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SURGERY FOR OBESITY AND RELATED DISEASES

Editorial comment

Comment on: comparison of the effect by which gastric plication and sleeve gastrectomy procedures alter metabolic and physical parameters in an obese type 2 diabetes mellitus rodent model

Human physiologic homeostasis is a fine, delicate balance. Once the scale tips, processes that were intended to protect the patient become the very source of pathophysiology. Bariatric surgeons have long realized that, while nutrition is critical to normal function, imbalances in the amount and sources of nutrition can lead to metabolic disruption that adversely reaches most organ systems. Thus, it is only natural that the first organized attempts to combat obesity sought to manipulate absorption of nutrients by anatomically altering the gastrointestinal tract [1]. A major step forward occurred when the deleterious effects of malabsorption were abandoned in favor of approaches that sought to limit nutritional intake (i.e., volume restriction) [2].

The past 2 decades in metabolic surgery have seen Roux-en-Y gastric bypass, vertical sleeve gastrectomy (VSG), and biliopancreatic diversion with duodenal switch emerge as the major bariatric operations. In the setting of metabolic surgery, VSG was originally described as a first-stage procedure for high-risk patients, but it has since become a widespread standalone bariatric operation [3]; gastric plication (GP) was introduced by Dr. Talebpour, who also reported good weight loss results and low-complication rates at 12 years [4].

In the present study, Ye et al. compare VSG, GP, and sham surgery in diabetic obese rats. Although the title implies a mechanistic approach, the study is descriptive and presents observational data in repeated measures from pre- to 6 weeks postoperation. The authors conclude equivalency between VSG and GP based on this experimental design. They report similar efficacy in weight loss, reduction in food intake, and improvement in glucose metabolism. Furthermore, the procedures produced similar changes in hormone levels and resting energy expenditure. At all points, VSG and GP were superior to sham. In their conclusions, the authors state that VSG and GP "have the same effectiveness" and that they can improve diabetes through weight loss, hormonal changes, and alterations of gastrointestinal function.

Certainly, VSG and GP have been investigated in other animal studies and in human studies. Two recent studies contradict the equivalency identified by Ye et al. [5,6]. In both studies, VSG was superior to GP in weight loss. In rats, Gulcicek et al. [5] found equivalent changes in ghrelin and leptin after both procedures. In humans, metabolic parameters were equivalently improved after both operations, but VSG resulted in more significant early reduction in ghrelin [6].

Thus, the present study fits within the available literature indicating that VSG and GP can induce effective weight loss. The issues of metabolic recovery and hormonal changes remain much less clear. The current state of knowledge is mixed regarding the effects of metabolic procedures in general and VSG and GP specifically. Unlike Roux-en-Y gastric bypass, metabolic improvements after VSG and GP seem to occur in the longer term and correlate with weight loss. Ultimately, this study adds more observational data, and we will have to wait for more conclusive evidence and certainly for mechanistic evidence.

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