Bariatric Surgery Changes Glucose, Lipid Metabolism

BY MITCHEL L. ZOLER
Philadelphia Bureau

PALM BEACH, FLA. — Gastric bypass surgery does more than just cause weight loss. It produces rapid improvements in glucose tolerance, blood pressure, lipid levels, diabetes, and the risk of coronary heart disease, Dr. Alfonso Torquati said at the annual meeting of the Southern Surgical Association.

"We know that weight loss does not lead to the change in coronary heart disease risk. We think that bariatric surgery is metabolic. It bypasses the duodenum and changes the way that glucose and lipid metabolism work," said Dr. Torquati, a surgeon at Vanderbilt University, Nashville, Tenn.

He and his associates assessed the effect of gastric bypass surgery on coronary heart disease (CHD) risk by calculating the Framingham risk score for 500 consecutive Vanderbilt patients just prior to surgery and again 1 year later.

The analysis showed that the average 10-year risk of CHD, based on the Framingham formula was 5.4% when calculated at baseline for the 500 patients who had bariatric surgery. One year after surgery, with complete follow-up of all 500 patients, the average 10-year risk of CHD was 2.7%, a statistically significant drop, reported Dr. William O. Richards, a coauthor and medical director of the Center for Surgical Weight Loss at Vanderbilt.

The cut in CHD risk was due to substantial improvements in systolic blood pressure and serum levels of low-density and high-density lipoprotein, as well as significant drops in the prevalence of type 2 diabetes and metabolic syndrome. The average weight loss in these patients during the first year after surgery was 69%.

Significant reductions in risk were seen in all patients, regardless of whether they had diabetes, regardless of their age or gender, and regardless of whether their baseline Framingham risk was low, intermediate, or high. Five-year follow-up data were available for 360 (72%) patients, and their actual rate of CHD was similar to their predicted rate calculated 1 year after surgery, Dr. Richards said.

"As the evidence grows, it becomes harder to ignore that bariatric surgery is a lifesaving intervention," commented Dr. Eric DeMaria, vice chair of general surgery at Duke University, Durham, N.C.

"If weight loss alone does not drive the benefits of bariatric surgery, then what does?" he asked.

"We find that insulin resistance goes way down in the first weeks after surgery, especially at the level of the liver, before there is significant weight loss," Dr. Torquati said. "You don't see the same changes with gastric binding, only with bypass," suggesting that the metabolic changes are somehow linked to duodenal bypass, he said.

On the basis of these findings, it's reasonable to conduct a trial designed to test whether gastric bypass surgery can also produce beneficial changes in blood pressure, serum lipids, and diabetes in thinner patients, such as those with a body mass index of 30-35 kg/m^2, Dr. Torquati said. ■

Diabetes in High-Risk Patients Is Underreported, Study Finds

BY JOHN R. BELL
Associate Editor

Patients with impaired fasting glucose or impaired glucose tolerance who were screened for diabetes risk as part of an international diabetes study went on to develop type 2 diabetes at rates higher than those cited in textbooks and guidelines, according to a report published online in the journal Diabetologia.

The findings suggest that screening strategies based on incidence rates for the general population may not be useful for identifying type 2 diabetes in patients at high risk for the disease.

Of 1,160 patients (aged 40-69 years) who were screened at baseline, 70% (811) were reexamined at 1 year. Among those who were rescreened, there were 155 incident cases of diabetes, reported Dr. Signe Sætre Rasmussen of the Steno Diabetes Center, Gentofte, Denmark, and her colleagues at Aarhus (Denmark) University. The incidence of diabetes was 17.6/100 person-years in those with impaired fasting glucose and 18.8/100 person-years in those with impaired glucose tolerance.

These findings were based on data collected during the screening phase of the Anglo-Danish-Dutch Study of Intensive Treatment in People With Screen-Detected Diabetes in Primary Care (ADDITION), a screening and intervention study for type 2 diabetes in general practice. A treatment phase will follow (Diabetologia 2006 [Epub ahead of print]; DOI 10.1007/z00125-006-0530-y). Study participants were recruited based on their risk scores from a previous Danish diabetes screening study.

Dr. Rasmussen and colleagues concluded that the progression rates used by most screening programs are based on low rates listed in textbooks and guidelines. "Our study confirms that these are too low for high-risk settings, which would be the preferable strategy as general population-based screening programs are expensive, logistically difficult and of questionable benefit," they wrote.

The study was funded by Novo Nordisk Inc., Astra-Zeneca Pharmaceuticals, Pfizer Inc., Servier Laboratories, GlaxoSmithKline, and HemoCue Inc. The authors reported no conflicts of interest. ■

Weight Loss From Exercise Does Not Lower Bone Density

BY MELINDA TANZOLA
Contributing Writer

Exercise-induced weight loss does not lead to declines in bone mineral density at fracture-relevant sites after 12 months, but weight through calorie restriction does, according to a randomized, controlled trial of 48 adults.

Regional BMD at the total hip and at the intertrochanter decreased significantly more with calorie restriction than they did without in a control group. BMD did not change significantly with exercise, compared with controls, study investigators reported.

The researchers randomized 48 nonobese but mostly overweight adults aged 50-60 years to three groups. The 19 subjects in the calorie restriction group decreased energy intake by 16% during the first 3 months and by 20% during the subsequent 9 months. The 19 subjects in the exercise group decreased overall energy intake by the same amount through exercise; they exercised a mean of 5.8 times per week for 62.5 minutes per session. The most common modes of exercise were walking and/or jogging, followed by elliptical training and cycling.

The remaining 10 participants did not change their diet or exercise habits, wrote Dr. Dennis T. Villareal of Washington University, St. Louis, and colleagues (Arch. Intern. Med. 2006;166:2502-10).

Overall, in the calorie restriction group, BMD decreased 2.2% at the lumbar spine, 2.2% in the total hip, and 2.1% in the intertrochanter.

Markers of bone turnover increased significantly in both the calorie-restriction and exercise groups.

Relative reductions in body weight after 1 year were similar with calorie restriction (10.7%) and with exercise (8.4%), whereas the control group did not lose weight (1.2%).

These findings indicate that exercise was associated with weight loss but not loss of BMD, whereas weight loss due to calorie restriction was significantly associated with changes in hip BMD.

The most practical approach to weight loss is a combined regimen of calorie restriction and exercise, the researchers noted. ■