Diabetes and obesity: A joined-up approach to management

A report from a conference hosted jointly by the Primary Care Diabetes Society and the National Obesity Forum, which took place on 25 June 2009 at the Freemasons Hall, London.

Introduction

Rates of diabetes and obesity are rising in the UK, and globally. This conference aimed to promote a joined-up approach to the management of these two related and costly conditions. Effective therapies for both diabetes and obesity, and how best to utilise them in the clinical setting, were discussed. The topics covered comprised lifestyle interventions and the effects of weight loss, physiological interventions and behavioural therapy, pharmacological regimens and bariatric surgery. This meeting report presents a summary of the conference.

Martin Hadley-Brown (GP, Thetford, and Chair of the Primary Care Diabetes Society [PCDS]) opened proceedings and welcomed attendees to the first conference collaboration between the PCDS and the National Obesity Forum. Martin hoped that the conference would provide clinicians with practical guidance for the management of diabetes and obesity.

Session 1 – Obesity and diabetes: A challenge to body and mind

Mike Lean (Professor of Human Nutrition, Glasgow) stressed that weight gain is associated with the development of diabetes but before the conventional onset of "obesity". Mike reported that type 2 diabetes is increasingly common among those with a BMI of 23–25 kg/m^2, and that 50% of cases of diabetes develop before BMI reaches 30 kg/m^2, and the relative risk of diabetes approaches 100 at a BMI >35 kg/m^2 (Colditz et al, 1995). The link between diabetes and obesity is incontrovertible. Mike highlighted the benefits of only 5–10 kg weight loss on all of the body's systems and overall mortality (SIGN, 1996).

Mike described the Counterweight programme, the only evidence-based weight loss programme, and the success it has achieved (Counterweight Project Team, 2004). Given the link between diabetes and excess body weight, Mike questioned why Quality and Outcomes Framework points were not being allocated to the implementation of successful weight-loss plans by GPs.

In the second morning session, Andy Hill (Professor of Medical Psychology, Leeds) spoke about the psychological issues that impact people who are overweight or obese. Andy described the bi-directional relationship between obesity and depression (Markowitz et al, 2008), and said that obese people are at greater risk of depression, especially women (Zhao et al, 2009).

Andy recommended early assessment of patient motivation. The stages of change model is useful when matching intervention actions to a person's readiness to change. The social support of family, friends, and groups contributes to weight loss and its maintenance (Verheijden et al, 2005). Motivational interviewing, with its client-centred approach, also has potential for weight loss maintenance.

In the final morning session, Neil Munro (GP, Surrey) spoke about the therapies currently available for the treatment of diabetes. In addressing hyperglycaemia and its associated complications, a multitude of therapies are available, but all have side-effects, one being weight gain – especially undesirable among those who are already overweight or obese. Neil discussed the newer incretin mimetics and their associated with weight loss (Drucker and Nauck, 2006). The initiation of insulin is well known to be associated with weight gain (Nathan et al, 2006); however, Neil described the way in which some insulin dosing regimens are associated with less weight gain than others, but that the trade-off may be a reduced improvement in HbA_{1c} (Holman et al, 2007).

Session 2 – Interventions that work

Following lunch, David Millar-Jones (GPSI, Cwmbran) discussed the available effective therapies for obesity. David opened by saying that intra-abdominal fat should not be considered the body's inert storehouse for triglycerides, rather it is an endocrine organ involved in a range of activities, including the tonic activity of the endocannabinoid system in obese individuals.

To address excess body weight, clinicians need the right tools, David said, with diet and exercise being the primary interventions. While any low-calorie diet will result in weight loss, an improvement in HbA_{1c} levels, lipid levels and a reduction in blood pressure (National Institutes of Health et al, 1998). But, David said, we do not yet know the long-term effects on bone, the kidneys, lipids, and the maintenance and adherence associated with specific diet types.

The other side of the lifestyle coin is exercise, with regular moderate exercise bestowing a reduction in weight, blood pressure, cardiovascular risk and an

increase in insulin sensitivity (American Diabetes Association, 2002). Beyond lifestyle measures, pharmacotherapy, psychological support and surgery also need to be considered as part of the treatment plan.

Anthony Barnett (Professor of Medicine, Birmingham) spoke next on the prevention of obesity and diabetes. Anthony described the positive community health interventions that have been achieved in other countries, such as the China Da Qing Study (Li et al, 2008) and the Finnish Diabetes Prevention Study (Lindström et al, 2008).

The use of some glucose-lowering drugs has also been shown to be effective in preventing progression to type 2 diabetes (Diabetes Reduction Assessment with Ramipril and Rosiglitazone Medication Trial Investigators, 2006). However, given that these agents are often costly and not licensed for use in prevention, and, further, that their use would mean medicating people for non-medically defined conditions, prevention by this method has been considered by many to be inappropriate.

Anthony suggested that a sustained, two-pronged approach that makes weight loss a priority at national and individual levels is needed in the UK. First, he said, a major public health campaign that addresses food labelling and advertising, and promotes healthy lifestyle choices in schools and at home, needs to be developed and supported by the Government. Second, Anthony said that diabetes and obesity need to be tackled on an individual basis, requiring interdisciplinary teams, effective weight management programmes (which may include pharmacotherapy) and the management of associated risk factors and comorbidities.

Session 3: Translating the evidence base into day-to-day practice

Opening the final session, John Baxter (Professor of Surgery, Swansea) described the contribution that surgery can make to the treatment of diabetes and obesity. Given the risk reduction for a variety of comorbidities bestowed by bariatric surgery, John said that the idea of it being a "cosmetic procedure" was outdated and that it should rather be considered in the context of reducing mortality by 32–40% in people who are obese (Adams et al, 2007; Sjöström L et al, 2007).

John described the various surgical procedures available for weight loss. These range from restrictive procedures (gastric banding, sleeve gastrectomy) to malabsorption procedures (biliopancreatic diversion, with or without duodenal switch). John stressed that bariatric surgery should only be undertaken with the preoperative and long-term support of an obesity specialty team.

Bariatric surgery offers a 50–72% loss of excess body weight, depending on the type of procedure (Buchwald et al, 2004). Resolution of diabetes post-surgery was also related to the type of surgery, with malabsorptive surgery achieving a 98% resolution (Buchwald et al, 2004).

John praised the NICE (2006) guidance on the management of obesity, and hoped that commissioners would have the vision to make such surgical options, and appropriate follow-up, available to those who satisfy NICE criteria and want the procedure. Currently, half of all bariatric surgeries performed in the UK are paid for privately, although all patients satisfy NICE criteria.

In the final session of the day, Gwen Hall (Diabetes Specialist Nurse in Primary Care, Haslemere) spoke on managing the risks of diabetes beyond achieving glycaemic control. Gwen stressed that diabetes treatment requires an approach to therapy that addresses the range of risk factors, including cardiovascular risk, overweight and obesity, because morbidity is caused by many more factors than just poor glycaemic control.

Multiple risk factors are necessarily treated with multiple medications and compliance (especially following negative side-effects) can be poor (Emslie-Smith et al, 2003). Further, Gwen warned that attempting to take the blood glucose of people (especially older people) too low, too fast, may increase the risk of cardiovascular disease (Action to Control Cardiovascular Risk in Diabetes Study Group, 2008).

Gwen suggested that care planning is the way to achieve sustainable glycaemic control, manage associated risk factors and improve compliance. Care planning should involve the person with diabetes in the decision-making and goal-setting process, ensuring that they understand the regimens to which they are agreeing. ■

Action to Control Cardiovascular Risk in Diabetes Study Group (2008) *N Engl J Med* **358**: 2545–59

Adams TD, Gress RE, Smith SC et al (2007) *N Engl J Med* **357**: 753–61

American Diabetes Association (2002) *Diabetes Care* **25**(Suppl 1): S64

Buchwald H, Avidor Y, Braunwald E et al (2004) *JAMA* **292**: 1724–37

Colditz GA, Willett WC, Rotnitzky A, Manson JE (1995) *Ann Intern Med* **122**: 481–6

Counterweight Project Team (2004) *J Hum Nutr Diet* **17**: 191–208

Diabetes Reduction Assessment with Ramipril and Rosiglitazone Medication Trial Investigators (2006) *Lancet* **368**: 1096–105

Drucker DJ, Nauck MA (2006) *Lancet* **368**: 1696–705

Emslie-Smith A, Dowall J, Morris A (2003) *British Journal of Diabetes and Vascular Disease* **3**: 54–6

Holman RR, Thorne KI, Farmer AJ et al (2007) Addition of biphasic, prandial, or basal insulin to oral therapy in type 2 diabetes. *N Engl J Med* **357**: 1716–30

Li G, Zhang P, Wang J et al (2008) *Lancet* **371**: 1783–9

Lindström J, Ilanne-Parikka P, Peltonen M et al (2008) *Lancet* **368**: 1673–9

Markowitz S, Friedman MA, Arent SM (2008) *Clinical Psychology: Science and Practice* **15**: 1–20

Nathan DM, Buse JB, Davidson MB et al (2006) *Diabetes Care* **29**: 1963–72

National Institutes of Health, National Heart, Lung, and Blood Institutes (1998) *Obes Res* **6**(Suppl 2): 51S–209S

NICE (2006) *Obesity: The Prevention, Identification, Assessment and Management of Overweight and Obesity in Adults and Children*. NICE, London

SIGN (1996) *Obesity in Scotland: Integrating Prevention with Weight Management*. SIGN, Edinburgh

Sjöström L, Narbro K, Sjöström CD et al (2007) *N Engl J Med* **357**: 741–52

Verheijden MW, Bakx JC, van Weel C et al (2005) Role of social support in lifestyle-focused weight management interventions. *Eur J Clin Nutr* **59** (Suppl 1): S179–86

Zhao G, Ford ES, Dhingra S et al (2009) Depression and anxiety among US adults: associations with body mass index. *Int J Obes (Lond)* **33**: 257–66