

# Bariatric Surgery Lowers Risk of Cancer Death

BY BRUCE JANCIN

ESTES PARK, COLO. — The biggest chunk of the substantial mortality benefit conferred by bariatric surgery comes not from reduced cardiovascular mortality or diabetes-related deaths, but from fewer deaths due to cancer, according to two large studies of more than 20,000 subjects.

The large relative risk reductions in diabetes-related and cardiovascular mortality following bariatric surgery have garnered much attention. But obese individuals have an increased risk of cancer, and the absolute number of cancer deaths avoided following the surgery overshadows deaths due to the other causes, Dr. Daniel Bessesen explained at a conference on internal medicine sponsored by the University of Colorado.

"It has been thought that insulin binding to insulin-like growth factor might promote cancer. People have wondered, if patients lose weight and their insulin levels go down, could this prevent cancer? The data from these two studies suggest so," observed Dr. Bessesen, professor of medicine at the university and chief of endocrinology at Denver Health Medical Center.

The Swedish Obese Subjects (SOS) study was a prospective, nonrandomized study involving more than 4,000 obese individuals, half of whom underwent gastric bypass surgery by general surgeons in Swedish community hospitals.

The surgery patients had an adjusted 29% decrease in overall mortality at an average 10.9 years follow-up, compared with matched controls. There were 13 fatal MIs in the surgery group, compared with 25 in controls. There were 29 cancer deaths in the surgery arm, compared with 47 in controls (*N. Engl. J. Med.* 2007;357:741-52).

The other major study was a retrospective cohort study involving 7,925 obese Utah residents who underwent gastric bypass surgery and an equal number of matched controls who did not have the surgery. At 7.1 years of follow-up, the adjusted mortality was 40% lower in the surgery group.

Once again, the biggest absolute benefit was a reduction in cancer deaths. The relative risk of death due to cancer was 60% lower in the surgery group, with a rate of 5.5 deaths per 10,000 person-years, compared with 13.3/10,000 person-years in controls. Deaths due to coronary artery disease fell from 5.9 to 2.6/10,000 person-years, a 56% reduction, while diabetes-related deaths dropped by 92% from 3.4 to 0.4/10,000 person-years (*N. Engl. J. Med.* 2007;357:753-61).

Both the Swedish and Utah investigators have recently expanded upon their findings via follow-up studies. The Utah investigators used the Utah Cancer Registry in looking at 6,596 patients who underwent gastric bypass surgery and 9,442 severely obese individuals who did not. During a mean 12.5 years of follow-up,

the total incidence of cancer was 34% lower in the surgery group. Cancer mortality was 46% lower (*Obesity [Silver Spring]* 2009;17:796-802).

The Swedish group reanalyzed the SOS data in terms of the incidence of



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first-time cancer. They found a 42% decrease during 10 years of follow-up in women who had bariatric surgery, but no significant reduction in men (*Lancet Oncol.* 2009;10:653-62).

In addition to the reduced risk of death, what other benefits can obese patients realistically expect from bariatric surgery? Dr. Bessesen said gastric bypass—the most popular and effective form of bariatric surgery—consistently achieves roughly a 30% weight reduction, or 50%-60% loss of excess body weight, and this has been maintained at follow-up now stretching out beyond 15 years.

Laparoscopic adjustable gastric band surgery, which is less invasive and less risky, is also less effective, conferring about a 20% weight reduction.

"Laparoscopic band results are variable

depending on surgeon expertise. A really good surgeon will get 25% weight loss, an average surgeon more like 16%-18%. Roux-en-Y gastric bypass weight loss results are more consistent," he said.

Sleep apnea is improved in almost all affected patients after bariatric surgery. So are gastroesophageal reflux, urinary incontinence, and hyperlipidemia. Diabetes is resolved after gastric bypass in 80%-85% of affected patients, and in 60%-70% after laparoscopic adjustable gastric banding. Hypertension is the comorbidity most resistant to resolution; only about half of patients are eventually able to stop their antihypertensive medications after bariatric surgery, Dr. Bessesen continued.

As for the risks of bariatric surgery, with improved surgical techniques the 30-day mortality of gastric bypass has dropped to about 0.5%, with 1%-2% mortality at 2 years. In contrast, the long-term mortality of laparoscopic adjustable gastric banding is only about 0.1%; however, this procedure entails the inconvenience of many follow-up adjustments. Pulmonary embolism, wound dehiscence and infection, anastomotic leaks, and anastomotic stricture are potential complications of bariatric surgery. And about 10% of patients fail to lose substantial weight after bariatric surgery; to date there's no way to identify them in advance.

"It's just a risk you take," Dr. Bessesen concluded. "This is big-time surgery: big benefits, big risks." ■

## Bariatric Surgery Aftercare Increasingly a Primary Care Issue

BY BRUCE JANCIN

ESTES PARK, COLO. — Batten down the hatches. It's time for primary care physicians to prepare for a rising tide of patients with health issues related to prior bariatric surgery.

Demand for bariatric surgery has skyrocketed because of the convergence of the obesity epidemic, safer surgery through improved techniques, and persuasive evidence of dramatic health benefits. In 2003 there were just over 100,000 bariatric procedures performed in the United States. In 2007 there were 205,000. Even if the volume were to plateau at the 2007 level, there would be an additional 2 million-plus patients with a history of bariatric surgery 10 years from now, he noted.

"Aftercare is critical. These surgeons do a good job with the surgery, but a year later it's your problem," Dr. Daniel Bessesen said at a conference on internal medicine sponsored by the University of Colorado.

"These patients have a tendency to drift," he said. They have life-changing surgery and then they "start exercising, get a new job, move, and they get a new primary care physician. ... You say, 'Nice to meet you. Tell me about your health history,' and they say, 'Well, I used to weigh 400 pounds.' It's almost like a distant memory for them. But the reality is that if they had gastric bypass surgery, it's something that needs to be dealt with for the rest of their life. And you're the one they're going to see about it," explained Dr. Bessesen, professor of medicine at the university and chief of endocrinology at Denver Health Medical Center.

Help in managing health issues related to bariatric

surgery is available in the form of an outstanding set of guidelines, he said.

The guidelines, created by the American Association of Clinical Endocrinologists, the Obesity Society, and the American Society for Metabolic and Bariatric Surgery, are comprehensive: 83 pages long, with 164 evidence-graded recommendations ([www.aace.com/pub/guidelines](http://www.aace.com/pub/guidelines)).

"If you're seeing one of these people and you're going, 'Holy cow, what do I do about calcium, and—oh, no—she's vomiting,' you can go to this site and find the answers," Dr. Bessesen said.

The primary goal in aftercare is to maintain good nutrition. The key dietary guidance is to eat small amounts—2-3 ounces of food, or a cup or less, at a sitting; eat it slowly, over the course of about 30 minutes; and focus on protein-containing foods.

"After the surgery, a lot of these folks don't have much of a taste for meat, so it's hard for them to get 60 g of protein per day. It's especially important to emphasize getting that 60 g per day in the first 6-8 months, when they're dropping weight quickly," Dr. Bessesen said.

Micronutrient deficiencies are a big concern after gastric bypass surgery. Deficiencies in thiamine and other water-soluble vitamins occur rapidly in the absence of supplementation. Dr. Bessesen recommended that all patients who have had a gastric bypass take a daily prenatal vitamin or another high-quality multivitamin containing iron.

Vitamin B<sub>12</sub> deficiency is so common in these patients that he has them preemptively take oral crystalline B<sub>12</sub> at 500-1,000 mcg/day, sublingual B<sub>12</sub> at 500 mcg/day,

intramuscular B<sub>12</sub> at 100 mcg once monthly, or B<sub>12</sub> nasal spray at 500 mcg once weekly.

Supplementation with 1,200-1,500 mg/day of calcium citrate is also important because gastric bypass surgery recipients typically eat a lot less calcium and vitamin D-containing foods than before their surgery.

Eighty percent of bariatric surgery patients are women. Many believe they are infertile, but their fertility may increase following weight loss. If they become pregnant while they're losing a lot of weight, there may not be enough food for fetal growth and development, he said.

"I strongly encourage women not to get pregnant in the first year after surgery by using some effective form of birth control. The case series suggest the pregnancy outcomes are okay with good monitoring, but it's not a situation you want to be in," Dr. Bessesen advised.

When primary care physicians refer patients for bariatric surgery, they should send them to American Society for Metabolic and Bariatric Surgery centers of excellence, according to Dr. Bessesen. The society's online search will locate accredited centers by physician or practice name, city, or state ([www.surgicalreview.org/locate.aspx](http://www.surgicalreview.org/locate.aspx)).

"The day of any old general surgeon doing five of these a year is over. People who don't do a lot of these procedures have a high morbidity and mortality. There are now clear requirements for center-of-excellence status. There's an organization that goes out and looks at the surgeons' site—how many cases they do, their complications, their nutritional and psychiatric support. I think you can, with some confidence, refer people to the centers of excellence," he said. ■