

CAN BARIATRIC SURGERY CURE TYPE 2 DIABETES ?

MOST PATIENTS IMPROVE AND SOME CURED

Bariatric Surgery is an excellent option for people with severe obesity who want to shed pounds, but diabetics can benefit greatly from the procedure. Bariatric surgery can help to resolve Type 2 diabetes in many patients.

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, which is associated with obesity, 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 often produces more insulin, but for unknown reasons, the body is unable to utilize the insulin. Diabetes can lead to blindness, heart and vascular disease, strokes, kidney failure, amputations, and nerve damage. Current therapies, which include diet, exercise, oral antidiabetic drugs and insulin, do not always control 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 loss, diet and exercise. 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. Poorly controlled blood glucose despite these measures is an indication for insulin injections.

BARIATRIC SURGERY IS VERY EFFECTIVE THERAPY FOR DIABETES IN OBESE PATIENTS

Before someone can become eligible for bariatric surgery, certain criteria must be met. The basic criteria include 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 operations that also involve intestinal bypass (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 an inflatable silastic ring around upper stomach. The inner diameter of the band can be adjusted by injecting saline through the port placed under the skin. Sleeve gastrectomy is one of the newer methods of surgical weight loss. A large portion of the stomach is removed, leaving only a “tube”, greatly reducing its volume. This volume reduction helps to promote early satiety and reduced food intake. The biliopancreatic diversion with duodenal switch (BPD-DS) involves combining the sleeve gastrectomy with an intestinal bypass. This surgery provides substantial 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.

BARIATRIC SURGERY CAN RESOLVE DIABETES IN SOME PATIENTS.

Bariatric surgery, formerly used only for treating obesity, is now being suggested as a treatment for Type 2 diabetes not only in obese patients but also in normal weight or moderately overweight people.

A recent review of several hundred studies involving over 20,000 patients showed that 84 percent who underwent Roux-en-Y gastric bypass (RYGB) and 60% who had adjustable gastric banding experienced complete remission of their Type 2 diabetes. Rapid improvement in blood glucose and reduction or elimination of diabetic medications is often seen immediately following bariatric surgery, even before significant weight loss. Gastric bypass reduces the need for oral medications and/or insulin from 90% of patients with Type 2 diabetes to only 8%. These benefits are typically life-long, as long as normal body weight is sustained. Blood glucose control is important as 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 an 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 improves diabetes independent 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. Roux-en-Y gastric bypass appears to have a greater direct effect on the control of diabetes than operations that do not involve intestinal bypass, such as adjustable gastric banding.

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

Bariatric operations carry some risk, but the benefits greatly outweigh the risk for most patients. In addition, bariatric procedures have become safer and less invasive. In high-volume

centers, the major complication rate is less than 8 percent and mortality is less than 0.5 percent. For every year of follow-up, diabetic patients treated medically have a 4.5 percent chance of dying, compared with a surgical risk of less than 1 percent at the time of bariatric surgery. The powerful effects of gastric bypass surgery also include other benefits of weight loss such as resolution of obstructive sleep apnea and reducing the risk of cancer.

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.

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 following bariatric surgery. 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.