Bariatric and Metabolic Surgery Orientation

Jesse Gutnick MD, Assistant Professor of Surgery
The Team
The Team

- 3 Bariatric Surgeons / 1 General surgeon
- 2 NP’s
- 2 Bariatric PA’s
- 1 Bariatric Coordinator
- 2 Nutritionists
- 1 Medical Director
- 1 Practice Manager
- 3 Bariatric Nurses
- 2 Full time Insurance Specialists
- 3 Office Clerks
- 1 Assistant
- 1 Surgical Clinical Reviewer
Obesity is common, serious, and costly

• The prevalence of obesity was 39.8% and affected about 93.3 million of US adults in 2015-2016.

• Obesity-related conditions include heart disease, stroke, type 2 diabetes and certain types of cancer that are some of the leading causes of preventable, premature death.

• The estimated annual medical cost of obesity in the United States was $147 billion in 2008 US dollars; the medical cost for people who have obesity was $1,429 higher than those of normal weight.

https://www.cdc.gov/obesity/data/adult.html
Prevalence of Self-Reported Obesity Among U.S. Adults by State and Territory, BRFSS, 2017

Prevalence estimates reflect BRFSS methodological changes started in 2011. These estimates should not be compared to prevalence estimates before 2011.

*Sample size <50 or the relative standard error (dividing the standard error by the prevalence) ≥ 30%.
What is Obesity?
The Obesity Medicine Association’s Definition of Obesity

• “Obesity is defined as a chronic, relapsing, multi-factorial, neurobehavioral disease, wherein an increase in body fat promotes adipose tissue dysfunction and abnormal fat mass physical forces, resulting in adverse metabolic, biomechanical, and psychosocial health consequences.”

Obesity affects your life...

• Life-long
• Progressive
• Life-threatening
• Genetically-related
• Costly
• Multi-factorial
Obesity as a Multifactorial Disease

Obesity Kills

- **Leading** cause of preventable death
- Recently surpassed smoking as leading cause
  - Lifespan shortened 9 - 12 years
  - Over 400,000 deaths per year
  - 46 deaths each hour
Overall Management Goals

Adult patient with overweight or obesity

- Improve patient health
- Improve quality of life
- Improve body weight and composition
Who is Obese?

Body Mass Index (BMI)

What is BMI?
BMI = weight (kg)/height (m²)  
= [weight (lbs)/height (in²)] x 703

Acceptable Weight  18 – 25
Overweight          25 – 30
Obese               30 – 35
Severe Obesity      35 – 40
Morbid Obesity      40 – 50
Super Morbid Obesity above 50
Body Mass Index: Increase Body Fat (Adiposity)

Body mass index (BMI) in kilograms per meters squared (kg/m²)*

- **Normal Weight**: 18.5-24.9
- **Overweight**: 25.0-29.9
- **Class I Obesity**: 30.0-34.9
- **Class II Obesity**: 35.0-39.9
- **Class III Obesity**: > 40

*Different BMI cut-off points may be more appropriate based upon gender, race, ethnicity, and menopausal status

Indications for Surgery

• BMI 40 or greater

• BMI 35 -40 with co-morbidities

• Patient must be an acceptable operative risk

• Patient must be motivated and demonstrates the ability to understand and participate in the program

• Patient must be dedicated to a major lifestyle change and long-term follow-up

• Consensus after bariatric team evaluation (Surgeon, Psychologist, Dietitian, etc.)
Obesity is a Metabolic Disease

- Sleep apnea
- Asthma
- Heart disease
- High blood pressure
- GERD
- Gallbladder disease
- Type 2 diabetes
- Menstrual problems
- Infertility problems
- Gout
- Osteoarthritis
Roux-en-Y Gastric Bypass

• Restrictive & Malabsorptive

• Decreased ghrelin levels

• Dumping syndrome

Source: Kolanowski, 1997 ©
Sleeve Gastrectomy

• Restriction

Restriction → Decrease appetite
Duodenal Switch

- Minimal weight regain
- High resolution of diabetes
Adjustable Gastric Band

• Restriction
Techniques

Open vs. Laparoscopic

Incision for Open Weight Loss Surgery

Incisions for Laparoscopic Weight Loss Surgery

The incision location, number of incisions and the incision size may vary from surgeon to surgeon.
Common aspects of all the surgeries...

- Minimally Invasive techniques (Laparoscopy)
- General anesthesia
- Hospital Stay between 1 to 2 Days
- Back to work in min 2 weeks
Results of Bariatric Surgery*

- Improvement or resolution of obesity-related medical problems
- Increased longevity
- Improved quality of life
  - psychological
  - health
  - social
  - personal
  - work
- Weight loss

*Results achieved in most, but not all cases. Degree of improvements vary by individual
Resolution of Obesity-related Conditions

- Hypercholesterolemia: 97%
- GERD: 98%
- Stress Incontinence: 87%
- Sleep Apnea: 75%
- Type 2 Diabetes: 95%
- Hypertension: 92%
- Cardiac Function Improvement: 95%
- Osteoarthritis: 82%

Metabolic Syndrome

- Abdominal (central) obesity
- Insulin Resistance
- Hyperinsulinemia
- Type II Diabetes
- Dyslipidemia
- Hypertension
- Heart Disease

- Medical management
  - Successful <5%
Metabolic Syndrome

Surgical Management

Successful >70%
Results of Bariatric Surgery

- Mortality 0.1% \( \text{(JACS, 2011 – BOLD database)} \)

- Decrease risk of Cancer \( \text{(Cristou et al, 2008)} \)

- Increase in longevity 89%
Complications

- Complications in general of cases of LSG (6.3%) were significantly lower than patients with LRYGB (10.0%, p <0.0001) but higher than cases of LAGB (2.4%, p <0.0001).
- Serious complications were similar for LSG (2.4%) and LRYGB (2.5%, p = 0.736) but higher than in the BG (1.0%, p <0.0001).
- Long-term weight decrease was better for the LRYGB followed by the LSG and then the gastric band. The weight loss was more abrupt in the first year for the three procedures, then leveled and increased after the years.
- The excess body weight loss per year was 13% less for the LSG (60%) compared to the LRYGB (69%, p <0.0001) but it was 77% more for the LSG than for the LAGB (34%, p <0.0001).
- With respect to the resolution of comorbidities related to obesity, quality of life and satisfaction with the results, the LSG presents similar and close results to those of the LRYGB, than the cases of LAGB.
Complications*

*Refer to manual and consent form for more complete listing of potential complications

Table 2. 30-Day outcomes among the matched study cohorts

<table>
<thead>
<tr>
<th>Outcome</th>
<th>RYGB</th>
<th>SG</th>
<th>LAGB</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leak/perforation</td>
<td>0.6</td>
<td>0.9</td>
<td>0.215</td>
<td>0.0</td>
</tr>
<tr>
<td>Obstruction</td>
<td>3.2</td>
<td>0.9</td>
<td>&lt;0.0001</td>
<td>0.3</td>
</tr>
<tr>
<td>Infection</td>
<td>2.8</td>
<td>2.2</td>
<td>0.153</td>
<td>0.7</td>
</tr>
<tr>
<td>Hemorrhage</td>
<td>2.3</td>
<td>1.1</td>
<td>&lt;0.0001</td>
<td>0.2</td>
</tr>
<tr>
<td>Venous thromboembolism</td>
<td>0.3</td>
<td>0.5</td>
<td>0.413</td>
<td>0.2</td>
</tr>
<tr>
<td>Cardiac</td>
<td>0.1</td>
<td>0.1</td>
<td>0.479</td>
<td>0.0</td>
</tr>
<tr>
<td>Renal failure</td>
<td>0.2</td>
<td>0.2</td>
<td>0.763</td>
<td>0.1</td>
</tr>
<tr>
<td>Respiratory</td>
<td>1.3</td>
<td>0.8</td>
<td>0.094</td>
<td>0.3</td>
</tr>
<tr>
<td>Length of stay (days)</td>
<td>2.3</td>
<td>2.2</td>
<td>0.050</td>
<td>1.0</td>
</tr>
<tr>
<td>Reoperation</td>
<td>1.6</td>
<td>1.4</td>
<td>0.515</td>
<td>0.4</td>
</tr>
<tr>
<td>Readmission</td>
<td>5.1</td>
<td>5.1</td>
<td>0.906</td>
<td>2.1</td>
</tr>
<tr>
<td>Transfer</td>
<td>0.2</td>
<td>0.1</td>
<td>0.479</td>
<td>0.0</td>
</tr>
<tr>
<td>Emergency department visit</td>
<td>9.3</td>
<td>7.4</td>
<td>0.011</td>
<td>3.8</td>
</tr>
</tbody>
</table>

Complications

Complications

Resolution of comorbidities at 1 year of follow up per procedure

<table>
<thead>
<tr>
<th>Variable</th>
<th>LGBP (N = 11,617)</th>
<th>LSG (N = 3,069)</th>
<th>LAGB (N = 5,622)</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Morbidity, n (%)</td>
<td>589 (5.1 %)</td>
<td>98 (1.4 %)</td>
<td>114 (3.7 %)</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Mortality, n (%)</td>
<td>19 (0.2 %)</td>
<td>3 (0.1 %)</td>
<td>3 (0.1 %)</td>
<td>0.1401</td>
</tr>
<tr>
<td>Reoperation, n (%)</td>
<td>255 (2.2 %)</td>
<td>48 (1.6 %)</td>
<td>55 (1.0 %)</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Op time, mean mins (sd)</td>
<td>126.5 (50.6)</td>
<td>93.3 (45.9)</td>
<td>64.2 (31.5)</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>LOS, median days (IQR)</td>
<td>2.0 (1.0)</td>
<td>2.0 (1.0)</td>
<td>1.0 (1.0)</td>
<td>&lt;0.0001</td>
</tr>
</tbody>
</table>

Complications*

- Early, can occur immediately or up to 2 – 3 weeks PO:
  - Leak
  - Bleeding
  - Stricture
  - DVT-blood clot
  - Pulmonary embolism

*Refer to manual and consent form for more complete listing of potential complications
Complications

Early, can occur immediately or up to 2 – 3 weeks PO:

- Gastric remnant distention
- Bowel obstruction
- Heart attack
- Pneumonia
- Ulcer
- Abscess

*Refer to manual and consent form for more complete listing of potential complications*
Complications*

Late can occur any time post-operatively, more likely seen weeks, months or years later.

- Stricture
- Ulcer
- Internal hernia
- Bowel obstruction
- Band erosion
- Gastric prolapse (Band patients)
- Iron-deficiency Anemia
- Peripheral Neuropathy
- Vitamin & Mineral Deficiency (Take your supplements!!!)
  - Iron
  - B12
  - Calcium
  - Vitamin D

*Refer to manual and consent form for more complete listing of potential complications
Side Effects

- **Excess gas**
  - Avoid gum chewing or drinking from straw
  - Simethicone for relief

- **Constipation**
  - Keep well hydrated
  - Can take Senekot Liquid, Colace, Dulcolax
  - Do not take MOM, Mg Citrate, Phosphosoda in first 6 weeks

- **Hair loss**
  - Protein, Iron and Zinc deficiency; take supplements daily
  - Temporary (3rd-12th month)
  - Biotin may slow process
Side Effects (cont.)

- Kidney stones (oxalate stones)
  - Keep well hydrated and decrease fat intake

- Nausea and vomiting (mild is common, severe is not normal!)

- Gallstones

- Lactose intolerance with gastric bypass

- Dumping Syndrome
Side Effects (cont.)

- Fat malabsorption
  - Vitamins A, D, E, K

- Fatty stools

- Vitamin & mineral malabsorption
  - Iron deficiency
  - Vitamin B12 deficiency
  - Calcium deficiency
  - Vitamin D deficiency
  - Thiamine deficiency
Post-op Care: Office Follow-up

- **Bariatric Nutrition**
  - Approximately 50% of intake should be protein
  - 80 grams protein daily
  - Low carbohydrate, low fat

- **Alcohol consumption**
  - Allowed, but within moderation

- **Pregnancy**
  - Not advisable within 24 months after surgery (until weight loss is stable)
Post-op Care: Office Follow-up

- Medication adjustment/weaning
  - Diabetes, HTN

- Medication must be crushed or cut down to appropriate size
  - LA, SR, CR, etc. cannot be crushed

- Medication absorption rates may be affected
  - Coumadin: May be absorbed more readily due to decreased Vitamin K absorption, resulting in toxicity
  - Birth Control Pills: Not as effective after gastric bypass due to malabsorption
Post-op Considerations

• Avoid NSAID’s and ASA products
  • Increased risk for GI bleeding, ulceration or perforation

• NO SMOKING! Nicotine causes blood vessel constriction putting your new stomach at risk for ulcers and perforation

• Avoid Diuretics
  • unless clearly indicated
  • Patients can become dehydrated
The NIH panel in 1991 stated that “lifelong medical surveillance is necessary”

- Physical considerations
- Nutritional considerations
- Psychological considerations
- Social considerations
- **Let us help you succeed for life!!**