Abstract: **P1735**

**Two-hour algorithm for early diagnosis of acute myocardial infarction using a novel high-sensitivity cardiac troponin I assay**

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**On behalf:** APACE and ADAPT investigators

**Topic(s):**
Coronary Artery Disease : Noninvasive Diagnostic Methods

**Citation:**

**Funding Acknowledgements:**
European Union, Swiss National Foundation, University Hospital Basel, University Basel

**Background:** We aimed to derive and externally validate a 0/2h-algorithm using the novel high-sensitivity cardiac troponin I (hs-cTnI-Access) assay.

**Methods:** We enrolled patients presenting to the emergency department with symptoms suggestive of acute myocardial infarction (AMI) in two prospective chest pain trials. Two independent cardiologists adjudicated the final diagnosis including all available medical information including cardiac imaging. Hs-cTn concentrations were measured at presentation and after 2h. Primary diagnostic endpoint was the derivation and validation of an hs-cTnI-Access specific 0/2h-algorithm. Primary prognostic endpoint was overall survival of patients after 30- and 720-days of follow-up.

**Results:** AMI was the adjudicated final diagnosis in 164/1131 (14.5%) patients in the derivation and in 88/1280 (6.9%) patients in the validation cohort. Median hs-cTnI Access concentrations at presentation were significantly higher in patients with AMI as compared to patients with non-AMI in both cohorts (104 ng/L versus 3.4 ng/L and 29 ng/L vs. 2.3 ng/L, p-value both <0.001) Applying the derived hs-cTnI-Access 0/2h-algorithm (Figure 1A) to the validation cohort (Figure 1B), 77.9% of patients were ruled-out (sensitivity 97.7% [95%CI, 92-99.7], negative predictive value [NPV] 99.8% [95%CI, 99.3-100]), and 5.8% of patients were ruled-in (specificity 98.6% [95%CI, 97.7-99.2], positive predictive value [PPV] 77% [95%CI, 65.8-86]). Among 1617 patients ruled-out for AMI in both cohorts together, 3 (0.2%) patients with AMI have been missed, of whom 2 patients had type 2 myocardial infarction (both with tachyarrhythmia). Patients ruled-out by the 0/2h-algorithm had a survival rate of 98.4% and 99.9% after two years or one year of follow up in both cohorts, respectively.

**Conclusions:** Diagnostic performance of the hs-cTnI Access 0/2h-algorithm for triage of AMI is excellent with high safety for rule-out and high accuracy for rule-in.
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Conclusions: Diagnostic performance of the hs-cTnI-Access 0/2h-algorithm for triage of AMI is excellent with high safety for rule-out and high accuracy for rule-in.