
DIABETES AND BARIATRIC SURGERY

Although diabetes is traditionally viewed as a chronic, relentless disease in which delay of end-organ complications is the major treatment goal, bariatric surgery offers a novel end point: major improvement or even complete disease remission.

Did You Know?

- Someone in the world dies from complications associated with diabetes every 10 seconds.
- Diabetes is one of the top ten leading causes of worldwide deaths.
- Diabetics have health expenditures that are 2.3 times higher than non-diabetics.
- Approximately 90 percent of type 2 diabetes mellitus (T2DM), the most common form of diabetes, is attributable to excessive body fat.
- If current trends continue, T2DM or pre diabetic conditions will strike as many as half of adults by the end of the decade. (according to the United HealthGroup Inc., the largest U.S. health insurer by sales).
- The prevalence of diabetes is approx.8.9 percent but more than 25 percent among individuals with morbid obesity.
- Metabolic and bariatric surgery is the most effective treatment for T2DM among individuals who are affected by obesity and may result in remission or improvement in nearly all cases.

Type 2 Diabetes Mellitus (T2DM)

Metabolic and Bariatric Surgery and Type 2 Diabetes

Nearly all individuals who have bariatric surgery show improvement in their diabetic state and were found to affect type 2 diabetes in the following ways:

Surgery improves type 2 diabetes in nearly 90 percent of patients by:

- lowering blood sugar
- reducing the dosage and type of medication required
- improving diabetes-related health problems

Surgery causes type 2 diabetes to go into remission in 78 percent of individuals by:

- reducing blood sugar levels to normal levels
- eliminating the need for diabetes medications

Health Improvements

- Cause the improvement or remission of T2DM to last for years
- It has been shown unequivocally that diabetes-related morbidity and mortality have declined significantly postoperatively, and this improvement in diabetes control is long lasting. Bypass procedures, the Roux-en-Y gastric bypass (RYGBP) and the biliopancreatic diversion (BPD), are more effective treatments for diabetes than other procedures and are followed by normalization of concentrations of plasma glucose, insulin, and HbA1c in 80–100% of morbidly obese patients. Studies have shown that return to euglycemia and normal insulin levels occurs within days after surgery, long before any significant weight loss takes place. This fact suggests that weight loss alone is not a sufficient explanation for this improvement. Other possible mechanisms effective in this phenomenon are decreased food intake, partial malabsorption of nutrients, and anatomical alteration of the gastrointestinal (GI) tract, which incites changes in the incretin system, affecting, in turn, glucose balance. Better understanding of those mechanisms may bring about a discovery of new treatment modalities for diabetes and obesity.

Types of Metabolic and Bariatric Surgeries

The following are the most common bariatric surgeries performed and their known effects on T2DM.

ROUX-EN-Y GASTRIC BYPASS

Roux-en-y Gastric Bypass is a surgery that alters the GI tract to cause food to bypass most of the stomach and the upper portion of the small intestine. The operation results in significant weight-loss and causes remission of T2DM in 80 percent of patients and improvement of the disease in an additional 15 percent of patients.

Improvement or remission of diabetes with gastric bypass occurs early after surgery and before there is significant weight-loss. The weight-loss independent mechanisms of diabetes improvement after gastric bypass are partially explained by changes in hormones produced by the gut after the surgery, and this is an active area of research in the field of metabolic and bariatric surgery.

SLEEVE GASTRECTOMY

Sleeve Gastrectomy (Vertical gastrectomy) is an operation that removes a large portion of the stomach and, in doing so, causes weight-loss. The remaining stomach is narrow and provides a much smaller reservoir for food.

Sleeve gastrectomy also appears to have some weight-loss independent effects on glucose metabolism and also causes some changes in gut hormones that favor improvement in diabetes. Diabetes remission rates after sleeve gastrectomy are also very high (more than 60%) and, in some studies, similar to results seen after gastric bypass.

BENEFITS VS. RISKS

Type 2 Diabetes is a leading cause of death and is a major contributor to morbidity and mortality from heart disease, stroke and kidney failure. Each year millions of individuals die from the effects of T2DM. With the advancements in bariatric surgery, many of these individuals could be saved and experience an improved quality of health and life.

While bariatric surgery certainly has some risk, the long-term risk of continued diabetes (which is often inadequately treated with medication) typically outweighs the risk of a surgical procedure for most patients. Each patient's individual risks for surgery, though, should be evaluated in the context of the duration and severity of their diabetes as well as their other obesity-related health problems.