

Subclinical detection of atherosclerosis and myocardial ischemia in asymptomatic patients with intermediate and high cardiovascular risk: therapeutic and prognostic implications

Irena Peovska Mitevaska^{1*}, Jelka Davceva Pavlovska¹, Elizabeta Srbinska¹, Marijan Bosevski¹, Maja Zdravskovska², Marina Zdraveska²

¹University Cardiology Clinic, Skopje, Macedonia

²Institute for Pathophysiology and Nuclear Medicine, Skopje, Macedonia

Background: We wanted to evaluate the presence of coronary atherosclerosis and myocardial ischemia in asymptomatic patients with intermediate and high cardiovascular (CV) risk, the influencing clinical factors and the impact of ischemia on the final management decision and prognosis.

Patients and Methods: 75 asymptomatic patients (35 with intermediate and 40 patients with high CV risk-SCORE risk system), underwent single-photon emission computed tomography (SPECT) myocardial perfusion imaging (MPI) for the detection of suspected coronary artery disease. We used a 17-segment model for the scan perfusion and function analysis using perfusion scores. All of the patients have full blood laboratory analyses including lipid values, and presence of urine albuminuria. Multislice computer tomography with coronary calcium Agatston score (CAC) for coronary atherosclerosis detection was also performed. The patients were followed up for 12-18 months for cardiovascular events (new chest pain, hospitalization for acute coronary syndrome, revascularization, cardiac death). Logistic regression analysis was used to assess predictive parameters for myocardial ischemia and cardiovascular events.

Results: Stress-inducible ischemia was found in 19 patients (33%), fixed defects were found in 13% and mixed defects in 9% of cases. The average ischemia amount was 10%. Mild ischemia was found in 12 patients (64%) - summed stress score (SDS) <4, moderate ischemia in 5 patients (26%) - SDS 5-7 and severely abnormal scans in 2 patients (10%) - SDS >7. Severe ischemia was only related to the duration of diabetes (DM). Patients with at least moderate ischemia had Agatston CAC score 465+/-112. The patients with normal MPI scan had CAC score 98+/-45. 3 pts with moderate risk were reclassified to high risk by using CAC and MPI scan results. Stepwise logistic regression analysis for the prediction of stress-induced ischemia showed OR 2.4 (95% CI 1.7_3.6) for the stress-induced ECG changes, OR 2.8 for CAC >400 (95% CI 1.9-3.2) and OR 3.9 for the presence of DM over 10y (95% CI 2.3_6.6). Seven patients with ischemia >10%, were referred for coronary angiography. One patient was hospitalized due to the acute coronary syndrome and no cardiac death was registered during the 12 months follow-up.

Conclusions: MPI is a valuable method for preclinical assessment of myocardial ischemia in asymptomatic intermediate and high risk patients, which can improve the prognosis and guide the treatment decision. Coronary calcium score can predict the presence of myocardial ischemia and reclassify the patient's risk.

KEYWORDS: myocardial single-photon emission computed tomography imaging, ischemia, coronary calcium score, prognosis.

CITATION: *Cardiol Croat.* 2014;9(5-6):194.

Received: 6th Apr 2014

*Address for correspondence: University Cardiology Clinic, ul. Vodnjanska 17, 1000 Skopje, Macedonia.

Phone: +389-75-491-216

E-mail: peovskai@yahoo.com

Literature

1. Shah PK. Screening asymptomatic subjects for subclinical atherosclerosis: can we, does it matter, and should we? *J Am Coll Cardiol.* 2010;56:98-105.
2. Bourque JM, Beller GA. Stress myocardial perfusion imaging for assessing prognosis: an update. *JACC Cardiovasc Imaging.* 2011;4(12):1305-19.