There was no difference in the Laval questionnaire for the quality of life between the 2 groups, but patients with the longer alimentary limb had significantly less gastrointestinal side effects, including annoyance with gas and number of stools a day, which is likely to contribute to a better quality of life. Indeed, patients in the study group complained more about constipation than diarrhea.

The main limitation of our study is the small sample of patients combined with a low rate of complications, making it impossible to come to statistically significant conclusions. Nonetheless, our study has the advantage of being a randomized control trial limiting the occurrence of potential bias. We are also aware that this is a short follow-up time; we could have missed complications that appear later and we cannot draw conclusions about weight regain, but a longer follow-up is planned. In addition, we plan to recruit more patients to assess the long-term benefits of a longer strict alimentary limb now that we have a better understanding of the short-term outcomes of this new procedure.

Conclusion

In this randomized pilot study, weight loss was lesser in the LADS group compared with the standard BPD-DS group, but there was no difference regarding the remission of co-morbidities. There were also less abdominal adverse events in the study group and the need for vitamin supplementation was lower. Finally, a longer follow-up is necessary to evaluate both the long-term weight loss and nutritional deficiencies between the study group and control.

Disclosures

The authors have no commercial associations that might be a conflict of interest in relation to this article.

Acknowledgments

The authors thank Paule Marceau and Manon Boisvert, research assistants and Suzy Laroche, research nurse, for the collection and verification of the data.

References

[1] Public Health Agency of Canada Obesity in Canada [monograph on the Internet]. A joint report from the public health agency of Canada

- and the Canadian institute for health information 2011. Ottawa: Government of Canada Publications, 2011. [cited Year mo day]. Available from http://www.healthyenvironmentforkids.ca/sites/healthyenvironmentforkids.ca/files/Obesity_in_Canada.pdf.
- [2] Janssen Ian. The public health burden of obesity in Canada. Can J Diabetes 2013;37(2):90–6.
- [3] Fouse T, Schauer P. The socioeconomic impact of morbid obesity and factors affecting access to obesity surgery. Surg Clin N Am 2016;96(4):669–79.
- [4] Buchwald H, Avidor Y, Braunwald E, et al. Bariatric surgery: a systematic review and meta-analysis. JAMA 2004;292(14):1724–8.
- [5] Padwal R, Klarenbach S, Wiebe N, et al. Bariatric surgery: a systematic review and network meta-analysis of randomized trials. Obes Rev 2011;12(8):602–21.
- [6] Marceau P, Biron S, Hould FS, et al. Duodenal switch: long-term results. Obes Surg 2007;17(11):1421–30.
- [7] Fouse T, Brethauer S. Resolution of comorbidities and impact on longevity following bariatric and metabolic surgery. Surg Clin North Am 2016;96(4):717–32.
- [8] Biertho L, Lebel S, Marceau S, Hould F-S, Julien F, Biron S. Biliopancreatic diversion with duodenal switch: surgical technique and perioperative care. Surg Clin North Am 2016;96(4):815–26.
- [9] Therrien F, Marceau P, Turgeon N, Biron S, Richard D, Lacasse Y. The Laval questionnaire: a new instrument to measure quality of life in morbid obesity. Health Oual Life Outcomes 2011;9(66):1–8.
- [10] Brethauer SA, Kim J, Chaar M, et al. for the ASMBS Clinical Issues Committee. Standardized outcomes reporting in metabolic and bariatric surgery. Surg Obes Relat Dis 2015;11(3):489–506.
- [11] Hamoui N, Anthone GJ, Kaufman HS, Crookes PF. Maintenance of weight loss in patients with body mass index > 60 kg/m2: importance of length of small bowel bypassed. Surg Obes Relat Dis 2008; 4(3):404-6
- [12] McConnell DB, O'Rourke RW, Deveney CW. Common channel length predicts outcomes of biliopancreatic diversion alone and with the duodenal switch surgery. Am J Surg 2005;189(1):536–40.
- [13] Lebel S, Dion G, Marceau S, Biron S, Robert M, Biertho L. Clinical outcomes of duodenal switch with a 200-cm common channel: a matched, controlled trial. Surg Obes Relat Dis 2016;12 (5):1014–20.
- [14] Sánchez-Pernaute A, Herrera MAR, Pérez-Aguirre E, et al. Proximal duodenal—ileal end-to-side bypass with sleeve gastrectomy: proposed technique. Obes Surg 2007;17(12):1614–8.
- [15] Sánchez-Pernaute A, Herrera MA, Pérez-Aguirre ME, et al. Single anastomosis duodeno-ileal bypass with sleeve gastrectomy (SADI-S). One to three-year follow-up. Obes Surg 2010;20(12):1720–6.
- [16] Sánchez-Pernaute A, Rubio MA, Aguirre EP, Barabash A, Cabrerizo L, Torres A. Single-anastomosis duodenoileal bypass with sleeve gastrectomy: metabolic improvement and weight loss in first 100 patients. Surg Obes Relat Dis 2013;9(5):731–5.
- [17] Cottam A, Cottam D, Portenier D, et al. A matched cohort analysis of stomach intestinal pylorus saving (SIPS) surgery versus biliopancreatic diversion with duodenal switch with two-year follow-up. Obes Surg. 2017;27(2):454–61.

Editorial comment

Comment on: long alimentary limb duodenal switch (LADS) - a short-term prospective randomized trial

At most surgical meetings, presenters lament the lack of randomized blinded data present in the literature. The usual refrain is that these studies are hard to perform and very expensive. This is all true; however, Dr. Laurent Biertho

and his colleagues have shown that it is possible to answer important questions in a randomized blinded fashion in surgery without multimillion-dollar grants or industry support. Their study comparing the effects of a longer alimentary limb in biliopancreatic diversion with duodenal switch (DS) with the standard alimentary limbs of the biliopancreatic diversion with DS procedure is meant to take a small step to discover the appropriate limb lengths in malabsorption procedures. Said simply, does limb length matter?

To do this, Biertho et al. increased the alimentary limb from 150 cm to approximately 569 cm while leaving a 100-cm common channel. They then randomized the groups in a 1:1 fashion and compared them with a standard duodenal switch with 100-cm common channel and 150-cm Roux limb. It is no surprise to those of us who study and perform DS surgery that at 1 year there was a difference in the excess weight loss, vitamin absorption, and fat malabsorption—associated complaints (diarrhea, gas, bloating, and use of pancreatic enzymes) between the 2 groups. Limb lengths do matter to weight loss and almost everything else, and we finally have randomized blinded data to prove it.

However, the most powerful message from this paper to those who perform any malabsorption surgery is that conscientious surgeons cannot perform the same operation for every patient who walks into the office. How much intestinal length is used will affect the patient's lifelong quality of life. For patients who have a body mass index <50 without diabetes, performing a standard DS clinically makes no sense.

Conversely, for patients with a body mass index > 50, if they are given a long alimentary limb, they will not achieve the same level of weight loss as those with short alimentary limbs. This should make all bypass surgeons who only do 1 length of Roux limb stop and consider whether this approach seriously undertreats a large segment of their population. Patients should be educated about the trade-offs with different limb lengths in terms of weight loss, side effects, and co-morbidity resolution.

As we have engaged patients in our own practice in this discussion, most patients grasp these concepts and are able to make informed choices. While these choices may not be what we think they should be in every situation, the patients then own their choices and become more active participants in the postoperative process. This should be a wake-up call to those who only perform 1 operation (sleeve-only surgeons) or only 1 version of 1 operation. While this approach benefits the surgeon, it is harmful to the health of the patient.

Some may read this paper and say it only has 1-year follow-up and there are too few patients. It is true that the complication data of 20 patients is meaningless, but the differences in vitamin requirements, gastrointestinal complaints, and weight loss are too large to be ignored, even in this small cohort.

In terms of follow-up, the 1-year time frame will stop some from drawing conclusions, saying it is too soon, but the Quebec group has proven, in their over 20 years of publications, that the DS is a remarkably consistent operation and the results of co-morbidity resolution and weight loss do not change remarkably from the first year to year 5, 10, and 20. That being said, we are still anxiously looking forward to their presentation of their 3- and 5-year data.

Daniel Cottam, M.D. Hinali Zaveri, M.D. Amit Surve, M.D. Bariatric Medicine Institute Salt Lake City Utah