MYOCARDIAL ISCHEMIA AND INFARCTION

TROPONIN T TESTING IN THE PREHOSPITAL DIAGNOSIS AND TRIAGE OF PATIENTS WITH SUSPECTED HEART ATTACK

ACC Poster Contributions

Ernest N. Morial Convention Center, Hall F

Monday, April 04, 2011, 9:30 a.m.-10:45 a.m.

Session Title: Unstable Ischemic Syndrome -- Clinical: Biomarkers

Abstract Category: 2. Unstable Ischemic Syndrome—Clinical

Session-Poster Board Number: 1071-329

Authors: Jacob T. Sorensen, Christian J. Terkelsen, Carsten Steengaard, Jens F. Lassen, Sven Trautner, Erika F. Christensen, Torsten T. Nielsen, Hans Erik Botker, Henning R. Andersen, Kristian Thygesen, Department of Medicine and Cardiology, Aarhus University Hospital, Aarhus, Denmark, Department of Cardiology, Aarhus University Hospital, Skejby, Aarhus, Denmark

Background: Prehospital ECG diagnosis of patients with chest pain has improved triage and outcome in myocardial Infarction (AMI). However, a considerable proportion of patients with AMI present with equivocal ECG patterns making prehospital diagnosis difficult. Routine, prehospital biomarker analysis, performed by paramedics, may improve the diagnostic accuracy.

Aims: To investigate the feasibility and added diagnostic potential of Troponin-T analysis in chest pain patients transported by the emergency medical services (EMS).

Methods: The study was performed in the Central Denmark region. All patients with suspected heart attack, transported in an ambulance with blood sampling equipment, from June 2008 to September 2009 were eligible for prehospital Troponin-T testing. Prehospital Troponin-T was evaluated by a qualitative point-of-care test (detection limit 0.10 ng/ml). Quantitative Troponin-T was measured upon hospital arrival and again after 8 and 24 hours (detection limit 0.03 ng/ml).

A prehospital ECG was recorded in all patients.

Results: Prehospital Troponin-T testing was performed in 958 patients with a 97% success rate. Of the 958 patients, 258 developed elevated Troponin-T (>0.03 ng/ml) during hospital admission. The prehospital test identified 26% of these, while the first in-hospital test was positive in 81%.

218 of the 258 patients with elevated Troponin-T had a type I MI, as defined by the Universal definition of AMI. The prehospital test identified 29% of these, while the first in-hospital test was positive in 79%.

The median time from symptom-onset to analysis was 83 (46 - 167) min for the prehospital sample and 165 (110 - 276) min for the admission sample.

Conclusion: Prehospital biomarker analysis, in the hands of paramedics, is feasible with a high success rate. This study indicates that implementation of quantitative tests, with lower detection limits, in the prehospital setting could identify the majority of AMI patients irrespective of ECG changes and thereby improve triage.