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P001
FAKTORSKA ANALIZA POVEZANOSTI INFLAMATORNIH, LIPIDNIH, SRČANIH I BUBREŽNIH BIOMARKERA SA KLASIFIKACIJOM DUGOROČNOG 30-GODIŠNJEG KARDIOVASKULARNOG RIZIKA

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U kliničkoj praksi koristi se nekoliko skorova za procenu kratkoročnog (10-godišnjeg) rizika od pojave različitih oblika kardiovaskularnih bolesti (KVB) koji se zasnivaju na multivarijabilnim regresionim jednačinama izvedenim iz rezultata praćenja različitih kohortnih grupa. Međutim, pošto je starost promenljiva kojoj se dodeljuje najveći broj poena u modelima 10-godišnjeg rizika, mnoge osobe sa značajnim opterećenjem faktorima rizika imaju kratkoročni rizik daleko ispod granice koja uslovljava intenzivan tretman, iako njihov dugoročni (30-godišnji) rizik može biti značajan. Takođe, drugi biomarkeri mogu da identifikuju osobe sa većim kardiovaskularnim rizikom od onog izračunatog primenom skorova kratkoročnog rizika. Cilj rada bio je da se analizira priroda uticaja ispitivanih biomarkera na kardiovaskularni rizik i njihovo grupisanje, kao i povezanost dobijenih faktora sa kategorizacijom 30-godišnjeg rizika faktorskom analizom. Pomoću interaktivnog kalkulatora »30-year risk of cardiovascular disease« izračunavan je dugoročni 30-godišnji rizik za pojavu »kompletne« KVB (sve manifestacije KVB) i »teške« KVB (potencijalno fatalne komplikacije KVB). Analiza glavnih komponenti je korišćena za ispitivanje grupisanja markera inflamacije [visoko-osetljivi C-reaktivni protein (hsCRP), serumski amiloid A (SAA), fibrinogen, α_1-kiseli glikoprotein (A1AGP), haptoglobin, C3 i C4 komponente komplementa], metabo-

P001
FACTOR ANALYSIS OF ASSOCIATION OF LIPID, INFLAMMATORY, CARDIAC AND RENAL BIOMARKERS WITH LONG-TERM 30-YEAR CARDIOVASCULAR RISK CLASSIFICATION

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Several risk score algorithms for short-term (10-year) cardiovascular risk assessment based on multivariable regression equations derived from different cohorts are being used in clinical practice. However, since the age is variable with the strongest influence on short-term risk, many individuals with moderate increase of other traditional risk factors would have a 10-year risk below cutoff for intensive treatment, but a significant long-term (30-year) risk. Also, other biomarkers might identify persons with higher actual cardiovascular risk compared with calculated using short-term risk scores. The aim of this study was to analyze the nature of influence of examined biomarkers on cardiovascular risk and their clustering, as well as relations of identified factors with long-term 30-year risk categorization, using factor analysis. Interactive calculator »30-year risk of cardiovascular disease« was used for long-term 30-year risk calculation, for both »full CVD« (all manifestations of cardiovascular disease) and »hard CVD« (serious manifestations of CVD). Principal component analysis was used to investigate clustering of markers of inflammation [high sensitivity C-reactive protein (hsCRP), serum amyloid A (SAA), fibrinogen, α_1-acid glycoprotein (A1AGP), haptoglobin, C3 and C4 complement components], lipid metabolism [non-HDL and LDL cholesterol, triglycerides, apolipoprotein A-I (apo A-I), apolipoprotein B (apo B), lipoprotein (a) (Lp(a))],

lizma lipida [non-HDL i LDL holesterol, trigliceridi, apolipoprotein A-I (apo A-I), apolipoprotein B (apo B), lipoprotein (a) (Lp(a))], bubrežne [kreatinin, mokraćna kiselina, cistatin C (Cys-C)] i srčane funkcije [N-terminalni pro-natriuretički peptid tip B (NT-proBNP), visoko-osetljivi srčani troponin T (hs-cTnT)], dobijenih analizom uzoraka seruma 242 zdrave osobe. Faktorskom analizom identifikovano je 5 klastera, kojima je objašnjeno je 67,4% ukupne varijacije, raspoređene na sledeći način 1) 29,7% »sistemska inflamacija« (hsCRP, fibrinogen, SAA, A1AGP, haptoglobin, C3 i C4 komponenta komplementa); 2) 12,5% »aterogena dislipidemija« (LDL i non-HDL holesterol, apo B i trigliceridi); 3) 11,0% »kardiorenalni faktor« (kreatinin, mokraćna kiselina, Cys-C i hs-cTnT); 4) 7,6% »hemodinamski faktor« (NT-proBNP) i 5) 6,7% »lipoproteinski faktor« [apo A-I, Lp(a)]. Prediktivne vrednosti u proceni 30-godišnjeg rizika za »kompletnu KVB« i »tešku KVB« su bile značajne za četiri faktora (OR 1,892–5,590; P<0,0001 i OR 2,183–5,931; P<0,0001, redom), a »hemodinamski faktor« nije imao statistički značajan prediktivni potencijal za vrednosti iznad optimalnih/normalnih za odgovarajući pol i starost (P>0,05). Površine ispod ROC krivih (AUC) modela sa pet faktora u predikciji povećanog 30-godišnjeg rizika za »kompletnu KVB« i »tešku KVB« iznosile su 0,881 i 0,888, redom, i nisu bile statistički značajno različite od multivarijabilnog logističkog modela od 18 polaznih parametara (0,892 i 0,901; P>0,05; redom). Sistemska inflamacija, aterogena dislipidemija, kardiorenalna funkcija i lipoproteinski status nezavisno doprinose dugoročnom, 30-godišnjem riziku iznad normalnog/optimalnog kako za ozbiljne komplikacije KVB, tako i za sve vrste kardiovaskularnih komplikacija.

P002
LONGITUDINALNE PROMENE PARAMETARA LIPIDNOG PROFILA TOKOM NEKOMPLIKOVANE TRUDNOĆE I NAKON PORODAJA

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Specifične metaboličke promene u trudnoći su neophodne kako bi se obezbedile potrebe u hranrenal [creatinine, uric acid, cystatin C (Cys-C)] and cardiac function [N-terminal pro-natriuretic peptide type B (NT-proBNP), high sensitivity cardiac troponin T (hs-cTnT)], obtained from 242 apparently healthy individuals. Factor analysis identified five clusters, which explained 67.4% of the total variance distributed as follows: 1) 29.7% »systemic inflammation« (hsCRP, fibrinogen, SAA, A1AGP, haptoglobin, C3, C4); 2) 12.5% »atherogenic dyslipidemia«, (LDL and non-HDL cholesterol, apo B, triglycerides); 3) 11.0% »cardiorenal factor« (creatinine, uric acid, Cys-C, hs-cTnT); 4) 7.6% »hemodynamic factor« (NT-proBNP); and 5) 6.7% »lipoprotein factor« [apo A-I, Lp(a)]. When estimating 30-year risk from both »full CVD« and »hard CVD«, predictive values were significant for four factors (OR 1.892–5.590, P<0.0001 and OR 2.183–5.931, P<0.0001, respectively), and »hemodynamic factor« had no statistical significance in predicting potential for values above optimal/normal for corresponding gender and age (P>0.05). The areas under the receiver operating characteristic curves (AUCs) of the five factor model in predicting increased 30-year risk for »full CVD« and »hard CVD« were 0.881 and 0.888, respectively, which were not statistically significantly different from AUCs of the multivariable logistic model of 18 original parameters (0.892 and 0.901, P>0.05, respectively). Long-term, 30-year risk above normal/optimal for hard CVD complications and for all kinds of cardiovascular complications was independently contributed by systemic inflammation, atherogenic dyslipidemia, cardiorenal function and lipoprotein status.

P002
LONGITUDINAL CHANGES IN LIPID PROFILE PARAMETERS DURING UNCOMPLICATED PREGNANCY AND AFTER DELIVERY

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Specific metabolic changes in pregnancy are necessary to provide the needed in nutrients for fetal