

P02 – Kardio- i cerebrovaskularne bolesti

P02-1 (Usmeno priopćenje)

Utjecaj koncentracije feritina i CRP na aterogeni indeks

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Uvod: Istražili smo koncentraciju feritina i C-reaktivnog proteina (CRP) te njihovu povezanost kao biljega kardiovaskularnih bolesti.

Materijali i metode: Ispitanici su bili dobrovoljni davaoci krvi, podijeljeni u skupine prema starosti i spolu. Kao kontrolnu skupinu postavili smo trudnice. Uzorci krvi sakupljeni su venopunkturom te analizirani kako bi se odredila koncentracija feritina i CRP te se izračunao aterogeni indeks iz lipidnog profila bolesnika.

Rezultati: Izmjerali smo niže vrijednosti koncentracije feritina u podskupini plodnih žena sa statistički značajnim razlikama između skupina muškaraca i žena iste dobi, kao i kod usporedbe sa skupinom žena u menopauzi. Koncentracija feritina nije bila u statistički značajnoj vezi s koncentracijom CRP, no kod bolesnika s visokom koncentracijom feritina bilo je vjerojatnije da će im i koncentracija CRP biti visoka. Svi bolesnici s visokom koncentracijom CRP imali su i viši aterogeni indeks.

Zaključak: Naši rezultati naglašavaju važnost praćenja koncentracije feritina i CRP kao parametara koji utječu na buduće kardiovaskularne događaje.

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P02-2 (Usmeno priopćenje)

Vrijednost određivanja proteina S100 kod akutnog cerebrovaskularnog inzulta

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Uvod: Protein S100 je kiseli protein koji veže kalcij, a glavna je strukturna komponenta citosola uglavnom astrog-

P02 – Cardio- and cerebrovascular diseases

P02-1 (Oral presentation)

Influence of ferritin and CRP concentration on atherogenic index

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Introduction: We have investigated ferritin and C-reactive protein levels and their relation as cardiovascular disease risk markers.

Material and methods: Patients were blood donors, divided in groups by age and gender, and pregnant women as a control. Blood samples were collected by venepuncture, and assayed for ferritin and CRP level determination, with atherogenic index calculated from patient's lipid profile.

Results: We obtained lower ferritin values in fertile women subgroup, with significant differences between male and female groups of same age, as well as when compared to women in menopause. Ferritin levels were not significantly linked with CRP concentration, but patients with high ferritin were more likely to have high CRP concentration. At the same time, all patients with high CRP had higher atherogenic index.

Conclusion: Our results are emphasizing the importance of ferritin and CRP concentration monitoring, as parameters influencing future cardiovascular events.

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P02-2 (Oral presentation)

Protein S100 determination in acute cerebrovascular insult

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Introduction: S100 protein is acidic calcium-binding protein which is main structural component of cytosol,

lijalnih stanica. Strukturno cerebralno oštećenje dovodi do oslobađanja tog proteina u cerebrospinalnu tekućinu i krv. Cilj ove preliminarnе prospektivne studije bio je ispitati vrijednost ranog određivanja S100 proteina u akutnom cerebrovaskularnom inzultu (ICV).

Materijali i metode: Ispitano je 35 bolesnika (14 muškaraca i 21 žena) u dobi od 58 do 88 godina koji su primljeni na Kliniku za neurologiju, Kliničke bolnice Osijek sa simptomima akutnog cerebrovaskularnog inzulta (ICV). Unutar 24 sata od pojave simptoma učinjen je CT mozga te je uzet uzorak krvi. Koncentracija S100 proteina izmjerena je ECLIA metodom na Elecsys 2010 (ROCHE) imunokemijskom analizatoru. Za kontrolnu skupinu izabrana su 33 ispitanika (15 muškaraca i 18 žena) u dobi od 45 do 81 godine, koji nisu neurološki pacijenti. Usporedili smo koncentracije S100 proteina kod pacijenata s dijagnozom akutnog ICV s kontrolnom skupinom. Rezultati su obrađeni Mann-Whitney Rank Sum testom.

Rezultati: Bolesnici s akutnim ishemijskim cerebrovaskularnim inzultom imali su statistički značajnu veći medijan vrijednosti S-100 u serumu u odnosu na kontrolnu skupinu ($P = 0,002$), a manji u odnosu na pacijente s akutnim hemoragijskim cerebrovaskularnim inzultom ($P = 0,003$). Rani CT mozga potvrdio je ishemiju samo kod manjeg broja pacijenata.

Zaključak: Obzirom da se rane ishemijske promjene često ne uočavaju na CT-u u prvih 24 sata čini se da bi protein S100 mogao biti koristan serumski biljeg akutnog ishemijskog cerebrovaskularnog inzulta.

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P02-3

Povezanost koncentracije mijeloperoksidaze s dobi i spolom

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Uvod: Mijeloperoksidaza (MPO) je hemoprotein smješten u azurofilnim granulama polimorfonuklearnih neutrofila i makrofaga te izlazi u ekstracelularnu tekućinu za vrijeme upalnog procesa stvarajući oštećenja na mjestu upale. MPO je nađena u aterosklerotičnom plaku čija koncentracija ukazuje na tijek bolesti kod pacijenata s prisutnom boli u prsima. Stoga bi se MPO trebala koristiti uz povijest bolesti, EKG i srčane biomarkere kako bi pomogla pri odluci o daljnjim dijagnostičkim i terapijskim postupcima.

Cilj: Cilj ovoga rada bio je ispitati koncentraciju MPO kod zdravih ispitanika na području splitsko-dalmatinske župa-

mainly astroglia cells. Structural cerebral damage leads to releasing of that protein in cerebrospinal fluid and bloodstream. Aim of this preliminary prospective study was to investigate value of early determination of serum S-100 protein in acute ICV.

Materials and methods: 35 patients (14 men and 21 women), aged 58-88 years, admitted to Neurology Clinic of Clinical Hospital Osijek with symptoms of acute ICV were investigated. Within 24 hours from onset of symptoms on all patients we performed brain CT and collected blood sample. S100 protein concentration was measured using ECLIA method on Elecsys 2010 (ROCHE) system for immunochemical analyses. 33 subjects (15 men and 18 women), aged 45-81 years, who were not neurological patients were chosen for control group. We compared S100 concentration in acute ICV patient with those in control group. Results were analyzed with Mann-Whitney Rank Sum test.

Results: Patients with acute ischemic ICV had statistically significant higher median of S100 serum values ($P = 0.002$), compared to S100 values of control group, but lower ($P = 0.003$) compared to patients with acute hemorrhagic ICV. Early brain CT confirmed ischemic ICV only on minority of patients.

Conclusion: Considering that early ischemic changes in brain are rarely noticeable on CT within first 24 hours from onset of symptoms, it seems that determination of serum S100 could be useful in acute ischemic ICV diagnostic.

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P02-3

Correlation between concentration of myeloperoxidase with age and sex

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Introduction: Myeloperoxidase (MPO) is a hemoprotein stored in azurophilic granules of polymorphonuclear neutrophils and macrophages and released into extracellular fluid in the setting of inflammatory process and promotes oxidative damage. MPO has been detected in atherosclerotic plaques and plasma MPO levels have been shown to be a predictor of major adverse cardiac events in patients presenting with chest pain to the emergency room. Therefore MPO is to be used in conjunction with clinical history, ECG and cardiac biomarkers to evaluate patients presenting with chest pain who are at risk for

nije te utvrditi postoji li povezanost između koncentracije MPO i dobi ispitanika.

Ispitanici i metode: Odredili smo koncentraciju MPO u 73 uzorka zdravih ispitanika i to kod 33 muškarca (u dobi od 29 do 81 godine) i 40 žena (u dobi od 24 do 79 godina). Koncentraciju MPO u plazmi odredili smo kemiluminiscentnom analizom sa mikročesticama (CMIA) na analizatoru Architect i1000SR firme ABBOT.

Rezultati: Dobivene vrijednosti koncentracije MPO za žene su $89,8 \pm 89,6$ pmol/L, a za muškarce $87,6 \pm 74,9$ pmol/L. Uspoređivanjem vrijednosti koncentracije MPO s godinama kod žena dobili smo koeficijent korelacije $r = 0,07$; $P = 0,659$, dok je kod muškaraca koeficijent korelacije $r = -0,26$; $P = 0,137$.

Zaključak: Koncentracije MPO dobivene u našem laboratoriju u užem su rasponu od referentnih vrijednosti koje navodi proizvođač, što ukazuje na utjecaj vanjskih čimbenika kao što su podneblje, ishrana, uvjeti okoliša, te životne navike. Prema našim rezultatima nije pronađena povezanost koncentracije MPO s dobi kod žena i muškaraca.

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major adverse cardiac events, including myocardial infarction, need for revascularization or death.

Aim: The aim of this study was to test concentration of MPO in a healthy subject in the County of Split - Dalmatia and to find out if there is a correlation between the MPO concentration and subjects' age and sex.

Patients and methods: The sample consisted of 73 healthy subjects, 33 male (aged from 29 to 81) and female (aged from 24 to 79). MPO concentration is measured in human EDTA plasma by chemiluminiscent microparticle immunoassay on Architect i1000SR (CMIA) company ABBOTT.

Results: The observed values for MPO concentration for women are 89.8 ± 89.6 pmol/L and for men 87.6 ± 74.9 pmol/L. Comparing MPO concentration with women's age we have found correlation coefficient $r = 0.07$; $P = 0.659$, and with men's age $r = -0.26$; $P = 0.137$.

Conclusion: Concentration for MPO that we have found in our laboratory is in narrower range from reference range of the manufacturer. It indicates that external factors as climate, nutrition, environmental conditions and life habits influence on the results. According to our results neither subjects' sex nor ages are related to MPO concentration.

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P02-4

Biokemijski biljezi oštećenja miokarda na modelu štakora

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Uvod: Ovo istraživanje provedeno je s ciljem utvrđivanja mogu li srčani troponin T (cTnT) i mioglobulin otkriti oštećenje miokarda kod štakora izazvan uzimanjem isoproterenola (ISO).

Materijali i metode: 24 štakora ($N = 24$) je podijeljeno u četiri skupine: kontrolna ($N = 8$), ISO I ($N = 8$), ISO II ($N = 8$) i ISO III skupina ($N = 8$). Odraslim Wistar štakorima, albino mužjacima dana je pojedinačna doza od 250 mg/kg kako bi se izazvalo oštećenje miokarda. Štakorima kontrolne grupe dana je fiziološka otopina. ECLA imunokemijskom metodom izmjerena je koncentracija srčanog troponina T i mioglobulina u serumima štakora kontrolne grupe i 30, 60, 120 minuta nakon primanja ISO. Dobiveni podaci analizirani su dvosmjernim testom i Studentovim t-testom. Statistička značajnost postavljena je na 0,05.

P02-4

Biochemical markers of myocardial damage in rat model

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Introduction: This study was performed to determine whether cardiac troponin T (cTnT) and myoglobin could detect rat myocardial damage induced by isoproterenol (ISO) application.

Material and method: Twenty-four rats ($N = 24$) were divided into four groups: control ($N = 8$), ISO I group ($N = 8$), ISO II group ($N = 8$), and ISO III group ($N = 8$). ISO, single, i.p. dose 250 mg/kg was given to male, adult, albino, Wistar rats to induce myocardial damage. Saline was administered to rats of control group. Cardiac TnT and myoglobin were measured by ECLA sandwich immunoassay in rat sera of control group and 30, 60 and 120 minutes after ISO application. Obtained data were analysed by two-tail, unpaired Students' t-test. Significance was set at 0.05.

Rezultati: Rezultati su prikazani kao srednja vrijednost \pm standardna devijacija (SD). Srednja vrijednost koncentracije cTnT u krvi bila je statistički značajno povišena kod svih ISO skupina. Između ISO skupina nije bilo statistički značajne razlike u koncentraciji cTnT ($P < 0,05$). Primjećeno je statistički značajno povišenje koncentracije mioglobulina u krvi kod ISO III skupine u usporedbi s kontrolnom skupinom ($P < 0,05$). Između ISO skupina nije bilo statistički značajnih razlika u koncentraciji mioglobulina u krvi.
Zaključak: Istraživanje je pokazalo da upotrebljena doza ISO od 250 mg/kg kod štakora izaziva oštećenje miokarda. Mioglobulin je pokazao slabiju osjetljivost vjerojatno uslijed svog brzog protoka i uklonjanja iz organizma kroz bubrege.

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P02-5

Leptin i male, guste LDL čestice

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Uvod: Leptin je peptidni hormon porijeklom iz adipocita koji ima važnu ulogu u regulaciji hranjenja te potrošnje energije u tijelu. Koncentracija leptina u krvi proporcionalna je količini masnog tkiva i značajno je povišena kod pretilih osoba. Zbog različitih potencijalno proaterogenih djelovanja u koje je leptin uključen kao npr. indukcija disfunkcije endotela ili promocija oksidativnog stresa, istražuje se uloga leptina kao mogućeg rizičnog čimbenika za nastanak i razvoj ateroskleroze. U radu je ispitivana povezanost između serumskih koncentracija leptina i pojave malih, gustih LDL čestica koje predstavljaju važan rizični čimbenik za nastanak ateroskleroze s ciljem da se utvrdi imaju li promjene u koncentraciji leptina utjecaja na stvaranje malih LDL čestica.

Materijali i metode: Skupini ispitanika sa sumnjom na metabolički sindrom i dokazanom dislipidemijom ($N = 52$) napravljena fenotipizacija LDL čestica i određene su koncentracije leptina u serumu. Fenotipizacija LDL čestica je napravljena elektroforetskom metodom na gradijntnom poliakrilamidnom gelu razvijenom u našem laboratoriju, a koncentracije leptina određivane su komercijalnom metodom ELISA (Mediagnost, Njemačka). Kontrolnu skupinu su činile 54 zdrave osobe s koncentracijama lipidnih parametara unutar preporučenih vrijednosti, te normalnom distribucijom veličina LDL čestica.

Results: Results are reported as mean \pm SD. Mean cTnT blood value was significantly increased in all ISO groups. Between ISO groups there were significant differences in cTnT blood level ($P < 0.05$). Significant increase of blood myoglobin value was in ISO III group in comparison with control ($P < 0.05$). Between ISO groups there were not significant differences in myoglobin blood level.

Conclusions: This study showed that applied dose of ISO 250 mg/kg induced rat myocardial damage. Cardiac TnT is sensitive, specific biomarker of rat myocardial damage. Myoglobin showed poorer sensitivity probably through its' rapid kinetic and elimination through kidneys.

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P02-5

Leptin and small, dense LDL particles

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Background: Leptin, a peptide hormone secreted by the adipose tissue is primarily involved in the regulation of food intake and energy expenditure. Plasma leptin concentration is proportional to body adiposity and is markedly increased in obese individuals. Leptin exerts many potentially atherogenic effects such as induction of endothelial dysfunction, stimulation of inflammatory reaction, oxidative stress, proliferation of vascular smooth muscle cells etc. We investigated the relationship between serum leptin levels and the occurrence of small dense LDL particles (pattern B) to evaluate the possible influence of this adipokine on LDL particle size distribution.

Materials and methods: We determined serum leptin concentrations in group of 52 dyslipidemic subjects with visceral adiposity and related metabolic syndrome, and in a group of 54 healthy blood donors with normal lipid profile and normal distribution of LDL particle size. Serum leptin concentrations were determined by commercially available ELISA test (Mediagnost, Germany). LDL particle size determination was performed by gradient polyacrylamide gel electrophoresis developed in our laboratory.

Results: Pathologic LDL phenotype (LDL phenotype B) was detected in 27/52 dyslipidemic patients, and the

Rezultati: U skupini osoba s dislipidemijom kod 27/52 dokazan je i patološki LDL fenotip B. Prosječne koncentracije serumskog leptina u ovoj podskupini ispitanika iznosile su 14,5 ug/L i bile više u odnosu na kontrolnu skupinu (8,1 ug/L), ali i u odnosu na čitavu skupinu dislipidemičnih osoba (11,4 ug/L).

Zaključak: Više vrijednosti leptina u skupini ispitanika s LDL fenotipom B ukazuju na moguću povezanost leptina s mehanizmima koji dovode do nastanka malih LDL čestica.

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P02-6

Povezanost koncentracija C-reaktivnog proteina i arterijskog ishemijskoga moždanog udara u djece

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Uvod: Povišene koncentracije C-reaktivnog proteina visoke osjetljivosti (hs-CRP) su povezane s povećanim rizikom za aterosklozu u odraslih. Za razliku od toga, podatci za djecu su nedostadni, što nas je navelo na ispitivanje moguće povezanosti koncentracija hs-CRP i arterijskog ishemijskoga moždanog udara (AIS) u djece.

Materijali i metode: U istraživanje je uključeno 41 djeteta (25 dječaka, 16 djevojčica) starosne dobi < 18 godina s utvrđenom dijagnozom AIS, svrstanih u 2 skupine, dječji AIS (N = 21) i perinatalni/neonatalni AIS (N = 20). Kontrolnu skupinu je predstavljalo 56 zdrave djece (36 dječaka, 20 djevojčica) starosne dobi 2-17 godina. Koncentracije hs-CRP su izmjerene imunonefelometrijskom metodom s česticama lateksa (CardioPhase hsCRP, Siemens Medical Solutions Diagnostics).

Rezultati: Uporabom granične vrijednosti od 0,84 mg/L (90 percentila) dobivena je statistički značajna razlika povišenih vrijednosti hs-CRP (P = 0,014) u skupini djece s AIS (29,3%) u odnosu na kontrolnu skupinu (8,9%). Iako je medijan vrijednosti hs-CRP bio dvaput viši u skupini dječjeg AIS (0,47 mg/L) u odnosu na kontrolnu skupinu (0,22 mg/L), nije dobivena statistički značajna razlika (P = 0,154). Vrijednosti medijana hs-CRP nisu se statistički značajno razlikovale (P = 0,784) između skupine dječjeg AIS (0,47 mg/L) i skupine djece s perinatalnim/neonatalnim

mean value of leptin concentrations in this selected subgroup of patients was 14.5 ug/L. The mean value of leptin concentrations in the whole group of dyslipidemic patient was 11.4 ug/L and in the group of controls it was 8.1 ug/L.

Conclusions: The higher levels of leptin in selected subgroup of patients with LDL phenotype B suggest that this adipokine could be involved in mechanisms of the small, dense LDL particles production.

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P02-6

Association between C-reactive protein and arterial ischemic stroke in children

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Introduction: Increased concentrations of high-sensitivity C-reactive protein (hs-CRP) are associated with increased risk for atherothrombotic disease in adults, but limited data are available in children. This prompted us to investigate the possible association between hs-CRP concentrations and arterial ischemic stroke (AIS) in children.

Patients and methods: hs-CRP was measured in 41 children (25 boys, 16 girls) aged < 18 years, with an established diagnosis of AIS. Children were classified into 2 groups, childhood AIS (N = 21) and perinatal/neonatal AIS (N = 20). The control group consisted of 56 healthy children (36 boys, 20 girls) aged 2-17 years. CRP was measured by using particle-enhanced immunonephelometry (CardioPhase hsCRP, Siemens Medical Solutions Diagnostics).

Results: By using a cut-off value of 0.84 mg/L (90th percentile), significantly higher frequency of elevated hs-CRP values (P = 0.014) was found in children with AIS (29.3%) than in healthy children (8.9%). A twofold higher median hs-CRP value was identified in childhood AIS (0.47 mg/L) compared to healthy children (0.22 mg/L), but without statistical significance (P = 0.154). Higher median hs-CRP value, although not statistically significant (P = 0.784), was found in childhood AIS (0.47 mg/L) compared to perinatal/neonatal AIS (0.24 mg/L). Moreover, an almost threefold higher median hs-CRP value was identified in

AIS (0,24 mg/L). U skupini djece s AIS približno triput viša vrijednost medijana hs-CRP dobivena je u dječaka (0,47 mg/L) nego u djevojčica (0,16 mg/L), dok je razlika prema spolu bila manje izražena u kontrolnoj skupini (dječaci: 0,26 mg/L, djevojčice: 0,19 mg/L).

Zaključak: Dobiveni rezultati ukazuju na tendenciju povišenih vrijednosti hs-CRP u skupini dječjeg AIS, posebice u dječaka, što može objasniti njihovu češću zastupljenost u dječjem AIS.

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P02-7

Povezanost metaboličkih poremećaja (hiperglikemije, dislipidemije) s hiperurikemijom u općoj populaciji

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Uvod: Mokraćna kiselina je povezana s mnogim sastavnica metaboličkog sindroma, inzulinskom rezistencijom, mikroalbuminurijom, nealkoholnom masnom bolesti jetre i dr. Hiperurikemija je prisutnija u muškaraca i osoba prekomjerne tjelesne težine. Cilj ovog istraživanja bio je utvrditi prevalenciju hiperurikemije i njen odnos s koncentracijom glukoze natašte i lipidnim statusom u općoj populaciji.

Materijali i metode: Ovo retrospektivno istraživanje je obuhvatilo 6.476 ispitanika starijih od 18 godina, koji su upućivani u laboratorij radi rutinskih krvnih pretraga u razdoblju od lipnja 2007. do veljače 2009. U uzorcima krvi koji su prikupljeni natašte određena je koncentracija glukoze, triglicerida, ukupnog kolesterola, HDL-kolesterola, LDL-kolesterola i mokraćne kiseline. Ispitanici su podijeljeni u skupine s normalnim i povišenim koncentracijama mjerenih parametara. Granične vrijednosti za glukozu preuzete su prema kriterijima ATP III, za koncentracije lipida su korištene preporučene vrijednosti, a za mokraćnu kiselinu gornja granica referentnog raspona prema harmoniziranim vrijednostima Hrvatske komore medicinskih biokemičara.

Rezultati: Hiperurikemija je opažena u 13,9% opće populacije i bila je učestalija u muškaraca, nego u žena (26% vs. 6%; $P < 0,001$). Ispitanici sa hiperurikemijom imali su češće povećanu koncentraciju glukoze (9,3% prema 3,7%; $P < 0,001$), triglicerida (46,9% prema 17,6%; $P < 0,001$), ukupnog kolesterola (69,6% prema 51,9%; $P < 0,001$), LDL-kolesterola (64,5% prema 46,4%; $P < 0,001$), HDL-kolesterola

boys than in girls with AIS (0.47 and 0.16 mg/L, respectively), while in healthy children this difference was less pronounced (boys: 0.26 mg/L, girls: 0.19 mg/L).

Conclusions: According to obtained results there is a trend towards increased hs-CRP values in childhood AIS. This was more pronounced in boys and could explain their predominance in childhood AIS.

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P02-7

Relationship between metabolic disorders (hyperglycemia, dislipidemia) and hyperuricemia in general population

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Abstract: Uric acid is associated with several components of the metabolic syndrome, insulin resistance, microalbuminuria, non-alcoholic fatty liver disease, and some other. Hyperuricemia more frequently occurs in males and overweight persons. The aim of this study was to determine the prevalence of hyperuricemia and its relationship with fasting glucose concentrations and lipid status in general population.

Material and methods: This retrospective study included 6,476 subjects older than 18 years, consecutively referred to our laboratory for routine blood testing, between June 2007 and February 2009. The concentration of glucose, triglycerides, total cholesterol, HDL-cholesterol, LDL-cholesterol and uric acid was measured in blood samples collected after an overnight fast. Subjects were divided into subgroups with normal and increased concentrations of measured parameters. Cut-off values were according to the ATP III criteria for glucose, recommended values were used for concentration of lipids, and for uric acid we used the upper limit of reference range according to the harmonized values of the Croatian Chamber of Medical biochemists.

Results: Hyperuricemia prevalence was 13.9% and it was significantly higher in males, than in females (26% vs. 6%; $P < 0.001$). The study subjects with hyperuricemia were often found to have increased values of glucose (9.3% versus 3.7%; $P < 0.001$), triglycerides (46.9% versus 17.6%; $P < 0.001$), total cholesterol (69.6% versus 51.9%; $P < 0.001$), LDL-cholesterol (64.5% versus 46.4%; $P < 0.001$),

la (24,3% prema 13%; $P < 0,001$) u usporedbi s ispitanicima čije su koncentracije mokraćne kiseline u serumu bile unutar referentnog raspona.

Zaključak: Hiperurikemija je povezana s koncentracijom glukoze natašte i dislipidemijom u općoj populaciji.

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HDL-cholesterol (24.3% versus 13%; $P < 0.001$) compared to subjects with serum uric acid levels within the reference range.

Conclusion: Hyperuricemia is associated with fasting glucose concentrations and dyslipidemia in general population.

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P03 – Hematologija i koagulacija

P03-1 (Usmeno priopćenje)

Prikaz slučaja: određivanje krvne slike kod izrazite lipemije

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Uvod: Spektrofotometrijsko određivanje koncentracije hemoglobina podložno je utjecaju hipertrigliceridemije u uzorku. Izmjerena vrijednost hemoglobina je netočno previsoka, a također i računski parametri MCH i MCHC.

Cilj: Kako točno odrediti koncentraciju hemoglobina i računске parametre u izrazito lipemičnom uzorku.

Materijali i metode: Uzorak krvne slike izmjeren je na hematološkom brojaču ADVIA 2120 koji određuje hemoglobin dvjema metodama: spektrofotometrijski i mjerenjem CHCM. Zbog velike razlike dobivenih vrijednosti određen je i hemoglobin u plazmi i trigliceridi u serumu.

Rezultati: Spektrofotometrijski hemoglobin iznosio je 158,0 g/L, a računski preko CHCM-a 93,0 g/L. Izmjereni trigliceridi bili su 120,66 mmol/L. Izmjereni hemoglobin u plazmi bio je 89 g/L što je korišteno za računsku korekciju spektrofotometrijskog hemoglobina čija je vrijednost nakon preporučenog načina korekcije iznosila 92,3 g/L.

Zaključak: Metoda računskog određivanja hemoglobina putem CHCM-a potpuno je neovisna o lipemiji.

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P03 – Haematology and coagulation

P03-1 (Oral presentation)

Case report: complete blood count in severe lipemic sample

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Background: Severe lipemia is a known interference that can falsely elevate a hemoglobin result obtained from colorimetric hemoglobin method. When hemoglobin is falsely increased, the MCH and MCHC are also falsely increased.

Aim: Determination and correction of hemoglobin concentration and calculated parameters in severe lipemic sample.

Material and methods: Complete blood count was determined on ADVIA 2120 which determinates hemoglobin by two methods: colorimetric and directly measuring CHCM to calculate cellular hemoglobin. Since the results between these two methods were significant, we determined plasma hemoglobin and triglyceride in serum.

Results: Colorimetric hemoglobin concentration was 158.0 g/L. Cellular hemoglobin was 93.0 g/L. Triglycerides in serum were 120.66 mmol/L. Hemoglobin in plasma was 89.0 g/L which we used in correcting hemoglobin in whole blood. After correction hemoglobin concentration was 92.3 g/L.

Conclusion: Using CHCM to calculate hemoglobin is unaffected by lipemia.

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