Bariatric Surgery Leads to Remission of Type 2

BY NEIL OSTERWEIL

BOSTON — Bariatric surgery can lead to sustained remission of type 2 diabetes and improvements in cardiovascular health that lower the risk for diabetes-specific mortality, according to Dr. Ted D. Adams, a cardiovascular researcher at the University of Utah, Salt Lake City.

In published studies, 64%-100% of patients experienced remission of type 2 diabetes, 62%-69% had resolution of hypertension at 1 or 2 years after surgery, and up to 85% had resolution of sleep apnea, Dr. Adams noted at a symposium sponsored by the International Atherosclerosis Society.

"Observational studies reporting mortality of obese subjects who have lost weight without bariatric surgery are inconclusive, with studies reporting no change, increased, or reduced mortality," Dr. Adams said. To date, 11 published studies have examined mortality following bariatric surgery. The studies varied considerably by type of surgery, length of follow-up, selection of control groups, and body mass index; however, the eight studies with severely obese control groups reported increases in longevity among bariatric surgery patients. The reductions ranged from a mean of 29% in one study to 89% in a different study, Dr. Adams said.

A study of 232 morbidly obese patients with type 2 diabetes showed mortality rates of 9% for the 154 Roux-en-Y gastric bypass patients compared with 28% for 78 patients who did not undergo surgery. For each year of follow-up, surgical patients had a 1% chance of dying, compared with a 4.5% per year chance for controls. The investigators found that the improved mortality rate among the gastric bypass recipients was attributable primarily to a decrease in the number of cardiovascular deaths (J. Gastrointest. Surg. 1997;1:213-20).

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DR. ADAMS

In a case-control study, Dr. Adams and his colleagues compared 7,925 patients who underwent gastric bypass with age-, weight-, and gender-matched controls from Utah driver license data. The patients' median age was 39.5 years, and their median body mass index was 45.3. The investigators found that over an 18-year follow-up period (mean 7.1 years), 2.7% of patients had died, compared with 4.1% of controls. The adjusted reduction in death associated with gastric bypass surgery was 40% (N. Engl. J. Med. 2007;357:753-61).

There were 55 cardiovascular disease deaths among cases, compared with 104 among controls, and there were fewer deaths from coronary artery disease among cases compared with controls (15 vs. 33, respectively).

There were only two deaths attributed to diabetes among cases, compared with 19 among controls, Dr. Adams noted.

In an analysis of cause-specific mortality, the authors saw a decrease of 56% in coronary artery disease for cases vs. controls (2.6 vs. 5.9 per 10,000 person-years, $P = .006$), a 92% reduction for cases in diabetes deaths (0.4 vs. 3.4 per 10,000 p-y, $P = .005$), and a 60% decrease in cancer deaths (5.5 vs. 13.3 per 10,000 p-y, respectively, P less than .001). Nondisease causes of death, such as accidents and suicide, were higher among cases compared with controls (11.1 vs. 6.4 per 10,000).

In another study, Dr. Adams and colleagues compared severely obese patients who underwent Roux-en-Y gastric bypass with patients who qualified for such surgery but were denied insurance coverage, and with matched controls not seeking surgery (Obesity 2009 June 4 [doi: 10.1038/oby.2009.178]). BMI, blood pressure, lipids, diabetes-related variables, resting metabolic rate, sleep apnea, and health-related quality of life improved significantly in the gastric bypass group compared with each control group. In addition, patients in the surgery group had significantly more frequent resolution of diabetes, dyslipidemia, and hypertension at 2 years than did the other groups. Dr. Adams reported no conflicts of interest. ■

Nonobese Gain Metabolic Benefits From Bariatric Surgery

BY BRUCE JANCIN

GRAPEVINE, TEX. — The next frontier in obesity surgery may be its extension to people who are mildly to moderately obese—or even nonobese—so they, too, can reap the metabolic benefits.

Several studies presented at the annual meeting of the American Society for Metabolic and Bariatric Surgery called into question current National Institutes of Health (NIH) guidelines recommending bariatric surgery only for patients with a body mass index greater than 40 kg/m^2 or those with a BMI greater than 35 with type 2 diabetes or other obesity-related comorbidities. Those guidelines serve as the basis for insurance coverage decisions. But the new studies consistently showed marked benefits of obesity surgery in patients who don't fall within the NIH guidelines, including the potential for reversing type 2 diabetes.

The National Institute of Health recommendations on bariatric surgery 'need to be challenged.'

DR. CHOI

"I think those guidelines need to be challenged," said Dr. Jenny J. Choi of Columbia University Medical Center, New York.

Considering that more than 30% of U.S. adults have a BMI in excess of 30, that's a high-stakes proposition.

Dr. Choi presented data from an ongoing prospective observational study that, to date, includes 66 patients who had laparoscopic adjustable gastric banding (LAGB). The patients enrolled in the study had either a BMI of 30-35 and comorbidities or a BMI of 35-40 with no comorbidities. The control group consisted of 475 LAGB patients who met the NIH bariatric surgery criteria.

At 18 months' follow-up, the NIH nonqualifiers had an average 42% excess weight loss, the same as in the control group. Although the low-BMI cohort had fewer baseline comorbidities than did controls, those with diabetes, hypertension, gastroesophageal reflux disease, obstructive sleep apnea, hyperlipidemia, stress incontinence, or depression saw improvement in their comorbidities to an extent similar to that of the more obese controls. Indeed, only arthritis was less likely to show significant improvement in the low-BMI group than in controls, according to Dr. Choi.

The 6% complication rate in the low-BMI cohort consisted mainly of band slippage or erosion. LAGB is an attractive bariatric procedure for patients with mild to moderate obesity, because even though it results in less weight loss than does gastric bypass, it has substantially less morbidity, she explained.

Dr. Choi noted that hers is not the first study to show that LAGB has significant benefits in patients too thin to qualify for bariatric surgery under the NIH guidelines, which date back to 1991.

For example, a landmark randomized trial by Dr. Paul O'Brien and his colleagues at Monash University, Melbourne, involving 80 patients with a BMI of 30-35, showed an 87% excess weight loss at 2-years' follow-up in the LAGB group, compared with 22% in patients assigned to intensive medical management. The prevalence of the metabolic syndrome—38% at baseline in both study arms—dropped to 3% at 2 years in the LAGB group, versus 24% in the intensive medical management group.

Significant quality-of-life improvements at 2 years were documented in all eight domains of the Short Form-36 for LAGB-treated patients but in only three domains for the nonsurgically managed group (Ann. Intern. Med. 2006;144:625-33).

Most recently, investigators at New York University reported that LAGB in 53 patients with a mean preoperative BMI of 33.1 dropped their BMI to 25.8 at 2 years' follow-up, with a mean 70% excess weight loss. Of the 53 patients, 49 had at least one baseline obesity-related comorbid condition; substantial improvement was noted in their diabetes, hypertension, asthma, osteoarthritis, hyperlipidemia, obstructive sleep apnea, and depression (Surg. Endosc. 2009;23:1569-73).

Gastric bypass has been less effective in reversing type 2 diabetes than laparoscopic ileal interposition.

DR. DE PAULA

A small, randomized Brazilian trial presented at the bariatric surgery meeting showed that two versions of laparoscopic ileal interposition and sleeve gastrectomy had similarly substantial weight-loss and metabolic benefits. Dr. Aureo L. De Paula of Albert Einstein Hospital in São Paulo reported on 38 nonobese type 2 diabetic patients with a mean baseline BMI of 28.5. They were randomized to laparoscopic surgery in which a 170-cm segment of ileum was transposed to the proximal jejunum in conjunction with a sleeve gastrectomy, or to having the same segment of ileum interposed to the proximal duodenum.

The study hypothesis was that the latter procedure, involving both foregut and distal gut mechanisms, would show greater benefit. And although there was a trend in that direction, it did not achieve significance in this small study. Indeed, both procedures proved dramatically effective in reversing diabetes.

For example, in the group as a whole, mean glycosylated hemoglobin (HbA_{1c}) dropped from 8.5% preoperatively to 5.9% at 26 months' follow-up; 35 patients had an HbA_{1c} below 7%. Thirty-five permanently discontinued all antidiabetic medications.

Mean fasting blood glucose went from 207 mg/dL to 114 mg/dL, postprandial blood glucose fell from 250 mg/dL to 140 mg/dL, and mean BMI dropped by 5.

Dr. De Paula noted that he has found gastric bypass to be less effective in reversing type 2 diabetes than the laparoscopic ileal interposition he and his colleagues have developed.

Dr. De Paula disclosed that his study was partially funded by Covidien. ■