Exploring crucial aspects of diabetes and obesity

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This themed issue of Practical Diabetes explores some of the newly-described aspects of diabetes, and the links and common approaches shared by diabetes, and its most common precursor: obesity.

Discussed in this issue are data on the initial diagnosis and assessment of obesity, and all the treatment modalities (with the exception of bariatric surgery). The shame of pharmacotherapy for obesity in the UK is revealed – America has six times as many anti-obesity drugs as the UK, where there are as many available as there were in Persia in AD 980: one. Behavioural therapy is often considered the Cinderella treatment mode for obesity and diabetes, but is fully and extensively explored, with seemingly complex terminology demystified for the clinician.

The role of carbohydrate in the diet of obese and diabetic patients has been argued about for centuries; here, in three separate papers, their place in the diet, and the role of the other macronutrients, plus dairy and fish, and their effect on glycaemic control are explored: ‘There is no direct physiological requirement for dietary carbohydrate…’. The discussion around the recent concept of ‘double diabetes’ – metabolic syndrome superimposed upon type 1 diabetes following drug-related weight gain – is important and revealing, and these papers contain essential advice which will change clinical practice.

Links between weight and diabetes

In just 30 years, the situation has gone catastrophically wrong; and the twin epidemics of obesity and T2DM, not to mention heart disease, sleep apnoea, non-alcoholic steatohepatitis, and now even Alzheimer’s dementia, are resulting in reduced life expectancy, and likely bankruptcy of health care systems uncontrolled by current misguided policies and interventions.

The common link between excess weight and diabetes reflects their common pathophysiology; each characterised by impaired insulin function, defects in production of insulin, alongside complex metabolic anomalies and impaired vascular function. Fat accumulation in skeletal muscle, pancreas, kidney, liver and heart assume crucial roles in the pathogenesis of diabetes through impaired insulin signalling, and thus insulin resistance.

The term ‘diabesity’ summing up the frequent co-existence of diabetes and obesity was recently coined by ex-president of the ADA, Francine Kaufman, in the population and the individual. Happily, the term isn’t used in this issue of the journal as it is misused and misunderstood. Ethan Sims used the word in the 1970s to describe his work on ‘experimental human obesity’, confirming the link between excess weight and dysglycaemia, during which healthy prisoners were deliberately overfed to induce weight gain to an average BMI of 28 (overweight, rather than obese). The purpose was to explore the complex interactions between genes and the environment – why did some subjects need a negligible increase in calories to gain weight, while others required thousands more to have the same effect?

Low carbohydrate diets

A recent study in north west England in primary care put low carbohydrate diets in perspective for the health care professional. Patients’ mean body weight fell by 9.0kg, waist circumference fell by 15cm, blood glucose control measured as HbA1c fell by 19%, liver function measured as serum glutamyl-transferase improved by 39%, and cholesterol fell by 5% while being elevated in no subjects. Systolic and diastolic blood pressures dropped significantly. Diabetes drug spend was reduced, saving approx £31 000 per year.

A recent meta-analysis by Sackner-Bernstein concluded that: ‘Compared with low fat diet, low carbohydrate was associated with significantly greater reduction in weight and significantly lower predicted risk of atherosclerotic cardiovascular disease events.’ This and many other papers have been generally ignored in international dietary guidelines which have undergone increasing scrutiny in the light of the growing burden in obesity and diabetes.

The recent Healthy Eating Guide published by Public Health England has actually increased the proportion of refined starchy food recommended in our nation’s diet to around 38%, while also allowing some sweets and confectionery as well as fruit juice, despite the WHO and the Scientific Advisory Committee on Nutrition call to cut sugar intake, and the growing body of evidence demonstrating the superior benefits of a low carbohydrate diet.

New ways to tackle obesity

George Osborne, as Chancellor, announced a sugar tax on soda which has been ratified by the recent watered-down Government Childhood Obesity Strategy, representing a welcome piece of good news for the nation’s health, meaning the government may have woken up to the catastrophic current and future health and economic burdens of obesity and the diseases it causes.

A further glimmer of hope has been provided by the NHS Diabetes Prevention Programme. That study comprised intensive lifestyle intervention for patients with impaired glucose tolerance and induced a relatively minor weight loss of <4kg after four years, but accompanied by an impressive 58% decrease in the cumulative incidence of diabetes. It is praiseworthy that the government has chosen to start to tackle the epidemics of obesity and diabetes by rolling out this programme in the UK, but unfortunately the accompanying funding is woefully inadequate, and of the ~15 million obese individuals in the UK only 20 000 will potentially benefit from the programme in the first year, and 100 000 per year thereafter – merely scratching the surface.

This important themed issue of Practical Diabetes explores some of the crucial but less understood aspects of diabetes and obesity, and is essential reading for anyone involved with the day-to-day management of types 1 and 2 diabetes.

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