

## Predictors of cardiovascular disease in patients with type 2 diabetes mellitus

### Abstract

**Aims:** Cardiovascular disease (CVD) is the leading cause of mortality and morbidity in patients with type 2 diabetes mellitus (T2DM). Although patients with T2DM and CVD share common risk factors, the link between these diseases remains unclear. This study intends to identify the predicting risk factors of CVD in Malaysian T2DM patients. **Methods:** We conducted an analytical cross-sectional study on 313 patients diagnosed with T2DM at selected tertiary hospitals upon prior ethical approvals. Systematic random sampling method was applied in patient selection. Socio-demographic data was assessed using a pre-tested interviewer-administered structured questionnaire. Diet (by 24-hour dietary recall), physical activity level [via International Physical Activity Questionnaire (IPAQ)], smoking and alcohol consumption status were ascertained. Anthropometric and blood pressure measurements were performed according to standard procedures. Clinical and laboratory characteristics on cardiovascular risk factors (medical history, treatments, glycaemic control, and lipid profile) were collected from medical records, clinical examination and face-to-face interview. All statistical analyses were performed by using SPSS Statistics Version 21.0. **Results:** The mean age of study subjects was  $55.7 \pm 9.2$  years, with a mean diabetes duration of  $10.1 \pm 8.1$  years (CVD patients  $11.5 \pm 8.7$  years, non-CVD patients  $9.2 \pm 7.6$  years); 52.1% subjects were females; and 47.0% were Malays. Approximately one third (36.1%) of the subjects were suffering from CVD. Multivariate logistic regression analysis showed age ( $B=0.056$ , adjusted OR 95% CI=1.058,  $p=0.004$ ), lower HDL-C level ( $B=-1.466$ , adjusted OR 95% CI =0.231,  $p=0.003$ ), working status of self-employment ( $B=1.381$ , adjusted OR 95% CI=3.978,  $p=0.002$ ) in comparison to retirement, low ( $B=1.164$ , adjusted OR 95% CI=3.203,  $p<0.001$ ) and moderate physical activity levels ( $B=1.172$ , adjusted OR 95% CI=3.227,  $p<0.001$ ) compared to high physical activity level were significantly associated with higher CVD risk, upon adjustment for potential covariates. **Conclusion:** Increased age, lower HDL-C, low and moderate physical activity levels, and working status appeared to be significant predictive factors of CVD among the T2DM patients studied.

**Keyword:** Cardiovascular disease; Type 2 diabetes mellitus; Predictors; Tertiary hospitals