

## A Preliminary Study of the Utility of Combined Cardiac Markers in the Evaluation of Patients Presenting Early with Suspected Acute Coronary Syndrome

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### Abstract

**Objective:** The aim of the study was to investigate and compare the usefulness and accuracy of various cardiac markers [troponin I, creatine kinase MB (CKMB) mass, creatine kinase (CK), CKMB activity] to aid early diagnosis of myocardial infarction. We also examined the ability of the various cardiac markers to prognosticate future adverse cardiac events. **Materials and Methods:** Patients admitted within 8 hours of maximal chest pain suggestive of acute coronary syndrome with non-diagnostic electrocardiograms were recruited. Blood samples were obtained on admission to the wards and repeated 4 hours later. These results were later correlated to the final hospital discharge diagnosis. **Results:** The 37 patients in the study were a high-risk population with over 50% presenting with a Thrombolysis in Myocardial Infarction (TIMI) risk score of greater or equal to 3. Myoglobin was the most sensitive marker (100% sensitivity) in early prediction of patients who were subsequently diagnosed to have a myocardial infarction. Patients with an elevated troponin I level but normal CK and myoglobin levels had a significantly higher risk of developing a major adverse clinical event (MACE) within 3 months of the initial presentation. **Conclusion:** Myoglobin is the most sensitive marker when compared to CK, CKMB and troponin I for diagnosing patients presenting early with chest pain and a non-diagnostic electrocardiogram and who subsequently develop either a ST-elevation myocardial infarction or non-ST elevation myocardial infarction. Patients with an elevated troponin I level but normal CK and myoglobin levels are at higher risk of an adverse clinical event.

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**Key words:** Creatine kinase, Creatine kinase MB mass, Major adverse clinical event, Myoglobin, Troponin I

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