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.¹ 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).

Patients and Methods: This study was based on 700 type 2 diabetic patients hospitalized with first-ever acute myocardial infarction. Patients were divided according to HbA1c that measured from the blood sampled in the first morning after the admission to hospital into group A with 350 patients (HbA1c <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 left ventricular ejection fraction (LVEF) and cardiac death for 6 months and these clinical outcomes were compared between the 2 study groups.

Results: The mean HbA1c of group A was $6.30 \pm 0.49\%$ and in group B was $9.34 \pm 1.39\%$. 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 LVEF was shown that the mean of LVEF in group A in duration of admission and after 6 months was not significant difference ($47.69 \pm 10.43\%$ vs $47.31 \pm 10.85\%$; $p=0.877$) 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 reinfarction ratio in 6 months (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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LITERATURE

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