

# A comparative study on serum creatinine kinase-Total and serum creatinine kinase- MB in acute myocardial infarction

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## Abstract

**Introduction:** Creatine kinase is a polypeptide dimer molecule with a molecular weight of 80,000 present in the cytoplasm. It consists of two protein sub units M and B combining to form three different pairs of Isoenzymes namely Creatine kinase BB, Creatine kinase MB and Creatine kinase MM. Creatine kinase MB is present significantly in the Cardiac tissue and can be easily measured in the serum of Acute Myocardial Infarction patients. The purpose of the study is to compare and correlate the serum levels of creatinine kinase - Total and serum creatinine kinase-MB in Acute Myocardial Infarction. **AIM:** To compare and correlate between the elevation of Serum levels of creatinine kinase - Total and Serum creatinine kinase-MB in Acute Myocardial Infarction. **Materials and Methodology:** Serum levels of Creatinine Kinase - Total and Creatinine Kinase –MB were measured and compared in blood samples collected within 6-12 hrs after the onset of chest pain in AMI patients. Estimation of serum Creatinine Kinase - Total and Creatinine Kinase –MB were done by UV kinetic assay in Random access analyzer. **Result and Discussion:** Serum Creatinine Kinase - Total and Creatinine Kinase –MB were estimated in Acute Myocardial Infarction and the results were analyzed. The mean level of Creatinine Kinase - Total in AMI was found to be 656.52U/L with standard deviation of 446.29 and the mean level of Creatinine Kinase –MB in AMI was found to be 129.02U/L. The study is statically highly significant with a p value of 0.001 and it proves that both creatine kinase total and creatinine kinase-MB are markedly elevated in AMI. **Summary and Conclusion:** Present study reveals that Creatine kinase - Total and Creatinine kinase-MB are markedly elevated in AMI within 6-12 hrs of onset of chest pain in AMI. Hence Serum creatine kinase total and creatinine kinase-MB can be used as diagnostic markers in AMI within 6hrs

**Keywords:** AMI (Acute Myocardial infarction), CK (TOTAL) – Creatinine kinase –Total, CK-MB – Creatinine kinase –MB.

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## INTRODUCTION

Acute Myocardial Infarction, even in present days holds the first place for the highest mortality. Studies have proved that atherosclerosis is not simply a disease of lipid deposition but local and systemic inflammation play a pivotal role in atherothrombotic inception and progression. Creatine kinase is a polypeptide dimer molecule with a molecular weight of 80,000 present in the cytoplasm. It consists of two protein sub units M and B combining to form three different pairs of Isoenzymes namely Creatine kinase BB, Creatine kinase MB and Creatine kinase MM. Creatine kinase MB is present significantly in the Cardiac tissue and can be easily measured in the serum of Acute Myocardial Infarction

patients. The purpose of the study is to compare and correlate the Serum levels of Creatinine kinase – Total and Serum Creatinine kinase-MB in Acute Myocardial Infarction.

**AIM**

To compare and correlate between the elevation of Serum levels of Creatinine kinase - Total and Serum Creatinine kinase- MB in Acute Myocardial Infarction.

**MATERIALS AND METHODS**

Study population comprised of 50 patients with Acute Myocardial Infarction diagnosed by H/O characteristic chest pain and ECG changes. Patients who were suffering from Muscular dystrophies, myopathies were excluded. Blood samples were collected from patients with Acute Myocardial Infarction within 6-12 hours of the onset of chest pain after getting informed consent from them. Serum levels of Creatinine Kinase Total and Creatinine Kinase –MB were measured and compared. Estimation of

serum Creatinine Kinase Total and Creatinine Kinase – MB were done by UV kinetic assay in Random access analyzer.

**RESULTS**

**Table 1: Mean value of total-ck in cases**

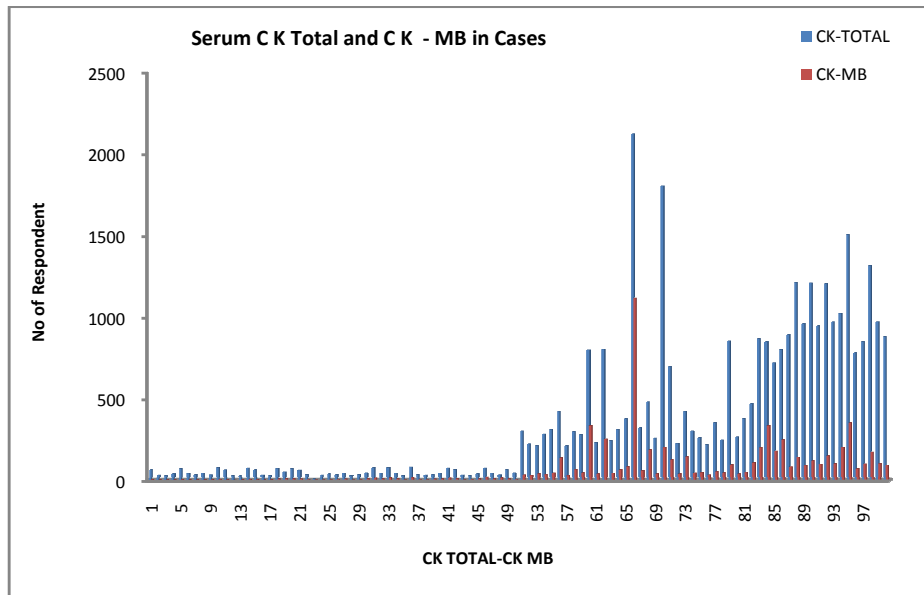
Parameter	Cases U/L
<b>TOTAL-CK</b>	<b>656.52 +/-446.29</b>

(Measurement of TOTAL-CK done by UV-Kinetic Method)

**Table 2: Mean value of creatine kinase-mb in cases**

Parameter	Cases U/L
<b>CK-MB</b>	<b>129.02</b>

(Measurement of CREATINE KINASE-MB done by UV-Kinetic Method)



**DISCUSSION**

Serum Creatinine Kinase - Total and Creatinine Kinase – MB were estimated in Acute Myocardial Infarction and the results were analyzed. The mean level of Creatinine Kinase Total in AMI was 656.52U/L with standard deviation of 446.29 and the mean level of Creatinine Kinase –MB in AMI was found to be 129.02U/L. The study is statically highly significant with a p value of 0.001 and it proves that both Creatine kinase -Total and Creatinine kinase-MB are markedly elevated in AMI.

**CONCLUSION**

This study reveals that Creatine kinase - Total and Creatinine kinase - MB are markedly elevated in AMI within 6-12 hrs of onset of chest pain in AMI. Hence Serum Creatine kinase - Total and Creatinine kinase - MB can be used as diagnostic markers in AMI within 6hrs. The study has generated the scope to relate serum levels of Creatinine kinase-MB with other cardiac markers like Aspartate Transaminase (AST) and Lactate dehydrogenase (LDH) in Acute Myocardial Infarction.

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