

The prognostic value of coronary flow reserve of left anterior descending artery in non-diagnostic or inconclusive stress echocardiography tests

M. Kotevska Angjushev¹, S. Dedic², N. Boskovic², V. Giga³, M. Tesic⁴, I. Jovanovic³, S. Aleksandric⁴, B. Beleslin⁴, A. Djordjevic Dikic³

¹City General Hospital 8 September, Department of Cardiology, Skopje, North Macedonia; ²University Clinical Center of Serbia, Belgrade, Serbia;

³University Clinical Center of Serbia, Department of functional cardiology, Belgrade, Serbia; ⁴University Clinical Center of Serbia, Department of interventional cardiology, Belgrade, Serbia

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Background: Relevant number of all stress echocardiography results are non-diagnostic or inconclusive. Such importance cannot be ignored as previous studies have shown that these patients have higher risk for adverse events. Non-invasive transthoracic Doppler derived coronary flow reserve (CFR) of left anterior descending (LAD) artery, as additional test, is an effective tool to predict adverse cardiac events in various clinical settings.

Purpose: The aim of this study was to investigate the value of CFR of LAD in predicting outcome.

Methods: 122 patients, (35,8% with previous MI) with nondiagnostic stress echocardiography results (target heart rate not reached, chest pain without ECG and echo changes) and with inconclusive stress echocardiography results (target heart rate reached, chest pain with ECG changes and without echo changes) were referred for transthoracic

Doppler echocardiographic CFR assessment of LAD. CFR was calculated as the ratio between maximal hyperemic and baseline coronary flow veloc-

ity. $CFR \leq 2$ was considered abnormal. All patients were followed for major adverse cardiac events (MACE): nonfatal myocardial infarction, hospitalization, revascularization (CABG or PCI) and death.

Results: Measured values of CFR LAD were in the range 1,52- 4,00 (mean: $2,4 \pm 0,44$). CFR LAD was abnormal in 22 (18%), and preserved in 100 patients (82%). During median follow-up of 23 months (interquartile range 9–35), 14 patients underwent revascularization (2 had CABG, 12 had PCI). There were no myocardial infarctions, hospitalizations or cardiovascular deaths in the follow-up period. Patients with lower CFR values ($CFR \leq 2$) had a higher event rate and shorter event free survival time compared to those with $CFR > 2$, event rate (9/22, 40,9% vs 5/98 5,1%; $p < 0,0001$) and event free time (22 ± 3 vs 33 ± 1 months; $p < 0,0001$) by Kaplan Maier analyses, (Log Rank 24.42; $p < 0,001$).

Conclusions: Preserved CFR of LAD ($> 2,0$) predicts excellent survival in patients with non-diagnostic and inconclusive stress echocardiography.