Abstract: P543

Biomarker assessment for early infarct size estimation in ST-elevation myocardial infarction

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Background: High-sensitivity cardiac troponin T (hs-cTnT) represents the biomarker of choice for infarct size (IS) estimation in patients with acute ST-elevation myocardial infarction (STEMI). However, admission values of hs-cTnT are only weakly associated with IS. The aim of this study was to investigate the incremental value of different biomarkers measured on admission for IS estimation in STEMI patients.

Methods: In this prospective observational study, we included 161 consecutive STEMI patients treated with primary percutaneous coronary intervention (pPCI). The following biomarkers were assessed on admission: hs-cTnT, N-terminal pro-B-type natriuretic peptide (NT-pro-BNP) and neutrophil/lymphocyte ratio (NLR). IS was determined by cardiac magnetic resonance (CMR) imaging 3 (Interquartile range [IQR] 2 to 4) days after the index event.

Results: Patients with large IS (>19% of left ventricular myocardium) showed significantly higher levels of admission hs-cTnT (399.6 vs. 53.4 ng/L, p<0.001), NT-pro-BNP (140 vs. 86 ng/L, p=0.008) and NLR (6.4 vs. 4.1, p<0.001). The combination of hs-cTnT, NT-pro-BNP and NLR on admission resulted in a significantly higher area under the curve (0.78; 95% CI 0.704 to 0.838, (p=0.01)) for the prediction of large IS than admission hs-cTnT alone (0.69; 95% CI 0.619 to 0.767).

Conclusions: In STEMI patients undergoing pPCI, a comprehensive biomarker approach on admission including hs-cTnT, NT-pro-BNP and NLR was significantly better for immediate infarct severity estimation as compared to hs-cTnT alone.