IMPACT OF TOTAL SMALL BOWEL LENGTH ON WEIGHT LOSS AFTER BARIATRIC SURGERY

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BACKGROUND

Studies have shown that there is great variability in total small bowel length, ranging from 250 cm to 1300 cm. It can be postulated that in bariatric operations which exert their efficacy through bypass of small intestine, bowel length may have significant impact on patient outcomes.

While there are multiple studies that suggest different optimal length of limbs in intestinal bypass bariatric procedures, these studies are not without controversy and have not led to standardization of how bariatric operations are performed. Additionally, the impact of total bowel length on post-operative outcomes remain unclear.

The aim of this study is to assess the relationship between total small bowel length and postoperative weight loss in patients who underwent either Roux-en-Y gastric bypass (RYGB) or vertical sleeve gastrectomy (SG).

METHODS

We prospectively enrolled patients undergoing either RYGB or SG at Vanderbilt University Medical Center from September 2016 to March 2021. For patients who underwent RYGB, a 50 cm biliopancreatic limb and a 125-150 cm alimentary limb were created. Total small bowel length was measured during the operation and recorded into our institution's secure longitudinal data analysis tool. The patients' clinical outcomes were followed. Bowel lengths were divided into quartiles for data analysis. Statistical analysis was performed using Stata/BE, version 17.0.

RESULTS

270 patients' small bowel length were measured.

- 73 patients underwent SG, 197 RYGB.
- The overall range of total small bowel length was 390-930 cm (median = 575 cm).
- The range of total small bowel length was 390-910 cm (median = 580 cm) in patients that underwent RYGB, and 410-930 cm (median = 590 cm) in patients that underwent SG.

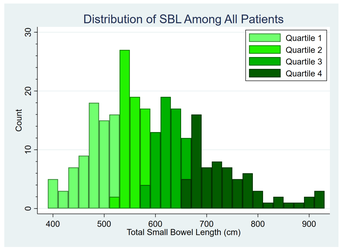


Figure 1.
Small bowel length (SBL) distribution of all patients, divided in quartiles

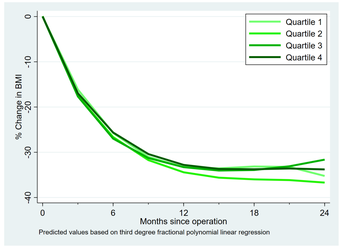


Figure 2a.
Percent change in BMI after RYGB based on small bowel length

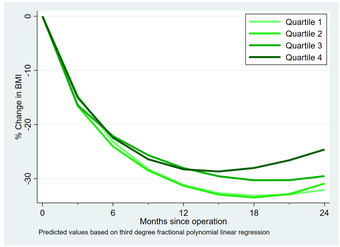


Figure 2b.
Percent change in BMI after SG based on small bowel length

RESULTS (continued)

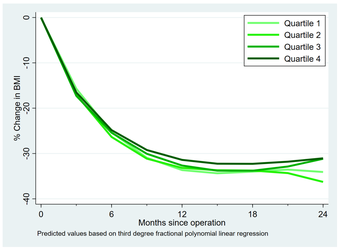


Figure 2c.
Overall percent change in BMI based on small bowel length

Mean follow-up was 22.6 months. Among patients that underwent RYGB or SG, there was no significant difference in weight loss when comparing differences in total bowel length.

CONCLUSION

Despite the significant variability of small bowel length, total small bowel length did not impact overall weight-loss outcomes in patients who have undergone SG or RYGB in our mean follow up period of 22.6 months.

Additional studies are needed to determine differences in postoperative vitamin and mineral deficiencies based on differences in common channel length.

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