

Clinical, hematological and biochemical profile of myocardial infarction

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Abstract

Background: The aim of present study was to assess clinical and pathological spectrum in myocardial infarction patients and healthy controls.

Method: The case control study included 60 patients of myocardial infarction and 40 controls to study various clinical, hematological and biochemical parameters.

Results: WBC and ESR were increased, whereas hemoglobin and platelet was decreased in patients as compared to controls. We found a close relation between serum uric acid and acute myocardial infarction.

Conclusion: Serum uric acid levels were high in patients of acute MI as compared to controls. Further detailed investigations on the role of hematological, biochemical, variations in the pathogenesis of myocardial infarction are needed.

Keywords: myocardial infarction, hematological, biochemical, healthy controls

Introduction

Acute myocardial infarction (AMI) is overwhelmingly the most important form of ischemic heart disease which continues to be the leading cause of death in the industrialized and developing countries like India, despite spectacular progress in their presentation, detection and treatment over the last three decade. Acute myocardial infarction has rapidly emerged as the major contributor towards the increasing morbidity and mortality [1]. Higher incidence of diabetes hyperlipidemia, hypertension, and smoking family history, obesity and inactivity have been proposed as possible contributing factors [2]. It has been documented that the WBC associate through coronary atherosclerosis and ESR in myocardial infarction variation occur in hematological parameters such as hemoglobin, WBC, ESR and platelet sedimentation rate and fibrinogen in acute myocardial infarction [3, 5].

It was documented that assessment of hematological and biochemical associated in acute myocardial infarction [6, 7]. Therefore the aim of the current study was to assess the hematological and biochemical variations in the serum of myocardial infarction patients and controls.

Material and Methods

This hospital based case study was performed in the parent institute. A total of 60 cases of AMI were studied. All the subjects were interviewed, examined and investigated as per the predesigned proforma. Any adult (> 18 years) of both sexes who was diagnosed as a case of acute myocardial infarction on the basis of clinical history, examination, ECG changes, biochemical markers and admitted in ICU was included in study. Forty controls were studied. Blood samples from patients and healthy controls subjects were collected and serum analyses for the variations of hematological and biochemical parameters.

Results

Majority of subjects in case (28.3%) and control (40%) belong to age group of 51-60 years. Among cases and control majority of the subjects were males (65% vs 67.5% respectively). Most common complaint of patients was chest pain (86.7%). Majority of the cases had uric acid level of > 7.1 (46.7%) followed by 12 patient who uric acid level between 4.5-5.9. Among control group maximum subjects had uric acid level < 4.5 (62.5%). The comparison was highly significant ($p < 0.001$). Mean serum uric acid was significantly high among cases (6.43 ± 2.60) as compared to control group (4.05 ± 0.95) ($p < 0.001$) (paired t test).

WBC and ESR were increased whereas, hemoglobin and platelet were decreased in patients as compared with the controls, serum triglyceride, total cholesterol, LDL increased and decreased HDL in patients as compared with the controls. Mean serum uric acid level was significantly higher among the patients who had IHD (6.22 ± 2.33) ($p < 0.001$).

In present study there were significantly higher number of patients who had EF > 40 ($n=35$ as compared to patients who had EF < 40 ($n=25$) ($p=0.036$). Majority of the patients had DDF of I ($n=15$). In present study majority of the patients had STEMI (86.67%) followed by NSTEMI (6.67%) ($p=0.012$).

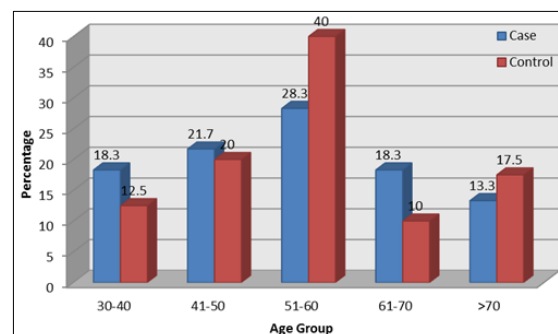


Fig 1: Comparing age between groups

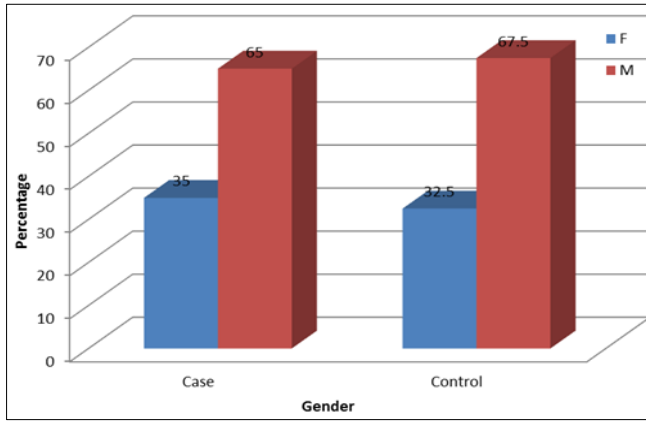


Fig 2: Sex distribution

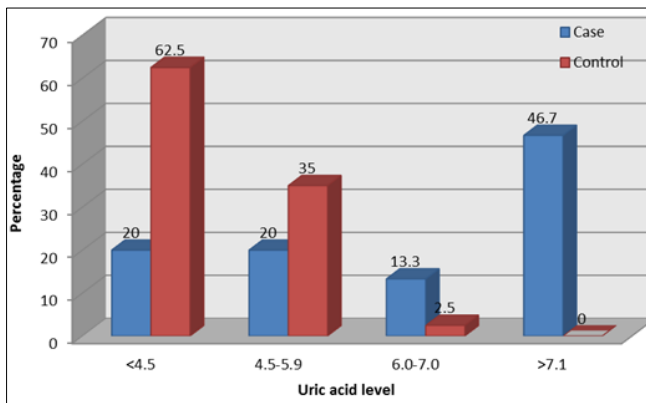


Fig 3: comparing uric acid level between groups

Discussion

An increased level of lipid profile is a risk factor of CAD [8]. Present study showed increase level of cholesterol, triglyceride and LDL in patients as compared to health controls, and HDL decreased. This study reveal with former studies [9, 10]. Present study showed the increased levels of WBC and ESR and decreased level of hemoglobin and platelets that are execute in a diversity of state that lead to inflammation [11, 12]. Platelets stimulate thrombus progression with activate acute coronary syndromes by various processes like inducement of inflammatory progression. It was reported that in patients with myocardial infarction showed increased WBC and decreased platelet [13, 14].

Conclusion

Serum uric acid levels were high in patients of acute I as compared to controls. Further detailed investigations on the role of hematological, biochemical, variations in the pathogenesis of myocardial infarction are needed.

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