BARIATRIC SURGERY FOR
TYPE 2 DIABETES MELLITUS

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DIABETES MELLITUS

T2DM is the most common form of diabetes
makes up to 90-95 % of all cases

Estimated 450 million individuals with
diabetes by 2030 worldwide
Type 2 DM

Prevalence of DM is 8.9 % of the US population
Over 25 % of the morbidly obese population
A leading cause of death
Leads to many health problems including CVD, stroke, kidney failure, neuropathy, blindness

T2DM

Current therapy includes:
Life style modification
  exercise
  weight loss
  proper Diet
  anti-diabetic medication
Life Style modification

- Look AHEAD (action for health in diabetes) study
- T2DM remission of 12% at one year but this declined to 7% at 4 years

T2DM OVERALL REMISSION RATES OF 78 percent following bariatric surgery

- 90% of patients show an improvement in their fasting blood sugars and hgb A1C
GLP-1  GLUCOSE LIKE PEPTIDE 1

- Secreted by gut endocrine cells (ileal L cells)
- Levels increase 10-20 x’s post mal-absorptive procedures
- Rapidly broken down by dipeptidyl peptidase (DPP)-4
- In T2DM there is decrease levels of GLP-1

GLP-1  GLUCOSE LIKE PEPTIDE 1

- Decrease glucagon secretion and gluconeogenesis
- Elicit secretion of Insulin by Pancreatic Beta cells
- Delayed gastric emptying
- Decreases appetite
- May improve sensitivity to insulin
GIP  Glucose-dependent insulinotropic polypeptide

- Secreted by the duodenal K cells
- Increases post bariatric procedures
- Stimulates insulin secretion

Other factors

- Ghrelin- decreases after some bariatric procedures
- Stimulates glucagon secretion and decreases adiponectin levels leading to insulin resistance
- PYY- induces satiety and inhibits GI motility exocrine pancreas, gastric secretions and decreases levels of circulating fatty acids by reducing lipolysis, increasing insulin sensitivity
- Higher levels of PYY are seen after malabsorptive procedures
MOST COMMON PROCEDURES

LAPAROSCOPIC ADJUSTABLE GASTRIC BAND
VERTICAL SLEEVE GASTRECTOMY
ROUX EN Y GASTRIC BYPASS
DUODENAL SWITCH

LAP ADJUSTABLE GASTRIC BAND
45-60% REMISSION

- NO INCRETIN INCREASE
VERTICAL SLEEVE GASTRECTOMY

70–80% of the stomach removed

Sleeve Gastrectomy
GREATER THAN 60% REMISSION

- Changes in gut hormones are seen similar to the RNY gastric bypass

ROUX EN Y GASTRIC BYPASS
Gastric Bypass

REMISSION FROM T2DM

- 50 %
- 80 %
- 100 %
DUODENAL SWITCH
REMISSION RATES OF GREATER THAN 85%

WITH WEIGHT LOSS INDEPENDENT EFFECTS

INTERNATIONAL DIABETES FOUNDATION POSITION STATEMENT ON BARIATRIC SURGERY IN THE TREATMENT OF TYPE 2 DM
In addition to behavioral and medical treatments, bariatric surgeries constitute a powerful option to ameliorate diabetes in patients affected with severe obesity.

Bariatric surgery is an appropriate treatment for people with T2DM and obesity not achieving recommended treatment targets with medical therapies.

Surgery should be an accepted option in people who have T2DM and a BMI of 35 or more.

Surgery should be considered as an alternative treatment option in patients with a BMI between 30-35 when T2DM cannot be adequately controlled by optimal medical regimen, especially in the presence of other major cardiovascular disease risk factors.

Bariatric surgery for treatment of T2DM is cost effective.

The risk for complications and death with bariatric surgery is low and similar to that of well accepted procedures such as gallbladder surgery.