

Effect of ethnicity, dietary intake and physical activity on plasma adiponectin concentrations among Malaysian patients with type 2 diabetes mellitus

ABSTRACT

Background: The Malaysian Health and morbidity Survey (2006) reported the highest prevalence of type 2 diabetes mellitus (T2DM) among the Indian population compared to the Malay and Chinese populations. Many studies have supported the important role of adiponectin in insulin-sensitizing, which is associated with T2DM. These studies have raised a research question whether the variation in prevalence is related to the adiponectin concentrations or the lifestyle factors. **Objectives:** The purpose of this study is to determine whether the adiponectin concentrations differ between the Malay, Chinese and the Indian populations with T2DM. It is to investigate the association of adiponectin concentrations with ethnicity, dietary intake and physical activity too. **Materials and Methods:** In this cross-sectional study, a total of 210 T2DM patients with mean (SD) age of 56.73 (10.23) years were recruited from Penang, Malaysia. Data on demographic background, medical history, anthropometry (weight, height, visceral fat, percentage of body fat and waist circumference), dietary intake (3 days 24 hours diet recall) and physical activity (International Physical Activity Questionnaire) were obtained accordingly. Plasma adiponectin and routine laboratory tests (fasting blood sugar, HbA1c, total cholesterol, LDL, HDL and triglyceride) were performed according to standard procedure. **Results:** After adjustment for physical activity and dietary intakes, the Indian population had significantly lower adiponectin concentrations ($P = 0.003$) when compared with the Malay and the Chinese populations, The Indian population also had significantly higher value of HbA1c ($P = 0.017$) and significantly lower HDL ($P = 0.013$). Plasma adiponectin concentrations was significantly associated with ethnicity ($P = 0.011$), dietary carbohydrate ($P = 0.003$) and physical activity total MET score ($P = 0.026$), after medical history, age, sex, total cholesterol and visceral fat adjusted. However, dietary carbohydrate and physical activity did not show significantly difference among the various ethnic groups. **Conclusions:** In conclusion, lower concentration of adiponectin in the Indian population when compared with the Malay and the Chinese populations is not associated with lifestyle factors. The possibility of adiponectin gene polymorphism should be discussed further.

Keyword: Adiponectin; Chinese; Indian; Malaysia; Diabetes mellitus; Type 2; Motor activity; Diet records