

Bariatric surgery: Potential cure for diabetes?



Philip Evans

GP, Exeter, and Senior Clinical Research Fellow, University of Exeter Medical School

There has been much debate this year in the medical and lay press about the beneficial effects for type 2 diabetes of weight loss via bariatric surgery (or “metabolic surgery”, as it is now sometimes termed). It has been suggested by some that bariatric surgery is a panacea for type 2 diabetes and that it is now possible to cure the “core defects” that lead to the condition (e.g. Fischer et al, 2013). Other researchers have suggested that intensive lifestyle intervention can bring about partial remission of type 2 diabetes (e.g. Gregg et al, 2012). Both of these findings, if confirmed, would have massive implications for those of us in primary care caring for people with type 2 diabetes who have comorbid obesity.

The frequency of surgical treatments for extreme obesity has increased dramatically, particularly in the UK (Ells et al, 2007). Various procedures exist, including a Roux-en-Y gastric bypass, which is the most common bariatric surgical operation performed in the US. Other procedures include a sleeve gastrectomy and gastric banding, the latter being more commonly used in the UK.

Recently, three randomised, non-blinded trials demonstrated better diabetes control, or even “remission”, in obese people who underwent bariatric surgery, compared with intensive medical therapy (IMT; Mingrone et al, 2012; Schauer et al, 2012; Ikramuddin et al, 2013). It has been noted that an individual’s diabetes control can improve quickly after surgery and out of proportion to the degree of weight loss, suggesting that in some way bariatric surgery is rapidly affecting the underlying pathological process causing type 2 diabetes.

This phenomenon seems to be more marked with bypass operations. The STAMPEDE (Surgical Treatment and Medications Potentially Eradicate Diabetes Efficiently) study, for example, was a trial of IMT alone against IMT plus bariatric surgery (Roux-en-Y gastric bypass or sleeve gastrectomy) in people with uncontrolled type 2 diabetes and at least moderate obesity (BMI >36 kg/m²; n=150; Schauer et al, 2012). Its primary endpoint was the proportion of participants with an HbA_{1c} level ≤48 mmol/mol (6.0%), which was achieved significantly more frequently in each of the surgical

groups, compared with IMT alone, and with little or no need for oral hypoglycaemic agents.

Subsequently, Kashyap et al (2013) have reported some fascinating findings from follow-up data in a prespecified subgroup of the first 60 participants randomised. Gastric bypass ($P=0.01$) and sleeve gastrectomy ($P=0.04$) both provided significantly better diabetes control (mean HbA_{1c} level) than IMT alone out to 2 years. In the bypass group, a greater proportion of participants (33.3%) met the target HbA_{1c} level at 2 years, compared with sleeve gastrectomy (10.5%; $P=0.12$) and IMT alone (5.9%; $P=0.09$). The differences in these are striking.

The mean weight loss at 2 years was 25.4 kg for gastric bypass and 22.5 kg for sleeve gastrectomy ($P=0.37$). The authors concluded that: “factors beyond weight loss that are specific to intestinal bypass patients help regulate glucose levels and restore pancreatic beta-cell function.”

Applying caution

Most commentators are using the word “cure” with caution, although bypass operations do appear to hold significant promise. Understandably, surgeons are becoming excited about the prospects of surgical cures for a metabolic disorder (Fischer, 2013). Clearly, though, larger studies are needed to define whether the metabolic effects are sustainable. It should also be noted that bariatric surgery is not free from the risk of significant complications. For example, Flum et al (2009) reported a complication rate of 4.2% and a mortality of 0.2% among 4776 individuals in the LABS (Longitudinal Assessment of Bariatric Surgery) cohort.

Practical implications

In summary, this remains an exciting option but longer-term follow-up is necessary. The implications for those of us in primary care are potentially immense, notwithstanding the economic impact of these treatments on the NHS. Perhaps GPs should be referring people with type 2 diabetes more readily to their local obesity service for consideration of bariatric surgery. Moreover, clinical commissioning groups may wish to review this evidence in the light of their desire for evidence-based services. ■

Ells LJ, Macknight N, Wilkison JR (2007) Obesity surgery in England: an examination of the health episode statistics 1996-2005. *Obes Surg* **17**: 400–5

Fischer JE (2013) The implications for the surgical community of bariatric surgery as a “cure” for type 2 diabetes. *Am J Surg* **206**: 136–41

Flum DR, Belle SH, King WC et al (2009) Perioperative safety in the longitudinal assessment of bariatric surgery. *N Engl J Med* **361**: 445–54

Gregg EW, Chen H, Wagenknecht LE et al (2012) Association of an intensive lifestyle intervention with remission of type 2 diabetes. *JAMA* **308**: 2489–96

Ikramuddin S, Korner J, Lee W-J et al (2013) Roux-en-Y gastric bypass vs intensive medical management for the control of type 2 diabetes, hypertension, and hyperlipidemia. *JAMA* **309**: 2240–9

Kashyap SR, Bhatt DL, Wolski K et al (2013) Metabolic effects of bariatric surgery in patients with moderate obesity and type 2 diabetes. *Diabetes Care* 25 Feb [Epub ahead of print]

Mingrone G, Panuzi S, De Gaetano A et al (2012) Bariatric surgery versus conventional medical therapy for type 2 diabetes. *N Engl J Med* **366**: 1577–85

Schauer PR, Kashyap SR, Wolski K et al (2012) Bariatric surgery versus intensive medical therapy in obese patients with diabetes. *N Engl J Med* **366**: 1567–76