

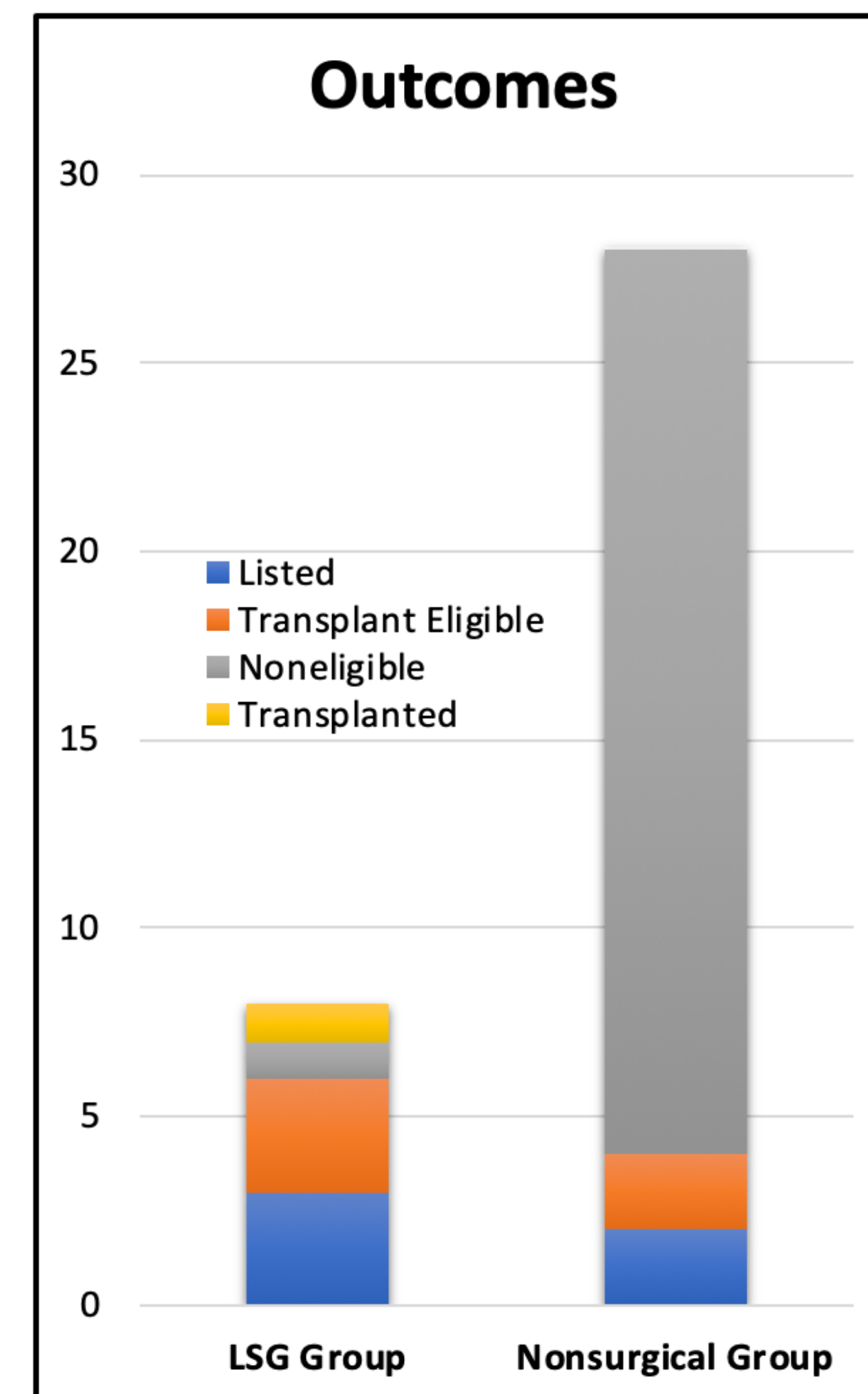
Introduction

- Due to organ shortage, left ventricular assist device (LVAD) therapy has become a standard of care for patients suffering from advanced heart failure. It can be used both as a Bridge to Transplant (BTT) or as Destination Therapy (DT). Patients who have contraindications for heart transplant undergo LVAD implantation as destination therapy.
- At most centers, obesity (BMI >35kg/m²) remains a contraindication for heart transplantation.
- The primary goal of this study is to demonstrate that laparoscopic sleeve gastrectomy (LSG) is a safe and viable option for weight loss in patients with LVAD support.
- The secondary goal was to assess whether weight loss after bariatric surgery in this patient population is sufficient to achieve eligibility for heart transplantation.

Methods

- Retrospective review was performed identifying 36 patients with LVAD who were excluded from heart transplant eligibility due to obesity between 2010 and 2020 at our institution.
- 8 of these patients underwent laparoscopic sleeve gastrectomy after approval by a multidisciplinary committee.
- Perioperative outcomes for these eight patients including pre and post-operative BMI, heart function, post LSG length of stay, operative time, post LSG complications, transfusion requirements, and time to heart transplant listing were collected and evaluated.

Results



LVAD Bariatric Surgery Anticoagulation Protocol
1. Last dose of aspirin and warfarin should be Wednesday/Thursday night and patient admitted on the morning of Thursday/Friday.
2. Start IV Heparin with a goal PTT of 45-54.
3. Heparin stopped at midnight on morning of surgery. Goal INR for surgery should be 1.5.
4. After surgery, bariatric surgeon calls HTS physician on call to give an update about surgery and any concerns.
5. 8 hours post-Surgery: Heparin starts at 200 units/hr, with no titration goal, unless specified by the bariatric surgeon.
6. POD #1: Heparin infusion increased to 400 units/hr with no titration or goal PTT.
7. POD #2: Increase heparin, if no bleeding, to achieve PTT goal of 35-45. Also start enteric coated aspirin 81 mg oral daily.
8. POD #3: Increase heparin to achieve PTT goal of 45-54.
9. Initiate warfarin (1mg) on POD #3 (evening).
10. HTS, Bariatric Surgeon and Pharmacist will decide warfarin dosing. These patients have poor PO intake and hence caution should be used in finding appropriate dose.

	Nonsurgical Group	LSG Group
Average pre-LVAD BMI	37.1	37.7
% who gained weight after LVAD	86%	88%
Average weight gained	12.7kg	13.4kg
Average time to LSG	N/A	29 months
% who lost enough weight to be eligible	14%	88%
Average weight loss	13.9kg	21.5kg
% listed for transplant	7%	50%
Average time to listing after LSG	N/A	9.5 months
% transplanted	0%	13%

Discussion

Mean post-operative length of stay following LSG was 15.5 days (range 6-27). Average operative time was 145 minutes (range 70-315). Four patients required blood transfusions. The average BMI prior to LSG was 42.4 kg/m² with average weight loss of 21.5kg over an average of 23 months. Following LSG, 7 out of 8 (87%) lost enough weight to be eligible for transplant and 5 patients went on to heart transplant listing. In patients who did not undergo LSG, the average BMI was 42kg/m²; 24 of 28 (86%) patients gained weight after LVAD insertion and 4 (14%) patients lost weight. Of the nonsurgical patients, 4 (14%) lost sufficient weight to be eligible for transplant listing.

Conclusions

- 88% of patients in the LSG group successfully lost enough weight to be eligible for transplant, while only 14% of patients in the nonsurgical group were able to reduce their weight sufficiently to become eligible for heart transplant listing.
- In the setting of a multidisciplinary approach, laparoscopic sleeve gastrectomy appears safe in stable patients with LVAD support.
- Future multi-institutional and larger cohort studies are needed to better understand the effects of bariatric surgery in LVAD supported patients.