Incidence of diabetes in the North West Adelaide Health Study: socioeconomic and biomedical risk factors

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Introduction

The North West Adelaide Health Study, a biomedical cohort study of a random representative sample of people living in the north western suburbs of Adelaide, was used to examine factors associated with the development of diabetes in a randomly selected South Australian population.

Methods

All households within the north west region of Adelaide, with a telephone connected and the telephone number listed in the Electronic White Pages were eligible for selection in the North West Adelaide Health Study. The original sample (n=4060) was randomly selected and recruited by computer assisted telephone interview in 2000-2002 (Stage 1) to participate in a clinic assessment. Within each household, the person who had their birthday last and was aged 18 years or older, was selected for interview and invited to attend the study clinic. The response rate for Stage 1 was 49.4%.

The second stage of data collection for this cohort was undertaken between 2004 and 2006. Of the original living cohort, 3564 (90.1%) participants provided some Stage 2 information, and 3206 (81.0%) attended the clinic for their second visit, with diabetes status at follow-up obtained for 78.3% (n=3180) of original participants.

Diabetes was defined as a fasting plasma glucose (FPG) ≥7.0mmol/L and/or having self-reported doctor-diagnosed diabetes. Data were weighted by age, sex, area of residence and probability of selection in the household to ensure that the sample was representative.

Results

The three-year cumulative incidence of diabetes was 2.1% (95% CI 1.7-2.7). The annual incidence of diabetes between Stage 1 and Stage 2 was 6.8 incident cases per 1000 in the adult population. Of the participants who developed diabetes between Stage 1 and Stage 2, 75.2% had been diagnosed and 24.8% had not yet been told by a doctor that they had diabetes.

The cumulative incidence of diabetes was statistically significantly higher among those aged 55 years or older, those with a gross annual household income of less than $20,000, those who were ex-smokers, those with a family history of diabetes, blood pressure ≥130/85, body mass index ≥30, high waist circumference (≥94cm for males and ≥80cm for females), high waist to hip ratio (>1.0 for males and >0.85 for females), triglycerides >1.7mmol/L, or HDL cholesterol <1.0mmol/L (Figure 1).

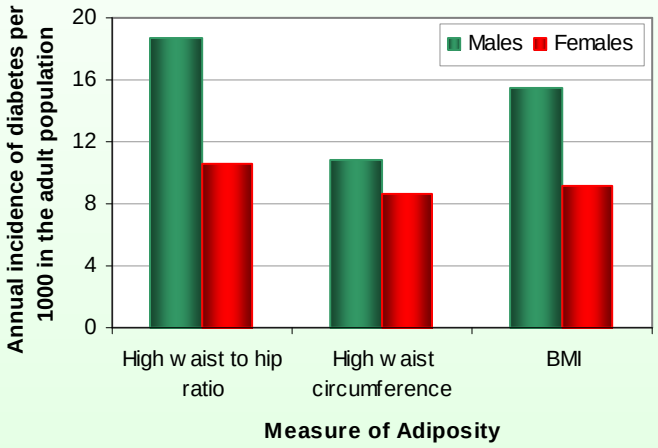

Figure 2. Annual incidence of diabetes per 1000 in the adult population and measures of adiposity by gender

When the association between incident diabetes and adiposity was analysed by gender, results revealed differences between males and females for different measures of adiposity (Figure 2). This indicates that the measure of adiposity used as a risk factor for incident diabetes should be considered separately for men and women.

Conclusions

These data provide evidence that socioeconomic factors as well as risk factor management should be addressed in the prevention of diabetes.

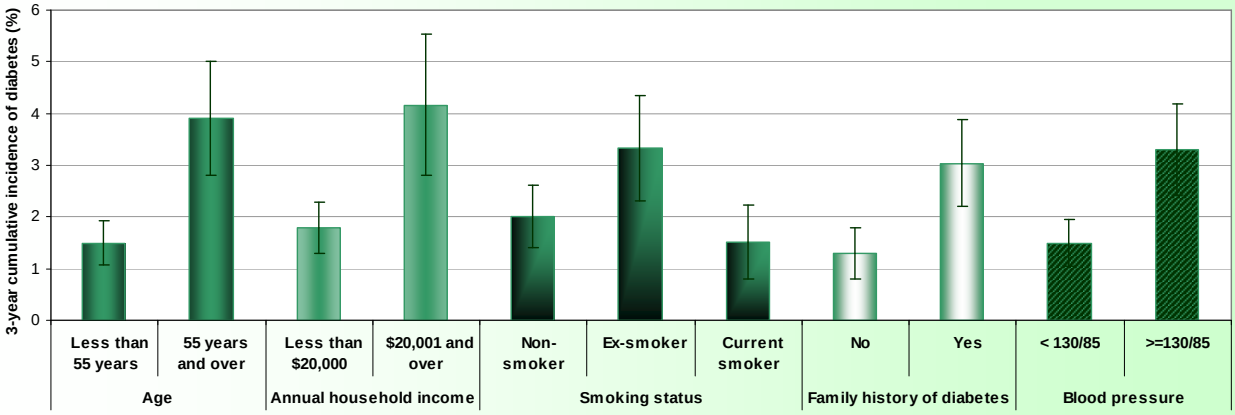

Figure 1. Demographic and biomedical factors associated with three-year cumulative incidence of diabetes