

Reversing gastric bypass may not reverse hormonal changes caused by surgery

May 15 2014, by Angela Koenig

(Medical Xpress)—Gastric bypass surgery has been shown to be one of the most effective treatments for obesity, and often improves Type 2 diabetes immediately after surgery and long before any weight loss has occurred—a phenomenon that's been attributed to earlier and larger insulin response to meal ingestion.

How and why these changes occur after [gastric bypass surgery](#), however, is the ongoing pursuit of University of Cincinnati (UC) researchers.

A recent case study led by Marzieh Salehi, MD, associate professor in the division of endocrinology, metabolism and diabetes, provided Salehi and colleagues the rare opportunity to compare [glucose metabolism](#) in an eight-year post-surgery gastric bypass patient—with an existing gastric feeding tube due to other medical reasons—to a group of healthy controls.

The study appears in the May online edition of the journal *Diabetologia*.

What makes this case study so significant, says Salehi, is that the participant could ingest nutrients both orally and via the gastric feeding tube (going through or bypassing foregut, a re-routed stomach pouch attached to the small intestine), allowing researchers to test whether the actual route of meal ingestion made a difference when it came to how the participant's body metabolized glucose.

While it is commonly agreed that weight loss-independent effects of

gastric bypass on glucose metabolism are due to the enhanced secretion, and action, of one of the gut hormones, GLP-1, the question remained as to whether this increase is due to the rapid transit of nutrients through the reconfigured gastrointestinal tract.

The study's key finding, says Salehi, is that the gastric bypass patient she studied had increased plasma GLP-1 concentrations and GLP-1 action independent of the route of feeding compared to healthy controls, making it "likely that the increased secretion and action of GLP-1 after gastric bypass surgery is not entirely due to rapid passage of nutrients into the lower gut."

Although these findings pertain to a single-person [case study](#), Salehi says they are in keeping with previous results that indicated an increased role of GLP-1 in the insulin response following gastric bypass.

"Understanding the underlying mechanisms by which gastric bypass improves blood sugar levels will guide the development of therapeutic options, as GLP-1 based drugs have been utilized for treatment of diabetes over the last decade," says Salehi.

These findings are of particular interest to Salehi, who studies a subset of gastric bypass patients who, post-surgery, develop post-meal hypoglycemia (low blood sugar resulting from too much insulin secretion).

"In patients with severe hypoglycemia, gastric bypass reversal is a consideration," Salehi says, "but our new findings show that simply reversing [gastric bypass](#) several years after surgery may not reverse the hormonal effects brought on by the surgery itself, namely a new 'cross-talk' between gut and pancreas."

Provided by University of Cincinnati

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