The difference between Bariatric surgery and Metabolic Surgery

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From Bariatric to Metabolic and Diabetes Surgery
**Definition of Metabolic Surgery: Common Misconceptions**

<table>
<thead>
<tr>
<th>Bariatric Surgery</th>
<th>Metabolic/Diabetes Surgery</th>
</tr>
</thead>
<tbody>
<tr>
<td>• RYGB, SG, BPD, LAGB</td>
<td>• DJB, Ileal Interposition, Endoluminal Approaches</td>
</tr>
<tr>
<td>• BMI &gt; 35Kg/m2</td>
<td>• BMI &lt; 35 Kg/m2</td>
</tr>
</tbody>
</table>

Courtesy of Professor Francesco Rubino
Surgical Disciplines not defined by type of procedure

Benign conditions

Cancer

Courtesy of Professor Francesco Rubino
Prevention of heart attacks and stroke.

Same Drug

Pain Medication

Same Intervention (GI Surgery)

Weight Loss

Metabolic or Glycemic Control

Courtesy of Professor Francesco Rubino
Patient Population
Criteria for Indication
Dosage
Diagnostics
Follow-up
Care Team

Pain Treatment

CV Disease

Weight Reduction

Patient Population
Criteria for Indication
“Dosage”
Preop Diagnostics
Postop Follow-up
Multidisciplinary Care Team

Diabetes
Metabolic Obesity
Patients Perceptions and Weight
Patient motivation for “bariatric surgery”

52% for medical reasons,

16% poor physical fitness/physical limitation

32% for concerns about physical appearance or social embarrassment

Libeton et al; Obes Surg 2004
### Gender and Body Weight

<table>
<thead>
<tr>
<th></th>
<th>BMI: Men</th>
<th>BMI: Women</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>BMI ≥25.0</strong></td>
<td>≥25.0</td>
<td>≥25.0</td>
</tr>
<tr>
<td><strong>SELF ESTIMATED WEIGHT</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Just right</td>
<td>33.9%</td>
<td>11.2%</td>
</tr>
<tr>
<td>Too heavy</td>
<td>65.7%</td>
<td>88.7%</td>
</tr>
<tr>
<td><strong>ACTION TAKEN</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No attempt to change weight</td>
<td>52.8%</td>
<td>27.6%</td>
</tr>
<tr>
<td>Tried to lose weight</td>
<td>46%</td>
<td>72.1%</td>
</tr>
</tbody>
</table>

Total of 2734 men and 3035 women
Female/male ratio ranges between 3:1 and 4:1

Prevalence of diabetes 8-33%

In class 3 obesity the prevalence of DM is 43% as per NHANES 1999-2006, with females accounting for half (56%) of those with obesity and T2DM

Females are over-represented and diabetes is less prevalent than expected for a severely obese population.

Courtesy of Professor Francesco Rubino
Bariatric, Metabolic, and Diabetes Surgery

What’s in a Name?

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and Gregory Dakin, MD†
Patients’ Perception and Motives of Surgery

Bariatric

Conditions: Excess Weight
Aims: Weight Reduction

Metabolic Surgery

Conditions: Obesity, Diabetes
Aims: Glycemic Control, CV Risk Reduction

Dissecting the Profile of Bariatric and Metabolic Surgery Patients

Courtesy of Professor Francesco Rubino
**Metabolic Surgery vs Bariatric Surgery**
(Rubino et al Ann Surg 2013)

<table>
<thead>
<tr>
<th></th>
<th>Metabolic (n=100)</th>
<th>Bariatric (n=100)</th>
<th>LABS 2009 (n=4776)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Diabetes (%)</strong></td>
<td>62%</td>
<td>35%</td>
<td>33.3</td>
</tr>
<tr>
<td>*Hypertension (%)</td>
<td>68%</td>
<td>52%</td>
<td>55.1</td>
</tr>
<tr>
<td>*Dyslipidemia (% on statins)</td>
<td>48%</td>
<td>31%</td>
<td></td>
</tr>
<tr>
<td><strong>Cardiovascular disease (%)</strong></td>
<td>14</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>***Patients with ≥ 3 comorbidities (%)</td>
<td>57</td>
<td>27</td>
<td></td>
</tr>
<tr>
<td>*Patients with ≥ 4 co-morbidities (%)</td>
<td>24</td>
<td>11</td>
<td></td>
</tr>
<tr>
<td>**Patients with no co-morbidity (%)</td>
<td>8</td>
<td>22</td>
<td></td>
</tr>
</tbody>
</table>
## DEMOGRAPHICS / CLINICAL CHARACTERISTICS

<table>
<thead>
<tr>
<th>METABOLIC SURGERY</th>
<th>BARIATRIC SURGERY</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Older Age</td>
<td>Younger Age</td>
</tr>
<tr>
<td>• Balanced F/M ratio</td>
<td>Females &gt; Males</td>
</tr>
<tr>
<td>• Higher prevalence and severity of T2DM</td>
<td>Low Diabetes Prevalence</td>
</tr>
<tr>
<td>• Higher prevalence of Metabolic Disease</td>
<td>Milder/Earlier Diabetes</td>
</tr>
<tr>
<td>• Higher prevalence of CVD at Baseline</td>
<td></td>
</tr>
</tbody>
</table>

What are the implications?
Motivations, Demographics and Preop. Characteristics

• Definition of Success of Treatment
• Preoperative Diagnostics
• Choice of Procedure
• Outcomes
• Postoperative Follow-up
• Multidisciplinary Care Team
Motivations, Demographics and Preop. Characteristics

• Definition of Success of Treatment
  • Preoperative Diagnostics
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Success of Treatment

**BARIATRIC SURGERY**

= EWL > 50%

EWL < 50% > Indication for re-intervention (reoperative bariatric surgery)

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**METABOLIC SURGERY**

- Metabolic/Glycemic Control
- CVD risk reduction

- Regardless of attainment of >50% EWL, medical therapy to be considered for optimization of glycemia/metabolic control and CV risk reduction
  - “adjuvant” therapy of metabolic surgery

Courtesy of Professor Francesco Rubino
Motivations, Demographics and Preop. Characteristics

• Definition of Success of Treatment
• **Preoperative Diagnostics**
• Choice of Procedure
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# Preoperative Diagnostics and Work-Up

## Bariatric Surgery

- **Weight-Centric**
  - Weight
  - BMI
  - Waist Circumference
  - Rule out endocrine causes of excess weight
  - Rule out pre-existing malabsorption
  - Psychology consult mandatory
to assess “patient’s compliance”
to rule out eating disorders, mental illness

## Metabolic Surgery

- **Disease-Based**
  - In case of Diabetes:
    - Hba1c
    - Fasting Insulin
    - C-peptide
    - Antibodies (?)
  - Psychology/Psych consult selective
    - assessment of mental illness
    - assessment of medical conditions/drug therapy
    - patient support

IDF Position Statement 2011
Motivations, Demographics and Preop. Characteristics

- Definition of Success of Treatment
- Preoperative Diagnostics
- **Choice of Procedure**
- **Outcomes**
- Postoperative Follow-up
- Multidisciplinary Care Team
Metabolic surgery service (n=100)

- RYGB: 66
- SG: 21
- LAGB: 8
- OTHERS: 5
- Total: 100

Major Complications: 1%
Minor Complications: 6%

Bariatric surgery service (n=100)

- RYGB: 32
- SG: 39
- LAGB: 32
- OTHERS: 5
- Total: 100

Major Complications: 3%
Minor Complications: 4%

P=ns

Courtesy of Professor Francesco Rubino
Criteria for the Choice of Procedure in Metabolic Surgery

Disease-Based

– Disease type
– Disease stage
– Mechanistic considerations
– Risk of recurrence
– Risk/Benefit Profile
– Combination Therapies (medical/surgical)
– Randomized Clinical Trials

Courtesy of Professor Francesco Rubino
Motivations, Demographics and Preop. Characteristics

• Definition of Success of Treatment
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“Metabolic Surgery”

A set of gastrointestinal operations offered with the primary intent to treat metabolic disease (obesity, metabolic syndrome) and diabetes

Courtesy of Professor Francesco Rubino
Procedures

Indications

Metabolic Surgery

Diabetes Surgery

Obesity Surgery

Excess weight (Bariatric)

Procedures

Standard GI Operations
RYGB, SG, BPD, GB

Experimental Novel Procedures
DJB, DJB-SG etc

GI Devices (ELS, Others?)

Courtesy of Professor Francesco Rubino
Are You Doing Metabolic Surgery?

• Is glycemic/metabolic control your primary goal?
• Are you using adequate diagnostics of metabolic disease and measures of disease severity preoperatively?
• Can you tailor the choice of procedure to patient’s characteristics and disease stage/severity?
• Are you using disease-specific measures of outcomes for diabetes/metabolic obesity?
• Is the type and timing of postop. f/u. coherent with disease-specific standards of care?
• Does your team include a bariatric physician and a diabetes specialist for pre- and post-operative management?

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Metabolic Surgeon?

- Knowledge of disease pathophysiology, diagnostics and natural history
- Knowledge of standards of care of diabetes and metabolic syndrome
- Knowledge of mechanisms of action of surgical procedures
- Not blaming patients for failure to lose weight or improve diabetes

Courtesy of Professor Francesco Rubino
Conclusion

• Same drug to treat different diseases.
• Same operation to treat different diseases.
• Obesity is a chronic and complex brain disease.
• Diabetes is a disease of peripheral insulin resistance and lack of insulin secretion.
• We need function to dictate form.

Courtesy of Professor Francesco Rubino
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