

# Tolerance of Continuous Positive Airway Pressure after Nasal and Sinus Surgery

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## Introduction

Obstructive sleep apnea (OSA) is a common disorder that has significant negative effects on overall health and quality of life. The treatment of OSA is multifaceted, but continuous positive airway pressure (CPAP) is the gold standard therapy for those who can tolerate it. For patients with OSA undergoing a septoplasty or sinus surgery, there is a lack of consensus on the risk and appropriate postoperative use of CPAP. The goal of this study is to assess the safety and tolerability of restarting CPAP on postoperative day one following intranasal surgery.

## Methods

This is an ongoing prospective study that collects data from the memory card of a patient's CPAP machine on the day of surgery, to assess their preoperative use, and at scheduled follow-up visits, to assess postoperative tolerance. To date, fifteen patients with OSA on CPAP underwent either a septoplasty/turbinectomy or sinus surgery. Three patients were excluded due to incomplete data collection.

Time	SNOT-22	NOSE	Average # hours used	% of days used	% of days used > 4 hours	AHI (apnea-hypopnea index)	Average pressure
Preop (30 days)	46	13	5.8	78.9%	84.5%	3.3	8.0
Postop (~1 week)	43	13	5.0	70.5%	59.5%	3.9	7.7
Postop (~3 weeks)	35	7	5.7	76.8%	73.5%	2.7	7.9
Postop (~7 weeks)	25	6	5.7	83.7%	81.5%	4.3	7.7

Table 1. Subjective (SNOT-22 & NOSE scores) and objective (remaining columns) data at various timepoints.

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## Results

Of the twelve patients included for review, 9 had sinus surgery (+/- septoplasty and turbinectomy) and 3 had a septoplasty/turbinectomy alone. There were no postoperative complications encountered. Table 1 shows the results of the subjective and objective measures before and after surgery.

There was no statistically significant difference between any of the outcomes when compared pre-operatively and 1 week post-operatively. There was also no difference between the objective measures pre-operatively and at 7 weeks post-operatively ( $p > .05$ ). However, the average SNOT-22 (Sino-Nasal Outcome Test) and NOSE (Nasal Obstruction Symptom Evaluation) scores were statistically significantly improved by the third post-operative visit ( $p < .03$ ).

## Discussion

Our study shows that CPAP is both safe and well-tolerated when restarted on postoperative day one following a septoplasty or sinus surgery. Safety is demonstrated by the lack of postoperative complications. There are reports of epistaxis, pneumocephalus and septal deviation following CPAP reinitiation in the literature, however none of these occurred in our cohort<sup>1</sup>. Tolerability is illustrated by both the objective and subjective data. There was no statistically significant difference between any objective measure pre- and post-operatively. This shows that surgery essentially had no impact on CPAP usage. Furthermore, patients nasal quality of life did not suffer, and actually improved from surgery.

## Conclusion

Preliminary results of this study are promising, as CPAP outcomes were essentially unchanged and quality of life improved after endonasal surgery. As the study progresses, we predict similar results, ultimately leading to the recommendation of restarting CPAP the night after all septoplasty and sinus surgeries.

### REFERENCES:

<sup>1</sup>Cohen, J., Larrabee, Y., Weinstein, A., & Stewart, M. (2015). Use of continuous positive airway pressure after rhinoplasty, septoplasty, and sinus surgery: A survey of current practice patterns. *Laryngoscope*, 125(11), 2612–2616.