Exploring outcomes after bariatric surgery in patients with congestive heart failure

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Introduction

Patients who undergo bariatric surgery often have significant medical conditions associated with obesity, such as congestive heart failure (HF), hypertension, diabetes, and more. These medical comorbidities can contribute to morbidity and mortality rates during the index admission and the risk of readmission within 30 days. Outcomes are important for evaluating patient safety and areas for quality improvement. As HF is considered a severe medical comorbidity for perioperative morbidity and mortality, we sought to evaluate the correlation between HF and mortality rate during index admission as well as the risk of readmission within 30 days in patients undergoing primary bariatric surgery.

Methods

The Nationwide Readmissions Database for 2010-2014 was queried for all patients undergoing bariatric laparoscopic sleeve gastrectomy or roux en Y gastric bypass. The primary outcome was mortality during the index admission. The secondary outcomes were readmission within 30 days and readmission to a different hospital. Univariable comparison was made using chi-squared tests and the statistically significant variables were then used with multivariable logistic regression for each outcome. Results were weighted for national estimates.

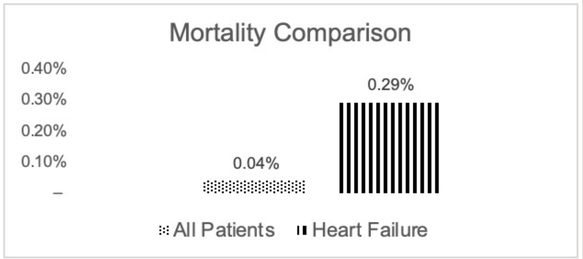
Data

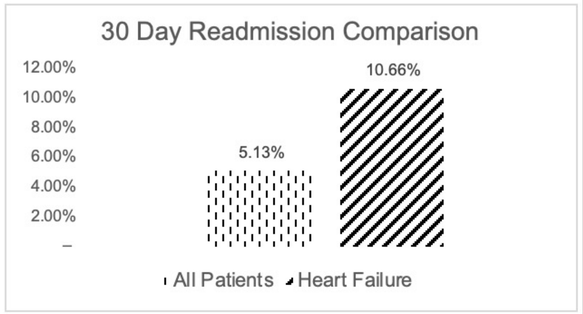
All Patients

	Total pts	n	n% of total
Initial Admission Mortality	915,792	368	0.04%
Readmitted within 30 days	915,424	46,936	5.13%

Heart Failure Patients

	Total pts	n	n% of total
Initial Admission Mortality	15,011	44	0.29%
Readmitted within 30 days	14,967	1,596	10.66%





Results

There were 915,792 patients undergoing bariatric surgery in the US during the study period. Of these patients, 15,011 had HF during the index admission. The overall mortality rate was 0.04% (n=368) while the mortality rate for patients with HF was 0.29% (n=44, p<0.001). After controlling for confounding factors through multivariable logistic regression, the risk of mortality during the index admission for patients with HF was not statistically significant (OR 1.16, 95% CI 0.80-1.69, p=0.439). The overall 30-day readmission rate was 5.13% (n=46,936) and for patients with HF the rate was 10.66% (n=1,596). The regression revealed an increased risk of readmission for these patients (OR 1.51, 95% CI 1.43-1.60, p<0.001), however, there was no difference in risk for readmission to a different hospital (OR 1.07, 95% CI 0.94-1.21, p=0.335).

Discussion

It has previously been shown that bariatric surgery can be used as primary prevention for the development of HF. A cohort study of 47,859 patients with obesity showed that HF incidence was 5 times less in patients who underwent bariatric surgery than those who did not. This was consistent in all age groups and patients with CAD, HTN, and DM.[1] Based on this studies, bariatric surgery is beneficial in the prevention of HF in obese patients. However, patients that have previously developed HF are likely sicker than those without,

Discussion (Continued)

and they are in greater need of HF research to improve their disease and quality of life. Our study does not prospectively quantify the risk of mortality in HF patients with and without bariatric surgery, but does show that in the short-term, HF patients are not at a statistically significant higher risk of death from surgery compared to patients without HF. This could suggest that after appropriate cardiac optimization, bariatric surgeons can feel confident that their patients with HF will not be at an increased risk of perioperative mortality when compared to those without HF.

Conclusions

There is no increased risk of mortality during the index admission for patients undergoing bariatric surgery who have HF. Although having HF did not statistically affect the mortality of bariatric surgery patients during the index admission, the readmission rate was significantly higher when compared to patients without HF. By exploring these outcomes, future quality improvement projects could address solutions to reduce readmission rates in this specific population. Future research should target preoperative medical optimization, slightly longer index admission stays, or closer follow up appointments, all in order to potentially reduce the risk of readmission.

Reference:

[1] Persson CE, Björck L, Lagergren J, et al. Risk of Heart Failure in Obese Patients With and Without Bariatric Surgery in Sweden—A Registry-Based Study. *J Card Fail*. 2017;23(7):530-537. doi:10.1016/j.cardfail.2017.05.005