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Influence of admission hemoglobin A1c on short term complications of acute myocardial infarction in type 2 diabetic patients

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Background: Hemoglobin A1c (HbA1C) is an excellent marker for diabetes control as it provides a good reflection of plasma glucose concentrations over 8 to 12 weeks with no effect from meals or the circadian cycle. The aim of this study is to evaluate the relationship between HbA1C and severity and complications of acute myocardial infarction in patients with type 2 diabetes mellitus (DM).

Methods: This study was based on 700 type 2 diabetic patients hospitalized with first-ever acute myocardial infarction. Patients were divided according to Hb A1C that measured from the blood sampled in the first morning after the admission to hospital into group A with 350 patients (Hb A1C<7%) and group B with 350 patients (HbA1C>7%). All patients were followed up for incident nonfatal myocardial infarction (MI), heart failure, systolic dysfunction, changes in ejection fraction and cardiac death for 6 month and these clinical outcomes were compared between the 2 study groups.

Results: The mean HbA1c of group A was 6.30±0.49% and in group B was 9.34±1.39%. In addition, the mean age of group A was 61.14±10.98 years and in group B was 59.89±9.54 years (p=0.6). In our study, 220 patients (31.4%) were NSTEMI and 480 patients (77.6%) were STEMI that among them, 240 patients (34.3%) were Inferior MI, that is not significant difference between two groups (p=0.52). The correlation between HbA1c and left ventricular ejection fraction (LVEF) was shown that the mean of LVEF in group A in duration of admission and after 6 month was not significant difference (47.69±10.43% vs. 47.31±10.85%, p=0.877) and in group B this difference was significant (42.05±11.81 vs. 38.18±10.52, p=0.003). There was no significant difference between the 2 groups in the re-infarction ratio in 6 month (14.28% vs. 22.58, p=0.356). However, our study detected different rates of in-hospital and in the 6 month follow up cardiovascular death in these two groups (8.36% vs. 20%, p=0.048).

Conclusions: This study suggests that HbA1c levels are associated with some short-term cardiovascular outcome in patients with type 2 diabetes subsequently admitted with ACS.

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