Bariatric Surgery in Children & Adolescents (Who to Refer, When to Refer & What to Expect)

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Agenda

1. Bariatric surgery as a treatment for severe obesity
2. Barriers for referral
3. Myths and reality
4. Who do you refer and when do you refer them?
5. What can you expect?
Background

- Severe obesity (BMI% $\geq 120\%$ of the $95^{th}\%$) affects almost 9 million adolescents in the US.
- Children and adolescents with severe obesity face a lifetime of associated morbidity, mortality, and reduced quality of life.
- Obesity is one of the driving forces behind health inequity in the US.

Treatments for Pediatric Obesity

• Intensive lifestyle management
  – Very limited effectiveness for youth with severe obesity
  – Moderate weight loss
  – Often weight regain
  – Less effective for minority youth
Bariatric Surgery in Adolescents

- Mean reduction of 26% of BMI
- Significant improvement in hypertension, dyslipidemia, and type 2 diabetes
- Improved neural functioning
- Increased functional mobility/reduced pain
- Some improvement in psychosocial outcomes


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One of the most important underlying perspectives that drives acceptance of surgery as a treatment for obesity is:

Is obesity a disease/medical condition or a psychological condition?
Contributors to Obesity

POTENTIAL CONTRIBUTORS TO OBESITY

Inside the Person
- Disordered Eating (night eating syndrome, binge eating, “food addiction”)
- Hyper-reactivity to Environmental Food Cues
- Delayed Satiety
- Emotional Coping
- Age Related Changes (i.e. menopause, mobility decline, hormones)
- Chronic Inflammation (i.e. altered insulin signaling and glucose homeostasis)
- Pathological Sources of Endocrine Dysregulation (i.e. thyroid dysfunction, PCOS, Cushing’s Syndrome)
- Central & Peripheral Regulators of Appetite & Adipose Tissue
- Self-regulatory & Coping Deficits
- Trauma History
- Thermogenesis
- Gut Microbiota
- Pain Sensitivity

Outside the Person
- Environmental/Chemical Toxins
- Increased Availability of Energy Dense, Nutrient Poor Foods & Beverages
- Lack of Physical Activity
- Diet Patterns
- Larger Portion Sizes
- Eating as Recreation, Snacking, Special Occasions
- Skipped Meals
- Lack of Household Meals
- Food Insecurity
- Market Economy
- Food Surplus
- Pervasive Food Advertising
- Maternal Employment
- Breast Feeding and/or Related Factors
- Maternal Stress
- Maternal Smoking
- Maternal Obesity
- Maternal Over-nutrition During Pregnancy
- Maternal Delivery
- Weight Gain Inducing Drugs
- Smoking Cessation
- Sleep Deficits
- Family Conflict
- Social Networks
- Westernization & Economic Development
- Low SES & Nutrition Support
- Living in Crime-prone Areas

Contributors to Energy Storage

- Increased Intake
- Increased Intake
- Intake & Expenditure (Or Unknown)
- Intake & Expenditure (Or Unknown)
- Decreased Expenditure
- Decreased Expenditure

Contributor/Influencer

- Environmental Pressures on Physical Activity
- Biological/Genetic
- Maternal/Developmental
- Economic
- Food and Beverage Environment
- Psychological
- Social

* Potential contributors include any living that has been put forth in the research literature as a question of investigation and is not intended to be a verification of whether or not, or the extent to which, each may or may not contribute.
Providers

• Only 48% of family physicians would refer an adolescent for surgery and 1% actually referred
  – Fear of complications and limited follow-up data
  – Obesity a psychological issue with only 64% of physicians agreeing obesity is a disease
  – Lack of knowledge about surgery as treatment
  – Should try lifestyle changes first, highly motivated, capacity to consent

Woolford et al., 2010; Vanguri et al., 2014; Iqbal et al., 2009; van Geelen et al., 2013
Some Myths of Bariatric Surgery

1. The procedure is risky
2. Only high functioning adolescents and parents can elect to have surgery
3. As with other treatments, behavior is still the key determinant of outcomes
   – E.g., eating, exercise, behavioral health, motivation
Bariatric Surgery Team at Children’s National

IDEAL Clinic Team

Psychology

Child/Family

Surgery

Community pediatricians
<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Mean (N=222)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (years)</td>
<td>16.4 (SD = 2.1)</td>
</tr>
<tr>
<td>Female (%)</td>
<td>71%</td>
</tr>
<tr>
<td>Pre-op BMI</td>
<td>50.1 (SD = 8.7)</td>
</tr>
<tr>
<td>Race/Ethnicity (%)</td>
<td></td>
</tr>
<tr>
<td>African American</td>
<td>59%</td>
</tr>
<tr>
<td>Hispanic</td>
<td>18%</td>
</tr>
<tr>
<td>White</td>
<td>18%</td>
</tr>
<tr>
<td>Other</td>
<td>5%</td>
</tr>
<tr>
<td>Medicaid (%)</td>
<td>50%</td>
</tr>
<tr>
<td>Anxiety (%)</td>
<td>26%</td>
</tr>
<tr>
<td>Depression (%)</td>
<td>41%</td>
</tr>
<tr>
<td>ADHD (%)</td>
<td>21%</td>
</tr>
<tr>
<td>Eating Disorder (%)</td>
<td>8%</td>
</tr>
<tr>
<td>Number of Psychiatric Diagnoses</td>
<td>1.3 (SD = 1.1)</td>
</tr>
</tbody>
</table>
Weight Loss

%Excess BMI Loss

3 months 6 months 9 months 12 months

%EBMI Loss

Children's National ™
Complications

- No deaths
- 6 patients (2.4%) experienced major complications
  - 4 required reoperation (gastric leak, epigastric bleed, hemorrhage from a splenic parenchymal laceration)
  - 1 underwent anticoagulation for deep venous thrombosis (DVT) and pulmonary embolus (PE)
  - 1 experienced encephalopathy
- 4 patients (1.6%) experienced minor complications
  - 3 patients with decreased oral intake secondary to edema which required readmission for intravenous fluid hydration and steroids
  - 1 submucosal hematoma requiring 2 weeks of total parenteral nutrition

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What Pre-operatively Predicts Outcomes?

What doesn’t predict outcomes?

- Age
- Gender
- Race/Ethnicity
- Mental Health Diagnoses
  - Anxiety
  - Depression
  - Eating Disorder
  - ADHD
- IQ
- Presence of Intellectual Disability

Revisiting Myths of Bariatric Surgery

1. The procedure is risky
2. Only high functioning adolescents and parents can elect to have surgery
3. As with other treatments, behavior is still the key determinant of outcomes
   - E.g., eating, exercise, behavioral health, motivation
Who to Refer

• Child or adolescent
  – 10-21
  – BMI ≥ 35 with comorbidity
  – BMI ≥ 40
  – Continuing to trend upwards in BMI despite efforts

• Refer even if
  – Presence of mental health concerns
  – Cognitive disability
  – “Not trying hard enough”
When to Refer

- As soon as BMI crosses into eligibility range
- As soon as it becomes clear that lifestyle management is not working
- If there are comorbidities
  - Type 2 diabetes
  - Obstructive sleep apnea
  - Pain/reduced mobility
  - Significant reduction in quality of life
What to Expect

- Consultations with surgery team
- Ongoing relationship and monthly visits with IDEAL clinic team
- Consultation with psychologist
- Consultation with other specialties
  - Pulmonary
  - Cardiology
  - Anesthesiology
Conclusions

• Bariatric surgery is the treatment with the most success for child and adolescent severe obesity.
• Surgery is not an “easy way out” but a valuable treatment for a serious illness.
• Lower BMI pre-operatively is the biggest predictor of outcomes.
• Referral to the surgery team should occur not as a “last resort” but as part of ongoing treatment considerations.
• Regardless of mental health or cognitive comorbidities, all children and adolescents with severe obesity can be considered for surgery.
Questions?

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