Bariatric Surgery's Effect on Compression Neuropathy

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INTRODUCTION

- Compression neuropathy is a condition in which a nerve or group of nerves are compressed, eliciting pain, numbness, or weakness in the distribution of the nerve
- Patients with morbid obesity are more likely to have neuropathy than non-obese patients[1]
- Mechanism due to compression by adipose tissue or microvascular disturbances[2,3]
- Management of compression neuropathy includes weight loss, and for severe symptoms, nerve decompressive surgery[4]
- Patients with both obesity and neuropathy often undergo bariatric surgery due to their other comorbidities that can lead to risk of cardiovascular events and death[5, 6]

OBJECTIVE

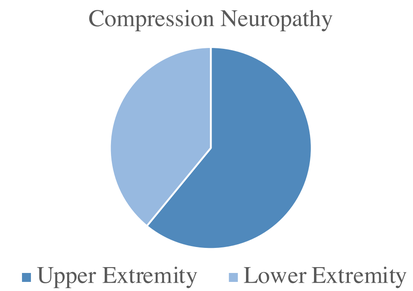
- Investigate effects of bariatric surgery on compression neuropathy in obese patients
- Evaluate potential utility in bariatric surgery to eliminate the need for an initial or additional decompressive surgery for obese patients with pre-existing compression neuropathy

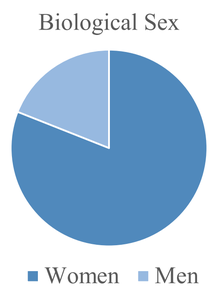
METHODS

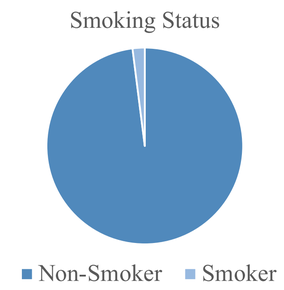
- Retrospective chart review from 2009 to 2019
- Inclusion: age >18, elective bariatric surgery; Exclusion: no valid phone number charted
- Demographic and symptom survey by phone
- Wilcoxon signed-rank and Fisher exact tests

RESULTS

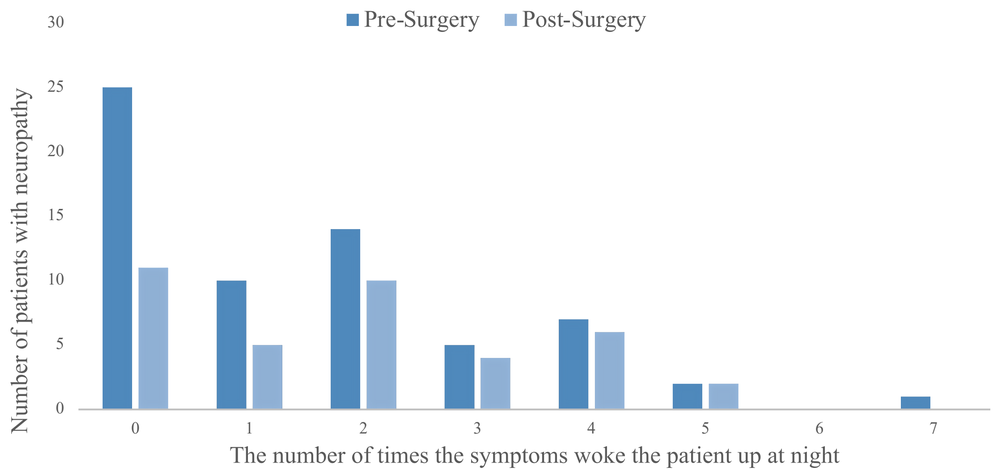
Inclusion criteria met by 90 patients and 71% participated in the study







Patients who had neuropathy symptoms severe enough to wake them up at night had a statistically significant improvement in their compression neuropathy symptoms after bariatric surgery ($p < 0.05$)



DISCUSSION

- Prior studies can help explain the mechanism behind our findings of improvement
- Bariatric surgery has been found to improve the oxidative, nitrosative and carbonyl stress that contributes to diabetic neuropathy[7]
- Reduction in triglycerides and adipose tissue after bariatric surgery can play a role in decreased systemic inflammation[2]
- Weight loss after bariatric surgery can reduce neuropathy by diminishing damage on small fiber integrity and by removing the mechanical compression of adipose tissue on nerves[8]
- The result of our study also provides better anticipatory guidance for management of obese patients who are thought to need both decompressive surgery and bariatric surgery
- These findings can further educate patients who are considering bariatric surgery and have also been suffering from severe neuropathy
- It also provides a second option in patients who failed decompressive surgery and may benefit from bariatric surgery for their other medical comorbidities

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