Effect of on Admission Blood Glucose Level and HbA1c Value on Short Term Prognosis in Acute STEMI

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Sir,

P atient either with or without history of diabetes mellitus may present with hyperglycemia during acute myocardial infarction known as stress hyperglycemia which is an independent predictor of in-hospital morbidity and mortality. Aim of the study was to assess the occurrence and effect of stress hyperglycemia in short term prognosis of acute MI and Prevalence of controlled and uncontrolled chronic hyperglycemia with their prognostic impact on acute MI.

This cross sectional in-hospital study was done on 100 consent giving acute, evolving or recent STEMI patients over a period of 1 year dividing them into 4 groups on the basis of their history of diabetes, admission blood glucose level and HbA1c value. Twenty five patients with admission blood sugar [ABG] less than 140mg/dl and HbA1c <6.5 were taken in group 1[normoglycemics] and twenty five patients with high HbA1c i.e. in uncontrolled diabetic group (44 %) compared to HbA1c < 6.5 i.e. controlled diabetic group (40 %) but the difference was statistically insignificant with p value 0.771. Mortality was similar with death rate 8% in both the groups but death was only observed in patients who had blood sugar level higher then eAG calculated according to HbA1c; suggesting that a component of stress hyperglycemia played a role in mortality independent of HbA1c level in either group.

Comparative analysis shows elevated admission glucose also known as stress hyperglycemia is common in AMI patients and is a powerful predictor of adverse outcomes Also elevated admission blood glucose level in patients with AMI appears more important than prior long-term abnormal glucose metabolism (detected by elevated HbA1c) in predicting outcome in patients with AMI. These results are in agreement with the study done by Gasior et al¹ where there was higher incidence of congestive heart failure in STEMI patients with higher admission blood glucose. We observed significantly higher mortality rate in group with higher admission blood glucose which was supported by study done by Kosiborod and McGuire², where they concluded that higher glucose levels were associated with greater 30-day mortality.

Similar to our study Hanan E. Zaghlala et al³ did not find any significant correlation between HbA1c level and outcome of patients with AMI. Though our results are in accordance with these studies but we can’t overlook the limitations of the study which were : a short sample size, late presentation...
of some patients which may have influenced admission blood glucose level, as time of presentation is not constant in our study subjects and patients were included irrespective of admission treatment (Thrombolysis / no thrombolysis) and extent of myocardial damage which in itself can affect the rate of complication and hence the prognosis.

Hence elevated admission glucose known as stress hyperglycemia in AMI patients is a good predictor of adverse outcomes than chronic hyperglycemia therefore on admission blood sugar level testing is very important in acute MI settings and should be done routinely in all cases to document stress hyperglycemia and hence more vigilant monitoring to reduce morbidity and mortality.

References