

Adolescent Bariatric Surgery in Special Populations

Cognitive Impairment

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Cognitive Impairment and Obesity

- Cognitive impairment can exacerbate weight status in children and may affect treatment of obesity
 - Intellectual disability
 - Developmental delay
 - Genetic or acquired

Obesity in the Cognitively Impaired¹⁻³

- Approximately 6 million school age kids have some form of disability.
- Obesity and cognitive impairment are secondary characteristics of many genetic syndromes and congenital conditions
- Children with Down's syndrome, Spina bifida, and autism are two to four times more likely to be obese than age- and gender-matched non-disabled peers.

In your practice, do you have children with special needs for whom obesity is a concern?

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An absolute contraindication? ⁴⁻⁶

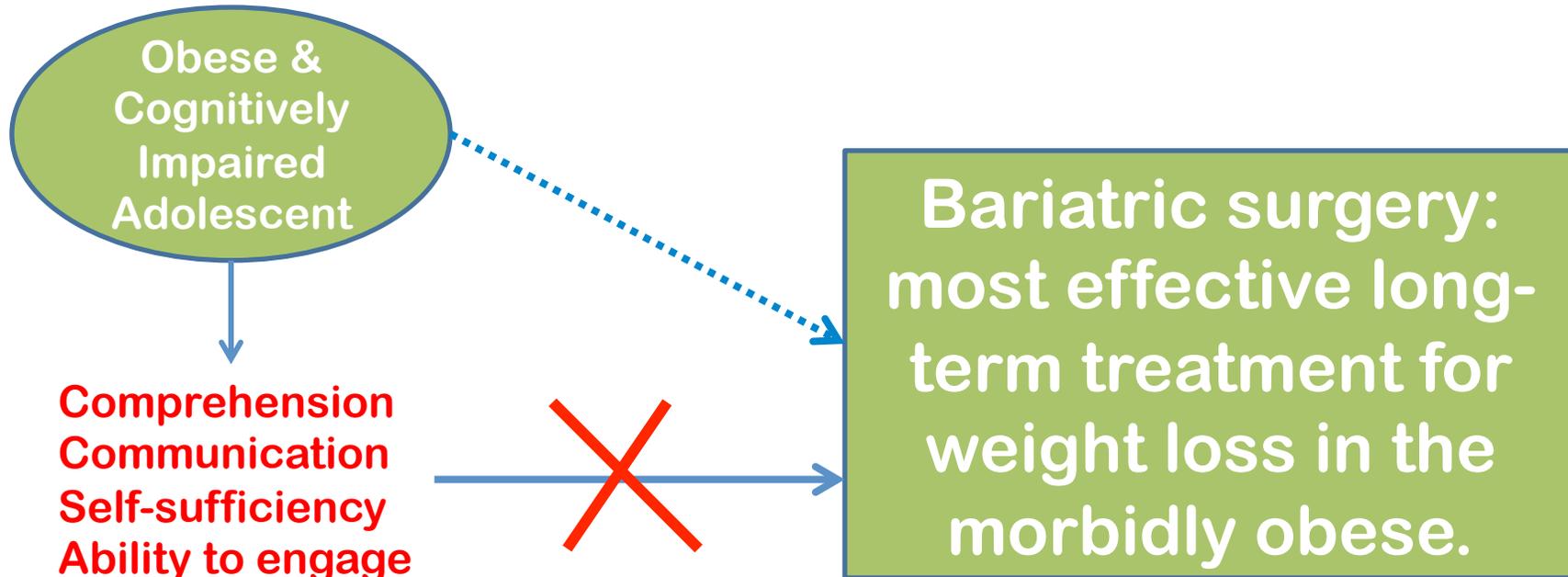
In a self-report survey of 81 bariatric program,
81.5% consider severe intellectual disability (IQ
50-70) to be a contraindication

More recent papers have called for a re-evaluation
of this long-held view

Would you recommend bariatric surgery to such a
patient?

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There is a need for more intensive multidisciplinary support when working with individuals with cognitive impairment

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- **Genetic predisposition**
 - Down's syndrome
 - Prader-Willi Syndrome
 - Spina Bifida
- **Physical Limitations**
 - Gross motor delay
 - Hypotonia
- **Behavioral Complexities**
 - ADHD (impulsivity, novelty-seeking)
 - Autism (food preferences, eating habits, low PA level)
 - Bipolar Disorder (emotion regulation, impulsivity)
 - Behavioral Disorders (oppositional defiant, conduct)

Poor executive
functioning

Cognitive Impairment and Obesity ⁹

- **Psychotropic Medications**
 - May alter appetite, food preferences, deregulate thyroid function, induce fluid retention, or change hormone production/metabolism
 - **Atypical antipsychotics** (risperidone, clozapine, olanzapine)
 - Aggression
 - Self-injurious behavior
 - Mood stabilization
 - **Anticonvulsants** (Depakote – valproic acid)
 - Mood stabilization

Impairment can complicate the perioperative process

- **Assent by patient**
 - All previous medical decisions made by parent
- **Understanding of pre-operative process**
 - 6 month minimum
 - Approval not guaranteed
 - Rationale for making changes prior to surgery
 - Being an advocate, assuming responsibility for one's own healthcare

Impairment can complicate the perioperative process

- **Understanding of post-operative timeline**
 - **Weight loss is not immediate**
 - **Surgery is a tool**
 - **The importance of adherence to medications, diet, and physical activity**

What would be your biggest concern in referring a teen with special needs for bariatric surgery?

What do we know of outcomes?

- **A case series study of 6 adult patients with nonacquired cognitive impairment⁴**
 - 3 male, 3 female (33.3 years, BMI 49.4)
 - 2 Down's syndrome, 4 unknown causes
 - 2 RNYGB, 3 VSG, 1 LAGB
 - No complications, no mortality
 - Mean follow-up of 33.7 months (2 years, 8 months)
 - Mean %EWL of 31.1%
 - Two patients > 50% EWL

Those with nonacquired cognitive impairment may benefit from bariatric surgery but may lose less weight than those without delays

When to assess for impairment?

- Child has undiagnosed LD/DD
- Has an IEP/504 plan in place at school
- If neuropsychological testing has not been updated for several years
- If the team feels that the child is not “getting it”
- Unable to complete ADLs at age-appropriate level

Recommendations

- Weighing the risks of surgery with those of obesity and comorbidities
- Consultation with PCP
- Refer for testing and collect any other supporting documentation to identify cognitive strengths and weaknesses
- Constant evaluation of assent and willingness
- Frequent post-operative follow-up

What testing is useful?

- **General Cognitive Abilities**
 - Wechsler Intelligence Scale for Children/Wechsler Abbreviated Scale of Intelligence (WISC/WASI)
- **Achievement (reading, writing, & comprehension)**
 - Wide Range Achievement Test (WRAT)
 - Wechsler Individual Achievement Test (WIAT)

As the surgeon, what other information would you like to have?
As the referring PCP, what other information would you like the surgeon to have?

Case Study 1

- **13 y/o AA girl (BMI = 37.3)**
 - Pre-diabetes, Vitamin D deficiency, hyperandrogenism
 - Family history of hypertension, cancer, reflux, and thyroid disease
 - Intellectual impairment, developmental delay and learning disabilities (+ IEP)
 - Mom successful 2 years s/p Lap band (highest weight 343 lbs)

Case Study 1

- **Visit 1**
 - Patient motivation: to have more friends, to be a size 4 or 6
 - Team concerned about patient's understanding of weight loss
 - Not eligible for bariatric surgery
- **Visit 2**
 - Patient unmotivated to be physically active
 - Patient says she is uninterested in surgery, but Mom is very interested in other quick weight loss approaches
- **Visit 3**
 - Previous neuropsychological tested indicated need for concrete plans, visual presentations, and list-making

Case Study 1

- **Visit 3**
 - Mom still interested in surgery
 - Patient giggles when asking questions about surgery
 - Unable to reflect on nutrition changes being made
 - Could not elaborate on benefits of weight loss to her
- **Visit 4**
 - BMI increased to 38.1
 - Reported motivation for:
 - Drinking water – 10/10
 - Exercising – 6/10
 - Eating vegetables – 0/10
 - Could not verbalize meaning of being healthy beyond drinking water
 - Mom planned 6 hours of PA/day over the summer
 - Suggested counseling/parent training to help mom work with patient in developmentally-appropriate ways.

Case Study 2

- 19 y/o Caucasian male
- BMI = 72.3
- Orthopedic issues
- PDD, ADHD
- Intermittent Explosive Disorder
- SSI evaluation in 2011 and 2014:
 - Moderate mental retardation
 - Recommended vocational training and continued parental support with ADLs
- Parents both obese
- Family history of depression, anxiety disorders, and ADHD
- Visit 1
 - Referral for OSA evaluation
 - Limit to 1 SSB/day
 - Work up to 26 wall push-ups over the next 1 month
- Visit 2
 - BMI stable but a lack of understanding about BMI
 - Completed all goals
- 12 visits from 12/2013 – 5/2015
 - BMI \pm 1 point
 - Completed all activity goals
 - Completed all nutrition goals

Case Study 2

- **Psychological Concerns**
 - Short-term goals worked well
 - Long-term expectations for surgery unclear
 - Initially did not want to give up junk food
 - Need for more intense lifestyle change
 - Irritable, frustrated with process
 - Despite behavioral changes, BMI would occasionally increase by less than a point
 - Became very upset
 - Poor emotional regulation

Case Study 2

- **Intervention**
 - Emphasize behavior change over numbers
 - Discuss post-op weight loss trajectory
 - Discuss recovery process
 - Establish living situation and assistance with ADLs post-operatively
- **Outcome**
 - 3 months post-operative
 - -43.2 kg
 - BMI -13.88 (60.9)

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