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Original article

### Preoperative weight loss in high-risk superobese bariatric patients: a computed tomography-based analysis

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#### Abstract

##### Background

Superobesity, through organomegaly, excessive adiposity, and associated severe co-morbidities, is a recognized risk factor for bariatric surgery. Our study examined the utility of preoperative weight loss with a liquid low-calorie diet (LCD) as a method of risk reduction.

##### Methods

All patients with a body mass index (BMI)  $>50 \text{ kg/m}^2$  were instructed to consume a LCD (800 kcal/d) with the goal of losing  $\approx 10\%$  of their body weight. The co-morbidities were monitored. The abdominal wall depth and cross-sectional areas of subcutaneous

adipose tissue (SAT) at 12 and 20 cm below the costal margin, visceral adipose tissue (VAT), and liver volume were measured, using computed tomography, at baseline and after completion of the LCD. Laparoscopic gastric bypass was performed in all patients.

## Results

The study included 30 patients (27 men and 3 women) with a mean age of 53 years (range 34–53). The mean BMI was reduced from 56 kg/m<sup>2</sup> (range 50–69) at baseline to 49 kg/m<sup>2</sup> (range 43–60) after an average of 9 weeks of the LCD. The VAT decreased from a mean of 388 cm<sup>2</sup> to 342 cm<sup>2</sup>. The abdominal wall depth decreased from 3.6 to 3.2 cm at 12 cm below the costal margin and from 3.7 to 3.4 cm at 20 cm. The mean SAT at both 12 and 20 cm below the costal margin had decreased from 577 cm<sup>2</sup> and 687 cm<sup>2</sup> to 509 cm<sup>2</sup> and 614 cm<sup>2</sup>, respectively. The liver volume was reduced by 18%. All co-morbidities were well controlled at LCD completion. No patient died, and 2 minor complications occurred postoperatively.

## Conclusion

The results of our study have shown that preoperative LCD is a safe and effective tool leading to a significant decrease in liver volume and abdominal wall depth, as well as a reduction in both VAT and SAT. Its use might contribute to improved short-term surgical outcomes in high-risk superobese patients.



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## Keywords

Morbid obesity; Gastric bypass; Bariatric surgery; Low-calorie diet; LCD; High risk

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