Use of PATHFAST cTnI assay for detection of myocardial infarction in patients presenting with symptoms suggestive of acute coronary syndromes at the emergency room

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**Background**

The measurement of troponin for the early diagnosis of acute myocardial infarction using point-of-care assays in patients presenting with chest pain at the emergency department is limited because commercially available point-of-care assays cannot provide the analytical imprecision and the diagnostic accuracy required by international guidelines.

**Aim of the study**

To evaluate the diagnostic performance of the quantitative point-of-care (POC) assay PATHFAST® cTnI (Mitsubishi, Japan) for early detection of non-ST-segment myocardial infarction (NSTEMI) in patients presenting with acute chest pain at the emergency room.

**Methods**

We measured cardiac troponin I (cTnI) using PATHFAST® cTnI in serum samples of 193 consecutive patients admitted to a chest pain unit at a large medical school hospital in Germany. Blood sampling was done on admission, 3 and 6 hours after admission.

The results of the troponin measurements were interpreted with respect to the discharge diagnoses which were independently established during the clinical course of the patients. Patients with non-ST-elevation myocardial infarction (NSTEMI, N = 72), unstable angina pectoris (uAP, N = 80), ST-elevation myocardial infarction (STEMI, N = 7), non cardiac chest pain (NCCP) (N = 29), and others (N = 5) were included.

**Results**

PATHFAST® cTnI concentrations ≥ 0.020 ng/ml (99th percentile cutoff) were obtained at admission, 3 hours and 6 hours in 50, 69, and 65 patients of 74 patients with NSTEMI, respectively. Sensitivities and specificities obtained from ROC analysis using the recommended 99th percentile concentration of 0.020 ng/ml as the medical decision cutoff value are displayed in Tab. 2. Fig. 1 shows the corresponding ROC curves.

**Conclusion**

The most important result was the finding that NSTEMI was diagnosed already 3 hours after admission with the same diagnostic accuracy as after 6 hours. The findings suggested that PATHFAST cTnI which can also be used as POC test using whole blood samples may be able to improve the early diagnosis of acute myocardial infarction and save precious time until a definite diagnosis is established in emergency patients with acute chest pain.

**Literature**
