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Heart Congress 2020: Save Heart Study Diagnostic Utility Of Point Of Care High Sensitive Troponin-I Assay For Early Diagnosis Of Acute Myocardial Infarction In Patients Presenting With Acute Onset Chest Pain In Emergency Departments - Sheikh Jan M - Batra Hospital and Medical Research centre

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Background: An early diagnosis of myocardial infarction is highly important in the emergency department (ED). It facilitates rapid decision making and treatment and therefore improves the outcome in patients presenting with symptoms of chest pain.

Aims and Objectives: To study diagnostic utility of new point of care high sensitive troponin-Iassay in early diagnosis of acute myocardial infarction in patients presenting with acute chest pain.

Material and Methods: Forty six consecutive patients of acute onset chest pain who presented to our cardiac emergency department within three hours of symptom onset were enrolled for study.POCHs Trop-I test was done on admission (0 hour), and after 3 hours if initial test result was negative. Quantitative troponin I (Q-Trop I) lab assay was done on admission (0 hour), 3 hours and 6 hours after admission. Six hour Q-Trop I assay was taken as gold standard for the initial diagnosis of AMI. The final adjudicated diagnosis of AMI was based on a composite of ECG changes (new ST segment or T wave changes, new onset LBBB), Troponin results, Echocardiography (new wall motion abnormality), angiographic findings (detection of a culprit lesion) and final chart review of observations made. The APACE (Advantageous Predictors of Acute Coronary Syndromes Evaluation) study is an ongoing prospective international multicenter study that includes 12 centers in 5 countries and is aimed at advancing the early diagnosis of MI Adult patients presenting to the ED with symptoms suggestive of MI with an onset or peak within the last 12 h were recruited. Although enrollment was independent of renal function, we excluded patients with terminal kidney failure on chronic dialysis. The study was carried out according to the principles of the Declaration of Helsinki and was approved by the local ethics committees. Written informed consent was obtained from all patients.

For this analysis, we excluded patients with ST-segment elevation MI, patients in whom the diagnosis remained unknown even after final adjudication and had at least 1 elevated hs-cTn concentration, thereby possibly indicating MI, as well as patients with missing measurements of the POC-hs-cTnI-TriageTrue, hs-cTnT-Elecsys (Elecsys 2010 High-Sensitivity Troponin T, Roche Diagnostics, Rotkreuz, Switzerland) or hs-cTnI-Architect (ARCHITECT STAT High-Sensitivity Troponin I, Abbott Laboratories, Abbott Park, Illinois) assays. For the derivation and validation of the 0/1-h algorithm, patients with missing 1-h concentrations of POC-hs-cTnI-TriageTrue were also excluded.

Results: Comparing the results of POC Hs Trop I results at 0 hour with the gold standard test we found the sensitivity of 97%, specificity of 100%, positive predictive value (PPV) of 100% and negative predictive value (NPV) of 92.3%. Sensitivity of POC Hs Trop I at 3 hours was better than POC Hs Trop I at 0 hour (97 vs. 100%) and equal to gold standard i.e. 100 %.Specificity, PPV and NPV are 100% for POC Hs Trop I at 1 hour.

Conclusion: High sensitive Trop I test is rapid and reliable method to diagnose and exclude acute myocardial infarction in patients presenting with acute onset chest pain to our Emergency Departments

KEY WORDS: Save Heart study,High sensitive troponins, Acute Myocardial infarction, Acute coronary syndrome, Early diagnosis of AMI.

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