Research Article

A comparative study on serum high sensitivity C - reactive protein and serum aspartate amino transferase in acute myocardial infarction

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Abstract

Introduction: C- reactive protein is a substance that is present in the sera of acutely ill patients and that is able to bind to somatic C-polysaccharide on the cell wall of streptococcus pneumonia. Development of assays capable of accurate measurement of CRP with concentration as low as 0.5mg/L are referred to as High-Sensitivity CRP (hs-CRP) assays. Aspartate Amino Transferase (AST) also called as Serum Glutamate Oxaloacetate Transaminase is an enzyme 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 High Sensitivity C-Reactive protein and Serum Aspartate Amino Transferase (AST) in Acute Myocardial Infarction **AIM:** To compare and correlate between the elevation of serum hs-CRP and the elevation of Serum Aspartate aminotransferase in Acute Myocardial infarction (AMI). **Materials and Methodology:** Serum levels of hs-CRP and AST were measured and compared in blood samples collected within 6-12 hrs after the onset of chest pain in AMI patients. Estimation of serum hs-CRP was done by Immunoturbidimetric assay in Random access analyzer. Estimation of AST was done by modified IFCC method in a Random access analyzer. **Result and Discussion:** Serum hs-CRP and Serum AST were estimated in Acute Myocardial Infarction and the results were analyzed. The mean level of hs-CRP in AMI was 8.20mg/L+/-2.O9 and the mean level of AST in AMI was106.88 U/L +/-63.79. The study is statically highly significant with a p value of 0.001and it proves hs-CRP to be a definitive diagnostic inflammatory marker of AMI along with other known cardiac enzyme markers like AST. **Summary and Conclusion:** Present study reveals that hs-CRP levels are higher within 6-12 hrs of onset of chest pain in AMI and hence hs-CRP is a promising novel inflammatory marker of Acute Myocardial Infarction along with other known cardiac enzyme markers like AST.

Keywords: AMI (Acute Myocardial Infarction, **AST (**Aspartate Aminotransferases**) hs-CRP** (High Sensitivity C-reactive Protein)

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INTRODUCTION

Acute Myocardial Infarction, even in present days hold the first place for the highest mortality and 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. This fact generated a great deal of interest in identifying inflammatory markers which may be detected earlyand easily in blood and could reflect the state of underlying inflammation. C-reactive protein, a well-known marker of systemic inflammation and infection received much attention after the development of high sensitivity assays. In the study of Doggen *et al* and in the study of Dedobbeleer hs-CRP is associated with significant increase in the occurrence of Acute Myocardial Infarction. Aspartate Aaminotransferases (AST) also called as Serum Glutamate Oxaloacetate Transaminase is an enzyme present significantly in the Cardiac tissue and is known to be elevated in the serum of Acute Myocardial Infarction patients. The purpose of the study is to compare and correlate the known cardiac enzyme marker AST with the inflammatory marker hs-CRP.

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AIM

To compare and correlate between the elevation of Serum hs-CRP and the elevation of Serum Aspartate aminotransferases (AST) in Acute Myocardial Infarction (AMI).

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 critically ill, who underwent recent surgical procedures, who had recent infectious disease and others with concomitant systemic diseases like Rheumatic disease, chronic liver disease, renal disorders, cancer and sepsis 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. Sample was estimated for hs-CRP (Immunoturbidimetric assay) and AST by MODIFIED IFCC method in a Fully Automated Random Access Chemistry Analyzer.

RESULTS

MEAN VALUE OF hs-CRP IN CASES

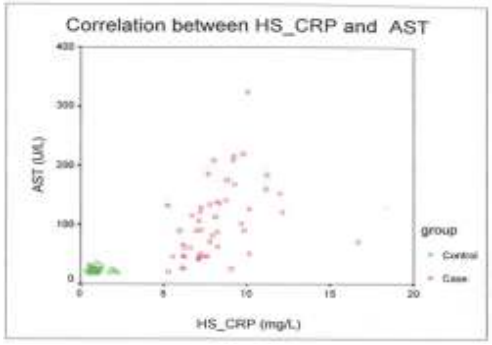
Table 1: Measurement of hs-CRP done by Immunoturbidimetric Method

Parameter	Cases mg/dl
hs-CRP	8.20+/-2.O9

MEAN VALUE OF AST IN CASES

Table 2: Measurement of AST done by MODIFIED IFCC Method

Parameter	Cases IU/L
AST	106.88+/-63.79



DISCUSSION

Serum hs-CRP and AST were estimated in Acute Myocardial Infarction cases as mentioned and the results were analyzed. The mean value of AST in AMI patients was 106.88+/-63.79 and the mean level of hs-CRP in AMI patients was 8.20mg/L+/-2.O9 In AMI significant increase in hs-CRP was noticed along with concomitant increase in AST which correlates with the study by Doggen *et al*, study of liang *et al*. Hence this study indicates the additive value of hs-CRP measurement as an inflammatory marker in acute myocardial infarction along with known cardiac enzyme markers like AST. The study is also statistically highly significant with a p value of 0.001and it proves hs-CRP to be a definitive diagnostic marker of AMI along with known cardiac marker like AST

CONCLUSION

This study clearly shows that levels of hs-CRP are higher within 6-12 hrs of onset of chest pain in Acute Myocardial Infarction and also proves hs-CRP to be a definitive diagnostic inflammatory marker of Acute Myocardial Infarction along with other cardiac biomarkers like AST. The study has generated the scope to relate serum levels of hs-CRP with other known cardiac markers like CK-MB, LDH in Acute Myocardial Infarction.

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