Abstract: P300

Epicardial adipose tissue as a marker of increased cardiovascular risk in patients with acute myocardial infarction

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Background: Epicardial adipose tissue (EAT) is a metabolically active fat that has been correlated with an increased cardiovascular risk, as well as with other conditions that are characterized by an enhanced systemic inflammatory status, including diabetes, atrial fibrillation, metabolic syndrome, renal insufficiency or autoimmune disease. An increased EAT has also been associated with increased risk for adverse cardiovascular events, as well as with impaired prognosis in patients with significant coronary artery disease.

Purpose: we sought to assess the impact of the epicardial adipose tissue, as a marker of patient vulnerability, on the clinical course of patients with recent acute myocardial infarction (within 1 month) compared to patients with stable angina.

Methods: We included 97 patients who underwent complete clinical examination and 2D transthoracic echocardiographic evaluation with included measurement of the EAT thickness (parasternal long axis view, at the anterior wall of the right ventricle, during diastole) as well as evaluation of the left ventricular diameters, volumes (diastolic, systolic)and function (left ventricular ejection fraction – LVEF), and the presence of significant valvular disorders. Patients were divided into 2 groups: group 1: 50 with recent acute myocardial infarction (rMI), and group 2: 47 patients with stable angina (SA).

Results: Mean age of the study subjects was 63.16 ±11.22, 63.91% (n=62) were males, while the average EAT thickness for the total study population was 7.68±2.54 mm. No significant differences were found between SA and rMI patients regarding age (p=0.108) or cardiovascular risk factors except smoking with was more prevalent in the recent MI group (p=0.021, OR 3.21, 95% CI:1.19-8.64). The EAT thickness was significantly higher in patients with recent MI compared to those with SA (9.05±2.24 vs. 6.23±1.98, p<0.0001). LVEF was significantly lower in patients with previous MI compared to SA (47.20 ± 7.94 vs. 50.83 ± 8.99, p=0.038). EAT thickness was significantly correlated with the total cholesterol levels (r=0.20, p=0.045), with the end-diastolic and end-systolic left ventricular diameters (r=0.20, p=0.05 and r=0.33, p=0.001, respectively), and inversely correlated with the LVEF (r=-0.30, p=0.002) in the overall study population.

Conclusions: Epicardial adipose tissue is negatively correlated with the left ventricular ejection fraction in patients with significant coronary artery disease, being associated with increased levels of cholesterol, as well as with a higher end-diastolic left ventricular diameter. EAT is significantly larger in patients with recent myocardial infarction compared to those with stable angina. Our results indicate that EAT is significantly higher in patients with acute coronary syndrome, suggesting that EAT could become a novel marker for increased cardiovascular risk.