# Can we manage everyone with prediabetes?

"One third of adults in England have prediabetes" was a headline in several tabloids and media sources in June of this year. These reports were based on a study recently published by Mainous et al (2014) in the *British Medical Journal*. The study highlights that there has been an extremely rapid rise in the proportion of adults who meet the criteria for prediabetes. This was a disturbing read for public health and healthcare professionals, and given the close association between this trend in prediabetes and obesity, the impact on healthcare and the economy is likely to be significant. However, the impact of this study soon faded away from the public sphere. The lukewarm response to the headlines on prediabetes is due to the fact that people have accepted the growing trend in obesity to be the norm (Davies, 2014).

## So, what is prediabetes?

The American Diabetes Association (ADA) states that people with blood glucose levels higher than normal, but not yet high enough to be diagnosed as diabetes, are in the prediabetes category. According to the ADA (2014), the following results indicate prediabetes: $HbA_{1c}$ of 5.7–6.4% (39–46 mmol/mol), fasting blood glucose of 100–125 mg/dL (5.5–6.9 mmol/L) or an oral glucose tolerance test 2-hour blood glucose of 140–199 mg/dL (7.8–11.1 mmol/L).

In the UK, prediabetes denotes that the blood glucose profile is in one of the following categories: impaired glucose tolerance, impaired fasting glycaemia, impaired glucose regulation or non-diabetic hyperglycaemia (Diabetes UK, 2009).

## So, what should we tell our patients with prediabetes?

We could tell our patients with prediabetes that there is a high probability of developing type 2 diabetes, but that they can postpone or avoid the diagnosis and its associated complications by adapting a healthy lifestyle and losing weight. Is this advice sufficient? Is this advice true?

## What are the strategies to prevent type 2 diabetes in people with prediabetes?

The rapid rise in the number of people with prediabetes is related in part to the rate of increase in BMI (Howel, 2011). Tackling obesity is the key. Several government-led initiatives have commenced, but have not yet made any significant impact, at least in the short term. Effective intervention to tackle about one third of the population, who have excess BMI will be hugely expensive to the taxpayer. Public health initiatives should, therefore, focus on the highest risk group, including people with obesity and prediabetes, i.e. people who have "prediabesity". Within the prediabetes group there are people who are not overweight or obese, who may have other reasons for glucose intolerance (Carnethon et al, 2012). In order to use the limited resources most cost effectively, the highest risk group should be identified and targeted.

Targeted screening of prediabesity should be considered the first step in preventing type 2 diabetes and its associated complications in people with prediabetes. Once people with prediabesity have been identified, other modifiable risk factors for cardiovascular disease should be identified and treated. This group of people should be prioritised and provided whichever weight management programmes are available within their region.

Weight management interventions should include sessions not only on healthy eating (e.g. ensuring food is not carbohydrate rich) but also on portion control. A very low calorie diet can also be recommended to a select group of individuals, and should be

Chinnadorai Rajeswaran

Consultant Physician in Diabetes and Endocrinology, Mid Yorkshire NHS Trust, and Chair, National Diabesity Forum

*"Once people with prediabesity complete a structured programme, facilities should be available for ongoing support and annual nurse-led biochemical monitoring."*

delivered under close medical supervision if commenced. Personalised physical activity should be recommended based on their exercise tolerance. Metformin and orlistat may be helpful in some individuals. Surgery should also be considered an option if they meet the NICE criteria (NICE, 2014).

Holistic management of this high-risk group of people with prediabesity would considerably reduce the 900 000 people projected by the National Diabetes Audit to be suitable for bariatric surgery (NICE, 2014). Once people with prediabesity complete a structured programme, facilities should be available for ongoing support and annual nurse-led biochemical monitoring.

This will help to channel the limited resources before larger funding is available to tackle everyone with prediabetes and all those with obesity. ■

American Diabetes Association (2014) D*iagnosing diabetes and learning about prediabetes*. ADA, Alexandria, VA. Available at: http://www.diabetes.org/diabetes-basics/diagnosis/#sthash.C985IzzF.dpuf (accessed 27.08.14)

Carnethon MR, De Cahvez PJD, Biggs ML et al (2012) Association of weight status with mortality in adults with incident diabetes. *JAMA* **9**: 696–705

Davies SC (2014) *Annual report of the Chief Medical Officer, Surveillance Volume, 2012: on the state of the public's health*. Department of Health, London.

Diabetes UK (2009) *Impaired glucose regulation (IGR)/ non-diabetic hyperglycaemia (NDH)/ prediabetes*. Diabetes UK, London. Available at: http://bit.ly/1pgkdjR (accessed 27.08.14)

Howel D (2011) Trends in the prevalence of obesity and overweight in English adults by age and birth cohort, 1991–2006. *Public Health Nutr* **14**: 27–33

Mainous AG 3rd, Tanner RJ, Baker R et al (2014) Prevalence of prediabetes in England from 2003 to 2011: population-based, cross-sectional study. *BMJ Open* **4**: e005002

NICE (2014) *Obesity (update)*. NICE, London. Available at: http://bit.ly/1lebSfn (accessed 27.08.14)