

Gastric Bypass Lightens Load on Women's Hearts

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BOSTON — Women trim their resting heart rate and heart rate recovery as well as their waistlines when they undergo gastric bypass surgery, according to a 2-year study presented at the annual meeting of the Heart Rhythm Society.

A comparison group of similar women who did not undergo gastric bypass surgery failed to show any significant improvements during the same period.

The latest findings emerged during an analysis of gastric bypass surgery patients conducted by Stephen L. Wasmund, Ph.D., and colleagues at the University of Utah, Salt Lake City. Dr. Wasmund presented the findings during a poster session.

Heart rate recovery after exercise is a proxy for vagal tone, said Dr. Wasmund in an interview.

"Showing an improvement in heart rate recovery definitely suggests a change in autonomic variables in a good direction. Although we did not make any specific measurements of autonomic tone—we did not measure heart rate variability, for example—we think this points to improvements in vagal tone and sympathetic tone."

Rates of gastric bypass surgery in the United States have increased more than fivefold in recent years—from 14,000 in 1998 to 108,000 in 2003, according to data collected as part of the National Hospital Discharge Survey (Obes. Res. 2005;13:2202-9). Previous studies have analyzed the impact of weight loss on blood pressure, but its effect on cardiovascular baroreflex function remains poorly understood.

To see whether gastric bypass surgery improved these markers of heart health, Dr. Wasmund and colleagues studied a random sample of 342 women from a cohort of more than 1,100 obese women enrolled in the Utah obesity study (Contemp. Clin. Trials 2005;26:534-5). Of the participants who underwent an echocardiogram or polysomnogram in that cohort, 92% had left-ventricular hypertrophy, and 85% had mild to severe sleep apnea. Another 19% had diabetes, and 35% had hypertension. Their average age was 44 years.

In the new study, one arm consisted of 154 women who underwent gastric bypass surgery. The other arm consisted of 188 severely obese women who either had not sought gastric bypass surgery or had sought but were denied surgery by their doctors.

Overall, the two groups were similar in most important clinical respects, including baseline heart rate, heart rate recovery, and treadmill scores. The controls weighed somewhat less on average than the surgery patients (268 vs. 292 pounds) and had a lower average body mass index (BMI of 43 vs. 47 kg/m²). They were also slightly older (47 vs. 44 years).

After the slimming surgery, resting heart rates of the previously obese women dropped significantly, from 73 to 60 beats per minute. Heart rate recovery also improved significantly, from a drop of 39

bpm during the 3 minutes immediately after exercise to a drop of 56 bpm. The women could also exercise nearly 50% longer on a treadmill before tiring, improving from 15.3 minutes at baseline to 22.7 minutes at follow-up.

Dr. Wasmund was not surprised by the results. "It is good to know that patients can make these improvements strictly through gastric bypass surgery," he said.

Previous research has raised doubts about whether improvements in auto-

nomous function after weight loss persist over time.

A 2003 study from Finland suggests the benefits of weight loss wax, then wane. In that study, 34 obese men and women with metabolic syndrome lost an average of about 32 pounds during a 9-week very-low-calorie diet, and maintained a nearly 28-pound weight loss 1 year later. (J. Hypertens. 2003;21:371-8.)

The Finnish subjects' significant short-term improvements in 24-hour ambula-

tory blood pressure were largely transient, however. Loss of parasympathetic tone was more gradual. Despite successful weight maintenance, their improvements in night heart rate and heart rate variability slowly disappeared within 1 year.

The new study suggests improvements among gastric bypass patients may remain substantial for up to 2 years following surgery. The authors plan to report on the full study group of 1,156 individuals at follow-up intervals of 5 and 10 years. ■

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