

POSTER PRESENTATION

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Predictive value of high-sensitive troponin t versus conventional biomarkers for 1-year left ventricular function and infarct size after STEMI

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Background

Data relating high-sensitive troponin T (hs-cTnT) to long-term myocardial function and damage in patients after STEMI are lacking. We evaluated the use of serial and peak concentrations of hs-cTnT versus creatine kinase (CK), lactate dehydrogenase (LDH) and high sensitive C-reactive protein (hs-CRP) for prediction of myocardial function as well as infarct scar assessed by cardiac magnetic resonance imaging (CMR) one year after first ST-segment elevation myocardial infarction (STEMI).

Methods

Sixty-six patients receiving primary percutaneous coronary intervention (p-PCI) for first STEMI were enrolled in this single-centre, observational study. All participants underwent cine and contrast-enhanced CMR within the first week and 12 months after the index event. Serial biomarkers were determined on admission, 6 h, 12 h, 24 h, and 12 months following p-PCI. Hs-cTnT concentrations were measured by a fourth generation high-sensitive immunoassay (Roche Diagnostics®). Other biomarkers were assessed using commercially available assays.

Results

Except for admission values, all single time point and peak hs-cTnT concentrations showed moderate to good correlations with 12-months left ventricular ejection fraction (LVEF) ($r = -0.41$ to -0.52 , all $p < 0.01$) and infarct size (IS) ($r = 0.50$ to 0.70 , all $p < 0.01$). Peak CK (LVEF: $r = -0.45$ to -0.56 , IS: $r = 0.61$ to 0.65), peak LDH (LVEF: $r = -0.51$ to

-0.59 , IS: $r = 0.54$ to 0.69), and peak hs-CRP (LVEF: $r = -0.32$ to -0.36 , IS: $r = 0.31$ to 0.36) were also significantly related with CMR parameters (all $p < 0.05$). In receiver-operator characteristic analysis, peak hs-cTnT (AUC = 0.82 ($0.71 - 0.92$) and 0.89 ($0.81 - 0.97$), respectively) and peak LDH (AUC = 0.83 ($0.74 - 0.93$) and 0.91 ($0.84 - 0.99$), respectively) displayed the best performance for prediction of reduced LVEF ($< 55\%$, $n = 29$) and large infarct size at follow-up ($> 8\%$ of left ventricular myocardial mass, $n = 36$). The combination of biomarkers did not significantly improve the predictive power of hs-cTnT alone ($p > 0.05$).

Conclusions

In patients with first STEMI, peak concentrations of hs-cTnT are closely correlated to long-term myocardial function and infarct size. Maximum concentrations of CK, LDH, and hs-CRP were also correlated with 12-months LVEF and infarct size, but did not add any significant prognostic value compared to hs-cTnT alone.

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