



Investigating Opioid Use After Hypoglossal Nerve Stimulation Implantation

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Introduction

Obstructive sleep apnea (OSA) spans all age groups and is associated with co-morbidities, motor vehicle accidents and loss of productivity

Hypoglossal nerve stimulation (HGNS) is one surgical alternative for individuals with moderate to severe OSA who are unable to tolerate pap therapy.

Patients with OSA are at increased risk of complications of opioid medication post operatively.

There is a lack of research on opioid needs and prescribing practices for HGNS. **This study aims to determine opioid usage following HGNS implantation.**

Methods

Prospective cohort study including adult patients with OSA from Duke University Hospital who underwent HGNS implantation by two surgeons.

The intervention: Patients were prescribed a largely uniform pain regimen of 5 tablets of 5mg oxycodone following surgery.

Outcomes including refills required and pills prescribed were compared among patients before and after the intervention.

Exclusion criteria included patients who underwent multi-level sleep surgery on same day as HGNS implantation.

Results

	Prior to intervention		After intervention	
	Male	Female	Male	Female
Sample size	23	23	39	22
Pills prescribed (mean, SD)	20.77, 7.31	14.69, 8.43	5.89, 4.27	5.68, 4.16
Refills needed	1	0	0	0

Table 1. A total of 115 patients' charts were reviewed for this study – 50 patients taken from before the intervention, to compare with 65 patients after the intervention. Total of 8 were excluded for undergoing same-day UPPP surgery.

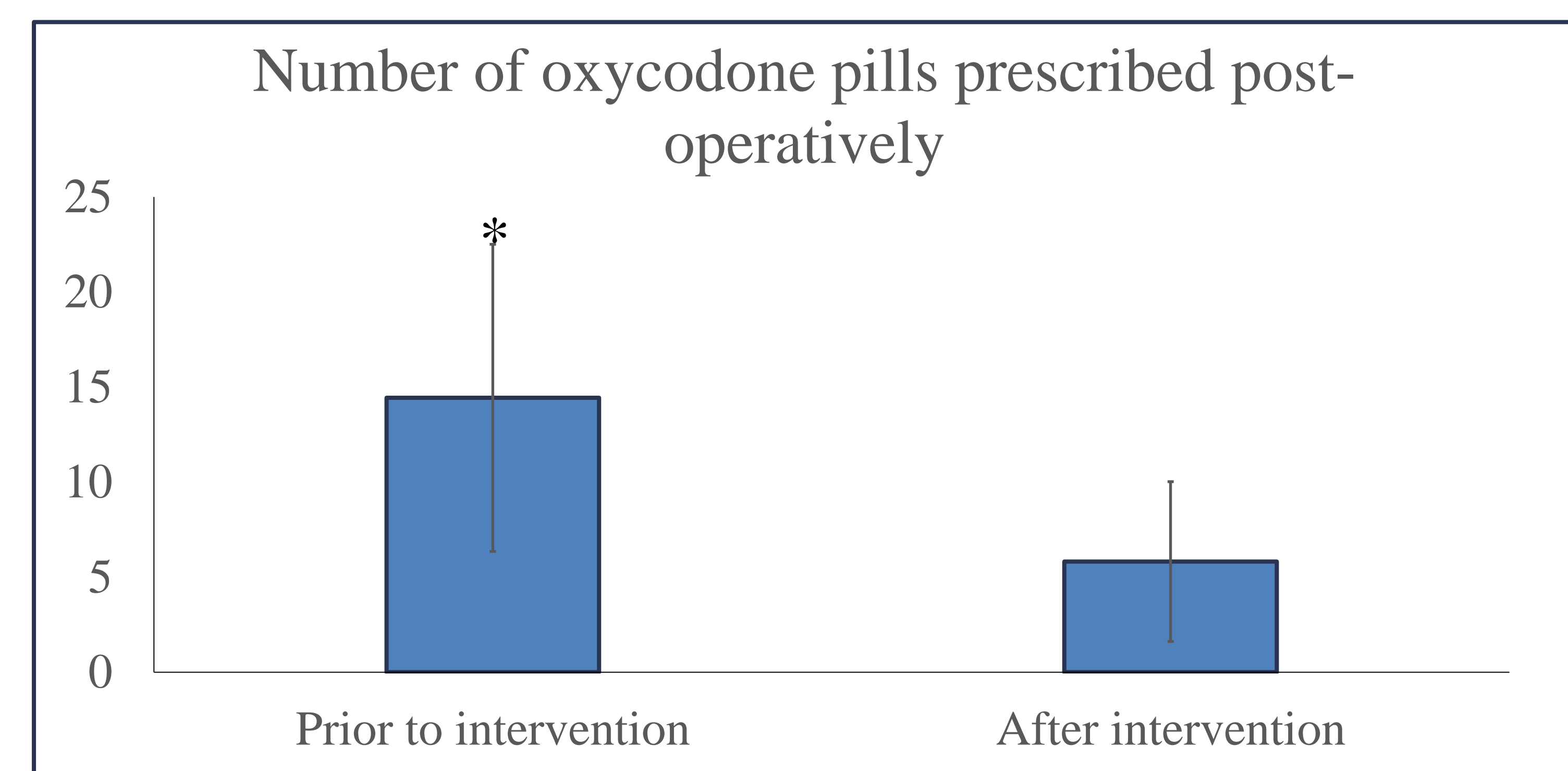


Figure 1. There is a significant difference (*p < 0.001, unpaired student t-test) between pills prescribed before and after the recommended intervention of prescribing 5mg oxycodone following HGNS implantation. Only one patient in this study required a refill of pain medication for post-operative pain. The average pills prescribed prior to the intervention was 14.4 (n = 46, SD 8.07), the average prescribed after intervention was 5.81 (n= 61, SD 4.2).

Conclusions

1 HGNS implantation for OSA treatment is a well-tolerated surgery for a majority of patients, usually requiring less than 5 pills of oxycodone for post-op pain.

2 Future directions may be directed toward exploration of how concurrent home pain regimen for pre-existing pain-related issues may affect post-HGNS implantation recovery, as well as investigation of an appropriate pain regimen following multi-level same-day sleep surgical procedures.

REFERENCES

1. Mashaji S, Patel SI, Combs D, Estep L, Helmick S, Machamer J, Parthasarathy S. (2021). The hypoglossal nerve stimulation as a novel therapy for treating obstructive sleep apnea – A literature review. *Int J Environ Res Public Health*. 18(4).

2. Patel M, Yarlagadda H, Upadhyay S, Neupane R, Qureshi U, Raco J, Jain R, Jain R. (2023). Disturbed sleep is not good for the hear: A narrative review. *Curr Cardiol Rev*. 19(3).

3. Lyons M, Bhatt N, Pack A, Magalang U. (2020). Global burden of sleep-disordered breathing and its implications. *Respirology*. 25(7).

4. Freire C, Sennes L, Polotsky V. (2022). Opioids and obstructive sleep apnea. *J Clin Sleep Med*. 18(2).