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HOSPITAL OUTCOME OF ACUTE HYPERGLYCEMIA AND TNF-A IN PATIENTS WITH ST-ELEVATION MYOCARDIAL INFARCTION

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Aims: The aim of the study is to test whether hyperglycemia and inflammation detected in patients with acute ST-elevation myocardial infarction (STEMI) is a predictor of in-hospital major adverse cardiovascular events (MACEs).

Methods: 81 patients with an acute STEMI were enrolled in this clinical study. The studied patients were classified into three groups, group I included patients with a plasma glucose (<200 mg/dl) and no previous history of diabetes, group II included diabetic patients with hyperglycemia and group III included patients with hyperglycemia and no history of diabetes. Tumor necrosis factor alpha (TNF-α), white blood counts (WBCs), and their subtypes were analyzed during hospitalization. The primary end was the composite of mortality, arrhythmia, recurrent nonfatal MI, or heart failure (MACEs) during the hospital stay.

Results: Compared with the other groups, group III patients had significantly higher plasma levels of cardiac biomarkers (troponin I and CK-MB) and inflammatory markers (TNF and WBCs, $p<0.01$) while MACEs developed more among groups II and III groups. 17 (21.8%) patients suffered MACEs mortality in sex patients, heart failure in 13 patients, re-infarction in three patients, atrial fibrillation in three patients and one patient developed heart block. TNFα level, troponin I and the left ventricular ejection fraction were the most independent predictors of the MACEs after acute STEMI. An admission cutoff value of blood glucose level >230 mg/dl cut-off showed sensitivity of 76.5% and specificity of 63.9% as predictor of MACEs.

Conclusion: Hyperglycemia is an important predictor of the outcome in patients hospitalized with acute STEMI. Hyperglycemia is associated with increased levels of inflammatory markers and cardiac biomarkers. TNFα concentrations and hyperglycemia correlated with left ventricular ejection fraction. Inflammatory markers such TNF-α and WBCs counts alone or in combination are strong and independent predictors of outcome in patients with STEMI.

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