

Obesity

Bariatric surgery in the treatment of type 2 diabetes



Jonathan Pinkney,
Senior Lecturer/
Honorary Consultant
Physician, University
of Liverpool
/University Hospital
Aintree

It is known that weight reduction surgery (bariatric surgery) leads to major improvements for morbidly obese (BMI > 40 kg/m²) people with type 2 diabetes, allowing reductions in oral drugs and insulin, and frequently leading to enduring remission of diabetes.

A US consensus statement suggested that people with type 2 diabetes who have a BMI > 35 kg/m² were eligible for bariatric surgery. Interestingly, that means nearly a quarter of patients with type 2 diabetes in our hospital clinic! In this study, we examined the current state of this field, and highlighted questions that still need to be answered. Why has this treatment not gained wider acceptance?

The answers are complex, and include a paucity of studies that specifically look at people with type 2 diabetes, uncertainty about the optimum surgical procedure,

persisting stigma against bariatric surgery in obese patients, safety concerns, and crucially, a lack of long-term medical, economic and quality of life data compared with other methods of treating obese people with diabetes.

Bariatric surgery has advanced considerably and laparoscopic surgery has further increased safety. Gastric banding and roux-en-Y gastric bypass are currently performed most widely in the UK, and both procedures have excellent safety records in experienced hands. However, demand greatly exceeds operating capacity and the available surgical expertise. Although individual people with type 2 diabetes and morbid obesity may elect to undergo bariatric surgery (where this is available) there are no randomised controlled trials to indicate whether it should be more widely employed in the diabetes clinic. Such trials are clearly needed. Watch this space.

OBESITY RESEARCH



A consensus on the use of antipsychotic drugs

Readability	✓	✓	✓	✓	✓
Applicability to practice	✓	✓	✓	✓	✓
WOW! factor	✓	✓	✓	✓	✓

- 1 A consensus position was developed by four American associations for the use of antipsychotic drugs.
- 2 Second-generation antipsychotics (SGAs) have great benefits for people with psychiatric disorders but have undesirable side-effects such as obesity, diabetes and dyslipidaemia.
- 3 The increased risk for metabolic abnormalities may correlate to the increase in bodyweight often seen in people who take SGAs, or could be the direct drug effects on β -cell function and insulin action.

4 Obesity, diabetes and dyslipidaemia are closely linked and their prevalence seems to differ depending on the SGA used.

5 Clozapine and olanzapine are associated with the greatest weight gain and highest occurrence of diabetes and dyslipidaemia; risperidone and quetiapine appear to have intermediate effects; aripiprazole and ziprasidone are associated with little weight gain, diabetes or dyslipidaemia.

6 Baseline screening and follow-up monitoring is essential to mitigate the likelihood of developing diabetes, CVD or other diabetes complications when a SGA is prescribed.

7 The likelihood of developing severe metabolic disease should be an important consideration when a SGA is prescribed.

American Diabetes Association, American Association of Clinical Endocrinologists, and North American Association for the Study of Obesity (2004) Consensus development conference on antipsychotic drugs and obesity and diabetes. *Obesity Research* 12(2): 362-68

OBESITY REVIEWS



Bariatric surgery in type 2 diabetes: current status

Readability	✓	✓	✓	✓	✓
Applicability to practice	✓	✓	✓	✓	✓
WOW! factor	✓	✓	✓	✓	✓

- 1 The aim of bariatric surgery is to induce major weight loss in people whose obesity places them at risk of serious health problems.
- 2 Bariatric operations are currently performed only in the morbidly obese or those with a BMI of more than 35 kg/m² who have a comorbidity, in an attempt to balance the benefits of weight loss

against risks of surgery.

3 Observational studies show a major impact of bariatric surgery on diabetes.

4 Bariatric surgery leads to withdrawal of diabetes treatment in about 60% of patients, and reductions of therapy for many others.

5 Bariatric surgery has not yet been compared against standard medical treatment for diabetes in randomised controlled trials.

6 The article discusses potential indications for bariatric surgery and the questions that clinical trials need to address are summarised.

7 Current data are insufficient to endorse the wide scale use of bariatric surgery in type 2 diabetes.

Pinkney J, Kerrigan D (2004) Current status of bariatric surgery in the treatment of type 2 diabetes. *Obesity Reviews* 5: 69-78

OBSTETRICS AND GYNECOLOGY

Obesity in pregnancy

Readability	✓✓✓✓✓
Applicability to practice	✓✓✓✓✓
WOW! factor	✓✓✓✓✓

1 A total of 3480 women with morbid obesity (BMI >40 kg/m²) and 12 698 women with a BMI 35.1–40 kg/m² were compared with

women of normal weight (BMI 19.8–26 kg/m²).

2 The perinatal outcome of singletons born to women without insulin dependent diabetes was evaluated.

3 When compared with normal-weight mothers, those with morbid obesity had an increased risk of pre-eclampsia, antepartum stillbirth, caesarean delivery, instrumental delivery, shoulder

dystocia, meconium aspiration, fetal distress, early neonatal death, and large-for-gestational age.

4 Associations were lesser for women with BMI of 35.1–40 kg/m².

5 Maternal morbid obesity in early pregnancy is linked with perinatal conditions and pregnancy complications.

Cedergren MI (2004) Maternal morbid obesity and the risk of adverse pregnancy outcome. *Obstetrics and Gynecology* **103**(2): 219–24

‘Insulin resistance in the skeletal muscle of insulin-resistant children of people with type 2 diabetes is associated with dysregulation of intramyocellular fatty acid metabolism.’

NEW ENGLAND JOURNAL OF MEDICINE

Children inherit defects

Readability	✓✓✓✓✓
Applicability to practice	✓✓✓✓✓
WOW! factor	✓✓✓✓✓

1 Hyperinsulinaemic-euglycaemic clamp studies in combination with infusions of glucose were performed in

healthy, young, lean, insulin-resistant children of people with type 2 diabetes and an insulin-sensitive control group, to assess the sensitivity of liver and muscle to insulin.

2 Proton magnetic resonance spectroscopy studies were performed and rates of whole-body and subcutaneous fat lipolysis were assessed.

3 The insulin-stimulated rate of glucose uptake by muscle was ~60% lower in the insulin-resistant group

than in the control group, and was associated with an increase of ~80% in the intramyocellular lipid content (perhaps attributable to mitochondrial dysfunction).

4 Insulin resistance in the skeletal muscle of insulin-resistant children of people with type 2 diabetes is associated with dysregulation of intramyocellular fatty acid metabolism.

Petersen KF, Dufour S, Befroy D, Garcia R, Shulman GI (2004) Impaired mitochondrial activity in the insulin-resistant offspring of patients with type 2 diabetes. *The New England Journal of Medicine* **350**: 664–71

LIVER TRANSPLANTATION

Diabetes is a risk factor for carcinoma

Readability	✓✓✓✓✓
Applicability to practice	✓✓✓✓✓
WOW! factor	✓✓✓✓✓

1 This study examined the incidence of risk factors for non-alcoholic fatty liver disease (NAFLD) in 210 patients who had resection for hepatocellular carcinoma (HCC).

2 Of these 210 patients with chronic liver disease who had resection for HCC, 18 had no identifiable cause for the liver disease, so were assessed for obesity, diabetes and histological features of the tumour and the adjacent liver parenchyma.

3 Comparisons were made with matched patients with alcohol- and chronic-viral-hepatitis-related HCC.

4 The prevalence of obesity, diabetes, aspartate aminotransferase/alanine aminotransferase ratio and steatosis

was significantly higher in people with cryptogenic liver disease than in people with alcohol abuse and chronic viral hepatitis.

5 Well-differentiated tumours were more common in people with cryptogenic liver disease.

6 The analysis of surgically treated patients supports the hypothesis that obesity and diabetes may be important risk factors for cryptogenic chronic liver disease in people with HCC.

Regimbeau JM, Colombat M, Mognol P et al (2004) Obesity and diabetes as a risk factor for hepatocellular carcinoma. *Liver Transplantation* **10**(2) Suppl 1: S69–73

EUROPEAN HEART JOURNAL

Overweight coronary patients at high risk

Readability	✓✓✓✓✓
Applicability to practice	✓✓✓✓✓
WOW! factor	✓✓✓✓✓

1 The prevalence of overweight and obesity in people with established CHD and the therapeutic control of manageable coronary risk factors in relation to BMI was studied.

2 Data from 5535 coronary patients who had had a cardiac event before the age of 71 years were gathered.

3 Results indicated that the population of obese/overweight coronary patients is at a high risk for further CV complications due to elevated risk factors levels and insufficient therapeutic control.

De Bacquer D, De Backer G, Cokkinos D et al (2004) Overweight and obesity in patients with established coronary heart disease: Are we meeting the challenge? *European Heart Journal* **25**: 121–28

‘The population of obese and overweight coronary patients is at a high risk for further cardiovascular complications due to elevated risk factors levels and insufficient therapeutic control.’