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The role of preoperative hemoglobin A1c in the occurrence of atrial fibrillation following on-pump coronary artery bypass surgery in type-2 diabetic patients

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Background: Several factors can predict the development of atrial fibrillation following cardiac surgery in diabetic patients. Nonetheless, the role of hemoglobin A1c is yet to be investigated.

Methods: We prospectively studied 708 type-2 diabetes patients (433 men [61.2%]), who were candidate for isolated coronary artery bypass grafting and met the study criteria. Biochemistry profile, including serum hemoglobin A1c was measured on the day of operation. All patients were tele-monitored for 72 hours following operation for the occurrence of atrial fibrillation. The patients were then dichotomized at the hemoglobin A1c level of 8% and the frequency of atrial fibrillation, as well as demographic and clinical parameters were compared between the two groups.

Results: The mean age of the study population was 60.83±8.70 years. A total of 109 (15.3%) patients developed atrial fibrillation and in 274 (38.7%) patients hemoglobin A1c was below 8%. There was no significant difference between the two study groups regarding the frequency of atrial fibrillation (P=0.47). There was no statistically significant association between the level of hemoglobin A1c and the occurrence of postoperative atrial fibrillation controlling for age, hypertension, duration of diabetes, serum creatinine, and left atrial size (P=0.50). In the multivariable logistic regression model, age, hypertension, chronic obstructive pulmonary disease, serum creatinine, left atrial size, and full perfusion time were important predictors of atrial fibrillation.

Conclusion: In this study, the association between postoperative atrial fibrillation and the level of hemoglobin A1c was not statistically significant.

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