Roux-en-Y Benefits in Teens Plateau at 6 Months

BY MITCHEL L. ZOLER

ORLANDO — Bariatric surgery produces rapid, dramatic improvements in obese adolescents, but at 6 months post surgery they hit a wall and further gains in their clinical status usually do not occur, according to a follow-up study of 44 patients.

"There is generally a plateau [of weight loss] at about 6-12 months, and sometimes a creep-up after 1 year. Even though [these adolescents] are significantly better, they're still not normal, so we should intervene even sooner," Dr. Holly M. Ippisch said at the annual scientific sessions of the American Heart Association.

In a series of 87 adolescents who underwent Roux-en-Y bariatric surgery at Cincinnati Children's Hospital Medical Center, average body mass index dropped from 58 kg/m^2 at baseline to 41 kg/m^2 in the 57 patients followed out to 6 months. After that, average BMI leveled out to an average of 37 kg/m^2 in 44 teens followed for 1 year, and to 38 kg/m^2 in 21 patients followed for 2 years, reported Dr. Ippisch, a pediatric cardiologist at Cincinnati Children's.

Cardiovascular measures showed a similar pattern, with substantial improvements in parameters such as left ventricular mass and diastolic dysfunction during the first 6 months following surgery, followed by a leveling off to values that remained abnormally high and potentially dangerous.

Diminishing weight loss more than 6 months out from surgery "is very interesting and is being seen at a number of U.S. centers" doing bariatric surgery on adolescents, said Dr. Stephen R. Daniels, a pediatric cardiologist and professor and chairman of pediatrics at the University of Colorado, Denver. "It's something that we don't understand and need to learn more about. From what we can tell they are in general eating in a healthy way," he said in an interview.

Cardiovascular parameters leveled off to abnormally high and potentially dangerous values.

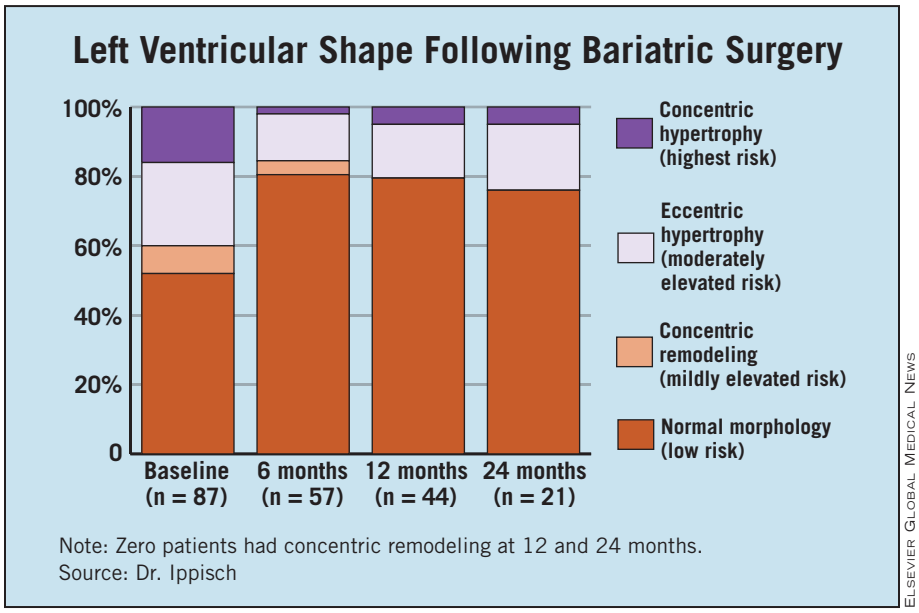
DR. IPPISCH

At Cincinnati Children's and other centers, adolescents who are candidates for bariatric surgery must have a BMI of at least 40 kg/m^2 as well as a serious comorbidity such as type 2 diabetes or sleep apnea, Dr. Daniels noted. To qualify without a serious comorbidity, their BMI has to be at least 50 kg/m^2. Adults are typically offered bariatric surgery at lower BMI levels.

When bariatric surgery for adolescents began a few years ago, "the thought was to be as conservative as possible, and reserve it for only the most severely affected adolescents," he added.

"We didn't know if it was safe for adolescents, so it was reserved for extreme cases," added Dr. Ippisch.

But the plateauing effect now being widely seen "is starting a thought process on what the criteria should be," Dr. Daniels said.



Note: Zero patients had concentric remodeling at 12 and 24 months.
Source: Dr. Ippisch

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The 87 adolescents who underwent Roux-en-Y surgery in Cincinnati were aged 13-19 years; three-quarters were girls. Their average left ventricular mass at baseline was 52 g/m$^{2.7}$, a high-risk level that fell to about 40 g/m$^{2.7}$ after 6 months and then stayed roughly at that level through 2 years in the 21 patients who have so far been followed that long.

Another way that Dr. Ippisch assessed left ventricular size and shape was to divide patients into four risk categories: normal (low-risk), concentric remodeling (mildly elevated risk), eccentric ventricular hypertrophy (moderately elevated risk), and concentric ventricular hypertrophy (highest risk). The patients showed a shift from half having normal-shaped hearts at baseline to about 80% with normal shapes at 6, 12, and 24 months follow-up (see chart).

The patients also had an elevated left ventricular end diastolic pressure at baseline, an average mitral E/Ea ratio of about 7.0, indicating diastolic dysfunction, that improved to an average ratio of about 6.0 after 6 months and remained at that level through 2 years of follow-up. Other improvements included heart rate, which fell from an average of 83 bpm at baseline to 63 bpm at 6 months and 61 bpm at 2 years, and blood pressure, which dropped from an average of 121/69 mm Hg at baseline to an average of 113/65 mm Hg at 6 months and 114/66 mm Hg at 2 years.

Dr. Ippisch had no commercial financial disclosures for this study. ■

Significant Drop in Serum Uric Acid Linked to Weight Loss

BY MITCHEL L. ZOLER

PHILADELPHIA — Weight loss was linked to significant drops in serum uric acid levels in a prospective study of 12,510 men with high cardiovascular risk.

"Weight loss could substantially help achieve a widely accepted therapeutic uric acid target level of 6 mg/dL among men with a high cardiovascular risk profile," Yanyan Zhu said at the annual meeting of the American College of Rheumatology.

Ms. Zhu and her associates used data from men with a high cardiovascular risk profile enrolled in the Multiple Risk Factor Intervention trial, a study begun in the early 1970s. The trial assessed the role of multiple risk-factor interventions, including a special diet, on mortality from coronary heart disease.

The men were aged 35-57 years at baseline (mean age 46 years). Their average body mass index was 28 kg/m^2. Blood pressure at or above 130/85 mm Hg led to a diagnosis of hypertension in 86%; 17% were treated with a diuretic. Average alcohol use was 13 drinks per week, and average serum creatinine was 1.10 mg/dL. Average serum level of uric acid at baseline was 6.8 mg/dL; 73% were identified with hyperuricemia based on a level of at least 6.0 mg/dL.

Men who lost weight had a statistically significant reduction in their risk for having hyperuricemia.

MS. ZHU

The men returned annually for clinical assessments for 6 years. During follow-up, 39% had weight loss, 31% had no weight change, and 30% gained weight.

In an analysis adjusted for baseline covariables of hypertension, diuretic use, alcohol use, and serum creatinine, men who lost weight during follow-up had a statistically significant reduction in their risk for having hyperuricemia, said Ms. Zhu, an epidemiologist at Boston University. Men who gained weight during follow-up had a significant increased risk for hyperuricemia (see table).

A second analysis showed similar, significant relationships between changes in weight and changes in the serum level of uric acid. The more weight patients lost the lower their uric acid levels fell. The more weight they gained the higher their levels rose (see table).

Ms. Zhu and her associates hypothesized that the impact of weight change on serum uric acid occurred through changes in uric acid production and renal excretion. For example, reduced adiposity leads to lower insulin levels, which produces increased renal excretion of uric acid. ■

Disclosures: *Ms. Zhu said she had no conflicts of interest. Some of her associates had financial ties to Takeda, which markets a drug for lowering uric acid levels. One associate served on an advisory board for Savient, which is developing a uric acid lowering drug, and another formerly held stock in Savient.*

Weight Changes Linked to Uric Acid Changes

Weight change	Odds ratio for change in rate of hyperuricemia	Average change in serum uric acid level
Gain or loss of less than 1 kg (reference)	1.0	0
Loss of 1.0-4.9 kg	0.83	–0.12 mg/dL
Loss of 5.0-9.9 kg	0.68	–0.26 mg/dL
Loss of 10 kg or more	0.44	–0.58 mg/dL
Gain of 1.0-4.9 kg	1.09	+0.07 mg/dL
Gain of 5.0-9.9 kg	1.46	+0.23 mg/dL
Gain of 10 kg or more	1.54	+0.38 mg/dL

Note: Data from 12,510 men at high risk for cardiovascular disease followed for 6 years. All changes statistically significant compared with reference group. All between-group differences adjusted for baseline differences in hypertension, diuretic use, alcohol use, and serum creatinine.
Source: Yanyan Zhu

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Pages 22a—22b