

IMIDŽING SRCA U SPECIFIČNIM POPULACIJAMA PACIJENATA HEART IMAGING IN SPECIFIC PATIENT POPULATIONS

72 Diastolic function in elite athletes- the impact of age and the type of sport

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There is an ongoing debate if regular physical activity is able to retard the age- dependent impairment in diastolic function. The purpose of the study was to evaluate the diastolic function in different age groups of elite athletes.

Method: Elite male athletes (n=811), aged 14-17 years (adolescent juniors, n=212), 17-28 (young adults, n=507) and 29-44 (adults, n=92) participated in the study. They competed in 41 different sports, classified as: skill, power, mixed, and endurance type. By using Doppler echocardiography with TDI, peak early and late trans-mitral filling waves (E and A) and annular diastolic velocities (early-e' and late -a') were obtained to assess diastolic function.

Results: All athletes had preserved diastolic function. After adjustment for the resting heart rate (RHR), the significant decreasing trend among age groups was observed in: E, E/A, e' and e'/a' (p<0.01), and increasing trend in: A and a' (p<0.01). When controlling for type of sport and RHR, there was significant negative correlation between age and E (r=0.29; p<0.01), E/A (r=0.24; p<0.01), e' (r=0.29; p<0.01) and e'/a' (r=0.37; p<0.01) and positive with a' (r=0.28; p<0.01). After adjustment for the age and RHR, there were significant sport-specific variations only in e' ($\eta^2=0.01$; p<0.05), with the highest estimated marginal means for e' wave in skill group (15.4cm/s) and the lowest in endurance group (14.8cm/s).

Conclusion: Age related impairment in diastolic function exists even in physically active individuals. Lower RHR possibly enables better diastolic properties of the LV. Endurance type sports might be associated with favourable alterations in diastolic function.

73 Uticaj dužine trajanja hipertenzije na ehokardiografske parametre i stepen dijastolne disfunkcije kod pacijenata sa očuvanom sistolnom funkcijom miokarda leve komore

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Uvod: U današnje vreme velika pažnja posvećuje se srčanjoj insuficijnciji kod pacijenata sa očuvanom sistolnom funkcijom miokarda leve komore, koja se u praksi najčešće sreće kada je u osnovi hipertenzivna bolest srca, a bazirana je na oštećenju dijastolne funkcije miokarda leve komore.

Cilj: Ispitati postojanje uticaja trajanja hipertenzije na parametre dijastolne funkcije i stepen oštećenja dijastolne

funkcije kod pacijenata sa očuvanom sistolnom funkcijom miokarda leve komore.

Metode: Studijom je bilo obuhvaćeno 45 pacijenata oba pola starijih od 30godina, sa dobro regulisanom esencijalnom hipertenzijom bez koronarne i valvularne bolesti i drugih komorbiteta, podeljenih u tri grupe prema dužini trajanja hipertenzije. Kod svih pacijenata je bio urađen kompletan ehokardiografski pregled sa posebnim osvrtom na detaljnu procenu dijastolne funkcije miokarda leve komore uz ukupnu procenu stepena dijastolne disfunkcije.

Rezultati: Od 45 pacijenata 44 je imalo neki oblik dijastolne disfunkcije. Mitralni E/A odnos i stepen dijastolne disfunkcije miokarda leve komore nisu statistički povezani. Dužina trajanja hipertenzije, kao i povećanje mase miokarda leve komore i stepen dijastolne disfunkcije miokarda leve komore su povezani (p = 0.001). Dužina trajanja hipertenzije utiče na pojavu većeg stepena dijastolne disfunkcije miokarda leve komore (p = 0.001). Na pojavu većeg stepena dijastolne disfunkcije utiču udruženo masa miokarda leve komore (LVM) (p = 0.002) i dužina trajanja hipertenzije (p = 0.008).

Zaključci: Trajanjem hipertenzije dolazi do porasta stepena dijastolne disfunkcije miokarda leve komore. Mitralni E/A odnos nije dovoljan parametar za procenu dijastolne funkcije. Na razvoj dijastolne disfunkcije hipertoničara najviše udruženo utiču dužina trajanja hipertenzije i masa miokarda leve komore.

74 Uticaj dijabetes melitusa na dijastolnu funkciju lijeve komore

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Uvod: Dijabetička kardiomiopatija je prvi put opisana 1972. godine. Prevalencija ijabetesne kardiomiopatije u rzličitim studijama se kreće 10-60%. Postoji pozitivna korelacija između trajanja dijabetes melitusa i prevalencije dija-stolne disfunkcije, ne postoji signifikantna korelacija između trajanja dijabetes melitusa i težine dijastolne disfunkcije.

Cilj: Pokazati učestalost i težinu dijastolne disfunkcije kod bolesnika oboljelih od dijabetes melitusa sa akutnim koronarnim sindromom.

Metodologija: Studija je retrospektivna, obuhvata 302 ispitanika. U ovoj studiji je upoređivana zastupljenost dija-stolne disfunkcije i težine dijastolne disfunkcije kod bole-snika oboljelih od akutnog koronarnog sindroma sa i bez dijabetes melitusa, kao i težina dijastolne disfunkcije u odnosu na životnu dob.

Rezultat: Kod oboljelih od akutnog koronarnog sindroma bez dijabetes melitusa normalna dijastolna funkcija je bila zastupljena kod 83,78%, a kod oboljelih od dijabetes melitusa 16,22%. U obe grupe ispitanika najučestaliji pore-mećaj dijastolne disfunkcije je bila usporena relaksacija. Usporena relaksacija je bila znatno češća kod ispitanika starijih od 60 godina.

Zaključak: Kod oboljelih od akutnog oronarnog sindroma postoji značajna zastupljenost dijastolne disfunkcije, a kao najučestaliji stepen dijastolne disfunkcije je usporena relaksacija. Značajan faktor koji doprinosi razvoju dijastolne disfunkcije je i životna dob pacijenata. Ranom detekcijom dijastolne disfunkcije možemo poboljšati prognozu i liječe-nje kod ovih pacijenata.

75 Subclinical myocardial dysfunction in hypertensive patients with hyperuricemia

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Background: Elevated levels of serum uric acid have been associated in population studies with an increased risk of cardiovascular disease. Increasing evidence suggests that serum uric acid may be a useful marker for metabolic, hemodynamic, and functional staging in heart failure (HF) and a valid predictor of survival in HF patients. The aim of our study was to investigate the association between hyperuricemia and subclinical myocardial dysfunction.

Methods: The study included 64 hypertensive patients with hyperuricemia (n=31) or without hyperuricemia, (n=33) and control group of 33 age and sex matched healthy subjects.

Patients with high variability of the uric acid measurements from the first and second visits were excluded. Left atrial volume index (LAVI), left ventricular mass index (LVMI), left ventricular dimensions and volume indexes (LVEDV/BSA and LVESV/BSA) and EF were estimated by echocardiography. We measured corresponding velocities from tissue Doppler at the level of the septal mitral annulus (Em, Am, Sm), including isovolumic contraction velocity (IVCv) and E/Em. Global longitudinal strain (GLS) was derived from two-dimensional speckle-tracking.

Results: Close correlations were found between GLS and E/Em ($r=0.449$; $p=0.0004$) and IVCv ($r=-0.390$; $p=0.0008$). Levels of E/Em (7.7 ± 1.5 vs 10.3 ± 1.7 vs 14.6 ± 1.8 ; $p=0.0007$), LVEDV/BSA (91.0 ± 15.3 vs 103.1 ± 23.5 vs 105.8 ± 24.7 ; $p=0.015$), LVESV/BSA (34.5 ± 9.3 vs 42.3 ± 10.2 vs 46.1 ± 15.4 ; $p=0.001$), LVMI (104.2 ± 17.3 vs 112.7 ± 20.5 vs 123.9 ± 28.3 ; $p=0.003$) and LAVI (34.9 ± 9.7 vs 40.2 ± 11.8 vs 47.0 ± 12.0 ; $p=0.0002$) progressively increased from the normal group through group of hypertensive patients without hyperuricemia and group with hyperuricemia. Significantly different value of GLS (-22.4 ± 5.0 vs -19.6 ± 4.0 vs -16.6 ± 4.9 ; $p=0.0002$) was obtained between groups too, but with progressively decrease from the normal group through group of hypertensive patients without hyperuricemia and group with hyperuricemia.

Conclusion: According to this observation, uric acid could be considered a new parameter for cardiac remodeling and subclinical myocardial dysfunction in hypertensive patients. This suggests that uric acid may aid in the identification of patients at high risk for development of HF who need preventive treatment. The question of whether uric acid is only a marker rather than a causal factor in the pathogenesis of HF remains

76 Značaj ehokardiografije u praćenju toka i trudnoće i planiranju porođaja kod bolesnica sa značajnom disfunkcijom leve komore

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Zbog hemodinamskih promena u trudnoći u literaturi nailazimo na podatke koji ne preporučuju trudnoću kod žena koje imaju ozbiljno poremećenu sistolnu funkciju leve komore i EF < 30 %

Pacijentkinja se javila na našu kliniku u petom mesecu druge trudnoće novembra 2011 g. Prva trudnoća je završena operativnim putem septembra 2005 g. Decembra iste godine dolazi do razvoja peripartalne kardiomiopatije (LVEDD 7.2, EF 25%). Po prijemu na našu kliniku urađen EHO srca (LVEDD 6.4, EF 30%). Trudnoća nastavljena uz praćenje EKG i EHO srca na 15 dana. Zbog pogoršanja opšteg stanja i srčane funkcije (LVEDD 6.9, EF 26%) urađeno operativno završavanje trudnoć. Postoperativni tok protekao bez značajnijih komplikacija.

76a Prognostic value of transthoracic coronary flow reserve in medically treated patients with stenosis of intermediate severity (50-70%)

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Introduction: Transthoracic coronary flow reserve (CFR) is very useful tool to assess functional significance of intermediate stenosis. Decision to do percutaneous coronary intervention (PCI) of intermediate stenosis should be done guided only by objective evidence of ischaemia. CFR reduction is located upstream in the classical ischaemia cascade, and CFR may be impaired even without a wall-motion abnormality, especially in single vessel disease of intermediate severity. Therefore we hypothesized that transthoracic CFR is a valuable non invasive tool in this setting.

Aim: To examine the prognostic value of $CFR \geq 2$ in medically treated patients with stenosis of intermediate severity after coronary angiography.

Materials and methods: We enrolled 125 patients, 57 ± 11 years of age, coronary angiography with remaining intermediate stenosis (50-70%). All patients were followed up for a 25 ± 12 months. CFR was defined as the ratio between maximal velocity of diastolic coronary blood flow during maximal hyperemia and in rest, induced by i.v. infusion of adenosine (140mcg/kg/min). Based on CFR value which was done in the first week of the hospitalization, patients were divided into two groups: Group 1. $CFR \geq 2$ and Group 2. $CFR < 2$. Primary endpoints were: cardiac death, non-fatal ACS, PCI or by-pass surgery of the examined vessel.

Results: There were 15 events related to the examined vessel. In Group 1, 3 patients had PCI of examined stenosis and 1 patient had by-pass surgery. In Group 2, 9 patients had PCI of examined stenosis and 2 patients had by-pass surgery. Value of CFR in group of patients with events was significantly lower than in group of patients without events, (1.84 ± 0.32 vs. 2.4 ± 0.4 , $p < 0.001$, respectively). By Kaplan-Meier method, Group 1 had significantly higher events free survival in follow-up time compared to the Group 2, (96% vs 47%, $p < 0.001$, respectively). Furthermore, patients with $CFR < 2$ had a 20.23-fold increased in cardiovascular risk compared to patients with $CFR \geq 2$ (95% CI: 6.3-64.97; $p < 0.001$)

Conclusion: In patients with remaining stenosis of intermediate severity and $CFR \geq 2$, deferral of revascularization and continuation of the medical therapy, might be reasonable option since it is associated with good long term clinical outcome.