2015 Young Surgeon’s Award Winner: Long-term Prognosis in Patients with Diabetes Mellitus after Coronary Artery Bypass Grafting: A Propensity-Matched Study

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Abstract

Introduction: We aimed to determine the impact of diabetes mellitus (DM) on long-term survival after coronary artery bypass grafting (CABG) in patients with multivessel coronary artery disease. Materials and Methods: A retrospective review was conducted for 5720 consecutive patients who underwent isolated first CABG between 1982 and 1999. Outcomes were reviewed to include in-hospital mortality and long-term survival. Mean follow-up was 13.0 ± 5.8 years. To obtain comparable subgroups, 561 diabetic patients were matched with 561 non-diabetic controls based on estimated propensity scores. Results: Mean age was 59.3 ± 9.1 years with 4373 (76.5%) males. Amongst 5720 patients, 1977 (34.6%) had DM. Hypertension and dyslipidaemia were the most common cardiovascular comorbidities, present in 2920 (51.0%) and 2664 patients (46.6%) respectively. Emergency surgery was performed in 563 patients (9.8%). In-patient mortality occurred in 115 patients (2.0%), 48 (2.4%) in the DM group and 67 (1.8%) in the non-DM group (P = 0.102). In the unmatched cohort, overall 20-year survival rates were 30.9 ± 1.6% in diabetics and 49.2 ± 1.0% in non-diabetics (P <0.001). Freedom from cardiac mortality at 20 years was 56.0 ± 2.0% in diabetics and 68.4 ± 1.0% in non-diabetics (P<0.001). In the propensity-matched group, overall 20-year survival rates were 35.4 ± 2.5% in diabetics and 48.9 ± 2.9% in non-diabetics (P <0.001). Freedom from cardiac mortality at 20 years was 57.8 ± 3.0% in diabetics and 70.2 ± 2.9% in non-diabetics (P = 0.001). Multivariable Cox regression analysis identified age (hazard ratio (HR): 1.03/year), female gender (HR: 1.43), previous myocardial infarction (HR: 1.54) and left ventricular ejection fraction (LVEF <35%) (HR: 2.60) as independent factors influencing long-term cardiac mortality. Conclusion: Despite low operative mortality, long-term survival and freedom from cardiac death are significantly lower in patients with DM compared to non-diabetics. Aggressive treatment of DM, cardiovascular comorbidities and smoking cessation are essential to improve long-term survival in diabetic patients.

Key words: Cardiac mortality, Myocardial revascularisation, Survival outcomes