

Setting Appropriate Expectations After Bariatric Surgery Evaluating Weight Regain and Clinical Outcomes

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Bariatric surgery is the most effective intervention available for treating obesity and its numerous associated comorbid conditions,^{1,2} and for improving the quality and length of life for patients with severe obesity.³ Given the initial cost and risk



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of bariatric operations, defining the long-term benefits of bariatric surgery is critical for justifying its utility as an obesity treatment. Inadequate follow-up and lack of standardization of how to define failure of bariatric operations have limited the ability to fully assess their clinical utility. In this issue of *JAMA*, King et al⁴ provide recommendations for how to best measure clinically important weight regain after bariatric surgery based on Longitudinal Assessment of Bariatric Surgery (LABS) study outcomes.

Body weight does not reflect the degree of adiposity or extent of metabolic disease.⁵ Weight regain alone after bariatric surgery may have few adverse health consequences, whereas clinically important weight regain will be associated with the return of comorbid disease. For that reason, when defining failure of a bariatric operation, weight regain needs to be assessed along with the return of comorbidities. Using data from the LABS study, King and colleagues⁴ described patients who underwent Roux-en-Y gastric bypass (RYGB) surgery and achieved nadir weight and assessed the rate of weight regain after reaching nadir weight. The performance of commonly used weight regain measures (ie, weight in kilograms, body mass index [BMI], percentage of presurgery weight, percentage of nadir weight, and the percentage of maximum weight loss) was compared with the recurrence of 6 important clinical outcomes (progression of diabetes, hyperlipidemia, and hypertension, physical and mental health, health-related quality of life, and patient satisfaction with surgery). Data were analyzed from 83% of eligible patients (1406 of 1703) who had RYGB surgery at least 5 years previously and had complete weight and follow-up information. The characteristics of the study population were similar to the general bariatric surgery population—predominantly female (80.3%), white (85.6%), had a median age of 47 years prior to surgery, and a median BMI of 46.3.

Overall, the median time to the maximal weight loss was 2.0 years after RYGB surgery and the maximum weight loss was 37.4% of presurgery weight. The rate of weight regain was the greatest during the first year after reaching nadir weight with a median regain of 9.5% of the maximum weight lost. At 5 years, the median regain of the maximum weight loss was 26.8%. The rate of weight regain slowed with time. This means, for example, that a patient with the median baseline weight of the study population of 130 kg (285 lbs; BMI, 46.3) would weigh

80.7 kg (178 lbs) and have a BMI of 28.7 at the time of reaching nadir weight at 2 years, but at 5 years would weigh 93.9 kg (207 lbs) and have a BMI of 33.4.

During the first year after reaching nadir weight, 9.9% of patients had progression of diabetes; 25.9%, hyperlipidemia; and 46.2%, hypertension. Physical and mental health-related quality of life declined in 20.2% and 27.7%, respectively, of patients during the first year after nadir weight, with a 12.4% decline in satisfaction with surgery. Statistical models were created to assess the relationship between various measures of weight regain and clinical outcomes. Of the various ways to express weight regain, percentage of maximum weight lost had the strongest association and best model fit for most of the clinical outcomes. These findings can guide future investigations of bariatric surgery weight regain by establishing a standard measure and definition for weight regain. Given the importance of curbing the worldwide epidemic of obesity and the number of observational studies and clinical trials that are being conducted regarding weight loss with subsequent weight regain, establishing a standard measure and definition of weight gain that is correlated with important clinical outcomes is particularly important.

The study by King et al⁴ presents valuable information for clinicians providing care for patients who have had bariatric surgery. Although weight regain after surgery affects patient satisfaction, quality of life, and the recurrence of comorbidities, it does not mean that bariatric surgery should be considered unsuccessful. Although there was not a control group for comparison in the LABS study, prior studies have demonstrated improved outcomes (more weight loss, greater improvement in clinical comorbidities) with bariatric surgery compared with medical management.^{1,2} Therefore, the study by King et al⁴ highlights the importance of setting appropriate expectations about weight loss and comorbidity resolution after bariatric surgery and also reinforces the concept that obesity is a chronic disease demanding long-term multidisciplinary care. The weight regain and return of comorbidity highlights the need for careful follow-up and counseling of these patients and early intervention when weight regain occurs.

However, bariatric surgery programs often lack the capacity to provide lifelong follow-up for patients who have had bariatric operations. There is a need to educate primary care clinicians who, on a daily basis, manage patients with obesity, diabetes, hypertension, hyperlipidemia, osteoarthritis, and sleep apnea, and who may also manage patients who have had bariatric surgery. Surgeons who perform bariatric surgery have a responsibility to provide the tools and knowledge to facilitate

primary care management of obesity in the ambulatory setting especially for patients who have undergone these operations. However, primary care clinicians often lack the time, resources, and knowledge needed to provide comprehensive obesity care.^{6,7} Prior experience with managing these patients with complex issues, coupled with limited knowledge about the various procedures and their outcomes, and concerns about complications and the ability to provide aftercare, may inhibit the referral of patients for bariatric surgery.⁸ These observations highlight the need for close collaboration between the surgical and medical communities in managing obesity.

Weight regain after bariatric surgery is a complex problem mediated by interactions between biology, behavior, and the environment. There is no simple solution for this problem.⁹ Nonetheless, early detection and intervention for weight regain may provide the best chance for successfully managing it. The approach for managing weight regain following bariatric surgery requires a systematic evaluation of 3 potential categories of causes: surgical, medical, and behavioral. Although additional surgery is rarely the solution, surgical referral should be considered if patients have substantial increases in their ability to tolerate larger volumes of food, presence of new or severe reflux refractory to medical management, or new ulcers in their gastric pouch. Among patients who have undergone RYGB surgery, these symptoms may be signs of a gastro-gastric fistula that could benefit from surgical intervention.¹⁰

New endocrine problems or medications may cause weight regain. Standard medical evaluation should be pursued for endocrinological diagnoses associated with weight gain such as

hypothyroidism. Medication lists should be reviewed for drugs associated with weight gain such as certain antidepressants, antihistamines, antihypertensives, and medications for diabetes.¹¹ Neurohormonal changes in peptide YY or glucagon-like peptide 1 levels may be associated with weight regain but targeted therapies for these peptides are not yet available.¹² Use of weight loss medications (eg, phentermine and topiramate) may be helpful, especially if given before significant weight regain has occurred.¹³ Behavioral or psychiatric causes for weight regain should be considered and include nutritional nonadherence and untreated psychiatric conditions. These diagnoses are often associated with each other and treatment of psychiatric problems may improve diet compliance. When poor dietary habits are the cause of weight regain, referral to a dietitian or lifestyle modification program may prove beneficial.¹³ In addition to optimal pharmacotherapy for existing or new psychiatric diagnoses, a mental health professional may use psychotherapy to help treat maladaptive eating behaviors.¹⁴

The study by King et al⁴ has clear implications for understanding weight loss trajectories after gastric bypass surgery. Although some postoperative weight regain and progression of comorbidities is expected, bariatric surgery remains the most effective treatment for obesity and its related health conditions. Therefore, it is important for clinicians to understand what to expect from bariatric surgery, provide postoperative care for these patients in a multidisciplinary setting, and manage patient expectations appropriately to ensure the best possible outcomes for patients with obesity.

ARTICLE INFORMATION

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