Bariatric surgery reduces long-term cardiovascular risk in diabetes patients

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In the longest study of its kind, bariatric surgery has been shown to reduce the risk of heart attack and stroke in patients with diabetes. These results and other groundbreaking research were presented at the 2nd World Congress on Interventional Therapies for Type 2 Diabetes, hosted by NewYork-Presbyterian Hospital and Weill Cornell Medical College.

"This is a watershed moment for diabetes care. With 20 years of data, we can really see how the surgery can improve a spectrum of health measures -- notably cardiovascular risk," says Dr. Francesco Rubino, director of the Congress and director of gastrointestinal metabolic surgery at NewYork-Presbyterian Hospital/Weill Cornell Medical Center.

While Type 2 diabetes is not technically a cardiovascular disease, experts say it might as well be one, given the corrosive effects of unregulated blood sugar on the heart. According to the American Heart Association, at least 65 percent of people with diabetes die of some form of heart disease or stroke.

Dr. Lars Sjöström, professor at the Institute of Medicine in Göteborg, Sweden, presented new data gleaned from the Swedish Obese Subjects (SOS) study. He reported on 20 years of data comparing 2,010 bariatric surgeries with 2,037 non-surgical patients who received medical treatment or lifestyle modification for obesity.

"Type 2 diabetes has always been considered a chronic, lifelong disease,

but the long-term data show remission in 70 percent of patients after two years of follow-up," he says. "Thirty percent are still in remission 15 years after bariatric surgery. Even more remarkable, 20 years out, we have seen that bariatric surgery has reduced new cases of diabetes by 80 percent among obese patients who did not have the disease at the start of the study."

Dr. Sjöström concludes that the surgery's preventive effect seems to be even stronger and more long-lasting than its ability to sustain long-term remission. Equally striking, the incidence of new cardiovascular events -- either heart attack or stroke -- has been at least 30 percent lower among postsurgical patients than their conservatively treated counterparts.

A Utah-based study presented similar clinical outcomes. After gastric bypass surgery, patients were seen to have greater reductions in blood pressure, heart rate, triglycerides, low-density lipoprotein (LDL) cholesterol, and insulin resistance than did patients in the group of severely obese patients who were treated via medication and lifestyle modification. The surgical group also experienced favorable changes in heart function and "geometry" -- a subtle remodeling of the heart's components leading to greater efficiency. The study's principal investigator, Dr. Ted Adams of the University of Utah School of Medicine, believes the new data support the use of bariatric surgery to prevent the cardiovascular complications associated with obesity and Type 2 diabetes.

The GI Tract: A New Target for Treatment and Research

"The idea that the gastrointestinal tract can be targeted for the treatment of diabetes is highly promising. It also represents an entirely new way to

treat and think about a disease that is notoriously difficult to control," says Dr. Rubino, who also serves as associate professor of surgery at Weill Cornell Medical College.

Bariatric surgery, especially procedures that involve the rerouting as opposed to restriction of the gastrointestinal (GI) tract, appears to change the hormonal secretions of the gut, explains Dr. Rubino. These changes may be responsible for the surgery's impressive success in improving or even resolving the disease in a majority of patients.

In bypassing portions of the jejunum or duodenum -- the upper part of the small intestine right below the stomach -- rerouting procedures such as gastric bypass seem to work via a mechanism of action that occurs too quickly to be related to weight loss. Although scientists are still engaged in lively debate around how and why the surgery works, there is growing consensus that anatomical changes in the GI tract play a far greater role in the control of diabetes than was previously believed.

Dr. Lee Kaplan, a renowned authority on obesity medicine and Congress presenter, elaborates: "The pharmaceutical and biotechnology industries have been developing novel diabetes drugs that target the GI tract, but the process is still at a relatively early stage.

"Recently, for example, we have seen the emergence of a new class of drugs designed to alter the action of gut-based hormones such as incretins, which play an important role in the production of insulin. However, the molecular character of the upper intestine still remains to be mapped and understood," adds Dr. Kaplan, who is associate professor of medicine at Harvard Medical School and director of the Obesity Research Center at Massachusetts General Hospital.

The Congress also featured presentations by Nobel laureates Michael S. Brown and Joseph L. Goldstein. Their keynote lecture focused on the

role of the gastrointestinal hormone ghrelin in regulating key biochemical processes implicated in energy metabolism. Ghrelin has been linked to obesity, mainly because of its ability to stimulate growth hormone release.

Beyond the details of that discussion, adds Dr. Rubino, the entire idea of the GI tract as an endocrine organ -- one that could be responsible for the hormonal misfiring seen in diabetes -- is still being tested, both in academic medical circles and by industry. At stake are new drugs, new devices and improved surgical methods for people living with and all too often dying from diabetes. "Some of us anticipate a paradigm shift in our understanding of the disease while others question such a shift," says Dr. Rubino. "But there can be no doubt of how much we're learning at this Congress about the clinical benefits of diabetes surgery and the basic science that underpins its success."

Provided by New York- Presbyterian Hospital