Abstract: Epicardial adipose tissue as a predictor of cardiovascular outcome in patients with ACS undergoing PCI?

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Aims: We sought to investigate the association between epicardial adipose tissue (EAT) and cardiovascular events in patients with acute coronary syndrome (ACS) undergoing percutaneous coronary intervention (PCI).

Methods: Out of 1198 patients undergoing PCI, 438 had a transthoracic echocardiography during index hospitalisation. EAT thickness was measured in the parasternal long-axis view, perpendicularly on the free wall of the right ventricle at end-systole in 3 independent cardiac cycles. Patients were stratified by the median of EAT thickness. The primary endpoint was cardiovascular mortality, the secondary endpoint was all-cause mortality.

Results: Patients were included between 2004-2012, 33.1% were female. Median EAT was 2.65 mm [IQR 2.00-3.00].

Patients suffering from diabetes (p=0.049) and patients with previous myocardial infarction (MI) (p=0.017) had significantly higher EAT thickness. Moreover, EAT was correlated with BMI (R=0.381; p<0.001) and weight (R=0.321; p=0.001). After a mean follow-up of 2.76 ± 0.69 years, the primary endpoint occurred in 8.4%, the secondary endpoint occurred in 11.9% of patients. Neither log-rank, nor Cox regression modelling showed a significant predictive value of EAT, with respect to both endpoints.

The following were predictors of cardiovascular death: Age (per year increment HR=1.105 [95% CI 1.049-1.164]; p=0.001), atrial fibrillation (HR=6.349 [95% CI 2.155-18.706]; p=0.001) and the presence of diabetes (HR= 3.340 [95% CI 1.092-10.217]; p=0.035).

Conclusions: This is the first study to examine the correlation of EAT with cardiovascular and all-cause mortality in ACS patients, who all underwent PCI. EAT was associated with established markers of cardiovascular death, namely BMI, weight, the presence of diabetes and previous MCI. However, we did not find a correlation between EAT thickness and cardiovascular or all-cause mortality.