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Evaluation of cardiac enzymes in early detection of acute myocardial infarction

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Background: Acute myocardial infarction (AMI) represents a diagnostic challenge. Diagnosis of AMI is usually established based on the clinical symptoms, electrocardiographic (ECG) changes and the activities of cardiac enzymes such as creatine kinase (CK) and its isoenzyme MB (CK-MB) activities.

Aim: Aim of this study is to assess the potential role of serum cardiac markers for early detection of AMI in Hail population, Saudi Arabia.

Methods: Serum levels of CKBM, CK and lactate dehydrogenase (LDH) were measured in 111 patients with chest pain included 40 with AMI and 71 without AMI served as control. Receiver operating characteristic (ROC) curve analysis was performed to assess the utility of these enzymes as biomarkers for early diagnosing AMI.

Results: The area under the receiver operating (AUC) curve values were: CK; 0.60 ($p>0.05$), CK-MB; 0.817 ($p < 0.001$) and LDH; 0.655 ($p < 0.01$). CK-MB had the highest AUC of all. The sensitivity and specificity of CK-MB were 72.5% and 80.28% at the optimal cut off value of 36.5 U/L whereas for LDH, sensitivity and specificity were 62.5% and 70.42% at 272 U/L as an optimal cut off. The simultaneous use of both markers increased the sensitivity and specificity to 82.5% and 85.92%, respectively.

Conclusion: Taking together, the study demonstrated that serum CKBM is a valuable marker for early detection of AMI, but it was found to be much more valuable when analyzed with serum LDH.

Biography

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