Introduction: Epichardial adipose tissue (EAT), located between the myocardium and visceral layer of pericardium is an emerging risk factor for cardiometabolic diseases.

Methods: The retrospective study consisted of patients hospitalised for STEMI treated with PCI from 2014 to 2016. EAT thickness was measured from the parasternal long-axis view at end-diastole.

Cholesterol levels were determined in a blood sample. According to median patients were divided in two groups: thin EAT group (<2.27 mm, n = 270) and thick EAT group (≥2.27 mm, n = 223). Statistical analysis was performed with SPSS using Mann–Whitney test, T-test, logistic regression analysis. Values of cholesterol levels were evaluated by ROC curves. p < 0.05 was significant.

Results: Total 492 patients (332 males, 66.62 ± 12.24 year-old) were enrolled. Groups did not differ by age, gender, morbidity of diabetes mellitus and triglyceride levels. Patients had higher BMI (29.41 ± 4.97 vs. 28.13 ± 4.67 kg/m², p = 0.009), total cholesterol (>4.82 mmol/l; 35.2 vs. 26.4%, p = 0.024), low density lipoprotein cholesterol (>2.5 mmol/l; 45.8 vs. 33.3%, p = 0.004) and reduced high density lipoprotein cholesterol (HDL-C) levels (<1 mmol/l; 24.4 vs. 10.4%, p = 0.009) in thick EAT group. Logistic regression analysis revealed that higher BMI (OR=1.532, 95% CI 1.008–2.328, p = 0.002) and HDL-C <1 mmol/l (OR=1.777, 95% CI 1.159–2.724, p = 0.008) were associated with thicker EAT. Killip class ≥III was more frequent (17.6 vs. 10.3%, p = 0.02) in thick than thin EAT group.

Conclusion: Increased EAT thickness was associated with obesity, cardiometabolic risk factors and influenced severity of left ventricular dysfunction.

Results: There was a statistically significant correlation between all single, field and volume measurements and real volume (p < 0.05). For single measurements, the correlation is the strongest for height (r = 0.813, sensitivity 65%, specificity 91.7%, PPV 71.4%, NPV 95.6%). For two-dimensional, it is the coefficient calculated from length and 90° height (r = 0.918, 85%, 94.7%, 70.8%, 97.7%). For three-dimensional, it is the coefficient calculated from length, 90° height and hilum thickness (r = 0.919, 75%, 96.2%, 75%, 96.2%). Cut-off for splenic index from our calculations was ≥1148.

Conclusion: Coefficient from length, 90° height and hilum thickness correlate best with the real volume of the spleen. Splenic index in our study is far from the perfection for clinical practice.