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Bariatric Surgery Prior to Posterior Lumbar Interbody Fusion is Associated with Higher Revision Rate but Lower Medical Complication Rate Compared with Morbidly Obese Patients

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Keywords

Obesity, Bariatric, PLIF, spine fusion, revision rate, pseudarthrosis, BMI

Abstract

Background:

There is a paucity of data on bariatric surgery (BS) prior to spine surgery. Some literature suggests that bariatric surgery (BS) prior to spine surgery may be cost-effective and lower rates of medical complications when compared to morbidly obese (MO) patients, however the studies have small number of patients and statistically significant difference have not been reported.

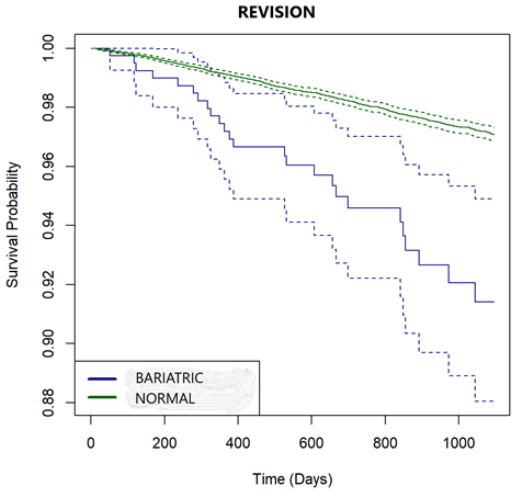
Methods:

Retrospective analysis from PearlDiver database containing 151 million patients were queried for PLIF (ICD-10-P-0SG00AJ). We compared revision rates, post-operative medical complications, readmission rates, and deep infection between BS and MO (BMI > 40) patients who received PLIF surgery. Logistic regression model was done using all patients with PLIF including non-BS and non-MO patients with variables of age, sex, osteoporosis, tobacco use, BS and MO.

Results:

There were 56,781 patients who had PLIF. Of these 4,737 patients with MO who underwent PLIF surgery and 401 underwent BS prior to PLIF. Medical complications were lower for the BS group (2.9% vs 5.9%, p=0.020). Logistic regression showed that MO was correlated with medical complications (OR 1.95, p<0.001) but BS was not (OR 0.57, p=0.066). Revision rates were higher in the BS group (6.2% vs 3.5%, p=0.001, OR 2.1). Logistic regression analysis shows BS had significant increased revision (OR 2.02, p<0,002) and MO did not (OR 1.10, p=0.26). No differences were found in 90-day readmission rate between BS and MO patients in univariate analysis. However, logistic regression showed 90-day readmission rates were higher in the MO group (p<0.001). There was no difference in deep

infection rate (3.6% vs 4.7%, p=0.281). Log rank test of survival curve shows significantly higher revision rate for BS patient compared with normal patients (p<0.001).



Conclusion:

Patients who had BS prior to PLIF had decreased medical complication and readmission rate compared to MO patients; however, BS had increased revision surgery rates. This may be due to bone density and healing being negatively impacted by the altered calcium absorption with bariatric surgery. Although MO patients were not found to have significant revision rate, this result must be weighed by possibility of surgeon's reluctance of doing a revision surgery on MO patients.