ABSTRACT

BACKGROUND: Cardiovascular disease especially coronary artery disease is a part of major disease burden pan India. Coronary artery disease has attained epidemic proportions in India. In a developing country like India, for patients with acute Myocardial Infarction, a simple, cheap and easily available serum marker like uric acid could be an excellent tool in predicting the prognosis and long term management strategies. Our study was aimed at establishing a relationship between the levels of serum uric acid in various types of acute myocardial infarction and correlation of its levels with the degree of myocardial dysfunction as assessed by echocardiogram and the Killip, GRACE and TIMI scores.

MATERIALS and METHODS: it was prospective observational study conducted at Government Mohan Kumaramangalam Medical College Hospital during July 2015 to January 2016. 100 consecutive patients admitted to the Medical ICU, Coronary care unit and medical wards were evaluated with detailed history, examination and laboratory investigations. Serum uric acid levels were assessed on day 0 and day 3 of admission. Patients were followed up for a period of 7 – 15 days or discharge whichever was earlier to assess the major in hospital adverse cardiac events.
RESULTS: In our study, the proportion of Hyperuricemics in acute MI was found to be 59%. 55 cases were STEMI and 45 cases were NSTEMI. 74.5% of STEMI had Hyperuricemia whereas it was only 40% in NSTEMI (p value < 0.005). Serum uric acid levels >9mg/dl was observed in 100% (n=9) of the patients who succumbed to death. 24 per cent of the patients in study population had serum uric acid levels more than 9 mg/dl and 91.96% of this group belonged to Killip classes III and IV. The mean SUA levels in Killip classes III and IV were 9.72mg and 12.46 mg/dl respectively as compared to 5.68mg/dl and 7.36 mg/dl in Killip classes I and II (p value 0.0005). Statistically significant positive association was found between Hyperuricemia and Smoking (p value 0.003), Hypertension (p value 0.001) and Heart blocks (p value 0.003). No significant association was observed between and serum uric acid levels and diabetes mellitus (p value 0.119) nor with dyslipidemia (p value 0.508). The mean TIMI score in general was higher in hyperuricemic patients in both STEMI (7.56±2.5 vs 5.64±2.3) and NSTEMI (4.89±0.9 vs 3.89±0.8). The mean risk of in-hospital mortality in patients with hyperuricemic patients was 9.44% higher as compared to normouricemic patients (p value 0.0005). 100 percent (n=16) of the patients with serum uric acid > 9mg/dl had ejection fraction less than 30%.

CONCLUSION: Serum uric acid levels were elevated in patients with acute myocardial infarction. There is a strong correlation between serum uric acid at the time of admission and in-hospital mortality and short term mortality in
patients with acute myocardial infarction. Serum uric acid levels in a patient with acute myocardial infarction can be used as an independent predictor of mortality and morbidity in the form of major adverse cardiac events. Serum uric acid levels has a statistically significant linear relationship with TIMI and GRACE scores. Hyperuricemia patients with STEMI tend to have a higher rate of left systolic dysfunction.

**KEYWORDS** : Acute myocardial infarction, serum uric acid , TIMI score, GRACE score, Killip classification, MACE