

ADVANCES IN GERD

Current Developments in the Management of Acid-Related GI Disorders

Section Editor: Joel E. Richter, MD

Treatment of Gastroesophageal Reflux Disease in Obese Patients

Lee M. Kaplan, MD, PhD
Associate Professor of Medicine
Director, MGH Weight Center
Massachusetts General Hospital
Harvard Medical School

G&H What is the current understanding of the association between obesity and GERD?

LK It has been known for quite some time that people who are overweight (body mass index [BMI] of 25–30 kg/m²) or obese (BMI >30 kg/m²) have an increased prevalence of gastroesophageal reflux disease (GERD). The primary mechanism for this association has been thought to be largely structural, as the weight of abdominal fat in individuals with obesity puts pressure on the stomach, causing an increased tendency to gastroesophageal reflux. Although this mechanism is logical and widely accepted, we now recognize that there may be additional mechanisms for the association between obesity and GERD. Among the many metabolic and pathophysiologic effects of obesity (eg, fatty liver disease, gallstones, diabetes, hypertension, clotting disorders), obesity may also alter the physiologic function of the lower esophageal sphincter and/or esophageal motility. In either case, the prevalence of GERD, detected clinically or determined physiologically, is increased in individuals with an elevated BMI.

G&H Given the association between obesity and GERD, what are the most effective treatment options in these patients?

LK The ultimate goal in treating GERD in patients with obesity is weight loss. After significant weight loss, most GERD that was previously uncontrollable will either become controllable with medication or resolve completely. On a population basis, the most effective treatment for obesity is lifestyle change, including a healthier

diet, smaller portion sizes to decrease caloric intake, and increased physical activity. It is true that increased physical activity is associated with increased energy expenditure acutely, but the main benefit of increased physical activity is the resulting change in body composition to increase the ratio of muscle to fat. Since muscle is far more metabolically active than fat, this exercise-associated change in body composition leads to an ongoing increase in energy expenditure at all times, even at rest.

The benefit of diet and exercise notwithstanding, this approach has only limited effectiveness in most obese people, particularly those with moderate or severe obesity (BMI >35 kg/m²). Although up to 75% of people with obesity lose 10% or more of their body weight on any given attempt, the vast majority will gain it all back (or more) within 5 years. Unfortunately, current pharmacologic therapies add little long-term benefit in the treatment of obesity (though, hopefully, the introduction of combination therapies will improve the effectiveness of medications in the future). Overall, therefore, fewer than 5% of people with obesity experience substantial long-term weight loss. For those who do, the severity of GERD and its associated risks generally improves significantly.

For individuals with obesity who have symptomatic or complicated GERD despite aggressive acid suppression therapy, a more aggressive treatment course is usually recommended. For example, when medically treated GERD is severe and unremitting in its symptoms, is associated with worsening Barrett esophagus, or is associated with esophagitis or stricturing, gastric bypass surgery should be considered.

G&H Could you expand on the roles of gastric bypass and gastric banding in the treatment of patients with obesity and GERD?

LK In gastric bypass, a small pouch is created from the gastric fundus, isolated from the remainder of the stomach and anastomosed to the midjejunum. After this procedure, ingested food passes from the esophagus into the gastric

pouch and then directly into the jejunum, bypassing most of the stomach and the proximal small bowel.

Gastric bypass has two beneficial effects on GERD. Most importantly, it causes profound weight loss, with an average loss of two thirds of an individual's excess body weight. This effect dramatically reduces the risk and severity of GERD. In addition, the gastric pouch created as part of the bypass contains little acid-producing mucosa, and the pH of fluid in the pouch is generally above 5.0. Reflux in individuals who have undergone gastric bypass, if it occurs at all, generally consists of pH-neutral material or, in rare cases, bile. As a result, residual reflux after this operation is less likely to produce symptoms or pathologic sequelae. Overall, gastric bypass leads to resolution, or near resolution, of reflux symptoms in most patients.

Gastric banding partially constricts a segment of the proximal stomach and slows the emptying of the pouch above the constriction, slowing motility through the stomach. As with gastric bypass, weight loss after gastric banding has a strongly beneficial effect on GERD. If the gastric band is adjusted so that it is too tight, however, there is a risk of increased reflux due to outflow obstruction to the pouch. This reflux would likely be acidic, as the acid-producing component of the stomach is not altered or removed from the alimentary path. Patients who do not lose much weight after this procedure tend to have their bands progressively tightened, which can result in an increased risk of reflux both from their continued obesity and from pouch outflow obstruction. Under these circumstances, chronically elevated pouch pressures can lead to esophageal dysmotility, even in the absence of symptomatic reflux.

G&H In patients who have undergone gastric bypass, is there any danger in treatment with PPIs?

LK There is no reason for these patients to avoid proton pump inhibitors (PPIs). In fact, many surgeons and gastroenterologists prescribe PPIs in the postoperative period in an attempt to prevent ulceration and bleeding in the distal gastric remnant (which is no longer part of the alimentary flow and is less easily accessible endoscopically). Although most patients have a pH-neutral gastric pouch, in approximately 5%, the pouch is acidic. In those cases, any associated reflux would also be acidic and PPIs would certainly be beneficial. Typically, when I perform upper endoscopy in patients who have undergone gastric bypass, I measure the pH contents of their gastric pouch. If the contents are acidic, I always use PPIs to treat GERD or mucosal ulceration. If the contents are pH-neutral, I typically do not use PPIs to treat these disorders, opting instead for sucralfate suspension. If the patients have reflux symptoms, I evaluate them for the possibility of bile reflux

and will consider a bile-acid binder as both a diagnostic and therapeutic intervention.

G&H Are any of the standard endoscopic or surgical treatments for GERD an option for treating patients with obesity?

LK Nissen fundoplication, a common surgical procedure for GERD, has been demonstrated in several studies to be a far less effective treatment in patients with obesity. Accordingly, in many centers, including our own, patients with obesity who are referred for Nissen fundoplication or other surgical treatments of GERD are typically referred for consideration of weight loss surgery. We consider severe and refractory GERD an important indication for gastric bypass, and many health insurance plans provide coverage for bariatric surgery performed for this indication. The most common medical indications for gastric bypass surgery include diabetes mellitus, sleep apnea, cardiovascular disease, and severe orthopedic complications. For patients with less severe complications of obesity, the additional presence of severe GERD can be an important consideration when determining whether to recommend weight loss surgery.

Most of the endoscopic treatments for GERD remain controversial, with their initial promise not confirmed in later studies. Moreover, as with antireflux surgery, one would expect that these procedures would work even less well in patients with obesity. Obesity, particularly severe obesity, is thus a relative contraindication to both endoscopic and surgical management of GERD.

G&H Are there any other special concerns when treating obese patients with GERD?

LK GERD appears to be generally more severe in patients with obesity than in thinner individuals. Obesity is associated with a substantially increased risk of esophageal adenocarcinoma, presumably as a result of the increased prevalence and severity of GERD. Obesity is also associated with an increased risk of esophagitis and Barrett esophagus, which likely contribute to the increased risk of adenocarcinoma in this population.

Given the important association of obesity and GERD and the risks of GERD itself, it is vital to ensure that patients with obesity and GERD are diagnosed, treated, and followed-up appropriately. Remarkably, patients with obesity are often less likely to be screened, diagnosed, or treated for the very disorders that are specifically associated with obesity. We recently found that one third of patients with severe obesity and GERD are undiagnosed or untreated at the time of their referral to our obesity treatment center. Thus, there appears to be a large number

of patients with obesity who have GERD but who are not adequately treated for it. Unfortunately, underdiagnosis and undertreatment in this population are not unique to GERD; patients with severe obesity, despite being at high risk for several cancers and other metabolic diseases, are screened at a lower rate and are often diagnosed later than normal-weight individuals.

Another concern about GERD in patients with obesity relates to potential effects of reflux on respiratory function. Particularly in patients with sleep apnea, asthma, or other obesity-related respiratory disorders, GERD-related laryngeal or airway disease can be particularly problematic.

Finally, it is important that all physicians, gastroenterologists in particular, be aware of the relationships among obesity, GERD, and the complications of GERD, as well as the implications of the different types of bariatric surgery on GERD and its treatment. Obesity is a significant problem. Two thirds of the adult population in the United States is overweight. Half of these individuals (one third of the total adult population) are obese, and the severity of obesity in this group continues to increase over time. As a result, use of bariatric surgery has increased dramatically. (It is now performed in approximately 200,000 patients per year in the United States.) In addition, one sixth of all children and adolescents in the United States are obese, and that number is growing as well. We previously thought that obesity was a problem in children primarily because of the increased risk of developing later complications. Unfortunately, we now know that many of the diseases of adulthood associated with obesity (eg, diabetes, sleep apnea, fatty liver disease, as well as severe GERD) are increasingly observed among children and adolescents with obesity. We need to consider both diagnosis and treatment of GERD in a much younger population when obesity is present.

G&H What are the next steps for future research in this area?

LK Several important areas of research remain to be explored. We need to identify predictors of more aggressive disease and complications of GERD in patients with obesity. We know that there is an increased risk of esopha-

geal adenocarcinoma, but it is not clear whether this is primarily due to the increased prevalence of reflux, the increased reflux severity in this population, the increased tendency to inflammation in patients with obesity, or other metabolic effects of obesity. From a therapeutic perspective, the appropriate use and dosing of PPIs in patients with obesity, particularly severe obesity, needs further investigation. We also need to understand more about the mechanisms by which obesity leads to GERD, including the potential effects of obesity on esophageal motility and lower esophageal sphincter function. Additional studies are needed to determine appropriate screening, diagnosis, and treatment paradigms for GERD in patients with obesity. Our impression is that the rates of diagnosis and treatment of GERD are lower in patients with obesity despite their increased risk. It would be worthwhile to examine this issue in more detail to ensure that individuals at a higher risk of GERD are being evaluated and treated appropriately. With respect to GERD and the effects of weight loss surgery, much work remains to be done. For gastric banding, it would be valuable to be able to prospectively identify patients at high risk for postoperative reflux or esophageal dysfunction. In the case of gastric bypass, studies are needed to elucidate the pathophysiology and appropriate clinical management of pH-neutral reflux, including the effects of gastric enzymes, bile, and other caustic agents on the integrity and function of the esophageal mucosa. Such studies could also have implications for the evaluation and management of other patients with PPI-resistant GERD.

Suggested Reading

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