

Cardiovascular Disease Incidence and Risk Factor Patterns among Omanis with Type 2 Diabetes: A Retrospective Cohort Study

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ABSTRACT

Objectives: Cardiovascular disease (CVD) represents the leading cause of morbidity and mortality among patients with type 2 diabetes mellitus (T2DM). Its incidence and risk factor patterns vary widely across different diabetic populations. This study aims to assess the incidence and risk factor patterns of CVD events among Omanis with T2DM. **Methods:** A sample of 2 039 patients with T2DM from a primary care setting, who were free of CVD at baseline (2009–2010) were involved in a retrospective cohort study. Socio-demographic data and traditional risk factor assessments at the baseline were retrieved from medical records, after which the first CVD outcomes (coronary heart disease, stroke, and peripheral arterial disease) were traced from the baseline to December 2015, with a median follow-up period of 5.6 years. **Results:** The overall cumulative incidence of CVD was 9.4% with an incidence density of 17.6 per 1000 person-years. Prevalence of poor glycemic control, hypertension, obesity, dyslipidemia, albuminuria, and current smoking were 40.0%, 56.3%, 39.0%, 77.3%, 18.7%, and 7.8%, respectively. The univariate survival analysis showed a significant association between CVD and the following factors: age, diabetes duration, body mass index, glycemic control, hypertension, total serum cholesterol, and albuminuria. **Conclusions:** This study revealed high incidence of CVD and high prevalence of its traditional risk factors among Omanis with T2DM. In addition, compared to global studies, important differences in the prevalence of some risk factors and their patterns in the univariate association with the cardiovascular outcome have been observed.

Coronary heart disease (CHD), stroke, and peripheral arterial disease (PAD) are the main cardiovascular diseases (CVDs) among populations with type 2 diabetes mellitus (T2DM).^{1–3} CVD incidence varies considerably across diabetic populations. Cumulative incidence of CVD data from New Zealand and Australia showed that 17.9% and 14.9% of T2DM patients' respectively, developed their first CVD within a five-year mean period of follow-up.^{4,5} However, data from China showed much lower rate (4.9%) within a similar follow-up period.⁶ Another population-based study showed the seven-year incidence of CHD among patients with diabetes to be around 20% in Finland.⁷

Various traditional risk factors such as male gender, age, obesity, dyslipidemia, hypertension

(HTN), poor glycemic control (high glycosylated hemoglobin (HbA_{1c})), albuminuria, smoking, and family history of CVD have been identified to be independent contributors for CVD.^{8,9} In addition, other non-traditional factors such as social deprivation and erectile dysfunction as well as other hematological factors were studied later and showed significant association with CVD.^{8,9} However, until now there is no sufficient evidence that monitoring the non-traditional factors leads to better diagnostic and treatment results.^{8,10}

In Oman, the prevalence of T2DM reached 12.3% in 2008.¹¹ Very limited literatures are available relating to CVD occurrence and its risk factors among patients with T2DM in this country. A descriptive study indicated that 54.1% of Omani patients presented for coronary artery bypass

