Type 2 diabetes and obesity in young adults

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CPD

Introduction

Type 2 diabetes mellitus (T2DM) occurs when there is an inadequate secretion of insulin in response to varying degrees of overnutrition, inactivity, consequential overweight or obesity, and insulin resistance.[1] T2DM is generally regarded as a disease of older adults but a recent study in the United States found a sharp increase since 1990 in the prevalence and incidence of the disease among a younger population.[2] This earlier onset of the disease is important because of the effect on productive life years and long-term burden on the healthcare system. In 2003, T2DM accounted for 5.1% of the total burden of disease in Australia.[3] Australia's Health 2014 reported that, although 92% of new cases of T2DM occurred in those aged ≥40 years, in 2011–12 there were 430 new cases among children and young people aged 10–24 years.[4] The Australian Diabetes, Obesity and Lifestyle study from 2002 found that 5.7% of participants aged 25–34 years had abnormal glucose tolerance.[5] Our aims were to determine whether changes had occurred over time in the frequency of T2DM management at Australian general practice encounters with patients aged 18–39 years, and to examine the proportion of obese (body mass index [BMI] ≥30 kg/m^2) patients in that age group. To put our findings in context, we also looked at T2DM and obesity trends in patients aged ≥40 years.

Method

BEACH is a continuous national, cross-sectional survey of general practice activity in Australia. The methods have been described in detail elsewhere[6] but in summary, each year a new random sample of approximately 1000 general practitioners (GPs) each record details of 100 consecutive encounters with consenting patients.

We used BEACH encounter data April 2000–March 2014 to examine trends in management rates of non-gestational T2DM at 330,478 GP encounters with patients aged 18–39 years. From a substudy of about 40% of these encounters, where patients reported height and weight, we also calculated changes in the proportion that were obese. Results from 839,790 GP encounters with patients aged ≥40 years were analysed in the same manner to provide a comparison. Using logistic regression corrected for cluster and GP activity, we determined whether significant change (P <0.05) had occurred over the period.

Results

Between April 2000–March 2001and April 2013–March 2014, the proportion of encounters at which T2DM was managed among patients aged 18–39 years rose significantly from 0.42% to 0.69% (P = 0.0013; Wald chi square = 10.36, 1 degree of freedom [df]). The trend line (line of best fit; not shown) for the data over 14 years demonstrated an average absolute increase of approximately 0.013 percentage points per year. It indicated a relative increase in the management rate of T2DM of about 40% over the 14 years.

The frequency of T2DM management also increased significantly at encounters with patients aged ≥40 years. In 2000–01 T2DM was managed at 4.3% of encounters but by 2013–14 the proportion had grown to 5.7% (P <0.0001; Wald chi square = 147.0, 1 df; *Figure 1*). The trend line (not shown) over the 14 years measured an average absolute increase of approximately 0.13 percentage points per year and the relative increase was also about 40% over the 14 years.

In the substudy of BMI, we found that the prevalence of obesity had increased significantly in both age groups. In 2000–01, 15.6% of patients aged 18–39 years were obese and by 2013–14 the prevalence had increased to 20.9%. Among those aged ≥40 years, 22.3% were obese in 2000–01 and 30.7% in 2013–14 (*Figure 2*). The trend line (not shown) showed an average absolute increase of approximately 0.4 percentage points per year for those aged 18–39 years and 0.65

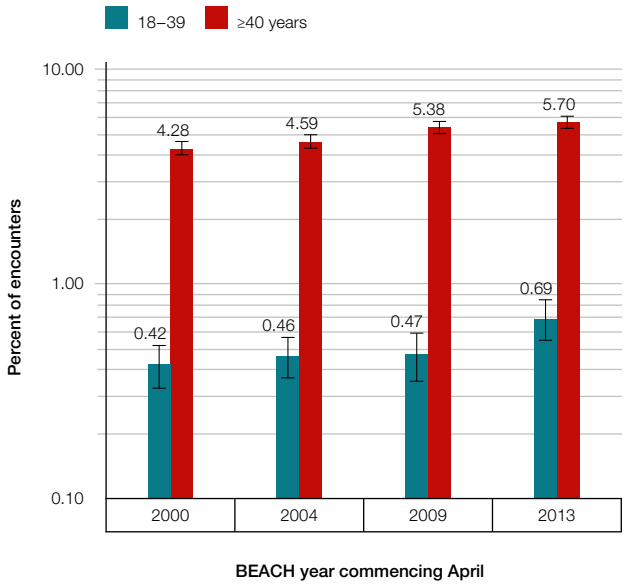

Figure 1. Percentage of encounters at which type 2 diabetes was managed (95% CIs) for patients aged 18–39 years vs ≥40 years
BEACH years 2000, 2004, 2009 and 2013; semi-log plot

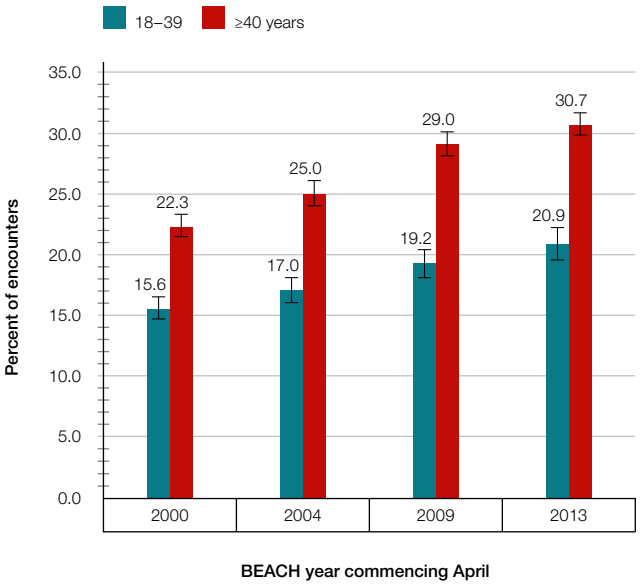

Figure 2. Percentage of encounters (BMI substudy) at which patient's BMI was ≥30 kg/m^2 (95% CIs) for patients aged 18–39 years vs ≥40 years
BEACH years 2000, 2004, 2009 and 2013

percentage points per year for those aged ≥40 years. It indicated a relative increase in obesity of approximately 35% in the younger group and almost 40% in the older group.

Discussion

Non-gestational T2DM was the third most commonly managed chronic problem in BEACH in 2013–14, recorded at 4.2% of encounters.[7] The increased management rate over time is consistent with the international literature. Focusing on younger adults, we found that although the management rate was approximately one-tenth that of older patients, a definite increase occurred, and the relative rate of increase was about the same for both groups considering the different prevalence in each group. The increase in T2DM coincided with the growth we found in the prevalence of obesity, again consistent with other published findings.

There has been little published research in Australia on trends over time in the prevalence of T2DM among young adults. We showed there has been a relative increase of 40% in the management rate in general practice among patients aged 18–39 years over the past 14 years, which has coincided with a relative increase of 35% in obesity prevalence. These two increases suggest that, as a society, we should focus more attention on dietary and lifestyle change in younger adults.

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