Pri usporedbi dvaju analizatora koeficijent korelacije za sve ispitivane analite iznosi r > 0,99 osim za Na (r = 0,97). Usporedba metoda učinjena je s pomoću Passing-Bablok regresije i izračunate su jednadžbe pravca za sve analite te 95% interval pouzdanosti za odsječak i nagib pravca. Za ureju, Na i K interval pouzdanosti za odsječak obuhvaća vrijednost nula, a za nagib vrijednost jedan pa su sasvim suglasni s rutinski korištenom metodom. Usporedba za AST, ALT, IgM i Fe ukazuje na postojanje male konstantne pogrješke (CI odsječka ne obuhvaća vrijednost nula), a za IgG postojanje male proporcionalne pogrješke (CI za nagib ne obuhvaća vrijednost jedan). Male vrijednosti konstantne i proporcionalne pogrješke pronađene su za glukozu, kreatinin, GGT i IgA.
Zaključak: S obzirom na niske vrijednosti CV instrument je zadovoljavajuće točnosti i preciznosti. Većina analita je usklađena na oba analizatora dok su za dio potrebna podešenja nagiba i odsječka pravca za potpunu usklađenost.

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1.6%, urea = 2.0%, creatinine = 2.6%, GGT = 1.9%, AST = 2.7%, ALT = 1.7%, IgG = 2.5%, IgA = 3.2%, IgM = 7.9%, Fe = 3.2%, Na = 1.3%, K = 2.0%. Method comparison study showed correlation coefficient r > 0.99 regarding all tested analytes accept for Na r = 0.97. Passing-Bablok regression analysis provided linear equation for tested analytes as well as 95% confidence interval for intercept and slope. Intercept confidence interval for urea, Na and K includes zero as value, and slope confidence interval includes one as value which makes these analytes in accordance with routine method. Method comparison regression analysis for AST, ALT, IgM and Fe shows small constant difference (intercept CI does not include zero), and for IgG small proportional difference (slope CI does not include one). Both, small constant and proportional differences, are found for glucose, creatinine, GGT and IgA.
Conclusion: Regarding low CV values tested analyzer has satisfactory accuracy and precision. Most analytes are coherent on both analyzers whereas a part of them require adjustments of slope and intercept for complete accordance.

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P13 – Plućne bolesti

P13-1

Hematološki pokazatelji anemije i C-reaktivni protein (CRP) u bolesnika sa stabilnom opstruktivnom plućnom bolesti

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Uvod: Cilj istraživanja bio je odrediti vrijednosti hematoloških pokazatelja anemije i CRP u bolesnika sa stabilnom KOPB kako bi se utvrdio relativni udio prisutnosti anemije, stupanj sistemske upale te eventualne korelacije navedenih analita u ovih bolesnika.
Materijali i metode: U ispitivanje je bilo uključeno 109 bolesnika s KOPB (forsirani ekspiratorni volumen u 1 sekundi izdisaja, FEV1 = 41 ± 14%), te 51 zdravi ispitanik, FEV1 = 106 ± 15%). U skladu s GOLD smjernicama, bolesnici su podijeljeni u 3 podskupine: II, III i IV, a prema kriteriju SZO za anemiju (Htc < 0,36 L/L za žene i < 0,39 L/L

P13 – Lung diseases

P13-1

Hematologic markers of anemia and C-reactive protein (CRP) in patients with stable chronic obstructive pulmonary disease

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Introduction: The goal of this investigation was to determine the value of hematologic markers of anemia and CRP in patients with stable chronic obstructive pulmonary disease, in purpose to define the relative portion of anemia, degree of systemic inflammation, and occasional correlation of cited data in these patients.
Material and methods: The investigation included 109 patients with COPD (forced expiratory volume in 1 sec. of expiration, FEV1 = 41 ± 14%) and 51 healthy examinee (FEV1 = 106 ± 15%). In accordance with GOLD guidelines, the patients were divided in three subgroups: II, III, IV,

za muškarce) u 2 podskupine: s anemijom i bez anemije. Koncentracija CRP u serumu određena je imunoturbidimetrijskom metodom na analizatoru Dimension Xpand Plus (Siemens Healthcare Diagnostics), a hematološki pokazatelji određeni su metodom protočne citometrije na analizatoru Cell Dyn 3200 (Abbott Diagnostics).
Rezultati: Anemija je prisutna u 21% bolesnika s KOPB. Ne postoji značajna razlika vrijednosti eritrocita, hemoglobina i hematokrita između skupine svih bolesnika i kontrolne skupine, kao ni između bolesnika podijeljenih prema GOLD smjernicama i kontrolne skupine. Koncentracija CRP statistički je značajno veća u skupini svih KOPB bolesnika ($P < 0,001$), svim podskupinama prema GOLD klasifikaciji (II, III, IV: $P < 0,001$), te podskupinama s i bez anemije ($P < 0,001$) u odnosu na kontrolnu skupinu. ROC analiza je pokazala dobru dijagnostičku učinkovitost CRP.
Zaključak: Koncentracija CRP značajno je povećana u svim ispitanim podskupinama bolesnika s KOPB u odnosu na kontrolnu skupinu, ukazujući na kontinuiranu prisutnost upalnog procesa. Anemija je prisutna kod ukupno 21% bolesnika, najvećim dijelom iz GOLD podskupine III.

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and according WHO criteria for anemia (Htc < 0.36 L/L for females, and < 0.39 L/L for males) in two subgroups: with and without anemia. Concentration of CRP in serum was determined by immunoturbidimetric method with analyzer Dimension Xpand Plus (Siemens Healthcare Diagnostics), and hematologic markers were determined by a method of flow cytometry by Cell Dyn 3200 analyzer (Abbott Diagnostics).
Results: Anemia was present in 21% of patients with COPD. Significant difference for RBC, hemoglobin and hematocrit between total number of patients and controls does not exist, as well as between all the subgroups according to GOLD guidelines and controls. Concentration of CRP is statisticaly significantly higher in a group of all COPD patients ($P < 0.001$), all the subgroups according to GOLD guidelines (II, III, IV: $P < 0.001$), and subgroups with and without anemia ($P < 0.001$) in correlation with controls. ROC analysis showed good diagnostic effectiveness of CRP.
Conclusion: CRP concentration is significantly elevated in all investigated subgroups of COPD examinees in relation with the controls, pointing to continual presence of inflammation. Anemia is present in 21% of patients, that mostly belong to GOLD subgroup III.

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P13-2

C-reaktivni protein u stabilnoj kroničnoj opstrukcijskoj plućnoj bolesti

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Uvod: Upala je značajan dio patogeneze kronične opstrukcijske plućne bolesti (KOPB). Ispitana je stoga koncentracija C-reaktivnog proteina (CRP) u bolesnika s različitim stupnjevima KOPB i uspoređena s koncentracijom kontrolne skupine ispitanika.
Materijali i metode: U istraživanje je uključeno 109 bolesnika s KOPB (forsirani ekspiratorni volumen u prvoj sekundi izdisaja (FEV1) = 41 ± 14%) i 51 zdravi ispitanik (FEV1 = 106 ± 15%). Temeljem nalaza spirometrije, slijedeći GOLD smjernice, pacijenti su podijeljeni prema stadiju progresije bolesti u 3 podskupine (II, III, IV). Koncentracija CRP u serumu određena je imunoturbidimetrijskom me-

P13-2

C-reactive protein in stable chronic obstructive pulmonary disease

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Background: Systemic inflammation is very important feature of the chronic obstructive pulmonary disease (COPD). We studied serum concentration of C-reactive protein (CRP) in patients with different stages of COPD and we compared it with concentration of CRP in healthy controls.
Materials and methods: Concentration of CRP was determined in sera of COPD patients (FEV1 = 41 ± 14%), N = 109; and in healthy controls (FEV1 = 106 ± 15%), N = 51. Patients were divided into three subgroups (II, III, IV) according to GOLD guidelines. Concentration of CRP was determined with immunoturbidimetric method on Di-

todom na analizatoru Dimension Xpand Plus (Siemens Healthcare Diagnostics, USA).
Rezultati: Koncentracija CRP je u serumu ispitanika s KOPB bila statistički značajno veća (medijan 13,78 mg/L, IQR = 8,44-44,46) u odnosu na ispitanike u kontrolnoj skupini (medijan 7,70 mg/L, IQR = 3,36-9,34), P < 0,001. ROC-analiza pokazuje da CRP ima vrlo dobru dijagnostičku učinkovitost (AUC = 0,808, 95% CI = 0,739-0,866, P < 0,001) u razlikovanju bolesnika s KOPB od zdravih ispitanika. Za graničnu vrijednost CRP od 11,86 mg/L, dijagnostička specifičnost bila je 94%, a osjetljivost 60%. Koncentracije CRP u podskupinama su bile slijedeće: podskupina II – medijan 12,98 mg/L, IQR = 8,35-27,67; podskupina III – medijan 12,73 mg/L, IQR = 7,65-60,07; podskupina IV – medijan 23,18 mg/L, IQR = 11,21-39,17. Koncentracija CRP ne razlikuje se značajno između podskupina bolesnika s KOPB, P = 0,573.
Zaključak: Granična vrijednost CRP od 11,86 mg/L mogla bi biti biokemijski pokazatelj, koji bi bio od pomoći u razlikovanju bolesnika s KOPB od zdravih ispitanika, ali ne i kao pokazatelj progresije KOPB.

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mension Xpand Plus analyzer (Siemens Healthcare Diagnostics, USA).
Results: Concentration of CRP was increased in COPD patients (median 13.78 mg/L, IQR = 8.44-44.46) compared with healthy controls (median 7.70 mg/L, IQR = 3.36-9.34), P < 0.001. Specificity and sensitivity of selected marker was analysed by the receiver operating characteristics curve. CRP showed very good diagnostic accuracy in COPD patients (AUC = 0.808, 95% CI = 0.739-0.866, P = 0.001). For cut-off value of 11.86 mg/L for CRP concentration, specificity was 94%, and sensitivity was 60%. Concentration of CRP in subgroups were as follows: subgroup II – median 12.98 mg/L, IQR = 8.35-27.67; subgroup III – median 12.73 mg/L, IQR = 7.65-60.07; subgroup IV – median 23.18 mg/L, IQR = 11.21-39.17. There was no significant difference in CRP concentration between subgroups of patients with COPD.
Conclusion: The proposed cut-off value for CRP concentration might be used as biochemical parameter who would be of assistance in distinguishing patients with COPD, however, could not be used for grading severity of disease in patients with COPD.

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P13-3

Oksidacija tiolnih skupina i aktivnost paraoksonaze 1 u bolesnika s kroničnom opstrukcijskom plućnom bolesti

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Uvod: Kroničnu opstrukcijsku plućnu bolest (KOPB) karakterizira kronični lokalni i sistemski upalni proces te pojačan oksidacijski stres. Pušenje cigareta se smatra glavnim etiološkim čimbenikom u nastanku i razvoju KOPB. Reaktivne kisikove vrste, čije stvaranje potiču pušenje i aktivirane stanice pluća i krvne tekućine, mogu poremetiti oksidacijsko-redukcijsku ravnotežu na način da oksidiraju proteine u plazmi. Paraoksonaza 1 (PON1) je enzim vezan uglavnom na HDL koji u svojoj strukturi ima tri cisteinska ostatka na pozicijama 41, 284 i 353; C41 i C353 su povezani disulfidnom vezom dok je C284 slobodan. Enzim ima i antiaterogena i antioksidacijska svojstva.
Materijali i metode: Ovo je istraživanje uključilo 107 KOPB bolesnika (32 pušača, 28 bivša pušača, 47 nepušača) i 45 zdravih dobrovoljaca (16 pušača, 13 bivših pušača, 16

P13-3

Protein thiol oxidation and paraoxonase 1 activity in patients with chronic obstructive pulmonary disease

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Introduction: Chronic obstructive pulmonary disease (COPD) is characterized by chronic local and systemic inflammation, and increased oxidative stress. Cigarette smoking is the major etiological factor responsible for COPD. Reactive oxygen species, generated by cigarette smoke and by activated lung and peripheral blood cells, may disturb redox balance through oxidation of plasma proteins. Paraoxonase 1 (PON1) is an HDL-associated enzyme with three cysteine residues in positions 41, 284 and 353; C41 and C353 form a disulfide bond while C284 is free. The enzyme has both antiatherogenic and antioxidative properties.
Materials and methods: The study was carried out on 107 COPD patients (32 smokers, 28 ex-smokers, 47 non-smokers) and 45 healthy volunteers (16 smokers, 13

nepušača). Tiolne skupine proteina izmjerene su spektrofotometrijskom metodom pomoću 5,5'-ditiobis-(2-nitrobenzojeva kiselina) (DTNB). Paraoksonazna aktivnost PON1 određena je na način da se mjerilo otpuštanje p-nitrofenola iz paraoksona bez (bazalna aktivnost PON1) i uz dodatak NaCl (NaCl-stimulirana PON1 aktivnost).
Rezultati: Koncentracija slobodnih sulfhidrilnih skupina značajno je niža u KOPB bolesnika u odnosu na zdrave osobe, a opaženo sniženje nije ovisilo ni o statusu pušenja ni o težini bolesti (GOLD klasifikacija). Osim toga, i bazalna i NaCl-stimulirana aktivnost PON1 također je značajno niža u KOPB bolesnika.
Zaključak: Smanjena koncentracija tiolnih skupina u KOPB bolesnika ukazuje na pojačan oksidacijski stres, što djelomice može objasniti sniženu paraoksonaznu aktivnost PON1.

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ex-smokers, 16 non-smokers). Serum protein thiols were measured by a spectrophotometric method using 5,5'-dithiobis-(2-nitrobenzoic acid) (DTNB). Paraoxonase activity of PON1 was assayed by monitoring the release of p-nitrophenol from paraoxon in the absence (basal PON1 activity) or in the presence of NaCl (salt-stimulated PON1 activity).
Results: Proteins thiol concentration was significantly decreased in COPD patients compared with healthy individuals, and this reduction of free sulfhydryl groups was not dependent on smoking status or disease severity (GOLD grade). In addition, both basal and salt-stimulated PON1 activity were also significantly lower in COPD patients.
Conclusion: The decrease in protein thiols observed in COPD patients suggests the increased oxidative stress in those individuals which may explain in part the reduction in PON1 paraoxonase activity.

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P13-4

Određivanje prokalcitonina kod pulmoloških bolesnika

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Cilj: Cilj rada bio je procijeniti dijagnostičku vrijednost koncentracije prokalcitonina u serumu u odnosu na druge parametre upale (CRP, fibrinogen, broj leukocita, brzina sedimentacije eritrocita) kod pacijenata liječenih u Klinici za plućne bolesti Jordanovac. Mikrobiološka obrada je pri tom uzeta u obzir.
Ispitanici i metode: Ispitivanje je obuhvatilo 40 bolesnika (17 žena i 23 muškarca) s najčešće postavljenim dijagnozama u našoj ustanovi (55% maligne bolesti, 12% pneumonije, 5% tuberkuloza, 2% sarkoidoza, autoimune bolesti,ostali). Koncentracija CRP-a je određivana lateks imunoturbidimetrijom na instrumentu Hitachi 912. Za određivanje brzine sedimentacije korišten je instrument Sedi 15, a koncentracija prokalcitonina određivana je metodom Enzyme-Linked Fluorescent Assay-ELFA (miniVIDAS Biomerieux). Linearnost testa je 0,05-200 ug/L. Prema proizvođaču, kod bolesnika s konc. PCT-a < 0,5 ug/L može se isključiti rizik za razvoj sepse i/ili septičkog šoka.
Rezultati: Kod svih ispitanika nađene su povišene koncentracije CRP-a i sedimentacija eritocita neovisno o dijagnozi. Mikrobiološka ispitivanja su provedena kod 31 bolesnika. 15 bolesnika je imalo pozitivni nalaz. Kod većine koncentracija prokalcitonina bila je < 0,5 ug/L uz kolo-

P13-4

Determination of procalcitonin in pulmonary patients

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Aim: Aim of the study was to evaluate diagnostic value of procalcitonin concentration in serum in relation to other inflammation markers (CRP, fibrinogen, WBC count, erythrocyte sedimentation rate) among patients treated in Clinic for lung diseases Jordanovac. Microbiological processing is taken into account.
Patients and methods: Testing included 40 patients (17 women and 23 men) with the most frequently diagnosed diseases in our institution (55% malignant diseases, 12% pneumonia, 5%, tuberculosis, 2% sarcoidosis, autoimmune diseases, other). CRP concentration was measured by a latex immunoturbidity method on instrument Hitachi 912. Erythrocyte sedimentation rate was determined on instrument Sedi 15, and procalcitonin concentration was measured by method Enzyme-Linked Fluorescent Assay-ELFA (miniVIDAS bioMérieux). Test linearity for PCT is 0.05-200 ug/L. According to the manufacturer, risk for the development of sepsis and/or septic shock can be excluded in patients with PCT concentration < 0.5 ug/L.
Results: All patients had elevated concentrations of CRP and sedimentation rate regardless of diagnosis. Microbiological tests were done in 31 patients. 15 patients had positive findings. Most of them had procalcitonin concentra-

nizaciju, lokaliziranu infekciju ili infekciju M. tuberculosis dok su koncentracije PCT-a > 2,0 ug/L nađene kod teških bakterijskih i gljivičnih infekcija te u jednom slučaju sterilne hemokulture uz radiološki nalaz koji je upućivao na pneumoniju. Kod jednog bolesnika nađen je izrazito visoki PCT (42,73 ug/L) uz nedovoljno kliničkih podataka koji bi potkrijepili taj nalaz.
Zaključak: CRP se pokazao kao osjetljiviji biljeg upale. Iako naše ispitivanje sugerira da je PCT specifičniji biljeg sistemske upale za relevantnu procjenu njegove dijagnostičke vrijednosti kod pulmoloških bolesnika neophodno je provesti dodatna ispitivanja na većem uzorku.

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tion < 0.5 ug/L with a colonization, localized infection or M. tuberculosis infection. PCT concentrations > 2.0 ug/L were found with severe bacterial and fungal infections and in one case of sterile hemoculture with radiological findings which indicated to pneumonia. One patient had extremely high PCT (42.73 ug/L) but there wasn't enough clinical data to support this finding.
Conclusion: CRP has proven to be sensitive marker inflammation. Although our investigation suggests that the PCT is more specific marker for systemic inflammation, it is necessary to do additional tests on a large sample for relevant assessment of its diagnostic value in pulmonary patients.

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P13-5

Aktivnost dipeptidil peptidaze IV kod bolesnika s kroničnom opstrukcijskom plućnom bolesti

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Uvod: Kronična opstrukcijska plućna bolest (KOPB) najučestalija je kronična respiratorna bolest progresivnog tijeka. Karakterizirana je ograničenim protokom zraka i nenormalnim upalnim odgovorom pluća na udahnute štetne čestice i plinove. Upala je povezana s infiltracijom imunoloških stanica koje otpuštaju pro-upalne medijatore u pluća. Dipeptidil peptidaza IV (DPP IV) je specifična serinska egzopeptidaza koja uklanja X-Pro dipeptide s različitih pro-upalnih neuropeptida, kemokina, citokina i drugih bioloških molekula. Tako pridonosi njihovoj aktivaciji ili inaktivaciji, odnosno promjeni njihove funkcije. U ovom radu smo ispitivali aktivnost DPP IV u serumu bolesnika s KOPB i povezanost enzimske aktivnosti s progresijom bolesti.
Materijali i metode: U serumu bolesnika sa stabilnim oblikom KOPB (GOLD stadiji II do IV; N = 110) i zdravih ispitanika (N = 91) određena je katalitička aktivnost DPP IV koristeći spektrofotometrijsku metodu s glicil-prolil-p-nitroanilidom kao supstratom.
Rezultati: Katalitička aktivnost DPP IV u serumu bolesnika sa stabilnim oblikom KOPB značajno je snižena u od-

P13-5

Dipeptidyl peptidase IV activity in patients with chronic obstructive pulmonary disease

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Background: Chronic obstructive pulmonary disease (COPD) is the most common chronic respiratory disease with the progressive course. It is characterised by airflow limitation and abnormal inflammatory response of lungs to noxious particles and gases. Inflammation is associated with the infiltration of immune cells which release pro-inflammatory mediators into the lung. Dipeptidyl peptidase IV (DPP IV) is specific serine exopeptidase which selectively removes X-Pro dipeptide from different pro-inflammatory neuropeptides, chemokines, cytokines and other biomolecules. Thus DPP IV contributes to their functional activation or inactivation. In this work we examined DPP IV activity in sera of COPD patients and possible correlation with progression of the disease.
Materials and methods: We obtained serum from patients with stable COPD (GOLD stages II to IV; N = 110) and healthy volunteers (N = 91). DPP IV activity was determined using the spectrophotometric method with the glicyl-prolyl-p-nitroanilid as substrate.
Results: DPP IV activity in sera from COPD patients is significantly reduced comparing to healthy controls (P <

nosu na aktivnost zdravih ispitanika (P < 0,001). Između različitih stadija progresije bolesti (GOLD klasifikacija) aktivnost enzima nije značajno različita.
Zaključak: Snižena aktivnost DPP IV u bolesnika s KOPB mogla bi dovesti do smanjenog proteolitičkog cijepanja pro-upalnih medijatora otpuštenih iz imunoloških stanica i tako doprinijeti razvoju lokalne i sistemske upale u KOPB.

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0.001). However, there were no significant differences in DPP IV activity between different stages of disease (GOLD classification).
Conclusions: Decreased activity of DPP IV found in COPD patients might be involved in attenuated proteolytic cleavage of pro-inflammatory mediators released by immune cells, thus contributing to the development of local and systemic inflammation in COPD.

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P14 – Ostalo

P14-1

Prokalcitonin u sistemskoj i lokalnoj bakterijskoj infekciji

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Uvod: Prokalcitonin je predložen kao marker infekcije u kritičnih bolesnika. Cilj ovog rada je bio usporediti vrijednosti PCT-a u bolesnika sa sistemskom i lokalnom bakterijskom infekcijom.
Materijali i metode: Na temelju kliničkih i mikrobioloških nalaza svrstali smo 25 bolesnika u dvije skupine: skupina A-bolesnici sa sistemskom bakterijskom infekcijom (pozitivne hemokulture) i skupina B-lokalna bakterijska infekcija (pozitivne druge kulture). Svim bolesnicima odredili smo C-reaktivni protein (CRP), PCT, leukocite, nesegmentirane neutrofile i trombocite. PCT je određen enzimfluorometrijskim metodom (miniVidas), a CRP imunoturbidimetrijom (Dimension Xpand). Broj leukocita i trombocita određen je na XT-1800i (Sysmex). Diferencijalna krvna slika određena je mikroskopskom metodom u obojenom razmazu periferne krvi. Podatci su obrađeni upotrebom Medcalc software. Razina značajnosti postavljena je na P < 0,05.
Rezultati: Medijani koncentracija PCT-a bili su u skupini A 1,32 (raspon: 0,13-7,37) ng/mL, a u skupini B 0,21 (raspon: 0,05-9,07) ng/mL i razlike između skupina bile su statistički značajne (P = 0,038). Značajno viši medijan broja trombocita (P = 0,012) nađen je u skupini B (327, raspon: 40-325 x 10^9/L) u usporedbi sa skupinom A (140, raspon: 40-325 x 10^9/L). Suprotno ovome, vrijednosti medijana CRP-a, leukocita i nesegmentiranih neutrofila nisu bile značajno različite između skupina (P = 0,071; P = 0,189; P = 0,239).
Zaključak: Prema dobivenim rezultatima, više koncentracije PCT-a u kombinaciji sa nižim brojem trombocita u bo-

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Procalcitonin in systemic and local bacterial infection

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Background: Procalcitonin (PCT) has been proposed as a marker of infection in critically ill patients. The aim of the study was to compare the serum concentrations of PCT in patients with systemic and local bacterial infection.
Materials and methods: According to clinical and microbiologic findings we divided 25 patients into two groups: group A-patients with systemic bacterial infection (positive blood cultures) and group B-local bacterial infection (other positive cultures). We determined in all patients C-reactive protein (CRP), PCT, leukocyte, non-segmented neutrophyle and platelet count. PCT was measured by enzyme-linked fluorescent immunoassay (miniVidas) and CRP by immunoturbidimetric method (Dimension Xpand). Leukocyte and platelet count were determined on a XT-1800i (Sysmex). Differential blood count was determined by microscopic method in stained blood peripheral smear. Data were analyzed using the Medcalc software. The level of significance was set at P < 0.05.
Results: The median concentrations of PCT were 1.32 (range: 0.13-7.37) ng/mL in group A and 0.21 (range: 0.05-9.07) ng/mL in group B and differences between groups were statistically significant (P = 0.038). A significantly higher median platelet count (P = 0.012) was found in group B (327, range: 40-325 x 10^9/L) as compared to group A (140, range: 40-325 x 10^9/L). In contrast, median values of CRP, leukocyte and non-segment neutrophyle were not significantly different between groups (P = 0.071; P = 0.189; P = 0.239, respectively).