

Heart-type Fatty Acid Binding Protein compared to high-sensitive Troponin T for early exclusion of acute myocardial infarction

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6th Annual Scientific Meeting of the European Primary Care Cardiovascular Society (EPCCS), September 5-6, 2013 in London, United Kingdom.

Rationale Although Heart-type Fatty Acid Binding Protein (H-FABP) has been described as the earliest plasma biomarker for acute myocardial infarction (AMI), only few studies have compared H-FABP to high-sensitive troponin T (hs-TnT). We evaluated whether H-FABP can be used to safely rule out AMI in patients presenting with chest complaints in an early phase, as is necessary in general practice and emergency department.

Methods & Results Plasma H-FABP at presentation was determined in patients with any new-onset chest complaint of possible cardiac origin, consecutively presenting to the cardiology department of a large regional hospital. Venous H-FABP at presentation was determined with a second generation reference ELISA (FABPulous BV) and serial hsTnT levels with an Elecsys Cobas 5th generation cTnT assay (Roche Diagnostics). Area under the ROC-curves (AUC) and sensitivity, at specific cut-off values were used to quantify accuracy of the test in patients with different duration of complaints.

Data were available for 218 consecutive patients. Duration of the complaints ranged between 1 and 42 h (median 4.5 h). Prevalence of AMI was 51%. ROC-curves based on the results of the first H-FABP and hs-TnT tests were similar ($p=0.73$) with the H-FABP curve positioned slightly but not significantly more to the left during the first six hours (AUC 0.73 versus 0.71). Using a cut-off value of 4.0 ng/mL for H-FABP and 14 pg/mL for hs-TnT, sensitivity of the H-FABP (hs-TnT) tests were 0.75 (0.74) for all patients at presentation and 0.57(0.51), 0.88 (0.83), 0.92 (0.96) for patients presenting respectively 0-3, 4-6, 7-12 h after beginning of complaints. When using either H-FABP (cut-off > 4.0 ng/ml) or hs-TnT (cut-off > 14 pg/ml), sensitivity increased to 0.86 for all patients and 0.73, 0.92 and 0.96 in the formerly mentioned subgroups of duration of complaints.

Conclusion In patients presenting with acute chest pain, plasma H-FABP has similar sensitivity and specificity as hs-TnT.

Clinical Relevance hs-TnT is not available as an easy to use point of care test. We intend to test the diagnostic value of a recently launched point of care H-FABP-test in addition to clinical signs and symptoms in primary care, using 4.0 ng/mL as cut-off value.