



Invited Commentary | Surgery

Metabolic Surgery in Patients With High BMI and Obesity

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In *JAMA Network Open*, Salte et al¹ compared 10-year outcomes following Roux-en-Y gastric bypass (RYGB) and duodenal switch (DS) in a randomized clinical trial performed in Norway and Sweden. Follow-up was completed in 48 of 60 patients (80%). In short, the total weight loss was greater after DS (33.9% of baseline weight) compared with RYBP (20.0% of baseline weight), corresponding to a difference in body mass index (BMI; calculated as weight in kilograms divided by height in meters squared) of 9.3, which is substantial. However, the total number of adverse events was higher after DS and more patients in the DS group developed vitamin deficiencies. Three of 29 patients in the DS group (10%) underwent revisional surgery due to protein-caloric malnutrition. The results led the authors to conclude that DS may not be a better surgical strategy than RYGB for patients with a BMI of 50 to 60.

Metabolic surgery, in the form of laparoscopic gastric bypass and sleeve gastrectomy, has become routine care in the treatment of severe obesity (BMI ≥ 35).² However, in the study cohort with a BMI of 50 or greater, there is no consensus concerning the most suitable procedure. Although RYGB has excellent results on weight loss and remission of comorbidities, the effect can be insufficient in this weight class. Some surgeons therefore advocate DS, a truly malabsorptive procedure introduced by Hess and Hess.³ A DS consists of 2 parts: (1) a sleeve gastrectomy, mechanically reducing food intake, and (2) exclusion of a larger part of the proximal small intestine. This double-working mechanism—limiting the amount of food you can eat and then reducing the absorption of the ingested nutrients—results in massive weight loss. In turn, a high remission rate of obesity-related diseases, especially type 2 diabetes and dyslipidemia, is seen.

As demonstrated by Salte et al,¹ these benefits come at a cost. The most common drawbacks are vitamin and mineral deficiencies as well as various gastrointestinal tract adverse effects such as acid reflux, diarrhea, and foul-smelling flatus. In addition, hypoproteinemia with edemas can occur. Thus, DS requires a much more rigid follow-up program than RYGB. If any severe symptoms persist despite dietary advice and pharmacological treatment, it is easy to revise a DS by performing a proximal entero-entero anastomosis.³ This will create a parallel connected system of the small bowel, in which nutrients and enzymes will be mixed just below the ligament of Treitz and results in vast improvement of nutritional status and reversal of most complications.³ However, weight regain will follow, despite the remaining sleeve gastrectomy component.

Using a similar operative technique for both procedures, RYGB with a 150-cm alimentary limb and a 1-stage DS with a 150-cm alimentary limb (here 200 cm) and a 100-cm common channel, Möller et al⁴ reached results like those of Salte et al¹ in an almost identical randomized clinical trial. At 15 years, the previous study reported somewhat higher total weight loss (22.8% [vs 20.0% at 10 years] for RYGB and 37.5% [vs 33.9% at 10 years] for DS), but otherwise agrees that DS results in superior weight loss at the cost of more adverse events.⁴ However, in contrast to Salte et al,¹ the metabolic control observed by Möller et al⁴ is more encouraging; for example, no patient in the DS group was treated for type 2 diabetes at follow-up. The extremely high remission rate in type 2 diabetes has been reported previously.³ In contrast to DS, most patients undergoing RYBG with an initial BMI of 50 to 60 or more will not reach a BMI below 40, a weight situation eligible for primary metabolic surgery. This is of great concern, as obesity was associated with a reduced life expectancy by 6.5 years when comparing a cohort of patients whose BMI was 40.0 to 44.9 with control participants without overweight.⁵

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The results reported by Salte et al¹ are important because they add another piece to the puzzle of how best to treat patients with very high BMI. Although these patients are in dire need of massive and sustained weight loss to reduce their high incidence of obesity-related diseases, improve their everyday life, and lessen their physical limitations, they should not experience unnecessary lifelong adverse effects. Furthermore, the population of patients with a BMI of 50 or greater, who have a marked reduced life expectancy by 10 to 14 years,⁵ is increasing. In 2007, Strum⁶ reported that the prevalence of BMI of greater than 50 in the US had increased by 75% in 2 decades, that is, 3 times faster than the prevalence of obesity (BMI >30). We can now observe this trend in the rest of the world, and sadly, the younger generation (aged 20-35 years) is most affected.

Even with the advent of effective antiobesity drugs, I am convinced that surgery will be the main line of successful treatment for patients with very high BMI for the foreseeable future. Despite large research efforts like the randomized clinical trial by Salte et al,¹ we still lack clear recommendations on the most suitable metabolic procedure in this patient population. Until we do, person-centered treatment where everyone can make an educated choice about their treatment will be of utmost importance. Finally, surgical care must be provided without stigma and be of the highest quality, especially in this complex patient cohort.

ARTICLE INFORMATION

Published: June 3, 2024. doi:[10.1001/jamanetworkopen.2024.14351](https://doi.org/10.1001/jamanetworkopen.2024.14351)

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Conflict of Interest Disclosures: None reported.

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