

BARIATRIC SURGERY MAY CURE TYPE 2 DIABETES IN SOME PATIENTS

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"Gastric bypass surgery has become a popular option for obese people who want to shed pounds quickly, but diabetics also have something to gain from the procedure: the surgery can resolve type 2 diabetes".

WHAT IS DIABETES?

Diabetes currently affects more than 150 million people worldwide and that number is expected to quickly increase. Over 90% of people with the disease have the Type 2 form, which is associated with obesity and overweight, lack of physical activity, family history and older age. Unlike Type 1 diabetes in which the pancreas fails to produce sufficient insulin, the pancreas in patients with Type 2 diabetes produces enough insulin, but for unknown reasons, the body is unable to use the insulin. Diabetes can lead to blindness, heart and blood vessel disease, strokes, kidney failure, amputations, and nerve damage. Current therapies, which include diet, exercise, oral antidiabetic drugs and insulin, do not always cure the disease.

TRADITIONAL THERAPY FOR DIABETES

The goal of treatment is to improve the symptoms of diabetes through normalizing blood glucose levels. The ongoing goals are to prevent long-term complications like eye and kidney disease, damage of nerves and blood vessels. Strict control of blood glucose reduces risk of death, stroke, heart failure, and other complications. Glycosylated hemoglobin (HbA1C) is a test that determines risk for long-term complications. It measures how much glucose has been sticking to red blood cells and other cells.

The first-line treatment for type 2 diabetes is weight lost, diet and exercise. Appropriate meal planning includes choosing healthy foods and eating the right amount of food. Exercise is important for effective treatment of diabetes. Regular exercising helps burning excess calories, managing weight thus improves control of the glucose amount in the blood.

When diet and exercise are not sufficient to maintain normal blood glucose levels, medications may be needed. They work through triggering the pancreas to make more insulin, helping insulin work better, decreasing the absorption of carbohydrates from the gut or decreasing glucose production in the liver. Poor blood glucose control despite lifestyle changes and taking medications means insulin should be injected.

SURGERY IS THE BEST THERAPY FOR SEVERE OBESITY

Dietary and medical therapy for severe obesity has limited short-term success and almost nonexistent long-term success. Therefore, obesity surgery (also called bariatric surgery) has been a popular treatment in the war against obesity. Weight loss surgery generally results in greater and sustained weight loss than conventional treatment, and leads to improvements in quality of life and obesity related diseases such as diabetes, hypertension, sleep apnea (when breathing stops for short periods during sleep) and many others.

Before someone can become eligible for bariatric surgery, certain criteria must be met. The basic criteria are an understanding of the operation, its benefits and risks and the lifestyle changes the patient will need to make, and either:

- body mass index (BMI) of 40 or more, which is about 45 kg (100 pounds) overweight for men and 35 kg (80 pounds) for women; or
- BMI between 35 and 39.9 and a serious obesity-related health problem such as type 2 diabetes, heart disease, or severe sleep apnea.

Bariatric operations currently performed include stomach restriction (adjustable gastric banding, sleeve gastrectomy) and combined restrictive and malabsorptive procedures (Roux-en-Y gastric bypass, biliopancreatic diversion with duodenal switch). The most common bariatric surgery is gastric bypass (also called Roux-en-Y gastric bypass, RYGB): a small stomach pouch



is created with a stapler device, and connected to the distal small intestine.

The upper part of the small intestine is then reattached in a Y-shaped configuration.

Adjustable gastric banding (also called “lap-band”) is a laparoscopic procedure involving placing



a silastic ring with inflatable inner around upper stomach.

The inner diameter of the

band can be adjusted by injecting saline through the port placed under the skin allowing quicker weight loss. Sleeve gastrectomy is one of the newest methods of surgical weight loss. The part of the stomach along its greater curve is resected. The stomach is "tubulized" with a residual volume



of about 150 ml.

This volume reduction provides the food intake restriction. The

biliopancreatic diversion with duodenal switch (BPD-DS) involves creating a sleeve gastrectomy connected with a long alimentary limb and shorter common channel. This surgery provides substantial (greater than gastric bypass or lap band) weight loss and can be used for super-obese patients (with BMI more than 60) or as a second option in patients who failed to lose weight with other procedures.

Traditional or "open" gastric bypass surgery requires a 6-to 8-inch incision and approximately four weeks of recuperation. Cleveland Clinic surgeons can offer most gastric bypass surgery patients the laparoscopic approach. This procedure involves making five to six small openings (approximately 1/1-1 inch in size) in the abdomen. The minimally invasive approach achieves results identical to those associated with open surgery, but with less post-operative pain and swifter recovery. Patients who undergo laparoscopic bypass surgery can return to work after two to four weeks. Laparoscopic surgery also reduces the risk of developing hernias, which are more common after traditional abdominal surgery.

. BARIATRIC SURGERY CAN CURE DIABETES IN SOME PATIENTS

Bariatric surgery, formerly used only for treating obesity, is now being explored as a cure for type 2 diabetes not only in obese patients but also in normal weight or moderately overweight

people. The Cleveland Clinic Bariatric and Metabolic Institute is currently conducting pioneering studies in this matter.

A recent study on over 20,000 patients showed that 84 percent who underwent Roux-en-Y gastric bypass (RYGB) experienced complete reversal of their type 2 diabetes. Rapid improvement in blood sugars and reduction or elimination of diabetic medications is often seen within the immediate period following bariatric surgery, even before significant weight loss. While the number of diabetic patients needing medical therapy with oral hypoglycemics or insulin reaches almost 90 percent over time, the need for medical management falls to less than 8 percent among those who have gastric bypass. These results are typically persistent for rest of the life, as long as normal body weight is sustained. Resolution of diabetes is measured by normalized fasting blood sugar and glycosylated hemoglobin (HbA1C) concentrations. Some studies show that every 1 percent drop in HbA1C causes a relative reduction of long-term complications of diabetes by 25 to 45 percent.

Patients having a milder form of diabetes (controlled with diet) for less than five years, and who achieve greater weight loss after surgery, are more likely to achieve complete resolution of diabetes mellitus. Bariatric surgery plays important role in prevention of diabetes: weight loss following gastric bypass in obese non-diabetic patients decreases their likelihood of developing diabetes by 60 percent.

Bariatric surgery ameliorates diabetes independently of weight loss, through mechanisms that remain unclear. Roux-en-Y gastric bypass, improves diabetes through rapid weight loss, by exclusion (bypassing) of the initial portion of the jejunum from the flow of nutrients and by altering production of various gut hormones leading to improvement of insulin secretion and resistance. Despite of the hypothetical mechanism, Roux-en-Y gastric bypass is the most powerful operation to control diabetes.

THE RISK OF BARIATRIC SURGERY IS LESS THAN THE RISK OF DEATH FROM DIABETIC COMPLICATIONS

Bariatric operations carry some risk, but benefits clearly overcome potential problems. The risks of bariatric procedures have decreased with increasing expertise and technical

refinements. In high-volume centers, such as The Cleveland Clinic, the major morbidity is less than 8 percent and mortality is less than 0.3 percent. For every year of follow-up, diabetic patients treated medically have a 4.5 percent chance of dying, compared with much less than 1 percent chance for those undergoing bariatric surgery. This is an acceptable risk for the tremendous clinical benefits of minimizing the progression of Type 2 diabetes in obese patients.

The most common complications from gastric bypass include gastrointestinal leak, pulmonary embolism, bowel obstruction and internal hernia. Complications from the gastric banding procedure include slippage or erosion of the band, esophageal dilatation and breakage of the device.

Considering the risk-to-benefits ratio, bariatric surgery is extremely effective when compared to medical treatment. The risk of death from diabetic complications is greater than the risk of death from surgery.

THE EARLIER THE SURGERY, THE BETTER THE OUTCOME

A key finding of many studies is that the shorter the history of diabetes, the greater the likelihood of complete remission. Glucose toxicity, particularly in poorly controlled diabetes, accelerates B-cell failure. B-cells are located in the pancreas and produce and secrete insulin. Weight loss can improve B-cell responsiveness to glucose. If the bariatric surgical procedure is performed before irreversible B-cell failure has occurred, durable weight loss will be accompanied by a high likelihood of long-term remission.

WHY CHOOSE THE CLEVELAND CLINIC?

The Bariatric and Metabolic Institute at the Cleveland Clinic offers a comprehensive preoperative evaluation and postoperative care. Experienced multidisciplinary team of doctors, nurses, psychologists and dieticians created a Center of Excellence for bariatric surgery with a leading position in the US and the World. Seminars, lectures, support groups and individual teaching help better understanding how bariatric surgery works and if diabetes can be effectively treated this way.

THE CLEVELAND CLINIC BARIATRIC AND METABOLIC INSTITUTE (BMI)

- Skilled, experienced surgeons who have performed thousands of bariatric surgical procedures
- High success rates, and low complications rates
- Thorough preparation, and follow-up programs to help you succeed
- Nurses accessible by phone during regular business hours, and doctors available 24/7 for urgent problems
- Ability to handle complex cases (for example liver problems or previous abdominal surgeries)
- Easy access to specialist, including endocrinology, neurology, digestive disease, heart disease (all ranked the best in Ohio and #1 nation's heart center)
- Comfortable, state-of-the-art facility designed specifically for care of bariatric patients
- Team of professionals devoted to your success
- Comprehensive medical weight loss program with primary care physician
- Intensive, multidisciplinary program to help people with difficult-to-control diabetes get their disease under control.