

Threshold for Bariatric Surgery in Teens Lowered

BY MITCHEL L. ZOLER

The criteria for selecting obese adolescents as candidates for bariatric surgery have loosened in recent years, and now that the adolescent field has converged on a roughly uniform body mass index standard that's the same as for adults—at least 35 kg/m² with serious comorbidities or at least 40 kg/m² in other patients—physicians have begun to consider testing an even more aggressive approach to bariatric surgery in teenagers.

The goal, they agree, is to offer bariatric surgery to patients aged 13-17 years safely but at a stage when the surgery has the best potential to normalize patients' weight so that comorbidities improve and possibly resolve.

An aggressive approach may also help avoid another problem. "No one can explain why, but there is a plateauing effect of all bariatric surgery, be it gastric bypass, gastric sleeve, or gastric banding. Patients lose about 15 BMI [body mass index] points but no more," said Dr.



Evan P. Nadler, director of the bariatric surgery program at Children's National Medical Center in Washington. "The chances of getting patients near a normal body weight once they reach a BMI of 45 or 50 are quite small."

The reasons behind this limit to the effect of bariatric surgery remain elusive. Many surgeons believe that the adaptable human body kicks in a thermostatlike resetting that maintains a certain body weight starting about a year after the large initial loss following surgery. Another factor may be that many patients have lifestyle regression at some point after surgery.

Regardless of the cause, the apparent limit to weight loss for most patients suggests to pediatric surgeons that bariatric surgery has the greatest potential to normalize BMI, and thereby

prevent comorbidities, when applied early, before BMI gets too high and before end-organ damage is irreversible.

"If you get to younger patients, they may still be in a window of opportunity for their end-organ disease to essentially be reversed," Dr. Marc P. Michalsky said.

"Our hope is that perhaps in adolescents, without decades of cardiac disease, hypertension, and liver disease, once their weight is off you may see more resolution of that disease than in adults. That's the hypothesis, but we haven't proven it yet," said Dr. Michalsky, surgical director of the center for healthy



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weight and nutrition at Nationwide Children's Hospital in Columbus, Ohio.

"It's a new concept to think of surgery as preventive medicine, but it is preventive in the sense that patients have more severe comorbidities if you wait," said Dr. Ai-Xuan Holterman, director of pediatric surgery at Rush University Medical Center in Chicago.

"You could argue that in a 14-year-old who is obese but has no comorbidities, there is no urgency to do surgery. But we know what the natural trajectory of these patients will be. If a patient is older than 14 and morbidly obese, even if their comorbidities are relatively minor, I think that surgery is an appropriate option," Dr. Nadler said in an interview.

Another benefit of early surgery is that "the risk of operating on a patient at a BMI of 45 is a lot different than operating on someone with a BMI of 60," he added.

Still, U.S. studies have yet to report outcomes from bariatric surgery in adolescents at more than 3 years of follow-up.

In one analysis of 61 adolescent gastric bypass patients, the average percentage of lost BMI was about 37% across all weight categories, and two-thirds of the variance

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in BMI 1 year after surgery was attributable to the variance in baseline BMI (J. Pediatr. 2010;156:103-8).

The shift in surgical criteria for adolescents means that most surgeons now follow the same guidelines that have been standard for adult patients for nearly 2 decades. Serious comorbidities that lower the threshold to 35 kg/m² are type 2 diabetes, severe steatohepatitis, pseudotumor cerebri, or moderate to severe obstructive sleep apnea.

In 2004, a group of surgeons who at the time primarily favored gastric bypass for their adolescent patients published recommendations that called for limiting bariatric surgery for adolescents to those with a BMI of at least 40 kg/m² with a serious, obesity-related comorbidity or a BMI of at least 50 kg/m² with less severe comorbidities (Pediatrics 2004; 114:217-23).

Last year, a surgeon from that group, Dr. Thomas H. Inge of Cincinnati Children's Hospital, worked with a different group of collaborators to write revised criteria, which set their threshold BMI at 35 or 40 kg/m² depending on comorbidities (Obesity 2009;17:901-10).

Dr. Nadler and his associates published their own endorsement for applying the adult BMI criteria for bariatric surgery to adolescents in another paper that appeared last year (J. Pediatr. Surg. 2009; 44:1869-76).

"What is crucial is that you're not operating just because of BMI or weight,

but that there is a compelling health indication," said Dr. Inge, surgical director of the surgical weight loss program for teens at Cincinnati Children's.

He cited preliminary evidence collected by his collaborators that, for example, "the pediatric heart may be more resilient to remodeling" than an adult's heart, and more likely to return to normal following significant weight loss. "There may be a window of opportunity to act before there is more permanent damage to the heart," he said in an interview.

Comorbidities that are "more or less reversible" with bariatric surgery in adolescents and are the most common indications for surgery are diabetes, sleep apnea, and nonalcoholic steatohepatitis. Others in this category include hypertension, pseudotumor cerebri, gastroesophageal reflux disease, asthma, and poor self-esteem, said Dr. Janey S.A. Pratt, a bariatric surgeon at Massachusetts General Hospital in Boston. However, she noted, other obesity-linked conditions are generally not reversible, including glomerulosclerosis of the kidney, gallstones, flat feet, major orthopedic deformities, precocious puberty, and some body-image issues.

"The most important reason to operate on obese adolescents is ... to treat or prevent the

comorbidities associated with excess weight," Dr. Pratt said. "Will all of the adolescents we operate on be obese as adults?" Dr. Pratt cited results from a recent study in which 100% of children with a BMI above the 99th percentile after age 10 years had BMIs greater than 35 kg/m² when they were adults. ■

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Substance Use Low in Adolescents Seeking Bariatric Surgery

BY HEIDI SPLETE

WASHINGTON — Almost one-third of adolescents approved for bariatric surgery reported using psychotropic medications, but the use of substances was lower than expected, according to data from 82 subjects collected as part of a larger longitudinal study.

"Some of the worst consequences of extreme obesity are psychosocial," Meg H. Zeller, Ph.D., a psychologist at Cincinnati Children's Hospital Medical Center, said at the annual scientific meeting of the Obesity Society.

Longitudinal psychosocial assessment helps document changes associated with bariatric surgery and identify factors that might predict optimal mental and physical health in adolescents after surgery, she said.

To determine the baseline psychosocial characteristics of teens undergoing bariatric surgery, Dr. Zeller and her colleagues reviewed data from adolescents aged 19 years

and younger within 30 days before surgery. The average age of the members in study group was 17 years, and the average body mass index was 56 kg/m². Most of the patients (77%) were girls and white (68%).

The researchers used several validated questionnaires, including the Beck Depression Inventory (BDI), the Impact of Weight on Quality of Life—Kids (IWQOL-Kids), and the Questionnaire on Eating and Weight Patterns—Revised (QEWP-R). The adolescents also responded to questions about substance use and use of mental health services within the previous 12 months.

Overall, 76% of the adolescents reported depressive symptoms based on the BDI. Based on the QEWP-R, 11% met screening criteria for binge eating disorder and 6% reported alcohol use, Dr. Zeller said. But 31% reported use of a psychotropic medication, 28% were taking antidepressants, and 11% were taking mood stabilizers. In addition, data from IWQOL-Kids showed significant and

global impairments in weight-related quality of life issues.

The low use of drugs and alcohol in the study population may reflect less exposure to peer contacts and peer pressure because of the patients' extreme weight, and it's not unusual for very obese adolescents to be home schooled, Dr. Zeller noted.

"What is critical and ongoing is our follow-up, 6, 12, and 24 months after surgery," Dr. Zeller added.

The adolescents are part of the ongoing Teen-Longitudinal Assessment of Bariatric Surgery (Teen-LABS). Teen-LABS includes five clinical centers collaborating to facilitate studies of bariatric surgery in adolescents, and to study the causes and effects of severe obesity in teens, according to the Web site, www.teen-LABS.org. ■

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