseja (DC A 2000). Dijagnostikovana je kod 36% bolesnika sa T_1DM i 45% bolesnika sa T_2DM. Bolesnici sa T_2DM i MA bili su statistički značajno stariji od osta lih ($\bar{x}T_2DM=59,20\pm11,60$; $\bar{x}T_1DM=31,3\pm11,32$ godina), i DM je kod njih najduže trajao ($\bar{x}T_2DM=11,60\pm8,20$; $T_1DM=9,52\pm6,42$ godina). Učesta lost mikroalbuminurije kod bolesnika sa T1DM se povećava sa dužim trajanjem bolesti. Mikr oalbuminurija ima i pr ognostičku vrednost. U 80% osoba sa T_1DM i MA, izlučivanje albumina u urinu raste za 10–20% godišnje uz razvoj kliničke pr oteinurije, pa vremenom dolazi do krajnje faze bubr ežne bolesti. U T_2DM 20–40% bolesnika sa MA pr ogredira u početnu nefropatiju ali 20 godina posle toga samo oko 20% razvije krajnji oblik bubrežne bolesti. Bolesnici sa DM i MA imaju povećan rizik za razvoj KVB. Godišnje određivanje MA za bolesnike bez znakova kliničke proteinurije trebalo bi započeti u pubertetu ili posle puberteta i to 5 godina iza postavljanja dijagnoze T_1DM i u trenutku postavljanja dijagnoze T_2DM.

P009
MICROALBUMINURIA IN PATIENTS WITH TYPE 1 (T1DM) AND TYPE 2 (T2DM) DIABETES MELLITUS

Slađana Đorđević-Cvetković

Medical Center Kruševac, Serbia

Microalbuminuria is defined as excr etion of between 30 mg and 300 mg of albumin a day in the urine in at least two subsequent samples. Permanent microalbuminuria represents the earliest phase of kidney damage in diabetes, which pr ecedes the clinically manifested diabetes nephr opathy. The objective of this paper is to deter mine the influence of the patient's age and the duration of diabetes to the appearance of the micr oalbuminuria in patients with T_1DM and T_2DM. A total of 150 patients was examined, 80 with T_1DM and 70 with T_2DM. Microalbuminuria was deter mined in 24 h collected urine using the method of nephelometr y immunoassay (DCA 2000). Micr oalbuminuria was diagnozed in 36% of patients with T_1DM and 45% of patients with T_2DM. The patients with T_2DM and MA wer e significantly older compared to others ($\bar{x}T_2DM=59.20\pm11.60$; $\bar{x}T_1DM=31.3\pm11.32$ yrs.), with the longest duration of DM ($\bar{x}T_2DM=11.60\pm8.20$; $\bar{x}T_1DM=9.52\pm6.42$ yrs). The fr equency of microalbuminaria in T_1DM patients incr eases with longer duration of disease. Microalbuminaria also has prognostic value: in 80% of patients with T_1DM and MA, albumin excretion in urine increases in 10%–20% per year followed by clinical development of proteinuria, leading over time to the final phase of kidney disease. In T_2DM, 20%–40% patients with MA pr ogress into early nephropathy, but 20 years later only about 20% of patients develop the final for m of kidney disease. Patients with DM and MA ar e at higher risk of developing CVD. Annual MA deter mination for the patients with no signs of clinical pr oteinuria should be started during the period of puberty or after this period and 5 years following the diagnosis of T_1DM and at the moment of T_2DM diagnosis.

P010
LIPIDNI STATUS U GERIJATRIJSKOJ POPULACIJI

Vesna Marković, Snežana Rašović, Svetlana Kovačević

Zdravstveni centar Kruševac, Srbija

Prema nekim podacima, br oj osoba starijih od 65 godina pr ogresivno se povećava. 2000. godine bilo ih je 12,4% od celokupnog stanovništva, a 2030. godine biće ih 19,6%. Sa star enjem populacije povećava se i br oj obolelih od kar diovaskularnih bolesti kao i ishemijske bolesti mozga, bubr ega, kao posledica arterioskleroze. Važan faktor nastanka arterioskleroze je por emećaj metabolizma lipida, tj. hiperlipidemija. Cilj našeg rada bio je da se odr ede vrednosti totalnog holester ola i LDL-holesterola, kao faktora rizika, kod korisnika Ger ontološkog centra Kruševac. Ispitivana je gr upa od 97 pacijenata, 29 muškaraca i 68 žena. P odeljeni su u gr upe po godinama starosti: A: 65–70 g. n=21; B: 71–75 g. n=16; C: 76–80 g. n=26; D: >80 g. n=34. P arametri (holesterol, trigliceridi, HDL-hol.) su određivani na biohemijskom analizator u ADVIA 1650, komercijalnim testovima-Siemens. LDL-hol., izračunavan je Friedewald-ovom formulom. Rezultati pokazuju pad srednjih vrednosti holesterola sa star enjem, pa je u grupi starijih od 80 godina, ta vr ednost značajno manja. Sa porastom br oja godina povećava se br oj pacijenata sa poželjnim vr ednostima holesterola, a smanjuje se br oj sa visoko rizičnim vr ednostima. I broj pacijenata koji imaju povećan LDL -hol., najmanji je u gr upi najstarijih pacijenata. Obzir om na progresivno opadanje nivoa lipida sa star enjem, udruženost hiperlipidemije i razvoja kar diovaskularnih bolesti je manje izražena kod starijih osoba.

P010
LIPID STATUS IN GERIATRIC POPULATION

Vesna Marković, Snežana Rašović, Svetlana Kovačević

Health Care Center of Kruševac, Serbia

According to some data, the number of individuals older than 65 years pr ogressively increases. In 2000, there were 12.4% of them, and in 2030 ther e will be 19.6%. The aging of population is followed by the increased number of patients with car diovascular diseases, as well as with the ischemic brain diseases, kidney diseases, as a r esult of arterioscler osis. An important factor in the development of arteriosclerosis is the disorder of lipid metabolism, i.e. hyperlipidemia. The aim of our study was to deter mine the value of total cholesterol and LDL-cholesterol, as a risk factor, in the health-car e users of the Geriatric Center Kr uševac. A group of 97 patients was examined, consisting of 29 males, and 68 females. They wer e divided into four gr oups by age: Gr oup A: 65–70 years (n =21), Group B: 71–75 years (n=16), Gr oup C: 76–80 years (n=26), and Gr oup D:>80 years (n=34). Parameters (cholesterol, triglicerides, HDL -cholesterol) were determined in serum on a biochemical analyzer ADVIA 1650, using the commer cial tests-Siemens. LDL-cholesterol was calculated by F riedewald formula. The results showed decreased mean cholesterol values with aging; ther efore in the gr oup older than 80 years, this value was significantly lower . The number of patients with desirable cholester ol values increases as the age incr eases, while the number of patients with high-risk values decr eases. Similarly, the number of patients with the increased LDL-cholestrol, is the lowest in the oldest group. Considering the progressive decline of lipid levels with aging, the association of hyperlipidemia and car diovascular diseases is less pronounced in the elderly.

P011
LIPIDSKI PARAMETRI GRUPE ZDRAVIH MLADIH OSOBA U PORE\ENJU SA DAVAOCIMA NA PROGRAMU PLAZMAFEREZE

Marijana Mitrović, Marina Sinđić Milićević

Institut za transfuziju kr vi Srbije, Beograd, Srbija

Plazmaferezom je omogućeno odvajanje plazme od ostalih elemenata kr vi. Cilj plazmafer eze je dobi-

P011
COMPARISON OF LIPID PARAMETERS BETWEEN HEALTHY YOUNG PERSONS AND PLASMAPHERESIS PROGRAM DONORS

Marijana Mitrović, Marina Sinđić Milićević

Blood Transfusion Institute of Serbia, Belgrade, Serbia

Plasmapheresis enables separation of plasma from other blood elements. Purpose of plasmapheresis pro-

janje plazme koja se koristi za pr oizvodnju stabilnih lekova iz kr vi – albumina i imunoglobulina. R adi zaštite zdravlja davaoca primenjuje se r edovna lekarska kontrola uz praćenje kr vne slike i različitih biohe - mijskih parametara. Cilj ovog istraživanja je praćenje lipidskih parametara u zavisnosti od starosti ispitanika. Ovim ispitivanjem obuhvaćene su dve gr upe. Prvu grupu ispitanika čini 100 davaoca plazme na programu plazmafereze, starosti 25–50 godina, a drugu grupu čine 22 potencijalna davaoca iz r eda zdrave studentske populacije. Ispitivane su vr ednosti ukupnog holesterola (Hol), triglicerida (Tg), HDL i LDL holesterola, određen je faktor rizika (FR) i indeks ateroskleroze (IA). Odr eđivanja su vršena standar dnim biohemijskim metodama. Dobijene su sledeće srednje vrednosti: u prvoj grupi – Hol=5,29 mmol/L, Tg=1,38 mmol/L, HDL –hol=1,22 mmol/L i LDL - hol=3,45 mmol/L. Srednja vrednost za IA=3,02, a u drugoj grupi: – Hol=5,05 mmol/L, Tg=1,12 mmol/L, HDL–hol=1,53 mmol/L, LDL -hol=3,01 mmol/L i IA=2,08. Pokazano je da mlada zdrava studentska populacija ima niže vr ednosti ukupnog holester ola, triglicerida i LDL-holesterola, dok je kod njih vrednost HDL- holesterola veća. Indeks ater oskleroze je niži u grupi studenata u odnosu na po pulaciju višestrukih davaoca plazme koji pripadaju različitim star osnim grupama.

cedure is to obtain plasma required for the preparation of stable blood derived products – albumin and immunoglobulin. In order to protect donor's health, regular medical check ups are performed, including the follow up of the blood count and other biochemical parameters. The aim of this study was monitoring of lipid pa - rameters in relation to age. This investigation included two groups. The first gr oup of subjects consisted of 100 plasma donors with mean age of 25–50 years, and the second gr oup included 22 potential donors selected from the healthy university students population. Tested parameters included total cholester ol values investigation (Hol), triglyceride (Tg), HDL and LDL cholesterol, determination of risk factor (RF) and atherosclerosis index (AI). Investigations wer e performed using the standard biochemical methods. The following mean values wer e obtained: in the first gr oup – Hol=5.29 mmol/L, Tg=1.38 mmol/L, HDL – hol= 1.22 mmol/L and LDL – hol=3.45 mmol/L. Mean value of IA was 3.02, while in the second gr oup the values found wer e as follows: Hol=5.05 mmol/L, Tg=1.12 mmol/L, HDL –hol =1.53 mmol/L, LDL - hol=3.01 mmol/L and IA= 2.08. It was demonstrated that the young, healthy university students had lower values of total cholester ol, triglyceride and LDL cholesterol, while the values of HDL cholesterol in this group were higher. Atherosclerosis index was significantly lower in the tested students' gr oup compared with the investigated population of multiple plasma donors belonging to different age groups.

P012
D-DIMER KOD ZAPALJENJA PLU]A , PRIKAZ PACIJENTA

Snežana Rašović, Vesna Marković, Ljiljana Maksimović

Zdravstveni centar Kruševac, Srbija

D-Dimer je pr oizvod degradacije fibrina, mali proteinski fragment prisutan u kr vi posle razlaganja krvnog ugruška. Može biti pozitivan iz različitih razlo - ga, uključujući duboku vensku tr ombozu, diseminovanu intravaskularnu koagulaciju, plućnu emboliju, postoperativna stanja, malignitet, traumu, infekciju i preeklampsiju, znaci i simptomi nisu specifični. Dife - rencijalna dijagnoza između plućne embolije i pneumonije može biti pr oblem u ur gentnim situacijama. Pacijentkinja, četrdesetgodišnja žena, primljena je na Grudno odeljenje zbog visoke temperatura – 38,9 °C, zadihanosti, kašlja i malaksalosti u nekoliko pr ošlih dana. Ne puši poslednje tri godine, pre toga je pušila 20 godina, a pre 8 godina je bolovala od pneumonije levog plućnog krila. Na prijemu je bila svesna, orjentisana, dispnoična, acijanotična, febrilna i usporeno se kr etala. Saturacija kiseonikom bila je 91–

P012
D-DIMER IN PNEUMONIA, A CASE REPORT

Snežana Rašović, Vesna Marković, Ljiljana Maksimović

Health Center Kruševac, Serbia

D-dimer is a fibrin degradation pr oduct, a small protein fragment present in blood after the blood clot is degraded by fibrinolysis. It can be positive for variety of reasons including deep venous thrombosis, disseminated intravascular coagulation, pulmonar y embolism, postoperative conditions, malignancy, trauma, infection and pre-eclampsia; the signs and symptoms are not specific. Differ ential diagnosis of pulmonary thromboembolism and pneumonia r emains difficult in emergency. A female patient, 40 years old, was admitted to P ulmonary Department due to high temperature – 38.9 °C, shortness of br eath, cough and malaise in the last few days. She stopped smoking three years ago, befor e that time she had been a smoker about 20 years; she had the lef t lung pneumonia eight years ago. On admission, she was conscious, oriented, dispnoic, acyanotic, febrile and

93%. Na plućima – obostrane krepitacije. Srce: ritmična akcija, tahikardija 148 otkucaja u minuti, srčani otkucaji jasni, bez šumova, krvni pritisak 120/70 mmHg. Promuklost progredira i jenjava. U ispljuvku prisutni leukociti bez bakterijske flore, BK negativan. Rö pluća: masivne infiltrativne senke u oba plućna krila. U laboratorijskim nalazima prisutan porast sledećih parametara CRP 15,3–197 ng/mL, fibrinogen 4,8–8,8 g/L, leukociti 5,6–19,9 × 10^9, D-Dimer 1858–6514 ngFEU/mL. D-Dimer smo određivali u plazmi na aparatu Imulite 1000 System, metodom imunohemiluminiscencije. Zbog opasnosti od plućne embolije rađen je CT grudnog koša i EHO srca, ali plućna embolija nije dokazana. Dijagnoza je obostrana pneumonija. Posle terapije opšte stanje pacijentkinje je poboljšano i otpuštena je iz bolnice afebrilna, bez krepitacija. U ranoj dijagnostici, ako su vrednosti D-Dimera visoke, onda se pristupa ostalim raspoloživim dijagnostičkim sredstvima u cilju otkrivanja tromboze.

moving slowly. Oxygen saturation was 91%–93%. Pulmonary findings: crepitations on both sides. Coronary: rhythmical action, tachycardia 140 beats/min, heart sounds audible, no murmurs, blood pressure 120/70 mm/Hg. Hoarseness progressed and subsided. Sputum: leukocytes without bacterial flora, BK negative. Lung X-ray: massive infiltrate shadow in the medial lung fields. Laboratory findings – the following parameters were increased: CRP: 15.3–197 ng/mL, fibrinogen: 4.8–8.8 g/L, WBC 5.6–19.9 × 10^9/L, D-Dimer 1850–6514 ngFEU/ mL. D-Dimer was determined in plasma on the Imulite 1000 System (chemiluminescent immunometric assay). Because of danger of pulmonary embolism, chest CT and cardiac ECHO were performed, but pulmonary embolism was not confirmed. Diagnosis was a bilateral pneumonia. After therapy, the general patient's condition was improved, she was discharged from department afebrile, without crepitations. In early diagnostic, if the D–Dimer values were high, other available diagnostic tests would be required to detect thrombosis.

P013
VREDNOSTI NEKIH PARAMETARA LIPIDNOG STATUSA I GLUKOZE KOD DEVOJ^ICA I DE^AKA PREDŠKOLSKOG UZRASTA

Bojana Nikolić, Danijela Ristovski-Kornic

Dom Zdravlja Pančevo, Srbija

Ateroskleroza je složen metabolički proces koji počinje patološkim promenama već kod odojčadi, a klinički se manifestuje u srednjem ili kasnijem životnom dobu posle dugog asimptomatskog perioda. Brojni faktori rizika su povezani sa procesom ateroskleroze. Još uvek ne postoji dovoljno informacija o vrednostima ovih parametara kod zdrave dece različitog uzrasta. Ove informacije su potrebne da bi se unapredio način života kod dece. Naša studija je obuhvatila 60 devojčica i 84 dečaka uzrasta 6,8 ±0,2 godine. U ovom radu su prikazani rezultati za neke od parametara lipidnog statusa u krvi (ukupan holesterol, HDL holesterol, LDL holesterol, triglyceridi) i glukoze. Indeks ateroskleroze (IA=LDL-c/HDL-c) i faktor rizika (FR=TC/HDL-c) su izračunati. Rezultati su analizirani Studentovim t testom za nivo značajnosti 0,05. Vrednosti holesterola i triglicerida nisu bile statistički značajno različite između dečaka i devojčica. Ostali parametri su pokazali značajnu razliku: glukoza (devojčice: 4,92±0,4 vs dečaci: 4,7± 0,4 p<0,05); HDL –c (devojčice 1,66±0,3 vs dečaci 1,53±0.3 p<0,05); LDL-c (devojčice 2,64±0,7 vs dečaci 2,74±06 p<0,05). Devojčice su imale značajno niži IA i FR u odnosu na dečake (p<0,05).

P013
VALUE OF CERTAIN PARAMETERS IN LIPID STATUS AND GLUCOSE LEVEL IN PRESCHOOL BOYS AND GIRLS

Bojana Nikolić, Danijela Ristovski-Kornic

Health Center Pančevo, Serbia

Atherosclerosis is a complex metabolic process that begins already in infants, and clinically manifested in middle or later age after a long asymptomatic period. Numerous risk factors are associated with process of atherosclerosis. Only a few national data on lipid levels in healthy children are available. Such information is essential in establishing the healthy lifestyle of children. The study included 60 girls and 84 boys aged 6.8±0.2 years. The paper deals with the results of some parameters of the lipid composition in blood (total cholesterol, HDL-cholesterol, LDL-cholesterol, triglycerides) and glucose. Atherosclerosis index (IA=LDL-c/HDL-c) and the risk factor (FR=TC/HDL-c) were calculated. The results were analyzed by Student's t-test, for the level of significance p = 0.05. There was no significant deference of total cholesterol and triglycerides level between the boys and girls. Other parameters were statistically different: glucose (girls: 4.92±0.4 vs boys: 4.7± 0.4 p<0.05); HDL-c (girls 1.66±0.3 vs boys 1.53± 0.3 p<0.05); LDL-c (girls 2.64±0.7 vs boys 2.74± 06 p<0.05). Girls had lower index of atherosclerosis (p<0.05) and risk factor (p<0.05) than boys. The results of our study showed that there was a signifi-

Rezultati naše studije pokazuju da postoji značajna razlika između dečaka i devojčica u nekim parametrima lipidnog statusa, kao i IA i RF. Dečaci predškolskog uzrasta su verovatno sa većim rizikom od razvoja ateroskleroze u kasnijoj životnoj dobi u odnosu na devojčice. Obzirom da je ateroskleroza multifaktorijalni proces, prevencija treba da obuhvati ne samo povećanu fizičku aktivnost, već i eliminaciju što većeg broja faktora rizika za njen razvoj, promociju zdravog načina života mladih. Prevencija razvoja ateroskleroze treba da počne u detinjstvu kako bi se proces ateroskleroze usporio, a njene posledice odložile ili izbegle.

P014
UTICAJ FIZI^KE AKTIVNOSTI NA PROFIL LIPIDA SERUMA I GLIKEMIJE KOD DECE UZRASTA 13 GODINA NA TERITORIJI OP[TINE PAN^EVO

Danijela Ristovski-Kornic, Bojana Nikolić

Dom Zdravlja Pančevo, Srbija

Ateroskleroza je proces koji počinje u detinjstvu. Hiperlipidemija i fizička neaktivnost su značajni faktori za razvoj ateroskleroze. Cilj rada je utvrđivanje uticaja stepena fizičke aktivnosti na profil lipida i glikemije i rizik za razvoj ateroskleroze kod dece uzrasta 13 godina. Sportski aktivnom decom smo smatrali decu koja su se osim kroz nastavu fizičkog vaspitanja aktivno bavila još nekim sportom. Obuhvaćeno je 250 dece (119 dečaka i 131 devojčica), od kojih je 54 sportski aktivno i 194 neaktivno. Ukupni holesterol (TC), trigliceridi (TG), lipoproteini velike gustine (HDL-c) i nivo glukoze su određivani na biohemijskom analizatoru ILAB 300+ (Instrumentation laboratory, Italy) pri čemu su korišćeni reagensi firme Biomerieux (France). Koncentracija lipoproteina male gustine (LDL-c) je izračunata koristeći Friedewald-ovu formula. Indeks ateroskleroze (IA=LDL-c/HDL-c) i faktor rizika (FR=TC/HDL-c) su takođe računati. Dobijeni podaci su statistički obrađeni (Studentov t test). Vrednosti ukupnog holesterola, LDL-c, IA I FR su značajno nizi kod fizički aktivne dece oba pola ($p<0,01$). Nivo HDL-c je značajno viši kod dece koja se bave sportom u odnosu na neaktivne vršnjake ($p<0,001$). Glikemija je značajno niža kod devojčica koje se bave sportom u odnosu na neaktivne. Rezultati pokazuju pozitivan uticaj sportske aktivnosti na lipidni profil kod dece. Na osnovu naših rezultata možemo pretpostaviti da fizička neaktivnost može biti razlog povećanog rizika za razvoj kardiovaskularnih bolesti.

cant difference between the boys and girls in some lipid parameters and IA and RF. Preschool boys are probably at increased risk of atherosclerosis in an older age than girls. Since atherosclerosis is a multifactorial process, prevention should include not only increased physical activity, but also elimination of many risk factors for its development, and promotion of healthy lives of young people. Prevention of atherosclerosis should begin in childhood in order to slow down its process, and to postpone or avoid its consequences.

P014
THE INFLUENCE OF PHYSICAL ACTIVITY ON SERUM LIPID AND GLUCOSE PROFILE IN HEALTHY CHILDREN OF AGE 13 ON TERRITORY OF PANCEVO MUNICIPALITY

Danijela Ristovski-Kornic, Bojana Nikolić

Health Centre Pančevo, Serbia

The process of atherosclerosis begins in early childhood. Hyperlipidemia and physical inactivity are an important risk factor in development of atherosclerosis. The objective of this study was to analyze the influence of physical activity level on serum lipid and glucose profile in children of age 13. Children active in sports are those who are actively involved in more than that in physical education at school. A total of 250 children (119 boys and 131 girls) have been examined, out of whom 54 sports actively and 194 inactive. Total cholesterol (TC), triglycerides (TG), high-density lipoprotein cholesterol (HDL-c) and glucose were measured on ILAB 300+ analyzer (Instrumentation laboratory, Italy) using the Biomerieux reagents (France). The concentration of low-density lipoprotein (LDL-C) was calculated using the Friedewald formula. Atherosclerosis index (IA=LDL-c/HDL-c) and the risk factor (FR=TC/HDL-c) were also calculated. All these obtained data were statistically processed (Student's t test). TC, LDL-c, IA and FR were significantly lower in children who were active sports than the inactive ones. HDL-c serum level was significantly higher in children active sports. Blood glucose concentration was lower in girls who had regular training than the in those who had not. Our results showed positive effect of sports on the lipid profile in children. Based on our results, we can assume that physical inactivity may account for the increased risk of developing the cardiovascular disease.

P015
EFEKAT MONOTERAPIJE VALPROI^NOMKISELINOM NA MOŽDANI NEUROTROPNI FAKTOR

Vladan Ćosić, Bojana Milanov, Lilika Zvezdanović-Čelebić, Tatjana Ristić, Danica Marković, Slavica Kundalić, Vidosava Đorđević

Centar za medicinsku biohemiju, Klinički centar Niš, Srbija

Epilepsija predstavlja hroničnu neurološku bolest koja se karakteriše epileptičnim napadima. Anti epileptički lekovi koji se koriste za lečenje napada mogu izazvati kognitivno ili neko dr ugo oštećenje, uglavnom na - stalo nepoznatim mehanizmima. U ovoj studiji ispitivan je efekat valpr oične kiseline (VPA) na moždani neur otropni faktor (brain-derived neurotrophic factor – BDNF), sekretorni protein koji se optužuje za pove ćanu neuronsku ekscitabilnost i pokazano je da je delom odgovoran za nastanak epilepsije. Nakon dugotrajnog lečenja sa VPA (10–15 mg/kg po danu), odr eđivali smo nivo VPA u serumu 15 deteta (uzrasta 6,1±1,1 godina) i 12 odra slih osoba (uzrasta 31,4±11,5 godina) hemiluminescentnom metodom. Istovr emeno, određivali smo nivo serumskog BDNF-a ELISA (enzi me-linked immunosorbent assay) testom i ti rezultati su upoređivani međusobno i sa odgovarajućom kontrolnom grupom. Naši rezultati pokazuju značajno nižu vr ednost BDNF-a u decu u odnosu na kontr olnu grupu (22,55±6,55 ng/mL pr ema 26,15±4,23 ng/mL; p< 0,05). Odrasli pacijenti imaju značajno nižu vr ednost (25,79±9,11 ng/mL) prema kontrolnoj grupi, ali i zna čajnu negativnu ko relaciju između vr ednosti BDNF-a i nivoa valpr oične kiseline (r=0,48; p<0,01). Ovi r ezultati pokazuju dr ugačiji odgovor pacijenata različitog uzra sta i mogu doprineti boljem razumevanju mehanizama valproične kiseline i njihovom odnosu sa BDNF. Ćelijski i molekularni mehanizmi kojima BDNF utiče na ekscitabilnost i spr ovodljivost u mozgu odrasle oso be može omogućiti stvaranje novog koncepta za ciljeve anti-epileptogene terapije.

P015
EFFECT OF VALPROIC ACID MONOTHERAPY ON BRAIN-DERIVED NEUROTROPHIC FACTOR

Vladan Ćosić, Bojana Milanov, Lilika Zvezdanović-Čelebić, Tatjana Ristić, Danica Marković, Slavica Kundalić, Vidosava Đorđević

Center for Medical Biochemistry, Clinical Center Niš, Serbia

Epilepsy is a chr onic neurological disorder characterized by seizur es. Antiepileptic dr ugs which ar e used to treat seizures may cause cognitive impairment or other uncertain injur y mainly by unknown mechanisms. Our study investigated the effects of valpr oic acid (VPA) on brain-derived neur otrophic factor (BDNF), secreted protein, which is accused for in - creased neuronal excitability and implicated in epileptogenesis. After long-term treatment with VP A (10–15 mg/kg per day), the ser um VPA levels in 15 young children (age 6.1±1.1 years) and in 12 adult persons (age 31.4±11.5 years) wer e measured by chemoluminescent method. Simultaneously, the level of serum BDNF was deter mined by enzyme-linked immunosorbent assay and these r esults were compared mutually and with the appr opriate control group. Our results showed significant decr ease of BDNF va - lues in childr en vs. contr ol group (22.55±6.55 ng/mL vs. 26.15±4.23 ng/mL; p<0.05). A dult patients had significantly lower value (25.79±9.11 ng/mL) vs. control group, but also significant negative correlation of BDNF and valpr oic acid level (r=0.48; p<0.01). These results showed different response of different age gr oups and may contribute to better understanding of mechanism of valpr oic acid action and their r elationship to BDNF. Cellular and molecular mechanisms by which BDNF influences excitability and connectivity in adult brain may pr ovide new concepts and targets for anti-epileptogenic therapy.

P016
AKTIVNOST BUTIRILHOLINESTERAZE KOD MLADIH ŽENA U POPULACIJI SRBIJE

Gordana Džingalašević[1], Aleksandra Stefanović[2], Slavka Mandić-Radić[1], Marina Stojanov[2]

[1]Zavod za zdravstvenu zaštitu radnika Ministarstva unutrašnjih poslova, Beograd, Srbija
[2]Univerzitet u Beogradu, Farmaceutski fakultet, Katedra za medicinsku biohemiju, Beograd, Srbija

Povezanost butirilholinesteraze (BuChE) i faktora rizika za kar diovaskularne poremećaje kod starijih

P016
BUTYRYLCHOLINESTERASE ACTIVITY IN YOUNG FEMALE POPULATION OF SERBIA

Gordana Džingalašević[1], Aleksandra Stefanović[2], Slavka Mandić-Radić[1], Marina Stojanov[2]

[1]Institute for Health Care of the Ministr y of Internal Affairs Employes, Belgrade, Serbia
[2]University of Belgrade, Faculty of Pharmacy, Department of Medical Biochemistry, Belgrade, Serbia

The association between butyr ylcholinesterase (BuChE) and cardiovascular risk factors in elderly has

osoba je istraživana i saopštena u literaturi. Mi smo ispitivali vezu između BuChE i kardiovaskularnih riziko faktora kod mladih žena u populaciji Srbije. Isitivanje je obavljeno kod 469 zdravih žena, uzrasta od 18–25 godina, koje su bile podvrgnute regularnoj proveri zdravlja. Aktivnost BuChE i koncentracije kardiovaskularnih riziko faktora su određeni u serumu nakon noćnog gladovanja. Vrednosti BuChE su kategorizovane u tercile, a karakteristike ispitanika su izračunate prema tom kriterijumu. Analizom varijanse pokazano je signifikantno povećanje glukoze i albumina ($P<0,05$). Spearman-ovom korelacionom analizom nađena je negativna korelacija između BuChE i HDL-holesterola ($r=-0,032$; $P= 0,491$). Multipla regresiona analiza pokazuje da su glukoza ($P<0,01$) i albumin ($P<0,01$) nezavisni prediktori povišenih aktivnosti BuChE. Logističkom linearnom regresionom analizom potvrdili smo da je glukoza prediktor povišenih vrednosti BuChE. Poređenjem najvišeg (BuChE>9,12 kIJ/L) sa najnižim tercilom (BuChE> 7,82 kIJ/L) glukoza je uočena kao signifikantni prediktor povišenih BuChE aktivnosti (OR=0,479; 0,285–0,806; $P<0,01$). Rezultati su korigovani za konvencionalne i nekonvencionalne faktore rizika. Nakon korekcije veza između glukoze i BuChE je nešto smanjena, ali i dalje značajna. Naše ispitivanje je potvrdilo povezanost aktivnosti BuChE i kardiovaskularnih faktora rizika, poput BMI, serumskih lipida i inflamatornih markera. Naši nalazi glukoze kao nezavisnog riziko faktora kod povišenih aktivnosti BuChE kod žena ukazuju da bi BuChE mogla biti prediktor dijabetesa.

been reported. We investigated the relationship between BuChE and cardiovascular risk factors in young female population of Serbia. The study was conducted on 469 healthy females, aged 18–25 years, enrolled for regular check up. The concentrations of BuChE and cardiovascular risk factors were estimated in an overnight fasting serum samples. BuChE values were categorized into tertiles and the characteristics of the subjects were calculated accordingly to thos criterion. Analysis of variance indicated significant increase in glucose and albumin ($P< 0.05$). Spearman's correlation analysis found negative correlation between BuChE and HDL-C ($r=-0.032$; $P=0.491$). Multiple regression analysis showed that glucose ($P<0.01$) and albumin ($P< 0.01$) were independent predictors of higher BuChE. Logistic linear regression analysis confirmed that glucose was predictor of higher BuChE values. By comparing the highest (BuChE>9.12 kU/L) with the lowest BuChE tertiles (<7.82 kU/L), glucose was recognized as a significant predictor of high BuChE activity (OR=0.479 (0.285–0.806), $P< 0.01$). The results were adjusted for conventional lipid and non-lipid risk factors. After adjustment, the association between glucose and BuChE was slightly reduced but still significant. The current study confirms the association of BuChE activity and cardiovascular risk factors such as BMI, serum lipids and inflammatory markers. Glucose as an independent risk factor of higher BuChE activity in females indicates that BuChE may be a predictor of diabetes.

P017
AKTIVNOST NEKIH ENZIMA SERUMA MAJKI I NJIHOVE NOVORO\EN^ADI U TOKU PORO\AJA

Dragana Stanković-Ferlež, Lilika Zvezdanović-Čelebić

Centar za medicinsku biohemiju, Klinički centar Niš, Niš, Srbija

Određivanje aktivnosti pojedinih enzima u serumu majke, fetalnoj krvi u pupčaniku ili u amnionskoj tečnosti, danas su rutinska metoda u definisanju različitih patoloških poremećaja koji su povezani sa destruktivnim procesima u placenti i fetalnim abnormalnostima. Aktivnost alkalne fosfataze (ALP), ksantin oksidaze (XO), laktat dehidrogenaze (LDH), kao i nivo laktata i pH određivano je rutinskim biohemijskim metodama u krvi 33 porodilje i njihove novorođenčadi, sa ciljem da se pokaže na koji način se ovi biohemijski parametri menjaju u toku intenzivnih metaboličkih procesa prilikom normalnog porođaja. Kontrolnu grupu činilo je 15 trudnica u III trimestru

P017
CELL ENZYME ACTIVITIES IN MOTHERS AND THEIR NEWBORNS DURING DELIVERY

Dragana Stanković-Ferlež, Lilika Zvezdanović-Čelebić

Centre for Medical Biochemistry, Clinical Centre Niš, Niš, Serbia

Determination of some enzyme activities in the sera of mothers, foetal blood of the umbilical cord or amniotic fluid, has become today a routine method in discovery of different pathological disorders, in relation to destructive processes in the placenta and foetal abnormalities. The activities of alkaline phosphatase (ALP), xanthine oxidase (XO), lactate dehydrogenase (LDH) and the level of lactate and pH have been determined by routine biochemical analyses in the sera of 33 mothers and their new-borns, with the aim to show these parameter changes within the intensive metabolic process during normal delivery. The control group consisted of 15 pregnant

trudnoće. Aktivnost ALP kod porodilja bila je značajno povišena u poređenju sa aktivnošću kod novorođenčadi i trudnica ($p<0,01$). Nivo XO je značajno viši kod novorođenčadi i porodilja u poređenju sa kontrolnom grupom ($p<0,05$). Prosečna vrednost aktivnosti LDH kod novorođenčadi je značajno viša u poređenju sa njihovim majkama ($p<0,01$), ali aktivnost ovog enzima nije pokazala razlike između porodilja i kontrolne grupe. Nivo pH je značajno niži ($p<0,05$) u poređenju sa kontrolnom grupom. Na osnovu dobijenih rezultata možemo zaključiti da je povećanje aktivnosti ALP tokom porođaja posledica dodatnog oslobađanja enzimskih molekula usled promena u integritetu tkiva placente. Sniženje pH, povećanje laktata i aktivnosti XO, verovatno je povezano sa hipoksično-ishemijskim i reperfuzionim oštećenjima tkiva, zbog smanjenja ATP-a i njegove usporene resinteze, usled povećanih energetskih potreba u anaerobnim uslovima tokom porođaja.

women in the III trimester of pregnancy. The activity of ALP in mothers was significantly higher in comparison with the new-borns and pregnant woman ($p<0.01$). The level of XO was significantly higher in new-borns and their mothers compared to the control group ($p<0.05$). The average value of LDH activity in new-borns was significantly higher compared to their mothers ($p<0.01$), but the activity of this enzyme did not show any difference between mothers and the control group. The value of pH was significantly lower ($p<0.05$) comparing to the control group. On the basis of the obtained results, it can be concluded that the increase of ALP during delivery is a consequence of an additional release of enzyme molecules due to changed integrity of placental tissue. A decrease of pH and an increase of lactate and XO activity may be related to tissue hypoxic-ischemic and reperfusion injury, as well as to both, a decrease of ATP and its slower resynthesize due to an increased need for energy supply in the anaerobic conditions during delivery.

P018
AKTIVNOST KSANTIN OKSIDAZE I KORELACIJA SA TNF-α KOD BOLESNIKA SA SLE

Lilika Zvezdanović-Čelebić[1], Vladan Ćosić[1], Slavica Kundalić[1], Dragana Stanković-Ferlež[1], Jasna Lalić[1], Vidosava B. Đorđević[1]

[1]Centar za medicinsku biohemiju, Klinički centar Niš, Niš, Srbija

Sistemski lupus eritematosus je hroničan, inflamatorni, multisistemski poremećaj vezivnog tkiva. Ovaj poremećaj može dovesti do poremećaja mikrovaskulature i posledično delimične ili potpune ishemije delova tkiva ili organa. U cilju praćenja stepena oštećenja tkiva ishemičnim procesom određivana je aktivnost ksantin oksidaze (XO) i koncentracija faktora tumorske nekroze alfa (TNF-α) u plazmi bolesnika sa SLE. Za istraživanje su korišćeni uzorci plazme 55 ispitanika (47 žena i 8 muškaraca) obolelih od SLE u fazi akutne egzacerbacije bolesti. Aktivnost XO je određivana modifikovanom spektrofotometrijskom UV metodom Kalckar-a, dok je koncentracija TNF-α merena ELISA metodom kod četiri grupe bolesnika: kožna (K-SLE), neurološka (N-SLE), zglobna (Z-SLE) i vaskularna (V-SLE) manifestacija bolesti. Kontrolnu grupu je sačinjavalo 20 zdravih osoba dobrovoljnih davaoca krvi. Dobijeni rezultati pokazuju da je aktivnost XO kao snažnog generatora slobodnih radikala kiseonika značajno povišena u plazmi bolesnika sa K-SLE (9,67±1,99 U/L); N-SLE (9,36±1,75 U/L); Z-SLE (9,32±1,13 U/L) i V-SLE

P018
ACTIVITY OF XANTHINE OXIDASE AND CORRELATION WITH TNF-α IN PATIENTS WITH SLE

Lilika Zvezdanović-Čelebić[1], Vladan Ćosić[1], Slavica Kundalić[1], Dragana Stanković-Ferlež[1], Jasna Lalić[1], Vidosava B. Đorđević[1]

[1]Centre of Medical Biochemistry, Clinical Centre of Niš, Niš, Serbia

Systemic lupus is a chronic, inflammatory, multisystem disorder of the connective tissue. It can lead to disturbed microvasculature and consequently to partial or complete ischemia of the parts of tissues or organs. In order to monitor the degree of ischemic damage of tissues, the activity of xanthine oxidase (XO) and concentration of tumor necrosis factor alpha (TNF-α) were determined in the plasma of SLE patients. The plasma samples were taken from 55 subjects (47 women and 8 men) with SLE in the acute exacerbation phase. XO activity was determined using the modified spectrophotometric UV assay by Kalckar, while the TNF-α concentration was determined using the ELISA method in four groups of patients: skin (S-SLE), neurologic (N-SLE), joint (J-SLE), and vascular (V-SLE) disease manifestation. Control group was composed of 20 healthy blood donors. The results obtained showed that the activity of XO, as a potent generator of oxygen free radicals, was significantly elevated in the plasma of patients with S-SLE (9.67±1.99 U/L); N-SLE (9.36±1.75 U/L); J-SLE (9.32±1.13 U/L); and V-SLE (9.78±

(9,78±1,81 U/L) i to sa istim stepenom značajnosti P <0,001 u odnosu na kontrolnu grupu (6,44±1,40 U/L). Takođe, postoji i pozitivna kor elacija (r=0,61; P<0,001) između aktivnosti XO i koncentracije TNF-α kao proinflamatornog citokina. Uspostavljanje cir - kulacije nakon primenjene antiinflamator ne terapije kod pacijenata sa akutnom egzacerbacijom bolesti rezultira reperfuzijom tkiva i oslobađanjem slobodnih radikala kiseonika što je praćeno intenzivnim pove - ćanjem aktivnosti XO u plazmi bolesnika. Naknadno oslobođeni neutrofili mogu dovesti do začepljenja lokalne vaskulature izazivajući dalju ishemiju i oslobađanje novih količina slobodnih radikala kiseonika u reakciji sa endotelnim ćelijama. Značajna je i pozitivna korelacija sa TNF-α kome se može pripisati i protektivna uloga. R ezultati pokazuju da je X O važan indikator prooksidativnog oštećenja ćelije u toku oksigenacije postishemičnih tkiva kod bolesnika sa SLE.

1.81 U/L) with the same level of significance of P <0.001 when compared to the controls (6.44±1.40 U/L). There was also a positive cor relation (r=0.61; P<0.001) between the X O activity and concentration of TNF-α as a pr oinflammatory cytokine. R estored circulation after the use of antiinflammator y therapy in patients with the acute disease exacerbation results in tissue r eperfusion and r elease of oxygen free radicals, accompanied by marked in crease of plasma XO activity. Neutrophils released later can lead to obstruction of the local vessels causing further ischemia and release of new amounts of oxygen free radicals in the r eaction with the endothelial cells. Positive correlation with TNF-α was also significant, with the protective role that could be attributed to the factor. The results showed that XO was an important indicator of pr ooxidative damage to the cell during the oxygenation of postischemic tissues in patients with SLE.

P019
PORE\ENJE DVE METODE ZA PROCENU JA^INE GLOMERULARNE FILTRACIJE

Marijana Dajak[1], Gordana Dmitrašinović[1], Svetlana Ignjatović[2], Emilija Jakšić[3], Nada Majkić-Singh[2]

[1]Centar za medicinsku biohemiju, Klinički centar Srbije
[2]Centar za medicinsku biohemiju, Klinički centar Srbije i Farmaceutski fakultet
[3]Centar za nuklearnu medicinu, Klinički centar Srbije, Beograd, Srbija

Poznavanje jačine glomerularne filtracije (GFR) je od pr esudnog značaja za praćenje pacijenata sa hroničnom bolešću bubr ega (HBB). Jedan br oj jednačina je razvijen u pokušaju da se poboljša pr ocena GFR (eGFR) iz ser umskih koncentracija kr eatinina i cistatina C. Egzogeni filtracioni marker – 99mT c-dietilen triamin pentaacetatna kiselina (99mTc-DTPA) se može koristiti za mer enje GFR bilo pr eko plazma klirensa ili br zine preuzimanja od strane bubr ega. Dinamska scintigrafija sa 99mT c-DTPA je metoda koja se obično koristi za odr eđivanje renalnog protoka krvi i unilateralne funkcije bubrega, a GFR se meri primenom programa zasnovanog na Gates- ovom algoritmu. Cilj ovog rada je bio da se upor ede vrednosti GFR izračunatih iz na kr eatininu i cistatinu C zasnovanih jednačina sa vr ednostima GFR dobijenih dinamskom scintigrafijom (GFRsci) kod 41 pacijenta sa HBB. MDRD i CKD -EPI na kr eatininu zasnovane jednačine i na cistatinu C zasnovana Hoek- ova jednačina su korišćene. eGFR vr ednosti izračunate iz

P019
COMPARISON OF TWO METHODS FOR ESTIMATION OF GLOMERULAR FILTRATION RATE

Marijana Dajak[1], Gordana Dmitrašinović[1], Svetlana Ignjatović[2], Emilija Jakšić[3], Nada Majkić-Singh[2]

[1]Center for Medical Biochemistry, Clinical Center of Serbia
[2]Center for Medical Biochemistry, Clinical Center of Serbia and School of Phar macy
[3]Center for Nuclear Medicine, Clinical Center of Serbia, Belgrade, Serbia

The knowledge of glomer ular filtration rate (GFR) is of cr ucial importance for management of patients with the chr onic kidney disease (CKD). A number of equations has been developed in an attempt to improve GFR estimation (eGFR) fr om the serum creatinine or cystatin C concentrations. Exo - genous filtration marker – 99mTc-diethylene triamine pentaacetic acid (99mT c-DTPA) can be used for measurement of GFR either by plasma clearance or by renal uptake rate. Dynamic scintigraphic imaging with 99mTc-DTPA is a commonly used method to determine renal blood flow and unilateral kidney function, and GFR is measur ed using the pr ogram based on Gates' algorithm. The aim of this study was to compare the values of GFR calculated fr om creatinine-based and cystatin C-based equations with the values of GFR obtained with dynamic scintigraphy (GFRsci) in 41 patients with CKD. The MDRD study and CKD-EPI creatinine-based equations and cystatin C-based Hoek's equation wer e used. eGFR va-

jednačina značajno su kor elisale (Pearson test, P < 0,0001) sa GFRsci vr ednostima. Korelacioni koeficijenti su bili od 0,845 do 0,885. Sr ednje razlike između GFRsci i izračunatih eGFR, dobijene iz Bland-Altmanove analize, su bile od -5,6% do +7,7%, a nepreciznost (Sd) je bila od 29,1% do 30,1%, što se smatra prihvatljivim. Tačna procena GFR je nužna za dijagnozu i klasifikaciju HBB. Trenutno, međunarodni vodiči pr eporučuju primenu jednačine iz MDRD studije za pr ocenu GFR. 99mTc-DTPA je metoda koja ne zahteva sakupljanje uzoraka krvi i urina i merenje kratko traje, pa se često koristi kao sur ogat za GFR u kliničkim ispitivanjima. Rezultati ovog rada su pokazali da postoji dobro slaganje između GFR vrednosti procenjenih sa ove dve metode.

lues calculated fr om equations cor related significantly (Pearson test, P < 0.0001) with GFRsci values. The correlation coefficients ranged fr om 0.845 to 0.885. The mean differ ences between GFRsci and calculated eGFRs, obtained fr om the Bland-Altman analysis, were from –5.6% to +7.7%, and impr ecision (SD) was 29.1% to 30.1%, which is consider ed to be acceptable. A ccurate estimation of GFR is essential for the diagnosis and classification of CKD. Currently, the inter national guidelines r ecommend the use of MDRD study equation for estimation of GFR. 99mTc-DTPA is a method that does not require the collection of blood and urine samples and has short measuring time, so it is of ten used as a sur rogate for GFR in clinical trials. The results of this study showed that ther e was a good agr eement between GFR values estimated with these two methods.

P020
POVEZANOST BAKRA, GVOŽ\A I HORMONA [TITNE ŽLEZDE K OD PACIJENATA SA NETOKSI ^ NOM, MULTINODULARNOM STRUMOM

Tatjana Đorđević, Snežana Madić, Mirjana Stanojković, Milica Ilić, Slavica Kundalić

Centar za medicinsku biohemiju, Klinički centar Niš, Niš, Srbija

Multinodularna struma je pojam koji se odnosi na uvećanu štitnu žlezdu nehomogene građe sa dva ili više jasno izdvojena čvora i ne mora nužno biti praćena poremećenom tiroidnom funkcijom. Za normalan rad štitne žlezde neophodna je ravnoteža tri minerala, bakra cinka i gvožđa. P ostoje podaci da nedostatak bakra može dovesti do hipertir oidizma, a sa druge strane cink i bakar pomažu u terapiji hipofunkcije.Cilj našeg rada je da proceni međusobni uticaj Cu, Fe i hor mona štitne žlezde kod pacijenata sa strumom. Određivana je koncentracija hor mona štitne žlezde i to FT3, FT4 i TSH (CMIA, Ar chitect Abbott), serumsko gvožđe, kao i nivo bakra u ser umu i urinu kod 42 pacijenta sa nodular nom strumom. Kontrolnu grupu je činilo 25 zdravih osoba, oba pola. R ezultati pokazuju značajno povećane vrednosti Cu u ser umu i urinu, kao i niže koncentracije Fe, u odnosu na kontrolnu grupu ($p < 0.015$). Polovina pacijenata sa strumom je eutiroidna, njihovi hormoni ne pokazuju značajno odstupanje od kontrolne grupe. Kod druge polovine su primećene niže koncentracije hormona FT3 i FT4 ($p < 0.05$), na suprot povećanim vrednostima TSH ($p < 0.009$). Značajno povišen bakar kod pacijenata sa ne toksičnom nodularnom strumom može da ukaže na vezu izme - đu ovog elementa u tragu i nodoznog uvećanja štitne žlezde.

P020
INTERACTIONS OF COPPER, IRON AND THYROID HORMONES IN PATIENTS WITH NONTOXIC MULTINODULAR GOITER

Tatjana Đorđević, Snežana Madić, Mirjana Stanojković, Milica Ilić, Slavica Kundalić

Centre of Medical Biochemistry, Clinical Centre of Niš, Niš, Serbia

Multinodular goiter is a diffuse or nodular enlargement of the thyr oid gland and is not associated with the abnor mal thyroid function. The balance of three minerals, copper , zinc and ir on is critically important in pr eventing and cor recting the thyr oid diseases. Deficiency of copper may cause hyperthyroidism, while zinc and copper help in hypothyroidism treatment. The aim of our study was to assess the interaction of Cu with Fe and thyroid hormones in goitrous patients. Serum free triiodothyronine (FT3), serum free thyroxine (FT4), serum thyroid-stimulated hormone (TSH), ser um iron and ser um and urine copper levels wer e measured in 42 patients with nodular goiter, and compar ed to healthy contr ol group (n=25) with no thyr oid disorders. We noticed significantly higher mean values of Cu in ser um and urine samples with lower value of F e as comper ed with the control group ($p< 0.015$). Over one-half of patients were euthyroid and their thyr oid hormone concentrations were not significantly differ ent from the control group. In the other half, the mean values of FT3 and FT4 wer e found to be lower in goitr ous patients of both genders than in the healthy contr ols ($p< 0.05$); in contrast, high mean values of TSH were detected ($p< 0.009$). Copper levels were found to be significantly higher in the patients with multi - nodular goiter indicating the connection between these trace element and thyr oid function and possibly development of goiter.

P021
AKTIVNOST ARILESTERAZE U SERUMU PACIJENATA SA ALKOHOLNOM BOLESTI JETRE

Bojana Kisić[1], Dijana Mirić[1], Momčilo Stanić[3], Aleksandra Ilić[2], Ilija Dragojević[1]

Medicinski fakultet Kosovska Mitrovica
[1]Institut za biohemiju
[2]Katedra za preventivnu medicinu
[3]Centralna biohemijska laboratorija,
Zdravstveni centar Kosovska Mitrovica, Srbija

Konzumiranje alkohola je glavni etiološki faktor u patogenezi hr onične bolesti jetr e, uzrokujući masnu jetru, alkoholni hepatitis i fibrozu, kao i hepatocelularni karcinom. Inflamatorni i imuni odgovor organizma, uz oksidacioni str es, doprinese pojavi i razvoju alkoholom uzrokovane fibroze jetre. Cilj studije bilo je ispitivanje aktivnosti ser umske arilesteraze (ARE) kao biomarkera statusa funkcije jetr e kod hronične alkoholne bolesti i mer enje koncentracije proizvoda oksidacije proteina (AOPP) u serumu pacijenata sa alkoholnom bolesti jetr e (ALD). Ser umski markeri oksidacionog stresa: proizvodi oksidacije proteina (AOPP), produkti lipidne per oksidacije (MDA), redukovani glutation (GSH); kao i aktivnost enzima glutation peroksidaze, superoksid dismutaze i arile - steraze, određivani su u serumu bolesnika (N 30) sa hroničnom alkoholnom bolesti jetre (ALD) i u serumu kontrolne grupe (N=20). Merenje aktivnosti arilesteraze i koncentracije pr oizvoda oksidacije pr oteina (AOPP) u serumu pacijenata sa ALD vršeno je spektrofotometrijski. Izmerena je značajno niža aktivnost arilesteraze u ser umu bolesnika sa alkoholnom bo - lesti jetre u poređenju sa aktivnošću u ser umu kontrolne grupe ($p<0,001$), dok je koncentracija A OPP u serumu bolesnika bila značajno viša ($p<0,001$). Ispitivanjem odnosa između aktivnosti arilesteraze (U/L) i koncentracije A OPP (μmol/L) utvrđena je značajna negativna povezanost ($r=–0,362$, $p<0,05$). Naši rezultati ukazuju da smanjenje aktivnosti arile - steraze može imati ulogu u patogenezi alkoholne bolesti jetre, a određivanje njene aktivnosti u serumu može doprineti ispitivanju funkcije jetre i biti pogodan biomarker za pr ocenu prisustva/težine hr oničnog oboljenja jetre.

P021
ARYLESTERASE ACTIVITY IN SERUM OF PATIENTS WITH ALCOHOLIC LIVER DISEASE

Bojana Kisić[1], Dijana Mirić[1], Momčilo Stanić[3], Aleksandra Ilić[2], Ilija Dragojević[1]

Faculty of Medicine Kosovska Mitrovica
[1]Institute of Biochemistry
[2]Institute for Preventive Medicine
[3]Centre of Medical Biochemistry,
Health Centre Kosovska Mitrovica, Serbia

Alcohol consumption is a pr edominant etiological factor in pathogenesis of the chr onic liver diseases, causing fatty liver, alcoholic hepatitis, fibrosis/cirrhosis, and hepatocellular car cinoma. Inflammatory and immune r esponses along with oxidative str ess might contribute in different ways to development of alcohol-induced fibrosis/cirrhosis. The aim of the present study was to investigate ser um arylesterase activity and advanced oxidation pr otein products (AOPP) level, and to find out that whether the measurement of serum arylesterase activity would be useful as an index of liver function status in chronic alcoholic liver disease. Serum markers of oxidative stress: levels of advanced oxidation pr otein products (AOPP), lipid per oxidation product (MDA) and reduced glutathione (GSH); activities of glutathione peroxidase (GPx), super oxide dismutase (SOD) and arylesterase (ARE) wer e determined in thirty (30) patients with ALD and twenty (20) healthy subjects. Serum arylesterase activity and advanced oxidation protein products (AOPP) were determined by spectrophotometry. Arylesterase activity was significantly lower in the group with ALD, compared with the control group ($p<0.001$), while AOPP levels were significantly higher ($p<0.001$). Ar ylesterase activity was inversely correlated with A OPP levels ($r=–0.362$, $p<0.05$). Fibrosis scores of ALD patients were significantly correlated with ar ylesterase activities and AOPP levels ($r=–0.583$, $p<0.001$ and $r=0.562$, $p<0.001$). Our r esults indicate that decr ease in the arylesterase activities may play a r ole in the pathogenesis of ALD. In addition, serum ARE activity could be a suitable biomarker for evaluation of the pr esence and severity of the chr onic liver damage.

P022
ZNA^AJSKRININGA KOD DECE [K OLSKOG UZRASTA

Milosava Đelkapić[1], Božidar Nešević[1], Snežana Šunderić[1], Snežana Lešović[2]

[1]Dom zdravlja Užice
[2]Specijalna bolnica Zlatibor, Srbija

Blagovremenim otkrivanjem pojedinih bolesti i njihovim lečenjem mogu se spr ečiti komplikacije, a merama prevencije može se sprečiti nastanak bolesti. Cilj rada je bio skrining slučajeva anemije i pr ocena rizika za nastanak ater oskleroze kod dece star osti 13 godina. Ispitivanje je obuhvatilo 94 dece podeljenih u dve grupe (39 devojčica i 55 dečaka). Ukupni ho lesterol (TC) i glikemija (GLU) su određivani na analizatoru Dimension RxL Max, reagensima firme Siemens, a hematološki status, eritrociti (ER), hemoglobin (Hg) hematokrit (Ht) leukociti (Le) i trombociti (TR) na hematološkom analizatoru HmX (Beckman Coulter). Obradom podataka je utvrđeno da kod obe gr upe ispitanika nije bilo statistički značajne razlike u vr ednostima TC, GLU i TR (p>0,05). Devojčice su imale više vrednosti LE što je statistički značajna razlika (p< 0,05) a dečaci više vr ednosti ER, Hg i Ht (p<0,05). Daljom analizom dobijenih podataka došli smo do zaključka da nije bilo patoloških nalaza LE i TR, nije otkriven ni jedan slučaj dijabetesa, a samo kod jedne devojčice (2,56%) je utvrđena anemija. Kod 6 dečaka (10,9%) i 4 devojčice (10,25%) je utvrđeno da je T C viši od 4,4 mmol/L što je granična povišena vrednost, a 2 dečaka (3,63%) i jedna devojčica (2,56%) su imali holesterol viši od 5,17 mmol/L što je povišena vr ednost udružena sa visokim rizikom za pr evremenu aterosklerozu i razvoj kar diovaskularnih bolesti pr ema preporukama Nacionalnog vodiča dobr e kliničke prakse za lipidne por emećaje. Dobijeni r ezultati ukazuju na značaj pr edviđenog skrininga u odr eđenom uzrastu obzirom da su identifikovana deca koja zahtevaju dalje praćenje i perso nalizovanu primenu mera primarne prevencije za spr ečavanje prevremene ateroskleroze koja može početi u detinjstvu.

P022
THE IMPORTANCE OF SCREENING IN SCHOOL CHILDREN

Milosava Đelkapić[1], Božidar Nešević[1], Snežana Šunderić[1], Snežana Lešović[2]

[1]Health Centre Užice
[2]Special Hospital Zlatibor, Serbia

It is known that early detection of many diseases and their cur e could stop the complications of diseases. In addition, the pr eventive measures can prevent the development of diseases. The aim of this in - vestigation was the screening of cases of anemia and the risk evaluation for development of ather osclerosis in children aged 13. The examination inclu ded 94 children divided into two gr oups (39 girls and 55 boys). Total cholesterol (TC) and glycemia (GLU) were determined by analyzer Dimension RxL Max, with reagents of the firm Siemens. Hematological status, erythrocytes (RBC), hemoglobin (Hb), hematocrit (hct) leucocytes (WBC) and platelets (PL T) were determined by hematological analyzer HmX (Beckman Coulter). The analysis of data found that there was no significant difference in values of T C, GLU and PL T (p>0.05) between both groups of children. Girls had higher values of WBC which was a significant difference (p<0.05) and boys had higher values of RBC, Hb and Hct (p<0.05). Based on the analyzed data, we concluded that there were not any patholigical values of WBC and PLT, these was not any case of Dia - betes mellitus and one girl (2.56%) had anemia. In 6 boys (10.9%) and at 4 girls (10.25%), T C was found to be higher than 4.4 mmol/L, which is the upper limit, and 2 boys (3.63%) and 1 girl (2.56%) had cholesterol higher than 5.17 mmol/L, which is the increased level associated with high risk of early ather osclerosis and development of car diovascular diseases as r ecomended by National guide of Good Clinical P ractice for dyslipidemia. The results of investigation shows the importance of scr eening at some age, especially for children which are supposed to be observed and provided with primary prevention for early atherosclerosis.

P023
VASKULARNI RIZIK KOD PACIJENATA OBOLELIH OD DIABETES MELLITUSA TIP 2

Milosava Đelkapić, Božidar Nešević, Snežana Šunderić

Dom zdravlja, Užice, Srbija

Dijabetes je jedno od vodećih hr oničnih oboljenja čije su komplikacije uzr ok povećanog mor-

P023
VASCULAR RISK IN PATIENTS WITH DIABETES MELLITUS TYPE 2

Milosava Đelkapić, Božidar Nešević, Snežana Šunderić

Health Centre, Užice, Serbia

Diabetes is one of the leading chronic diseases. The complications of diabetes cause the incr ease of

biditeta i mortaliteta. Da bi se odložila pojava komplikacija i prevenirale vaskularne bolesti potrebno je da se vrednosti biohemijskih parametara održavaju u preporučenom niskom vaskularnom riziku. Cilj rada je bio da se proceni vaskularni rizik kod pacijenata obolelih od Diabetes mellitusa (DM) tipa 2. Ispitivanjem je obuhvaćeno 78 pacijenata obolelih od DM tipa 2, podeljenih prema polu u 2 grupe (42 žene i 36 muškaraca). Posle uzimanja anamnestičkih podataka pacijentima su određivani glikozilirani hemoglobin (HbA1c), jutarnja glikemija i lipidni status, reagensima firme Siemens na biohemijskom analizatoru Dimension RxL. Dobijeni rezultati su pokazali da su žene bile značajno starije, sa dužim trajanjem dijabetesa u odnosu na muškarce ($p<0,05$), imale su više prosečne vrednosti glikemije, HbA1c ($p>0,05$), ukupnog holesterola, LDL-holesterola ($p<0,05$), i HDL-holesterola ($p<0,01$), ali su imale niže prosečne vrednosti triglicerida ($p>0,05$) u odnosu na muškarce. Procenom vaskularnog rizika u odnosu na pojedinačne parametre zaključeno je da je u mikro i makro vaskularnom riziku u odnosu HbA1c bilo 61% muškaraca i 79% žena, u odnosu na holesterol 72,3% muškaraca i 88,1% žena, u odnosu na HDL 85,1% muškaraca i 81% žena, u odnosu na LDL 69,5% muškaraca i 90,5% žena. Ovo ukazuje da u obe grupe dominiraju pacijenti u području mikro i makro vaskularnog rizika za pojavu komplikacija, a da je kod žena taj rizik viši.

morbidity and mortality. To prevent vascular diseases and other complications, it is necessary to keep the values of biochemical parameters within recommended low vascular risk. The aim of this study was to evaluate the vascular risk in patients with Diabetes mellitus (DM) type 2. The study included 78 patients with DM type 2, which were divided into two groups by sex (42 women i 36 men). HbA1c, fasting blood glucose and lipids were measured after obtaining the anamnestic data, by reagents of firm Siemens on biochemical analyzer Dimension RxL. The results showed that women were significantly older, with longer duration of diabetes than men ($p<0.05$), and also had higher value of the mean blood glucose, HbA1c ($p>0.05$) total cholesterol, LDL-cholesterol ($p<0.05$) and HDL-cholesterol ($p<0.01$), but they had lower mean values of triglycerides ($p>0.05$) than men. Upon analysis of the vascular risk, it was concluded that 61% of men and 79% of women were at micro and macro vascular risk of HbA1c, 72.3% of men and 88.1% of women in relation to cholesterol, 86.1% of men and 81% of women related to HDL-cholesterol, 69.5% of men, and 90.5% of women related to LDL-cholesterol. It was shown that the patients with micro and macro vascular risk of complications were dominant in both groups, and that risk was even higher women.

P024
INTERLEUKIN-6, PROKALCITONIN I CRP KAO BIOMARKERI SEPSE

Tamara Anđelić, Vesna Subota, Vesna Debijađi-Simjanović, Janko Pejović, Tatjana Đurašinović, Svetlana Vujanić, Marija Vasić-Lazić, Milena Stavrić

Institut za medicinsku biohemiju, Vojnomedicinska akademija, Beograd, Srbija

Sepsa, sistemski odgovor na infekciju, ozbiljan je, široko rasprostranjen medicinski problem sa visokom stopom mortaliteta. Upravo zato je rana i tačna dijagnostika neophodna za brzu primenu terapije koja spasava život ovih pacijenata. Cilj ove studije bio je da se odredi uloga interleukina 6 (IL-6), prokalcitonina (PCT) i C-reaktivnog proteina (CRP) u dijagnostikovanju sepse. Serumske vrednosti IL-6, PCT i CRP određivane su kod 28 pacijenata odeljenja reanimacije sa kliničkom dijagnozom sepse i poređene sa vrednostima ovih parametara kod 28 zdravih dobrovoljaca. IL-6 je analiziran na Immuliteu 2000 (Siemens), PCT na Kryptoru (Brahms) i CRP na

P024
INTERLEUKIN-6, PROCALCITONIN AND CRP AS BIOMARKERS OF SEPSIS

Tamara Anđelić, Vesna Subota, Vesna Debijađi-Simjanović, Janko Pejović, Tatjana Đurašinović, Svetlana Vujanić, Marija Vasić-Lazić, Milena Stavrić

Institute of Medical Biochemistry, Military Medical Academy, Belgrade, Serbia

Sepsis, a systemic response to infection, is an extensive medical problem worldwide with a high mortality rate. This is why an early and accurate diagnosis is critical for immediate, life rescuing treatment. The aim of this study was to investigate the role of interleukin 6 (IL-6), procalcitonin (PCT) and C-reactive protein (CRP) in diagnosing sepsis. Serum IL-6, PCT and CRP were measured in 28 Intensive Care Unit (ICU) patients with clinically confirmed sepsis and compared to 28 healthy volunteers. IL-6 was analyzed on Immulite 2000 (Siemens), PCT on Kryptor (Brahms) and CRP on Dimension RxL Max (Siemens). IL-6, PCT and CRP mean values were sig-

Dimensionu RxL Max (Siemens). Sr ednje vrednosti IL-6, PCT i CRP bile su značajno veće kod pacijenata sa sepsom (143,6 pr ema 4,48 pg/mL; 0,79 prema 0,04 ng/mL i 178,8 pr ema 4,48 mg/L; p<0.001). Osetljivost i specifičnost (izraženi kao površina ispod krive-AUC) za IL-6, PCT i CRP su iznosili 0,995, 0,919 i 0,997. IL -6 cutoff od 5,9 pg/mL pokazuje osetljivost od 100 % i specifičnost od 78,6 %. PCT cutoff od 0,5 ng/mL pokazuje osetljivost od 89,3 % i specifičnost od 71,4 %, dok cutoff za CRP od 3 mg/L ima 100 % osetljivost i specifičnost od 39,3 %. IL-6 i CRP su pokazali dobr u osetljivost, ali umerenu i lošu specifičnost, dok PCT ima dobr u osetljivost i umerenu specifičnost. Zaključak ove studije je da ove biomarker e ne tr eba samostalno primenjivati u dijagnostikovanju sepse. Treba ih koristiti u sklopu kompletne kliničke slike bolesnika, u kombinaciji sa drugim znacima i simptomima sepse.

nificantly higher in septic patients (143.6 vs. 4.48 pg/mL; 0.79 vs 0.04 ng/mL and 178.8 vs 4.48 mg/L; p<0.001). The sensitivity and specificity (expressed as the area under the curve-AUC) of IL-6, PCT and CRP were 0.995, 0.919 and 0.997, respectively. IL-6 cutoff of 5.9 pg/mL had 100 % sensitivity and 78.6 % specificity. PCT cutoff of 0.5 ng/mL had 89.3 % sensitivity and 71.4 % specificity , while CRP cutoff of 3 mg/L had 100 % sensitivity and specificity of 39.3 %. IL-6 and CRP revealed high sensitivity, but moderate and low specificity, while PCT showed good sensitivity with moderate specificity . The conclusion of this study is that these biomarkers alone should not be used as a diagnostic tool for sepsis. They need to be interpr eted in the context of a full clinical examination and the pr esence of other signs and symptoms of sepsis.

P025
ULOGA PROKALCITONINA, CRP I APACHE II SKORA KOD AKUTNOG PANKREATITISA

Tatjana Đurašinović[1], Svetlana Vujanić[1], Mihajlo Bezmarević[2], Janko Pejović[1], Vesna Subota[1], Tamara Anđelić[1], Marija Vasić-Lazić[1]

[1]Institut za medicinsku biohemiju, Vojnomedicinska akademija, Beograd, Srbija
[2]Klinika za abdominalnu i endokrinu hir urgiju, Vojnomedicinska akademija, Beograd, Srbija

Rana procena težine stanja i kontinuirano pra - ćenje pacijenata predstavljaju ključne faktore za adekvatan tretman akutnog pankr eatitisa (AP). Cilj studije je određivanje vrednosti prokalcitonina (PCT) kao prognostičkog markera u ranim stadijumima AP i razvoj bolesti u odnosu na ishod. U prospektivnoj studiji je učestvovao 51 pacijent sa AP (29 sa teškim AP). U prvih 48 sati od prijema pacijenta određeni su »Acute physiology and chr onic health evaluation (APACHE II) skor, C-reaktivni protein (CRP) i prokalcitonin (PCT). Vr ednosti PCT su por eđene sa vr ednostima APACHE II skora, kao i sa vr ednostima CRP. Vrednosti PCT, CRP i AP ACHE II skora su statistički značajno veće kod pacijenata sa teškim AP u odnosu na pacijente sa AP . Ustanovljena je statistički značajna korelacija PCT i APACHE II skora, kao i PCT i CRP u pr oceni težine bolesti. Kod pacijenata sa letalnim ishodom nađeno je značajno povećanje vr ednosti PCT na prijemu i visoko značajna kor elacija maksimalnih vrednosti PCT i ishoda. Izračunata senzitivnost i specifičnost ovih parametara iznosili su: za APACHE II skor 89,7% i 31,8% za CRP (cutoff 120

P025
THE ROLE OF PROCALCITONIN, CRP AND APACHE II SCORE IN THE ACUTE PANCREATITIS

Tatjana Đurašinović[1], Svetlana Vujanić[1], Mihajlo Bezmarević[2], Janko Pejović[1], Vesna Subota[1], Tamara Anđelić[1], Marija Vasić-Lazić[1]

[1]Institute of Medical Biochemistry, Military Medical Academy, Belgrade, Serbia
[2]Clinic for Abdominal and Endocrine Surger y, Military Medical Academy, Belgrade, Serbia

Early assessment of the severity and continuous monitoring of the patients ar e key factors for adequate treatment of the acute pancr eatitis (AP). The objective was to determine the value of procalcitonin (PCT) as prognostic marker in early stages of AP and the evolution of the disease in r elation to the course and outcome. A pr ospective study included 51 patients with AP (29 with sever e AP). In the first 48 hours of patient admission, » Acute physiology and chronic health evaluation (APACHE II) score, C-reactive protein (CRP) and PCT wer e determined. The values of PCT wer e compared with the values of APACHE II scor e and CRP. The values of PCT , CRP and APACHE II score were highly significantly elevated in patients with severe AP. There was highly significant correlation between PCT and APACHE II score, and PCT and CRP in assessment of the severity of disease. In patient with lethal outcome, the values of PCT on admission wer e highly significantly elevated and there was highly significant cor relation between the maximal values of PCT and outcome. In pr edicting the severity of disease, sensitivity and specificity

mg/L) 75,9% i 13,6% i za PCT (cutoff 0,20 ng/mL) 89,7% i 54,5%. Nađeno je da je PCT vrlo značajan prediktor ishoda bolesti (χ^2=23,592; p<0,01). PCT, sa većom specifičnošću od AP ACHE II skora, predstavlja dobar marker za ranu procenu težine AP. Povećane vrednosti PCT mogu ukazati na mogući ishod.

of the APACHE II score were (cutoff 89.7% and 31.8%), CRP (cutoff 120 mg/L 75.9% and 13.6%) and PCT (cutoff 0.20 ng/mL 89.7% and 54.5%). It was found that PCT was highly significant predictor of outcome (χ^2=23.592; p<0.01). PCT is a good marker for early assessment of AP severity, with better specificity than APACHE II score. Increased values of PCT may suggest a possible outcome.

P026
OGTT-SKRINING ZA DIJAGNOSTIKU NOOVOOTKRIVENIH DIJABETIČARA U D.Z. KOTOR U 2011-OJ GODINI

Vesna Radonjić, Bosiljka Radović, Bojan Radović

Dom zdravlja Kotor, Crna Gora

oGTT je test koji pokazuje sposobnost preuzimanja glukoze u organizmu, te služi za otkrivanje poremećaja metabolizma šećera. Na osnovu datih kriterijuma stanje glikoregulacije se klasifikuje kao normalno ili kao oštećenje po tipu intolerancije glukoze (IGT) ili kao dijabetes. U našu ustanovu, u periodu od godinu dana na test oGTT poslata su 66 pacijenta i to 33 žene i 33 muškaraca, starosne dobi od 17–76 godina. Pacijenti su podeljeni u 4 starosne grupe: grupa I – mlađi od 35 god. (4 pacijenta), grupa II – od 35–45 god. (7 pacijenata), grupa III – od 45–55 god. (16 pacijenata), grupa IV – stariji od 55 god. (39 pacijenata). Pacijenti su podeljeni i prema vrednosti glikemije dobijenoj na početku izvođenja testa: grupa 1, glikemija 4–5 mmol/L (8 pacijenata); grupa 2, glikemija 5–6 mmol/L (22 pacijenta); grupa 3, glikemija 6–7 mmol/L (18 pacijenata); grupa 4, glikemija >7 mmol/L (18 pacijenata). U toku jednogodišnjeg OGTT skrining testa na osnovu SZO smernica (glukoza posle 2h od opterećenja >11,1 mmol/L-dijabetičar; između 7,8–11,1 mmol/L–IGT i normalna tolerancija <7,8 mmol/L), 22 pacijenta smo svrstali u kategoriju novootkriveni dijabetičar (33%) i to najviše u grupi IV (14; 21,2%). Odnos muškaraca i žena je približno jednak (m-12; ž-10). Najveći broj novootkrivenih dijabetičara je u grupi koja je imala početnu koncentraciju glukoze >7,0 mmol/L (13; 19,7%), a najmanje u grupi koja je imala početnu koncentraciju glukoze između 4–5 mmol/L (1; 1,5%). Ukupan broj pacijenata kategorisan kao IGT je 9 (13,6%), takođe najviše je zastupljen u starosnoj grupi IV (7; 10,6%). Normalnu toleranciju na glukozu imalo je 35 pacijenata (53%) i to najveći broj u grupi 1 (75%), a najmanje u grupi 4 (11,1%). oGTT kao skrining test u okviru primarne zdravstvene zaštite je značajan pokazatelj u diferencijalno-dijagnostičkoj proceduri prepoznavanja novih dijabetičara, odnosno pacijenata sa IGT, kojim treba

P026
OGTT SCREENING FOR DIAGNOSIS OF THE NEWLY DIABETICS IN HEALTH CENTER KOTOR IN 2011

Vesna Radonjić, Bosiljka Radović, Bojan Radović

Health Center Kotor, Montenegro

OGTT test shows the ability of glucose take-over by the body, and is used to detect glucose metabolism. Based on such criteria, the condition of glycoregulation is classified as normal or as damage by glucose intolerance type (IGT) or as diabetes. To our institution, within the period of one year, 66 patients (33 men and 33 women, aged 17–76 years) were referred for OGTT testing. Patients were divided into 4 groups: group I-younger than 35 years (4 patients), group II-from 35–45 years (7 patients), group III-from 45–55 years (16 patients), group IV over 55 years (39 patients). The patients were divided according to serum glucose level recorded at the beginning of the test: group 1, glucose 4–5 mmol/L (8 patients), group 2, glucose 5–6 mmol/L (22 patients), group 3, glucose 6–7 mmol/L (18 patients), group 4, blood glucose >7 mmol/L (18 patients). During one-year OGTT screening test based on WHO guidelines (2 h after glucose load of >11.1 mmol/L-diabetic; between 7.8 to 11.1 mmol/L–IGT and normal tolerance <7.8 mmol/L), 22 patients were categorized into newly discovered diabetics (33%), the largest number being in group IV (14, 21.2%). Male/female ratio was approximately equal to (m-12, w-10). The largest number of newly diagnosed diabetics was in the group that had initial concentrations of glucose >7.0 mmol/L (13, 19.7%) and lowest was in the group that had initial glucose concentration of 4–5 mmol/L (1, 1.5 %). The total number of patients categorized as IGT was 9 (13.6%), with highest prevalence in the age group IV (7, 10.6%). Normal glucose tolerance was recorded in 35 patients (53%) with the largest number in Group 1 (75%) and the smallest in group 4 (11.1%). OGTT as a screening test in primary care is an important clue in differential-diagnostic procedure for recognition of new diabetics, or patients with IGT,

ukazati na poseban r ežim ishrane u cilju pr evencije dijabetesa. Veći broj odbačenih u grupi 2 i 3 ukazuje na potrebu poštovanja smer nica preporučenih od ADA da testiranje o GG T treba sprovesti kod pacijenata koji su u najmanje dva slučajna određivanja koncentracije glukoze imali koegzistetne koncentracije u rasponu od 5–6 mmol/L.

P027
STUDIJA SKRINING TESTA NA PSA

Vesna Radonjić, Bojan Radović

Dom zdravlja Kotor, Crna Gora

PSA produkuju kako maligne tako i nemaligne epitelne ćelije pr ostate. Cilj rada je ispitati sr ednje vrednosti za PSA zavisno od starosne dobi, brzim hromatografskim testom i dijagnostičku upotr ebljivost. Test je urađen na aparatu »EASY READER« pr oizvođača »VEDA-LAB« Francuska. »Easy r eader« je čitač imunohromatografskih brzih testova, koji koristi CCD kameru visoke rezolucije i integrisani soft ver za analiziranje slika. Za testiranje su korišćeni br zi testovi PSA-CHECK-1 od iste fir me. To je br zi kvantitativni test za detekciju humanog PSA (slobodnog oblika ili složenog sa α-1 antihimotripsinom) u punoj kr vi. Princip testa zasniva se na putovanju uzorka kr oz apsorbensku jedinicu, obeleženi konjugat antitela vezuje se za PSA formirajući kompleks antigen-antitelo. U okviru masovnog testiranja građana na PSA (prostata specifični antigen), urađeno je skrinig testiranje na 526 ispitanika Kotora, Crna Gora. Najmlađi testirani ispitanik je imao 27 godina, a najstariji 90 godina. Ispitanici su podeljeni po starosnim grupama u analizi studije, i to u šest gr upa: mlađi od 40 god. (25), 40–50 god. (63), 50–60 god. (126), 60–70 god. (144), 70–80 god. (144) i stariji od 80 god. (26). Za izračunavanje srednjih vrednosti i statističkih pokazatelja uzeti su samo ispitanici kod kojih nije utvrđeno nikakvo patološko stanje. Sr ednje vrednosti za PSA po grupama redom su: <40 g. 1,61 ng/mL, (0,68–3,6 ng/mL SD 0,74); 40–50 g. 1,38 (0,37–6,5 ng/mL SD 2,35); 50–60 g. 2,10 (0,6–9,2 ng/mL SD,2,49); 60–70 2,41 (0,10–8,5 ng/mL SD 3,45); 70–80 g. 3,34 (0,48–9,8 ng/mL SD 1,73); 80–90 g. 2,31 (0,17–6,4 ng/mL SD 1,73). T -TEST između grupa pokazuje značajnu razliku između gr upe 60–70 g. i 70–80 g. ($t=2,24$, $p<0,001$). Dijagnostički je utvrđen kar cinom kod 6 ispitanika (1,1%), i to u grupama 60–70 g., 2 (PSA 61,2 i 18,4 ng/mL), 70–80 g., 1 (PSA 43,8 ng/mL); 80–90 g., 3 (PSA 25,9, 576, 25,1 ng/mL). Benigna hiperplazija utvr đena kod 11 ispitanika (2,1%), po gr upama 50–60 g. -4 (PSA 22,4, 18,5, 11,2, 13,7 ng/mL), 60–70 g. -1 (PSA 15,7 ng/mL), 70–80 g. -5 (19,4, 11,9, 17,7, 12,0 i 12,9 ng/mL) 80–90 g. -1 (PSA 19,5

who should be advised to be on a special diet to prevent diabetes. A number of dr op-outs in Gr oups 2 and 3 indicates the need to r espect the guidelines recommended by ADA that GGT test should be performed in patients who, in at least two random glucose measurements, had coexisting concentrations ranging from 5 to 6 mmol/L.

P027
STUDY OF PSA SCREENING TEST

Vesna Radonjić, Bojan Radović

Health Center, Kotor, Montenegro

PSA is pr oduced by both malignant and non-malignant prostate epithelial cells. The aim of this paper is to examine the mean values of PSA accor ding to age, rapid chr omatographic test and diagnostic usefulness. The test was per formed on the device »EASY READER« manufactur ed by » VEDA-LAB« France. »Easy R eader« is a r eader of immunochr omatographic rapid test using the high r esolution CCD camera and integrated sof tware for image analysis. To test the rapid tests, PSA -CHECK-1 of the same company was used. This is a quick test for the quantitative detection of human PSA (or fr ee-form complex with α-1 antichimotrypsin) in the whole blood. The principle of the test is based on that the sample flows through the abosrbent device, labeled antibody conjugate binds to PSA, for ming the antigen–antibody complex. In the mass testing of population for PSA (prostate specific antigen), the screening test was performed on 526 patients of K otor, Montenegro. The youngest and the oldest participant tested was 27 and 90 years old, r espectively. Subjects were divided by age in six gr oups: younger than 40 years (25), 40–50 years (63), 50 to 60 years (126), 60–70 years (144), 70–80 years (144) and older than 80 years (26). For the calculation of mean values and statistical parameters, the subjects with no pathological condition were included. PSA mean values by gr oups were as follows: <40 yrs. 1.61 ng/mL (0.68–3.6 ng/mL SD 0.74); 40–50 yrs. 1.38 (0.37–6.5 ng/mL, SD 2.35), 50–60 yrs. 2.10 (0.6–9.2 ng/mL SD2.49), 60–70 yrs. 2:41 (0.10–8.5 ng/mL, SD 3.45), 70–80 yrs. 3.34 (0.48–9.8 ng/mL, SD 1.73), 80–90 yrs. 2.31 (0.17–6.4 ng/mL SD 1.73). T -test of the gr oups showed a significant difference between the groups of 60–70 yrs. and 70–80 yrs. ($t=2.24$, $p<0.001$). Diagnostic cancer was found in 6 patients (1.1%), and in groups as follows: in gr oup 60–70 yrs, 2 (PSA 61.2 and 18.4 ng/mL), 70–80 yrs, 1 (PSA 43.8 ng/mL), 80–90 yrs. 3 (PSA 25.9, 576, 25.1 ng/mL). Benign prostatic hyperplasia was detected in 11 subjects (2.1%), in gr oups 50–60 yrs -4 (PSA 22.4, 18.5, 11.2, 13.7 ng/mL), 60–70 yrs -1 (PSA 15.7 ng/mL),

ng/mL). Upoređivanjem vrednosti PSA i IPSS (internacionalni prostata simptom skor), ne dobijamo značajnu korelaciju (R^2=0,6433). Dobijene sr ednje vrednosti sa ±SD ne odstupaju od vr ednosti dobijenih iz seruma drugim imunohemijskim postupcima. Statistički značajna razlika posle 70 g. života poklapa se sa dijagnostičkim objašnjenjem. Dijagnostički značaj skrining postupka, dobijen br zim testom, jednak je sa postupcima dobijenim drugim metodama.

P028
LABORATORIJSKI PARAMETRI ANEMIJE KOD CREST SY I OSTEOPOROZE INDUKOVANE ANTIREUMATSKIM LEKOVIMA

Aleksandra Arsić

Zdravstveni centar Kruševac, Srbija

Crest sy je r eumatska bolest koštano-vezivnog tkiva sa kalcinozama i R aynaud-ovim fenomenom, ezofagusnom disfunkcijom, sklerodaktilijom i teleangiektazijama. Bolest zahteva dugu primenu antir eumatika što za posledicu ima neželjena dejstva poput hemolizne anemije, agranulocitozu, tr ombopeniju i dr. Neželjena dejstva leka se manifestuju dir ektnom reakcijom na kostnu srž. P acijentkinja, stara 63. godine, je lečena na Institutu za reumatologiju KCS. Dijagnoza je po tvrđena laboratorijskim i dr ugim pretragama. Kontrolne analize rađene su u labora - torijskoj službi ZC Kruševac. U terapiju je bio uveden Metotreksat 10 mg jedanput nedeljno, Sulfo salazin 1,5 mg dnevno i NSAIL par enteralno. Kod pacijentkinje je bila primetna kalcinoza kože na mestima oslonca, na zidu ilijačne arterije a na aorti su bile evidentne kalcifikacije, na šakama difuzne osteo poro tične promene, zidovi aorte su bili skler otični, sa fibrozno izmenjenim kupisima, i LK i DK su bile normalne veličine. Perikard b.o. Cilj rada bio je da se proceni upotreba antireumatika u odnosu na ne - željena dejstva leka i kva litet života hr oničnih reumatskih pacijenata, odnosno da se ublaže simptomi loših efekata lekova. Metode koje se primenjuju su bio hemijski pregledi pre i posle korišćenja antireumatika. Kontrole se odrađuju na biohemij - skom analizatoru komercijalnim testovima Simens ADVIA 1800, a ispitivanje KKS na hematološkom analizatoru ADVIA 120. Pre upotrebe antireumatika određeni su: SE 10, CRP 3,25, FE 21, Ca 2,50, AST 35, ALT 30, Hgb 120, Er 5.00, Le 7,0, Tr 170. Posle upotrebe antireumatika, nalazi su bili sledeći: SE 24, CRP 6.24, FE 6.6, Ca 2.25, AST 24, AL T 20, Hgb 86, WBC 5.0, RBC 3.18 ,PLT 120. Iz priloženog se

70–80 yrs. -5 (19.4, 11.9, 17.7, 12.0 and 12.9 ng/mL) and in group 80–90 yrs. -1 (PSA 19.5 ng/mL). Comparison of PSA and IPSS (Inter national Prostate Symptom Score) found no significant cor relation (R^2=0.6433). Obtained mean values with ± SD do not deviate from the values obtained fr om the serum of other immunochemical pr ocedures. A statistically significant difference after 70 years of age cor relates with diagnostic explanation. Diagnostic value of the screening procedure obtained by rapid test is equivalent to the procedures obtained by other methods.

P028
LABORATORY PARAMETERS OF ANEMIA IN CREST SY AND ANTIRHEUMATICS-INDUCED OSTEOPOROSIS

Aleksandra Arsić

Health Center Kruševac, Serbia

Crest sy is a rheumatic disease of osteo-connective tissue with calcinosis and Raynaud phenomenon, esophageal malfunction, scler odactylia and telangiectasia. The disease r equires a long use of the anti - rheumatic drugs, what may have side-effects such as hemolytic anemia, agranulocytosis, thr ombopenia, etc. drug side-effects ar e manifested by dir ect reaction of bon mar row. A female patient, 63 years old, was treated at the Institute of Rheumatology, Clinical Center of Serbia. Diagnosis was confirmed by laboratory and other analyses. Contr ol analyses wer e carried out in Laborator y Service, Health Center Kr uševac. Methotrexate 10 mg a week, Sulpha salazine 1.5 mg/day and parenteral NSAIDs were introduced in therapy. The skin calcinosis was obser ved on the surface resting areas and in the iliac arter y wall, calcifications were evident in the aorta, together with sclerotic walls and fibrous changes of cupids, the size of the lef t and the right ventricle was nor mal, pericardium was r egular, and diffuse osteopor otic changes were manifested on her hands. The aim of the work was to estimate the use of antir heumatic drugs in r elation to their side-effects and the quality of life in chronic rheumatic patients, that is, to alleviate the symptoms of the adverse effects of drugs. The methods applied wer e biochemical analyses befor e and after the use of antir heumatics. The contr ols were carried out on biochemical analyzer using the commercial tests Siemens AD VIA 1800, and complete blood count was analyzed on hematological analyzer ADVIA 120. Prior to antirheumatic therapy, the following parameters wer e measured: ESR 10, CRP 3.25, Fe 21, Ca 2.50, AST 35, AL T 30, RBC 5.00, WBC 7.0, Pt 170, Hb 120, and afterwards the

vidi da je došlo do promena parametara koji se odnose na KKS. Vrednosti Hg, HCT i Er bile su smanjene u odnosu na preterapijski period. Pacijentkinji je predložena bolnička terapija Folanom, Metotreksatom uz kontrolu KKS u nadležnoj ustanovi. Povremeno treba da prima vitaminsku terapiju OHB12. Indikovano je lečenje u hiperbaričnoj komori i fizijatrijski tretman uz HD režim, radi poboljšanja eritrocitopoeze i periferne oksigenacije.

findings were as follows: ESR 24, CRP 6.24, Fe 6.6, Ca 2.25, AST 24, ALT 20, RBC 3.18, WBC 5.0, Pt 120, and Hb 86. It is apparent that some values were changed, i.e., Hb, HCT and WBC were decreased in comparison to pre-therapeutical period. The patient was advised to begin hospital therapy with Folan and Methotrexate with the control of complete blood count in the respective institution. Occasionally, she should receive vitamin – OHB12 therapy. Hyperbaric oxygen therapy was indicated as well as physiatric treatment with hygiene-dietetic regime for the improvement of erythrocytopoiesis and peripheral oxygenation.

P029
UTICAJ JEDNOKRATNE HEMODIJALIZE NA AKTIVNOST SERUMSKE KSANTIN OKSIDAZE KOD HCV SEROPOZITIVNIH PACIJENATA

Dijana Mirić, Bojana Kisić, Ilija Dragojević

Institut za Biohemiju, Medicinski fakultet Priština (Kosovska Mitrovica), Srbija

Infekcija hepatitis C virusom (HCV) je česta kod pacijenata na hroničnoj hemodijalizi (HD) i predstavlja značajan faktor rizika za razvoj ciroze i hepatocelularnog karcinoma. Pored brojnih funkcija, jetra sintetiše i otpušta u cirkulaciju ksantin oksidazu (XOD; EC 1.1.3.22), čija se sistemska aktivnost u poslednje vreme dovodi u vezu sa nespecifičnim inflamatornim odgovorom. U ovom je radu procenjivan uticaj HCV infekcije na promenu serumske aktivnost XOD uzrokovane jednokratnom HD. Određivana je aktivnost serumske XOD, transaminaza (AST i ALT) i alkalne fosfataze (AF), ukupnih proteina, albumina i CRP-a kod 35 HCV seronegativnih i 8 HCV seropozitivnih odraslih HD pacijenata. U odnosu na seronegativne pacijente, HCV seropozitivni pacijenti su bili nešto stariji (56,4±13,4 vs. 64,6±8,7 godina; p=0,107), sa većim stažom na HD (40,5 ± 35,3 vs. 72,6 ± 33,8 meseci; p<0,05), većom aktivnošću ALT (13 vs. 38 U/L; p<0,05), AST (13 vs. 37 U/L; p<0,05), AF (194 vs. 307 U/L; p<0,05) i CRP-a (2,1 vs. 6,9 mg/L; p<0,05). Koncentracija albumina i ukupnih proteina kao ni predijalizna aktivnost serumske XOD se nije značajno razlikovala između grupa (p>0.05). Nakon HD, aktivnost XOD u grupi HCV seronegativnih pacijenata se nije menjala (18,7±9,3 vs. 16,6 ±8,9 U/L; pre i posle HD; p>0,05), dok je kod HCV seropozitivnih pacijenata bila značajno snižena (15,1±8,9 vs. 6,7±3,8 U/L; pre i posle HD; p<0,05). S obzirom na moguću protektivnu ulogu u odbrani od infektivnih agenasa, pad aktivnosti XOD u toku HD verovatno predstavlja odraz anergije organizma kod HCV seropozitivnih pacijenata.

P029
IMPACT OF A SINGLE HEMODIALYSIS SESSION ON SERUM XANTHINE OXIDASE ACTIVITY IN HCV SEROPOSITIVE PATIENTS

Dijana Mirić, Bojana Kisić, Ilija Dragojević

Institute of Biochemistry, Medical Faculty Priština (Kosovska Mitrovica), Serbia

Hepatitis C virus (HCV) infection is relatively common in patients on chronic hemodialysis (HD), being a significant risk factor of cirrhosis and hepatocellular carcinoma. Among other functions, the liver synthesizes and releases into the bloodstream substantial amounts of xanthine oxidase (XOD; EC 1.1.3.22), recently associated with non-specific antimicrobial host defense. This study evaluated the impact of HCV infection on changes of the serum XOD activity during a single HD session. Serum activities of XOD, transaminases (AST and ALT), alkaline phosphatase (AF), and concentrations of total proteins, albumin and CRP were determined in 35 HCV seronegative and 8 seropositive adult HD patients. In comparison to HCV seronegative, the patients with positive serological HCV test were slightly older (56.4±13.4 vs. 64.6±8.7 years; p=0.107), with longer HD application (40.5±35.3 vs. 72.6±33.8 months; p<0.05), had higher activities of ALT (Me 13 vs. 38 U/L; p<0.05), AST (Me 13 vs. 37 U/L; p<0.05), AF (Me 194 vs. 307 U/L; p<0.05) and CRP levels (Me 2.1 vs. 6.9 mg/L; p <0.05). Total protein and albumin concentrations and pre-dialytic XOD activities did not differ between groups (p>0.05). During a single HD session, serum XOD was not changed in HCV seronegative patients (18.7±9.3 vs. 16.6±8.9 U/L; before and after HD, respectively; p>0.05), whilst it was significantly decreased in HCV seropositive patients (15.1±8.9 vs. 6.7±3.8 U/L; before and after HD, respectively; p<0.05). Given that XOD may be implicated in non-specific host defense, the fall of serum XOD activity may reflect the general anergy of HCV seropositive patients undergoing chronic HD treatment.

P030
AKTIVNOST SERUMSKE MIJELOPEROKSIDAZE I HIPERTENZIJA KOD PACIJENATA NA HRONI^NOJ HEMODIJALIZI

Dijana Mirić[1], Bojana Kisić[1], Marko Mirić[2]

[1]Medicinski fakultet Priština (Kosovska Mitrovica)
[2]Državni univerzitet u Novom Pazaru, Srbija

Mijeloperoksidaza (MPO; EC 1.11.1.7) je pro-oksidantni enzim fagocita i značajan prediktor arterijskog pritiska. Cilj ovog rada je da ispita odnos aktivnosti MPO sa hipertenzijom (HTA) pacijenata u terminalnoj fazi hronične bubrežne insuficijencije (HBI) lečenih hemodijalizom (HD). Kod 28 HBI pacijenata na HD su merene aktivnost serumske MPO, koncentracije CRP-a i organskih hidroperoksida kao i sistolni (SKP) i dijastolni (DKP) krvni pritisak pre i nakon jednokratne HD. Ispitanici na antihipertenzivnoj terapiji kao i oni sa predijaliznim vrednostima SKP ≥140 mmHg su smatrani hipertenzivnim (HTA; n=17), dok su ostali bili normotenzivni (non-HTA; n=11). U odnosu na non-HTA, pacijenti HTA grupe su bili značajno mlađi (69.0 v.s. 56.0 godina; p=0.006). Predijalizni uzorci grupa se nisu međusobno razlikovali u pogledu broja leukocita (p=0.778) ni koncentracije CRP-a (p=0.090). Predijalizna aktivnost MPO je bila značajno veća kod HTA nego kod non-HTA grupe (18.9 v.s. 11.7 U/L; p=0.016), kao i koncentracija hidroperoksida (9.08 v.s. 7.57 mol/L; p=0.041). Predijalizna aktivnost MPO je značajno korelirala sa hidroperoksidima (rho=0.435; p=0.024), i sa SKP (rho=0.452; p=0.019), ali ne i sa DKP (rho=0.185; p=0.337). Analizom ROK krive je utvrđeno da predijalizna aktivnost MPO > 17.9 U/L sa 58,8% senzitivnosti i 90,9% specifičnosti (cut-off = 17,9 U/L; površina ispod krive PIK=0,773; p=0,0020) diskriminiše pacijente po navedenom kriterijumu HTA. Iako je jednokratna HD za oko 3,5 puta povećala aktivnost MPO seruma, nije postojala razlika u odnosu na HTA status. Ovi rezultati pokazuju da je predijalizna aktivnost serumske MPO značajan prediktor HTA pacijenata sa HBI i korelira sa sistemskim oksidacionim stresom.

P030
SERUM MYELOPEROXIDASE ACTIVITY AND HYPERTENSION IN PATIENTS UNDERGOING MAINTENANCE HEMODIALYSIS

Dijana Mirić[1], Bojana Kisić[1], Marko Mirić[2]

[1]Faculty of Medicine Priština (Kosovska Mitrovica),
[2]State University Novi Pazar, Serbia

Myeloperoxidase (MPO; EC 1.11.1.7) is a pro-oxidant enzyme of the polymorphonuclear phagocytes and a significant predictor of the arterial blood pressure. This study investigated the relationship between MPO activity and blood pressure in the end-stage renal disease patients (ESRD) on maintenance hemodialysis treatment (HD). Serum MPO activity, concentrations of CRP and organic hydroperoxides, as well as systolic (SBP) and diastolic blood pressure (DBP), were measured in 28 ESRD patients before and after a single HD session. Patients on antihypertensive medication and those with predialytic SBP ≥140 mmHg were considered to be hypertensive (HTA; n=17), while others comprised the non-HTA group (n=11). In comparison to non-HTA, the patients from HTA group were younger (69.0 v.s. 56.0 years in non-HTA and HTA, respectively; p=0.006), while the groups did not significantly differ regarding the leukocyte count (p=0.778) and CRP (p=0.090). Predialytic MPO activity (18.9 v.s. 11.7 U/L; p=0.016) and organic hydroperoxide levels (9.08 v.s. 7.57 mol/L; p=0.041) were higher in HTA than in non-HTA group. Predialytic MPO activity significantly correlated with the organic hydroperoxides (rho=0.435; p=0.024) and SBP ((rho=0.452; p=0.019), but not with DBP (rho=0.185; p=0.337). The ROC curve analysis showed that predialytic MPO > 17.9 U/L with 58.8% sensitivity and 90.9% specificity (cut-off = 17.9 U/L; the area under the curve AUC=0.773; p=0.0020) discriminated the patients according to aforementioned HTA criterion. In comparison to predialytic, the post-dialytic serum MPO was approximately 3.5 fold increased, although there was no relationship with HTA status, or with postdialytic concentration of the organic hydroperoxides. These results suggest that only predialytic serum MPO activity may serve as a predictor of HTA in ESRD patients under going HD treatment, which correlates with the systemic oxidative stress.

P031
POREŠENJE JAFFE-OVE KINETIČKE I ENZIMSKE METODE ZA ODREĐIVANJE KONCENTRACIJE KREATININA U SERUMU

Flora Đorđević-Koković

Biohemijsko-hematološka laboratorija,
Gradski zavod za bolesti pluća i TBC,
Beograd, Srbija

Cilj rada je poređenje rezultata enzimske i Jaffe-ove metode na uzorcima seruma sa širokim opsegom koncentracija kreatinina (36–1470 μmol/L) da bi se videlo da li postoje razlike u rezultatima ovih metoda i, ako postoje, da li su stalne i proporcionalne. Ispitivanje je obuhvatilo 120 ispitanika kojima je određena koncentracija kreatinina u serumu na biohemijskom analizatoru ILab*Aries* sa IL-ovim reagensima za enzimsku i *Jaffe*-ovu metodu. Kalibracija metoda učinjena je istim IL-ovim standardom Referril G, a za proveru tačnosti korišćene su komercijalne kontrole SeraChem® Level 1 i 2 istog proizvođača. Statistička obrada rezultata urađena je Passing-Bablok-ovom regresionom analizom, pomoću programa MedCalc 12.2.1.0. Dobijena regresiona jednačina (y= –24,1980 +1,0720 x) pokazuje linearnu zavisnost između vrednosti kreatinina dobijenih pomoću ove dve metode. Za Cusum test linearnosti P = 0,25. Na osnovu 95% CI za odsečak A (–26,2 do –22,7) i nagib B (1,06–1,08) može se zaključiti da između ove dve metode postoji značajna, konstantna, neproporcionalna razlika. Kod Bland-Altmanove analize, 95% granice podudaranja srednjih razlika bile su od –67,6 do 61,3 s tim da su postojala i merenja koja su van ± 1,96 SD. Navedene metode pokazale su sličnu dijagnostičku tačnost u određivanju koncentracije kreatinina, ali uz različite referentne vrednosti, pa klinička odluka treba da se zasniva na referentnim vrednostima za pojedinu metodu, obzirom da se u nižim i normalnim koncentracijama dobijaju manji rezultati za enzimsku metodu, a u visokim koncentracijama viši u odnosu na Jaffe-ovu metodu.

P031
COMPARISON OF KINETIC JAFFE'S METHOD AND ENZYMATIC METHOD FOR DETERMINATION OF SERUM CREATININE

Flora Đorđević-Koković

Biochemical-Hematological laboratory,
City Institute for Lung Disease and TBC,
Belgrade, Serbia

The study was aimed at comparing the results of the enzymatic and Jaffe's method on the serum samples with wide range of creatinine concentrations (36–1470 μmol/L) in order to find any differences between these two methods, and if found, whether they would be constant and proportional. The study included 120 subjects in whom serum creatinine concentrations were determined using ILab*Aries* biochemistry analyzer with IL reagents for enzymatic and Jaffe's methods. Method calibration was performed with the same IL standard Referil G while the accuracy was verified using the commercial controls SeraChem® Level 1 and 2 of the same manufacturer. Statistical analysis of the results was performed by Passing-Bablok regression analysis using MedCalc 12.2.1.0 software. The obtained regression equation (y=–24.1980+1.0720 x) showed linear dependence between the creatinine values obtained by these two methods. P = 0.25 was obtained for Cusum linearity test. Based on 95% CI for intercept A (–26.2 to 22.7) and slope B (1.06–1.08), it could be concluded that significant, constant, non-proportional difference between these two methods was present. In Bland-Altman analysis, 95% limits of agreement of the mean differences ranged from 67.6 to 61.3, with the presence of measurements beyond ± 1.96 SD. The above methods revealed similar diagnostic accuracy in determination of the serum creatinine concentrations, however, with different reference values; accordingly, clinical decision should be based on the reference values for each method since in case of lower and normal concentrations, the results obtained for the enzymatic method were lower, while in case of higher concentrations, they were higher in comparison to the Jaffe's method.

P032
DOKAZIVANJE PRISUSTVA ANTITELA NA HELICOBACTER PYLORI KOD PACIJENATA SA POZITIVNIM ^{13}C-UREA IZDISAJNIM TESTOM

Ana Vuksanović[1], Mirjana Sarkić[1], Svetlana Simić[1], Svetlana Obradović[1]

[1]Zavod za laboratorijsku dijagnostiku »Biomedica«, Beograd, Srbija

Brojna epidemiološka istraživanja potvr dila su da je Helicobacter pylori infekcija izrazito raspr ostranjena u svetu. P rocenjuje se da je ovom bakterijom zaraženo oko 50% svetske populacije. P revalenca infekcije varira i kreće se od 20–50% u razvijenim zemljama, dostižući čak 80–90% u zemljama u razvoju. Iako kod velikog broja inficiranih ne dolazi do pojave simptoma oboljenja, dokazano je da H . pylori infekcija ima važnu ulogu u etiopatogenezi želudačnog i duodenalnog ulkusa, a takođe je svrstana u kar cinogene prvog reda za nastanak kar cinoma želuca. Za otkrivanje infekcije razvijeni su br ojni dijagnostički postupci. Naše istraživanje bilo je usmereno na ispitivanje mogućnosti otkrivanja H . pylori infekcije ser ološkim testovima (IgG, IgA At) kod pacijenata kod kojih je ^{13}C-urea izdisajni test bio pozitivan. K od 30 pacijenata koji su pr vi put utvrđivali H . pylori status i kod kojih je ^{13}C-urea izdisajni test bio pozitivan (Diabact UBT ^{13}C-urea breath test) odr eđena su H . pylori IgG At (SIEMENS, CLIA metoda) i H. pylori IgA At (VIRION, ELISA metoda). Povećan nivo IgG At na H. pylori imalo je 28 pacijenata (93,3%), dok je po - većan nivo IgA At imalo 29 pacijenata (96,67%). Kod samo jednog pacijenta kod koga je infekcija dokazana izdisajnim testom, ona nije dokazana ser ološkim testiranjem, tj. nivoi i IgG i IgA At su bili u granicama referentnih vrednosti. Rezultati istraživanja ukazuju na to da u primar noj dijagnostici H . pylori infekcije serološke metode mogu biti gotovo jednako pouzdane kao i izdisajni test. Ipak, treba reći da je za potvrdu eradikacije infekcije nakon te rapije mnogo pouzdaniji izdisajni test, jer je u slučaju uspešne terapije odmah negativan, dok nivo At u ser umu postepeno opada u periodu od nekoliko meseci.

P032
THE SEROLOGIC TESTING OF HELICOBACTER PYLORI INFECTION IN PATIENTS WITH POSITIVE ^{13}C-UREA BREATH TEST

Ana Vuksanović[1], Mirjana Sarkić[1], Svetlana Simić[1], Svetlana Obradović[1]

[1]Institute for Laboratory Diagnostics »Biomedica«, Belgrade, Serbia

Numerous epidemiological studies have proved that Helicobacter pylori infection is extr emely widespread in the world. It is estimated that ar ound 50% of population is infected by this micr oorganism. Prevalence of this infection varies and ranges fr om 20% to 50% in developed countries, to 80%-90% in developing countries. Although high pr oportion of the infected population does not show the signs of infection, it is proved that H. pylori has an important role in the etiopathogenesis of the gastric and duodenal ulcer. It has been also r ecognized as class I gastric carcinogen. Several techniques have been developed to diagnose H . pylori infection. Our r esearch has been focused on possibility of identifying H.p. by using the ser ological tests (IgG, IgA At) in patients whose ^{13}C-urea breath test was positive. In 30 patients who were tested for H. pylori for the first time and whose ^{13}C-urea test was positive (Diabact UBT ^{13}C-urea breath test), H. pylori IgG Ab and H . pylori IgA Ab wer e measured using the CLIA method (SIEMENS) and the ELISA method (VIRION), respectively. Increased level of H . pylori IgG Ab was found in 28 patients (93.3 %), whilst 29 patients (96.67%) had increased level of H . pylori IgA Ab. Only one patient whose infection was confirmed by breath test had no increased levels of H. pylori IgG and IgA Ab. The results of the research indicated that, in primary diagnostics of H . pylori infection, the ser ological methods could be almost equally r eliable (96.67%) as ^{13}C-urea breath test. It should be em phasized that, for confirming the eradication of H. pylory infection after therapy, the breath test proves to be mor e reliable since it yields immediate negative r esults in case of successful treating while the level of antibodies gradually declines during few months.

P033
ISPITIVANJE U^ESTALOSTI SEKSUALNO PRENOSIVIH PATOGENA U UZORCIMA CERVIKALNOG/URETRALNOG BRISA I URINA POMO}U MULTIPLEKS PCR-A

Mirjana Stanojević[1], Snežana Stanojković[1], Nebojša Tačević[1], Jelena Đurović, Gorana Stamenković[1,2]

[1]Zavod za laboratorijsku dijagnostiku »Biomedica«, Beograd, Srbija
[2]Institut za biološka istraživanja »S. Stanković«, Univerzitet u Beogradu, Beograd, Srbija

Za identifikaciju seksualno pr enosivih bolesti (SPB) urogenitalnog trakta danas su u širokoj upotrebi PCR metode direktne detekcije genoma patogena, zbog njihove visoke senzitivnosti i specifičnosti (>95%). Cilj ovoga rada je bio da se utvrdi učestalost 6 seksualno prenosivih patogena (Human Papillomavirus – HPV, Chlamydia trachomatis, Neisseria gonorrhoeae, Herpes Simplex virus – HSV 1 i 2, Mycoplasma hominis i Ur eaplasma urealitycum) u uzor cima cervikalnog/uretralnog brisa i urina primenom metode multipleks PCR-a. Ispitivana populacija obuhvata 102 uzoraka: kod osoba muškog pola je ana - lizirano 32 uzorka uretralnog brisa i 31 uzorak urina, a kod osoba ženskog pola je analizirano 34 uzorka cervikalnog brisa i 5 uzorka urina. U našoj ispitivanoj grupi najučestalije infekcije su bile: HPV (13 ispita - nika, 12,7%) i Ureaplasma urealitycum (8 ispitanika, 7,8%). HSV i Neisseria gonor rhoeae nisu identifikovane a Chlamydia trachomatis (3 uzorka) i Myco - plasma hominis (2 uzorka) su bile r etke. Mešovite infekcije su detektovane kod 4 ispitanika (HPV sa Ureaplasma urealitycum i HPV sa Mycoplasma ho - minis). U odnosu na tip uzorka, 16 uzoraka brisa i 6 uzoraka urina su sadržali neki od ispitivanih patogena. Uspešnom amplifikacijom unutrašnje pozitivne kontrole pokazano je da su uzor ci urina po ćelijskom sadržaju siromašniji ali adekvatni za identifikaciju SPB. Međutim, definitivni zaključak o senzitivnosti multipleks PCR u uzor cima urina, može se doneti nakon paralelnog uzorkovanja i analize prisustva pa - togena kod cervikalnog/uretralnog brisa u odnosu na urin, što je predmet našeg daljeg ispitivanja.

P033
SCREENING OF SEXUALLY TRANSMITTED INFECTIONS IN CERVICAL/URETHRAL SWABS AND URINE SAMPLES BY MULTIPLEX PCR

Mirjana Stanojević[1], Snežana Stanojković[1], Nebojša Tačević[1], Jelena Đurović, Gorana Stamenković[1,2]

[1]Institute for Laboratory Diagnostics »Biomedica«, Belgrade, Serbia
[2]Institute for Biological Research »S. Stanković«, University of Belgrade, Belgrade, Serbia

Sexually transmitted diseases (STD) of the ur ogenital tract ar e widely scr eened by highly sensitive and specific PCR detection of pathogen genomes. The aim of this study was to deter mine the frequency of six sexually transmitted pathogens (Human Papillomavirus – HPV, Chlamydia trachomatis, Neis - seria gonorrhoeae, Herpes Simplex vir us – HSV 1 and 2, Mycoplasma hominis and Ur eaplasma urealyticum) in cer vical/urethral swabs and urine samples by multiplex PCR. The study population included 102 samples: 32 samples of ur ethral swab and 31 male urine samples; 34 cer vical swabs and 5 female urine samples. The most fr equent infections in our examined group were HPV (13 patients, 12.7%) and Ureaplasma urealyticum (8 patients, 7.8%). HSV and Neisseria gonorrhoeae have not been identified. Chlamydia trachomatis (3 samples) and Mycoplasma hominis (2 samples) were very rare. Mixed infections were detected in 4 patients (HPV with Ur eaplasma urealyticum in 3 patients fr om cervical swabs and HPV with Mycoplasma hominis in one male urine sample). Regarding the sample type, 16 samples of swabs and 6 samples of urine contained some of the examined pathogens. Amplification of the inter nal positive control showed that urine samples in comparison to swabs had smaller number of cells but still enough for pathogen detection. Definitive conclusions of multiplex PCR sensitivity in the urine samples can be made after the pathogen analysis in the same individual: cervical/urethral swabs vs. urine samples, which are the subject of our further investigation.

P034
LEPTIN I BMI KAO PARAMETRI ZA PROCENU KOLI^INE MASNOG TKIVA U ORGANIZMU I DIJAGNOZU GOJAZNOSTI

Mina Jankes[1], Mirjana Stanojević[1], Mirjana Pantić[1]

[1]Zavod za laboratorijsku dijagnostiku »Biomedica«, Beograd, Srbija

Gojaznost je rastući zdravstveni pr oblem koga karakteriše povećanje masne mase tela. Za pr ocenu uhranjenosti koristi se indeks telesne mase (BMI), ali ovaj parametar nije dovoljan pokazatelj količine masnog tkiva u organizmu. Leptin je hormon koji se produkuje prvenstveno u adipocitima i ima važnu ulogu u regulaciji telesne mase. Povećanjem veličine adipocita usled akumulacije triglicerida povećava se i pr odukcija leptina. K od gojaznih osoba su zabele žene više koncentracije leptina nego kod osoba sa normalnom telesnom masom. U ovoj studiji odr eđivani su BMI i koncentracija leptina u kr vi kod 42 pacijenta. BMI je određivan na osnovu vr ednosti težine i visine pacijenata, a koncentracija leptina je odr eđivana ELISA testom (Leptin SENSITIVE ELISA, Mediagnost, Germany). BMI se izražava u kg/m^2, a koncentracija leptina u ng/mL. U kontrolnoj grupi od 13 pacijenata sa BMI 18,5–25 kg/m ^{2}, 11 pacijenata je imalo normalnu vrednost leptina (84,6%), dok su 2 pacijenta imala povišenu vr ednost leptina (15,4%). U grupi od ukupno 7 pacijenata sa BMI 25–30 kg/m^2, 5 pacijenata je imalo povišen nivo leptina (71,4%), dok su 2 pacijenta imala nor malan nivo leptina (28,6%). U grupi od ukupno 22 pacijenta sa BMI > 30 kg/m^2, svi pacijenti su imali povišen nivo leptina (100%). Na osnovu obrađenih podataka zaključeno je da se BMI ne može koristiti kao precizan parametar za određivanje količine masnog tkiva u or ganizmu, dok je koncentracija leptina precizniji parametar jer je leptin direktan produkt ćelija masnog tkiva.

P034
LEPTIN AND BMI AS PARAMETERS FOR ASSESSMENT OF FAT TISSUE AMOUNT IN THE BODY AND DIAGNOSIS OF OBESITY

Mina Jankes[1], Mirjana Stanojević[1], Mirjana Pantić[1]

[1]Institute for laboratory diagnostics »Biomedica«, Belgrade, Serbia

Obesity is a gr owing health problem characterized by the incr ease of body fat mass. Body mass index (BMI) is used for the assessment of nutritional status, but this parameter is not a sufficient pr edictor of body fat. Leptin is a hor mone which is pr oduced primarily in adipocytes and plays an important role in regulating the body weight. The incr ease of adipocytes in size due to accumulation of triglycerides leads to incr eased production of leptin. Over weight people have higher leptin levels than those with normal weight. This study deter mined BMI and leptin levels in 42 patients. BMI was deter mined by patient's value of height and weight, and leptin levels were determined by ELISA (Leptin Sensitive ELISA, Mediagnost, Germany). BMI is expr essed in kg/m^2, and leptin levels in ng/mL. In the control group of 13 patients with BMI 18.5–25 kg/m ^{2}, 11 patients had normal leptin levels (84.6%), while 2 patients had elevated serum leptin (15.4%). In the group of a total of 7 patients with BMI 25–30 kg/m^2, 5 patients had elevated (71.4%) and 2 patients had normal levels of leptin (28.6%). In the group of a total of 22 patients with a BMI > 30 kg/m^2, all patients had elevated levels of leptin (100%). Based on the pr ocessed data, it was concluded that BMI can not be used as an accurate parameter for deter mining the amount of body fat, while the leptin level is mor e accurate parameter because it is a dir ect product of the adipose tissue.

P035
ISPITIVANJE GENSKIH POLIMORFIZAMA POVEZANIH SA TROMBOFILIJAMA

Miodrag Čkonjović[1], Snežana Stevanović[1], Jelena Đurović, Milica Ilić[2], Gorana Stamenković[1,3]

[1]Zavod za laboratorijsku dijagnostiku »Biomedica«, Beograd, Srbija
[2]Specijalna ginekološka bolnica – Jevremova, Beograd, Srbija
[3]Institut za biološka istraživanja »S. Stanković«, Univerzitet u Beogradu, Beograd, Srbija

Urođene trombofilije se definišu kao nasledni genski polimorfizmi koji povećavaju verovatnoću nastanka tromboza. U dijagnostičke svrhe najčešće se ispituju polimorfizmi genskih lokusa: FV G1691A (FV Leiden), FII G20210A, MTHFR C677T i PAI-1 -675 4G/5G. Cilj ove studije bio je utvrđivanje prisustva visoko rizičnih alela navedenih gena kod osoba kod kojih postoje indikacije za nastanak trombоza i žena kod kojih su se javljali spontani pobačaji i komplikacije tokom trudnoće. Genomska DNK je izolovana iz pune krvi, a genski polimorfizmi su identifikovani alel specifičnom hibridizacijom pomoću Real Time PCR. Od 81 analiziranog uzorka (71 uzorak od osoba ženskog pola i 10 uzoraka od osoba muškog pola), 48 genoma (59,3%) su imali jedan ili više rizičnih alela (43 žena i 5 muškaraca). Učestalost FV Leiden heterozigota (G1691A) iznosila je 2,9% (2 uzorka) i homozigota 1,4% (1 uzorak). Rizični alel FII 20210A javio se samo kod jednog uzorka u heterozigotnom obliku (1,4%). Učestalost heterozigota za MTHFR lokus 677 iznosio je 47,9% (34 uzorka), a homozigota 11,3% (8 uzoraka). Od 8 analiziranih uzoraka za lokus -675 PAI-1 gena, heterozigot je detektovan kod 7 uzoraka (-675 4G/5G), a u homozigotnom obliku (-675 4G/4G) je identifikovan 1 uzorak. Od 30 pacijentkinja sa komplikacijama tokom trudnoće i pojavom spontanih abortusa, kod 18 (60%) je identifikovano prisustvo jednog ili više visoko rizičnih alela FII, FV, MTHFR i PAI-1. Dobijeni rezultati pokazuju da je pojava visoko rizičnih alela kod ispitivanih gena u korelaciji sa rizikom za razvoj trombofilija. Analiza gena odgovornih za razvoj trombofilija omogućava prevenciju oboljenja, a primena modela individualizacije terapije može dovesti do značajnog poboljšanja u lečenju antikoagulantnim lekovima, što je predmet našeg daljeg istraživanja.

P035
EXAMINATION OF GENETIC POLYMORPHISMS ASSOCIATED WITH THROMBOPHILIA

Miodrag Čkonjović[1], Snežana Stevanović[1], Jelena Đurović, Milica Ilić[2], Gorana Stamenković[1,3]

[1]Institute for Laboratory Diagnostics »Biomedica«, Belgrade, Serbia
[2]Special Gynecological Hospital – Jevremova, Belgrade, Serbia
[3]Institute for Biological Research »S. Stanković«, University of Belgrade, Belgrade, Serbia

Congenital thrombophilia is defined as the hereditary genetic polymorphism that increases the probability of thrombosis. The polymorphisms of the gene loci: FV G1691A (FV Leiden), FII G20210A, MTHFR C677T and PAI-1 -675 4G/5G are usually examined for diagnostic purposes. The aim of this study was to determine the presence of these high-risk alleles of genes in individuals in whom there is an indication for the occurrence of thrombosis and women who reported miscarriages and complications during pregnancy. Genomic DNA was isolated from the whole blood, and genetic polymorphisms were identified by allele-specific hybridization using Real Time PCR. Out of 81 samples (71 samples from female and 10 samples from male patients), 48 genomes (59.3%) had one or more risk alleles (43 women and 5 men). The frequency of FV Leiden heterozygotes (G1691A) and homozygotes was 2.9% (2 samples) and 1.4% (1 sample), respectively. The risky allele FII 20210 appeared in only one sample in heterozygous form (1.4%). The frequency of heterozygotes for the MTHFR 677 locus was 47.9% (34 samples), and homozygotes 11.3% (8 samples). Out of 8 samples analyzed for the -675 locus of PAI-1 gene, heterozygote was detected in 7 samples (-675 4G/5G), and homozygote in 1 sample (-675 4G/4G). Out of 30 female patients with complications during pregnancy and the incidence of spontaneous abortion, 18 (60%) were identified to have one or more high-risk alleles FII, FV, MTHFR and PAI-1. The results showed that the incidence of high-risk alleles in the studied genes correlated with the risk of thrombophilia. The analysis of the genes responsible for development of thrombophilia enables the prevention of disease, and the use of therapy individualization model can lead to significant improvements in treatment of the anticoagulant drugs, which is the subject of our further research.

P036
ARHIVIRANJE UZORAKA DAVALACA KRVI KAO PARAMETAR KVALITETA

Marija Romić, Milica Jovičić

Institut za transfuziju krvi Srbije, Beograd, Srbija

Pravilnik o pokazateljima kvaliteta zdravstvene zaštite, objavljen u »Sl. glasniku RS«, br. 57/07, osim obaveznih preporuka, kao što su nacionalni kriterijumi koji se odnose na selekciju davalaca krvi, evidenciju broja prikupljenih jedinica krvi prema strukturi kese, prosečan broj laboratorijskih analiza davalaca, procenat namenskih (porodičnih) davanja krvi, primena upitnika za davaoce krvi, primena nacionalnih vodiča za terapiju komponentama krvi i dr., definiše i preporuke koje bi trebalo da prate instituti, zavodi i službe za transfuziju krvi, a to su: izveštavanje o sveukupnom broju trombocita prikupljenih trombocitaferezom, izveštavanje o ukupnom broju deljenih pedijatrijskih doza eritrocita, izveštavanje o ukupnom broju deljenih pedijatrijskih doza zamrznute sveže plazme i preporuka vezanih za tačku 4. 'Arhiviranje uzoraka plazme dobrovoljnih davalaca krvi'. Ovaj parametar kvaliteta se od 2007. godine primenjuje u Institutu za transfuziju krvi Srbije. Redovno se izdvajaju i zamrzavaju uzorci svih davalaca krvi, tako da su dostupni ukoliko se posumnja ili eventualno naknadno potvrdi mogućnost prenosa transfuzijski prenosivih infektivnih bolesti. Na ovaj način moguće je proveriti sledljivost svih doza krvi i krvnih komponenata od davalaca do svih primaoca komponenata krvi. Koristeći barkod sistem, moguće je utvrditi gde je neka doza krvi ili krvih komponenata primenjena, tako da je omogućeno praćenje neželjenih reakcija ili događaja, što obuhvata sistem hemovigilance, koji je definisan u obaveznim preporukama istog pravilnika.

P036
ARCHIVING PLASMA SAMPLES OF VOLUNTARY BLOOD DONORS AS A PARAMETER OF THE QUALITY

Marija Romić, Milica Jovičić

Blood Transfusion Institute of Serbia, Belgrade, Serbia

Regulations on health care quality indicators, released in the »Official Gazette of RS«, no. 57/07, except for the required recommendations, such as national criteria related to selection of blood donors, a record number of units of blood collected by purse structure, an average number of laboratory analyses of donors, a percentage of special-purpose (family) blood donations, a questionnaire for blood donors, an application of national guidelines for blood component therapy, etc., define the recommendations which should be followed by the institutes and blood transfusion services such as: reporting on the overall number of platelets collected by thrombocytapheresis, on the total number of distributed pediatric doses of erythrocytes, on the total number distributed pediatric doses of fresh frozen plasma, and recommendations related to item 4 'Archiving plasma samples of voluntary blood donors'. This parameter of quality has been applying at the Institute for Blood Transfusion of Serbia since 2007. The samples of all blood donors are regularly sorted out and frozen, so that they would be available if there was any suspicion or probable subsequent confirmation of transfusion-transmitted infectious diseases. In this way, it is possible to check the traceability of all blood donations and blood components from donors to recipients of blood components. The use of bar code system can identify where the dose or blood components have been applied ,thus allowing the monitoring during undesired reactions or events, what is all included in hemovigilance system, which is defined in the mandatory recommendations of the same Directive.

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SPECIFI^NOST NALAZA NA AUTOMATSKIM HEMATOLO[KIM BROJA^IMA KOD AUTOIMUNIH HEMOLIZNIH ANEMIJA – PRIKAZ KLINI^KOG SLU^AJA

Svetlana Kovačević, Aleksandra Arsić

Zdravstveni centar Kruševac, Srbija

Autoimune hemolizne anemije nastaju kao posledica prisustva u plazmi auto-antitela koja reaguju sa antigenima sopstvene eritrocitne membrane, izazi-

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SPECIFICITY OF RESULTS OF THE AUTOIMMUNE HEMOLYTIC ANEMIA ON AUTOMATED HEMATOLOGICAL COUNTER – A CASE REPORT

Svetlana Kovačević, Aleksandra Arsić

Medical Center Kruševac, Serbia

Autoimmune hemolytic anemia is the result of the autoantibodies in plasma which react with the antigens of their own erythrocyte membrane, causing

vajući oštećenje i hemolizu eritr ocita.U slučaju ove vrste anemije zbog aglutinisanih eritr ocita dolazi do pojave artefakata-lažno sniženog broja eritrocita i povišenog MCV, sniženog Hct i povišenog MCH i MCHC. Uzorci venske krvi sa K_2EDTA antikoagulansom obrađeni su na automatskom hematološkom analajzeru ADVIA 120®. Prikaz slučaja: Bolesnica RD, stara 78 godina, hospitalizovana zbog opšte slabosti i malaksalosti. Radi se o pacijentkinji koja boluje od autoimune hemolizne anemije od 2009.god., pored toga boluje i od Diabetes Mellitus-a tip 2.U nalazu krvne slike uočeno je neslaganje između broja eritrocita i konc. Hgb, snižen Hct kao i visoki MCV , MCH i MCHC (Er 0.44×10^9/L, Hgb 67 g/L, Hct= 3.6%, MCV=101.2fl, MCH=219.8 pg, MCHC= 2173 g/L). Izbr ojani su eritr ociti standardnom metodom u komori i napravljen je kr vni razmaz, gde su uočeni aglutinati eritrocita. Broj eritrocita izbrojan u komori iznosio je 1.9×10^9/L, i sa tim brojem izdat rezultat. Coombs-ov test bio je izrazito pozitivan. Bolesnica je tr etirana sa visokim dozama kortiko - steroida, uz insulinsku terapiju, ali se kr vna slika nije popravila pa je uveden Imuran. Krvna slika se popravila (Er=2.5×10^9/L, Hgb=78 g/L), pa je uz dobr o opšte stanje puštena kući na dalje lečenje. Iz pri kazanog kliničkog slučaja izvodi se zaključak o spe cifičnosti nalaza kr vne slike na hematološkim br ojačima kod ove vrste anemije, usled prisutnih aglutinata eri - trocita, i neophodnost brojenja eritrocita u komori, tzv. »ručnom« metodom, kao i izrade kr vnog razmaza.

the damage and hemolysis of erythrocytes. In case of this type of anemia, falsely lower ed number of er ythrocytes and higher MVC, lower ed Hct and higher MCH and MCHC may be pr esent. The samples of venous blood with K_2EDTA anticoagulant were processed by automatic hematological analyzer AD VIA 120®. Case report: A patient RD, aged 78, was hospitalized for general weakness and fatigue. The patient has suffered from the autoimmune hemolytic anemia since 2009, beside that she has Diabetes Mellitus type 2. Blood count analysis showed disagreement in the number of er ythrocytes and Hgb concentration, lowered Hct and higher MCV , MCH and MCHC (RBC 0.44×10^9/L, Hgb 67 g/L, Hct= 3.6%, MCV=101.2fl, MCH=219.8 pg, MCHC= 2173 g/L). Er ythrocytes were counted by standar d method in a chamber and blood smear was pr e- pared. Agglutinated er ythrocytes were noticed. The number of erythrocytes counted in the chamber was 1.9×10^9/L, and the result was issued containing this number. Coombs test was highly positive. The patient was treated with high doses of corticoster oids, together with the insulin therapy , but blood r esults were not improved, therefore, Imuran was included. Blood results became better (Rbc=2.5×10^9/L, Hgb=78 g/L), so the patient was dischar ged in a good general condition. In this case, the conclusion may be drawn about the specificity of blood results of this type if anemia on hematological counter because of the pr esence of agglutinated er ythrocytes, and necessity to count the er ythrocytes in the chamber , manually as well as to pr epare blood smear.

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ZNA^AJTUMORSKOG MARKERA CA^{125} U TERAPIJSKOM MONITORINGU KANCERA JAJNIKA – PRIKAZ SLU^AJA

Tomislav I. Nedeljković[1], J. Nedović[1], G. Lukić[1], Z. Mijušković[2], J. Stojanović[3], S. Igumanović[4]

[1]Klinički Centar »Kragujevac«, Medicinski fakultet, Univerzitet u Kragujevcu, Srbija
[2]Vojnomedicinska Akademija – VMA, Beograd, Srbija
[3]Prirodno-matematički fakultet, Univerzitet u Kragujevcu, Srbija
[4]Kompanija bioMerieux, Beč, Austrija, Predstavništvo u Beogradu, Srbija

Kod pacijentkinje, P. M., 46 godina nakon ginekološke operacije otkriven je kancer ovarijuma PH-tipa III stepena. Nakon ginekološke operacije, paci-

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THE SIGNIFICANCE OF TUMOR MARKER CA^{125} IN THERAPEUTIC MONITORING OF THE OVARIAN CANCER – A CASE REPORT

Tomislav I. Nedeljković[1], J. Nedović[1], G. Lukić[1], Z. Mijušković[2], J. Stojanović[3], S. Igumanović[4]

[1]Clinical Center Kragujevac, Medical Faculty, University of Kragujevac, Serbia
[2]Military Medical Academy – MMA, Belgrade, Serbia
[3]Faculty of Science, University of Kragujevac, Serbia
[4]Company bioMerieux, Vienna, Austria, Representative in Belgrade, Serbia

A female patient, P. M., 46 years old, af ter the gynecological operation was diagnosed with the ovarian cancer PH-type grade III. F ollowing the sur gery,

jentkinja je patila od nespecifičnih gastrointestinalnih simptoma, no u istoriji bolesti egzistirale su česte urinarne infekcije i policistični ovarijumi (u 45. g.). TUM CA 125 je određivan pomoću imunohemijske metode – ELFA tehnikom, na aparatu VIDAS, kompanije bioMerieux. U jednom trenutku vrednost je bila 34.5 U/mL. Pacijentkinja je imala nešto povećan indeks telesne mase (BMI), povećan S-holesterol, ali i povećanu aktivnost S-amilaze (S-AMY), ubrzanu sedimentaciju eritrocita (SE) i takođe povećan S-CRP. Godinu dana kasnije (46.g.) imala je česta ginekološka krvavljenja, loše hemato-hemostazne parametre i eksplozivno povećanje TUM CA 125 do 118 U/mL, što je ukazivalo je na potrebu za ozbiljnijim ginekološkim ispitivanjima, koja su dovela do radikalne operacije GO. Pacijentkinja je potom uključena u novu hemioterapijsku proceduru (ChP) u našoj Ustanovi. Posle godinu dana, ChP (47. g.) vrednosti TUM CA 125 su bile 4–7 U/mL (RV<35 U/mL), BMI je još uvek nešto uvećan, S-holesterol = 5.7, a drugi laboratorijski parametri su u opsegu RV, izuzev SE=24 za prvi sat i S-CRP=5.3 (RV<5.0). Naš slučaj pokazuje veliki značaj TUM CA 125 u terapijskom monitoringu kancera ovarijuma. TUM CA 125 je određivan pomoću imunohemijske metode – ELFA tehnikom, na aparatu VIDAS, kompanije bioMerieux. Značaj CA 125 je takođe i u monitoringu kancera dojke, zajedno sa CA 15-3, a takođe i kod malignih limfoma, uključujući i muške pacijente kao što pokazuju novi radovi.

the patient was suffering from the unspecified gastrointestinal symptoms, but her medical history showed often urinary infections and polycystic ovaria (in her 45 years of age.). TUM CA 125 was determined by immunochemical method – ELFA technique on apparatus VIDAS, Company bioMerieux. Determination of tumour marker (TUM) CA 125 showed values within reference limits (RV<35 U/mL), but in one moment the respective value was 34.5 U/mL. The patient had slightly increased body mass index (BMI), increased S-cholesterol, as well as an increased activity of S-amylase (S-AMY), higher erythrocytes sedimentation rate (ESR) and increased S-CRP, too. A year later (46 yrs.) she had often gynecological bleedings, poor hemato-hemostasis parameters and explosive increase of TUM CA 125 to 118 U/mL, what required serious gynecological examinations, which led to radical surgery. The patient was then included in new chemotherapeutic procedure in our Institution. One year after the therapy (47 yrs.), the values of TUM CA 125 were 4–7 U/mL (RV<35 U/mL), BMI was still slightly increased, S-cholesterol =5.7 and other laboratory parameters were within RV, except ESR=24 in first hour and S-CRP=5.3 (RV<5.0). Our case showed great significance of TUM CA 125 in therapeutic monitoring of the ovarian cancer. Its importance is reflected in monitoring of the breast cancer, together with CA 15-3 and in malignant lymphomas, including the male patients as shown by some new articles.

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STATUS UKUPNOG VITAMINA D KOD PACIJENATA SA DIABETES MELLITUSOM I MOGUĆA POVEZANOST SA NISKIM NIVOIMA PANKREASNE ELASTAZE U FECESU

Ranka Kangrga[1], Snežana Jovičić[1], Tamara Kovačević, Svetlana Ignjatović[1,2], Nada Majkić-Singh[1,2]

[1]Centar za medicinsku biohemiju, Klinički centar Srbije, Beograd, Srbija
[2]Farmaceutski fakultet, Univerzitet u Beogradu, Srbija

U pankreasu su Langerhansova ostrvca rasuta unutar egzokrinog pankreasnog tkiva sa kojim ostvaruju blizak kontakt putem ostrvca-acinusi portalnog sistema. Određivanje pankreasne elastaze (PE) se široko koristi u ispitivanju disfunkcije egzokrinog dela pankreasa. Postoje ubedljivi dokazi da vitamin 1,25-(OH)2D reguliše funkciju β-ćelija različitim mehanizmima, kao što je uticaj na sekreciju insulina putem

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TOTAL VITAMIN D STATUS IN PATIENTS WITH THE DIABETES MELLITUS AND POSSIBLE ASSOCIATION WITH LOW LEVELS OF THE PANCREATIC ELASTASE IN THE FECES

Ranka Kangrga[1], Snežana Jovičić[1], Tamara Kovačević, Svetlana Ignjatović[1,2], Nada Majkić-Singh[1,2]

[1]Center for Medical Biochemistry, Clinical Center of Serbia, Belgrade, Serbia
[2]Faculty of Pharmacy, University of Belgrade, Serbia

In pancreas, the cells of Langer hans islets are scattered within the exocrine pancreatic tissue achieving close contact via islet-acinar portal system. The measurement of pancreatic elastase (PE) in feces is used widely for screening of the pancreatic exocrine dysfunction. There is a convincing evidence that vitamin 1,25-$(OH)_2$D regulates β-cell function by various mechanisms, such as the effect on insulin

regulacije intracelularnih nivoa Ca^{2+}, povećanje rezistencije β-ćelija na apoptozu i ver ovatno povećanje replikacije β-ćelija. Ispitivali smo pr evalenciju nedovoljnih koncentracija ukupnog vitamina D kod pacijanata sa diabetes mellitusom (DM) i ver ovatnu povezanost niskih nivoa PE u fecesu sa neodgovarajućim nivoima ukupnog vitamina D, kao merom kvalitativne malnutricije. Ispitivana je populacija od 24 pacijenta sa tipom 1 i tipom 2 DM. Rad je takođe uključio kontrolnu grupu koju su činila 24 zdrava dobrovoljca. PE je određivana ELISA tehnikom korišćenjem monoklonskih antitela (ScheBo Biotech, Giessen, Germany), dok su koncentracije ukupnog vitamina D određivane elektrohemiluminiscentnom tehnologijom na analizatoru Cobas e601 (R oche Diagnostics, W iesbaden, Germany). U odnosu na kontr olnu grupu, pacijenti sa DM su imali značajno niže vr ednosti (Student t-test, $P<0,05$) ukupnog vitamina D ($\bar{x}$: 16,7 vs. 26,1 μg/L) i PE ($\bar{x}$: 426 vs. 715 μg/g fecesa). U gr upi pacijenata sa DM, 68% ispitanika sa tipom 2 DM je imalo ukupni vitamin D manji od 20 mg/L, dok je taj udeo bio 50% među pacijentima sa tipom 1 DM. Ispitivali smo postojanje i nivo povezanosti između nivoa PE i ukupnog vitamina D korišćenjem Spear manove neparametarske kor elacione analize. Nije nađena značajna povezanost ($P=0,158$). Naši r ezultati su u skladu sa značajno nižim nivoima ukupnog vitamina D kod pacijenata sa DM. Moguće je da se ovaj rezultat može objasniti gubitkom pankr easne egzokrine funkcije, koja je nađena kod velikog pr ocenta pacijenata sa DM. Supstituciona terapija vi taminom D se tr eba razmatrati u kontekstu br ojnih studija koje povezuju deficijenciju vitamina D sa patofiziologijom DM.

secretion through the regulation of intracellular Ca^{2+} levels, increased resistance to β-cell apoptosis and likely increase of β-cell replication. We examined the prevalence of insufficient concentrations of total vitamin D in patients with the diabetes mellitus (DM) and possible association between low levels of PE in the feces and inadequate levels of the total vitamin D, as a measure of qualitative malnutrition. The study population consisted of cohort of 48 patients with type 1 and type 2 diabetes mellitus. Study also included the control group that consisted of 24 healthy volunteers. PE was deter mined by ELISA method, using the monoclonal antibody (ScheBo Biotech, Giessen, Germany), while the total vitamin D concentration in serum was assayed by electr ochemiluminescence technology on Cobas e601 analyzer (R oche Diagnostics, Wiesbaden, Germany). Compared to the control group, the patients with DM had significantly lower values (Student t-test, $P<0.05$) of total vitamin D ($\bar{x}$: 16.7 vs. 26.1 μg/L) and PE ($\bar{x}$: 426 vs. 715 μg/g stool). In the gr oup of patients with DM, 68% of subjects with type 2 DM had a total vitamin D lower than 20 mg/L, while this shar e was 50% among patients with type 1 DM. The existence and degree of correlation was examined between the levels of PE and total vitamin D, using the Spear man nonparametric correlation analysis. No significant correlation was found ($P=0.158$). Our r esults were consistent with significantly lower levels of total vitamin D in patients with DM. Such result may probably be explained by the lack of pancreatic exocrine function, which is a common condition in patients with DM. The vitamin D r eplacement therapy should be considered in the context of numerous studies which associated vitamin D deficiency with pathophysiology of DM.