

Selective upper airway stimulation for obstructive sleep apnea in obese patients.

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Objectives

Selective upper-airway stimulation (UAS) is a novel therapy for patients with obstructive sleep apnea (OSA). The aim of this study was to analyze the application and outcome of UAS in patients with a body mass index (BMI) greater than 32.

Study Design

Prospective review

Setting

3 tertiary care centers

Subjects and Methods

The cohorts of patients undergoing UAS (Inspire Medical Systems) at each institution (Lubeck Germany, Munich Germany, Philadelphia Pennsylvania) were evaluated and those patients with a BMI greater than 32 kg/m² were included in the study.

We recorded preoperative demographic and polysomnographic (PSG) data including age, BMI, Epworth sleepiness score (ESS), AHI, and O₂ Nadir. We also analyzed data from their postoperative titration PSG and recorded the AHI at optimal titration voltage, O₂ Nadir, ESS, and hours of usage per week.

We calculated descriptive statistics and used a paired T test to compare preoperative to postoperative values.

	Preoperative	Postoperative	p value
Age	58.74±9.46		
BMI	34.56±2.14	34.02±2.41	
ESS	12.15±4.08	8.17±4.44	<0.0001
AHI	42.78±17.87	5.66±8.44	<0.0001
O ₂ Nadir	76.32±9.07	89.13±3.51	<0.0001

Table 1: Combined demographic data of the three centers. Data represents mean ± standard deviation.

Results

After combining the 3 cohorts, a total of 43 patients with a BMI greater than 32 were implanted with an UAS and included in the study. 30 of the patients had postoperative PSG data that was included.

The mean age was 58.74 years. The mean preoperative AHI, O₂ Nadir, ESS, and BMI were; 42.78, 76.32, 12.15, and 34.56 respectively. The mean postoperative AHI, O₂ Nadir, ESS, and hours of use per week were; 5.66, 89.13, 8.17, and 43.23 hours respectively.

We found a significant difference between pre and postoperative AHI, O₂ Nadir, and ESS.

Conclusion

UAS therapy is associated with good clinical outcomes in appropriately selected patients with moderate to severe OSA and a BMI greater than 32. We have found a significant improvement in both objective PSG variables and daytime sleepiness.

In general, patients with an elevated BMI are considered to be a candidate for UAS if they lack complete concentric collapse of their palate during preoperative drug induced sleep endoscopy, have favorable neck size and anatomy, and meet previously established inclusion criteria.

Combined Outcomes

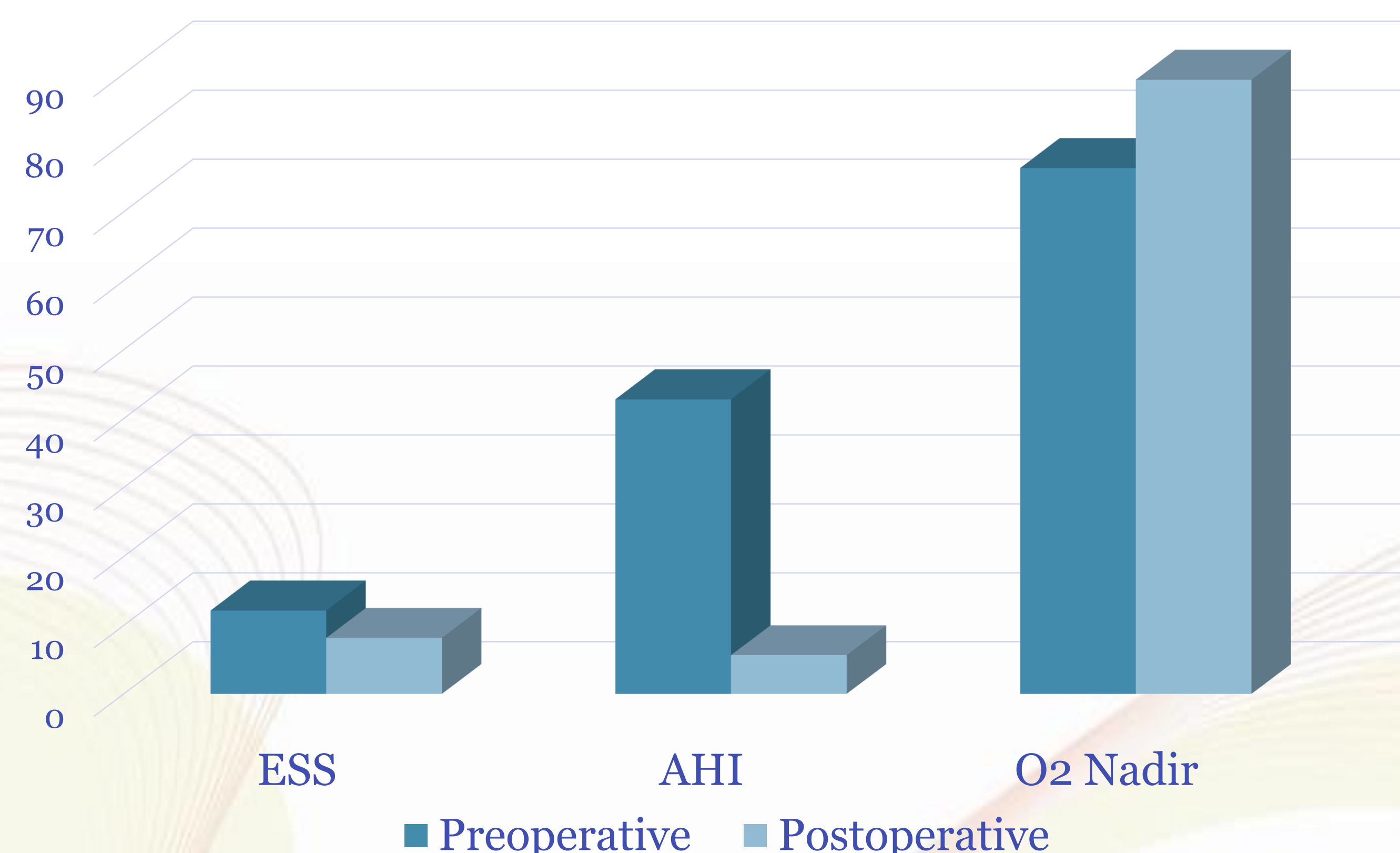


Figure 1: Pre and postoperative data of the combined cohorts. Data represent means.