COMMENTARY

Bariatric Surgery: Safe, Effective, and Underutilized

Oliver A. Varban, MD; Justin B. Dimick, MD, MPH

(Fam Med. 2019;51(7):552-4.)
doi: 10.22454/FamMed.2019.289449

Obesity is a diagnosis hiding in plain sight. Nearly 40% of adults in the United States are suffering from obesity along with numerous weight-related comorbidities, including diabetes, hypertension, hyperlipidemia, obstructive sleep apnea, nonalcoholic fatty liver disease, and even cancer.[1-4] Patients with obesity who are hospitalized for medical conditions or undergo invasive procedures have higher rates of complications and longer hospitalizations, resulting in a significant burden to health care resources.[5-7] Obesity also affects mobility, quality of life, and productivity; and severe obesity can reduce life expectancy by an estimated 5 to 20 years.[2,8] It has been over a decade since the World Health Organization formally recognized obesity as a global epidemic and despite advances in modern medicine, obesity rates have not improved. So, given the importance of treating a disease with such widespread impact, how is it that the most effective intervention—bariatric surgery—is also the most underutilized?

Sleeve gastrectomy and gastric bypass are the two most common bariatric procedures performed today and both result in superior and durable weight loss, a reduction in medical comorbidities, as well as a mortality benefit when compared to lifestyle and behavioral changes alone.[9-11] Two recent randomized clinical trials published in the *Journal of the American Medical Association* reported comparable weight loss for sleeve gastrectomy and gastric bypass at 5 years (49% vs 57% excess body weight loss and 61% vs 68% excess body mass index loss, respectively).[12,13] Additionally, both procedures induced complete and partial remission of type 2 diabetes (37% after sleeve gastrectomy and 45% after gastric bypass) as well as medication discontinuation for dyslipidemia (47% after sleeve gastrectomy 60% after gastric bypass) and hypertension (29% for sleeve gastrectomy and 51% for gastric bypass) in their patient population. In addition to weight loss, there is growing evidence indicating that bariatric surgery has weight-independent effects on glucose homeostasis as well as microvascular disease progression among diabetics, which is being coined as the "legacy effect."[14] With the advent of minimally invasive techniques, perioperative complication rates and surgical mortality after bariatric surgery have also improved significantly over the past 2 decades.[15] At present, the operative risks for sleeve gastrectomy and gastric bypass are lower than those typically associated with gallbladder or hip replacement surgery. And yet, despite its proven benefits and safety profile, only 0.4% of patients who qualify based on National Institutes of Health (NIH) criteria actually undergo bariatric surgery.[16] This statistic is alarming when you consider the health benefits of bariatric surgery juxtaposed with the ever-worsening obesity epidemic.

The underutilization of bariatric surgery is largely related to a malalignment of treatment paradigms, insurance policies, and public perception. Consider that the current NIH criteria for bariatric surgery referral includes patients with a body mass index (BMI) of over 40 kg/m^2 or 35 kg/m^2 plus weight-related comorbidities. In addition, patients are required to commit to following lifelong healthy eating

From the University of Michigan Hospital, Department of Surgery, Ann Arbor, MI (Dr Varban); and the University of Michigan Health System, Department of Surgery, Ann Arbor, MI (Dr Dimick).

and physical activity habits, medical follow-up, and have also failed nonsurgical methods of weight loss such as medications and/or lifestyle and behavioral changes. Although these criteria appear reasonable, they have created a fundamental paradox that has permeated all aspects of obesity care.

First, BMI is not a consistent measure of obesity or health within a diverse patient population. BMI does not differentiate between ratio of muscle or fat, or account for differences in age, race, or gender.[17] Also, comorbid conditions such as metabolic syndrome may arise at a different BMI among individuals, which may result in disparities of care for some or a need to demedicalize obesity as a disease in others. Second, measuring a patient's compliance to a commitment of lifelong healthy habits is complex and there are no clear measures that can predict future behavior, particularly after surgery. This concept has allowed insurance carriers to fashion arbitrary and highly variable barriers to bariatric surgery coverage by imposing documented monthly medically supervised weight loss.[18] And so, a patient may be required to undergo monthly visits for 3, 6, or 12 months and may also be required to maintain or lose a specific amount of body weight solely based on their type of insurance, with no regard for prior attempts at weight loss or ongoing medical conditions. To add to the confusion, some insurance carriers may waive the preoperative weight loss requirement altogether if the patient's starting BMI is 50 kg/m^2, which incentivizes late referral for bariatric surgery and sabotages successful outcomes as the likelihood of patients achieving a BMI greater than 30 kg/m^2 is less than 9% in this patient population.[19] Finally, considering bariatric surgery only after all treatments have failed further labels it as the treatment of last resort, which biases patients and clinicians to seek referral only in extreme cases. This bias persists when reviewing clinical guidelines for referral. Consider that the United States Preventative Services Task Force along with the American Heart Association, American College of Cardiology and the Obesity Society, and the American Diabetes Associate continue to place bariatric surgery behind all other treatment methods even though grade A evidence exists.[20]

To exacerbate the situation, treating obesity also exposes significant issues with delivery of multidisciplinary care in a broad, diverse, and dispersed population, while maintaining fiscal sustainability. Obesity is a chronic disease that cannot be treated in a vacuum and requires input from multiple providers including primary care practitioners (PCPs), interventionalists, dietitians, behaviorists, psychologists, advanced practice providers, and nurses. In a study by Fitzpatrick and Stevens, most patients did not receive the type of behavioral interventions that complies with the evidence that demonstrates its effectiveness.[21] Moreover, they reported that obesity management in primary care settings remains suboptimal, with an underdiagnoses of obesity compounded with a decline in weight management counseling from 33% in 2008-2009 to 21% in 2012-2013. In contrast, the up-front costs of bariatric surgery are high, and insurers recover the costs of bariatric surgery after 2 to 4 years.[22] The overall cost-effectiveness ratios for bariatric surgery can vary between $5,000 and $16,100 per quality-adjusted life year (QALY) for women and $10,000 and $35,600 per QALY, for men.[23] It is also important to note that bariatric surgery is not covered in all states, wait times are increasing, and patients report their health worsened during this waiting period.[24-26] Such barriers of care would be appalling for any disease process and yet it persists for obesity, either as an acceptable form discrimination or a failure to consider obesity as a disease.

Now more than ever, patients suffering from obesity are in dire need for health care advocacy. Herein lies an opportunity for bariatric surgeons and PCPs to unite on their behalf. Bariatric surgeons are well aware of the health benefits of surgery, but surgical practices are ill-equipped to manage patients long-term and are also dependent on referrals in order to capture ideal candidates. Meanwhile, PCPs serve as the primary point of contact for patients, but are faced with multiple challenges when managing obesity in the ambulatory setting, often with little resources or guidance. As such, PCPs who align their practices with bariatric surgery programs serve to create a multifaceted environment that allows patients to engage in a range of interventions for obesity, including earlier evaluations for surgery along with appropriate long-term follow up to assess impact and success of treatments. Joint partnerships also stand to benefit from national and state-wide bariatric-specific clinical registries that can be used to engage in collaborative public health initiatives. To date, the Metabolic and Bariatric Surgery Accreditation and Quality Improvement Program has a data registry that includes over 1.3 million bariatric cases and was involved in over 60 quality improvement activities in 2017 alone.

At the state level, organizations like Michigan Bariatric Surgery Collaborative have used such data registries over the past decade for a multitude of innovative projects, including a bariatric surgery outcomes calculator that predicts patient-specific weight loss and complication rates based on 24 different variables. So, although it may seem like an unlikely duo, a partnership led by PCPs and bariatric surgeons may be the spark necessary to create a paradigm change that results in a multipronged, patient-centered approach to the obesity epidemic.

CORRESPONDING AUTHOR: Address correspondence to Dr Justin Dimick, University of Michigan Health System, 926 Taubman Center 1500 E Medical Center Dr, Ann Arbor, MI 48109. jdimick@med.umich.edu.

References

1. De Pergola G, Silvestris F. Obesity as a major risk factor for cancer. J Obes. 2013;2013:291546.
2. Flegal KM, Williamson DF, Pamuk ER, Rosenberg HM. Estimating deaths attributable to obesity in the United States. Am J Public Health. 2004;94(9):1486-1489.
3. Hales CM, Fryar CD, Carroll MD, Freedman DS, Ogden CL. Trends in obesity and severe obesity prevalence in US youth and adults by sex and age, 2007-2008 to 2015-2016. JAMA. 2018;319(16):1723-1725.
4. Pantalone KM, Hobbs TM, Chagin KM, et al. Prevalence and recognition of obesity and its associated comorbidities: cross-sectional analysis of electronic health record data from a large US integrated health system. BMJ Open. 2017;7(11):e017583.
5. Padwal RS, Wang X, Sharma AM, Dyer D. The impact of severe obesity on post-acute rehabilitation efficiency, length of stay, and hospital costs. J Obes. 2012;2012:972365.
6. Sood A, Abdollah F, Sammon JD, et al. The effect of body mass index on perioperative outcomes after major surgery: results from the National Surgical Quality Improvement Program (ACS-NSQIP) 2005-2011. World J Surg. 2015;39(10):2376-2385.
7. Zizza C, Herring AH, Stevens J, Popkin BM. Length of hospital stays among obese individuals. Am J Public Health. 2004;94(9):1587-1591.
8. Fontaine KR, Redden DT, Wang C, Westfall AO, Allison DB. Years of life lost due to obesity. JAMA. 2003;289(2):187-193.
9. Arterburn D, Wellman R, Emiliano A, et al; PCORnet Bariatric Study Collaborative. Comparative effectiveness and safety of bariatric procedures for weight loss: a PCORnet cohort study. Ann Intern Med. 2018;169(11):741-750.
10. Ikramuddin S, Korner J, Lee WJ, et al. Lifestyle intervention and medical management with vs without Roux-en-Y gastric bypass and control of Hemoglobin A1c, LDL cholesterol, and systolic blood pressure at 5 years in the Diabetes Surgery Study. JAMA. 2018;319(3):266-278.
11. Jakobsen GS, Småstuen MC, Sandbu R, et al. Association of bariatric surgery vs medical obesity treatment with long-term medical complications and obesity-related comorbidities. JAMA. 2018;319(3):291-301.
12. Peterli R, Wölnerhanssen BK, Peters T, et al. Effect of laparoscopic sleeve gastrectomy vs laparoscopic Roux-en-Y gastric bypass on weight loss in patients with morbid obesity: the SM-BOSS randomized clinical trial. JAMA. 2018;319(3):255-265.
13. Salminen P, Helmiö M, Ovaska J, et al. Effect of laparoscopic sleeve gastrectomy vs laparoscopic Roux-en-Y gastric bypass on weight loss at 5 years among patients with morbid obesity: the SLEEVEPASS randomized clinical trial. JAMA. 2018;319(3):241-254.
14. Coleman KJ, Haneuse S, Johnson E, et al. Long-term microvascular disease outcomes in patients with type 2 diabetes after bariatric surgery: evidence for the legacy effect of surgery. Diabetes Care. 2016;39(8):1400-1407.
15. Flum DR, Belle SH, King WC, et al; Longitudinal Assessment of Bariatric Surgery (LABS) Consortium. Perioperative safety in the longitudinal assessment of bariatric surgery. N Engl J Med. 2009;361(5):445-454.
16. Martin M, Beekley A, Kjorstad R, Sebesta J. Socioeconomic disparities in eligibility and access to bariatric surgery: a national population-based analysis. Surg Obes Relat Dis. 2010;6(1):8-15.
17. Romero-Corral A, Somers VK, Sierra-Johnson J, et al. Accuracy of body mass index in diagnosing obesity in the adult general population. Int J Obes. 2008;32(6):959-966.
18. Kim JJ, Rogers AM, Ballem N, Schirmer B; American Society for Metabolic and Bariatric Surgery Clinical Issues Committee. ASMBS updated position statement on insurance mandated preoperative weight loss requirements. Surg Obes Relat Dis. 2016;12(5):955-959.
19. Varban OA, Cassidy RB, Bonham A, Carlin AM, Ghaferi A, Finks JF; Michigan Bariatric Surgery Collaborative. Factors associated with achieving a Body Mass Index of less than 30 after bariatric surgery. JAMA Surg. 2017;152(11):1058-1064.
20. Jensen MD, Ryan DH, Apovian CM, et al; American College of Cardiology/American Heart Association Task Force on Practice Guidelines; Obesity Society. 2013 AHA/ACC/TOS guideline for the management of overweight and obesity in adults: a report of the American College of Cardiology/American Heart Association Task Force on Practice Guidelines and The Obesity Society. J Am Coll Cardiol. 2014;63(25 Pt B):2985-3023.
21. Fitzpatrick SL, Wischenka D, Appelhans BM, et al; Society of Behavioral Medicine. An evidence-based guide for obesity treatment in primary care. Am J Med. 2016;129(1):115.e1-115.e7.
22. Cremieux PY, Buchwald H, Shikora SA, Ghosh A, Yang HE, Buessing M. A study on the economic impact of bariatric surgery. Am J Manag Care. 2008;14(9):589-596.
23. Craig BM, Tseng DS. Cost-effectiveness of gastric bypass for severe obesity. Am J Med. 2002;113(6):491-498.
24. Alvarez R, Bonham AJ, Buda CM, Carlin AM, Ghaferi AA, Varban OA. Factors associated with long wait times for bariatric surgery. Ann Surg. 2018;1.
25. Flanagan E, Ghaderi I, Overby DW, Farrell TM. Reduced survival in bariatric surgery candidates delayed or denied by lack of insurance approval. Am Surg. 2016;82(2):166-170.
26. Vanek VW. State laws on insurance coverage for bariatric surgery: help or a hindrance? Surg Obes Relat Dis. 2005;1(4):424-429.