

Upper airway stimulation can successfully treat obstructive sleep apnea in patients with a BMI greater than 32.



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Objectives

To evaluate outcomes of patients undergoing upper airway stimulation (UAS) with a BMI greater than 32.

To compare outcomes of patients undergoing upper airway stimulation with a BMI greater than 32 to those with a BMI less than 32.

Study Design

Retrospective review

Subjects and Methods

The early reports on upper airway stimulation (UAS) suggested implantation of patients with a body mass index (BMI) less than 32. We retrospectively evaluated our cohort of patients undergoing UAS. We evaluated demographic data, BMI, pre and postoperative polysomnography (PSG) data, and operative data. We compared the cohort of patients with a BMI greater than 32 to those with a BMI less than 32. Our institutional trend is to include patients with a BMI of greater than 32 who have favorable neck anatomy and size, but a larger waist.

	BMI <32	BMI >32	p value
Age (years)	60.85±12.22	61.06±9.51	0.178
Gender	31 male; 13 female	7 male; 9 female	0.075
Preoperative BMI	27.92±2.35	34.83±2.29	0.758
Preoperative ESS	10.80±3.86	12.44±4.77	0.348
Operative Time (minutes)	153.46±25.86	154.64±24.68	0.959
Estimated Blood loss (mL)	19.24±7.30	20.36±10.65	0.314
Preoperative AHI	31.42±16.34	46.07±26.53	0.009
Preoperative O2 Nadir	80.78±8.54	78.31±7.57	0.905

Table 1: Demographic data of both cohorts. Data represents mean ± standard deviation

Results

To date, we have performed 82 UAS at our institution and 60 of these patients have undergone postoperative titration PSG. 16 patients had a preoperative BMI greater than 32 and 44 patients less than 32. We found no difference in age, gender, preoperative O2 nadir, Epworth sleepiness score (ESS), operative blood loss, operative time, postoperative AHI, postoperative O2 nadir, postoperative ESS, surgical success, patients reaching a postoperative AHI less of than 10.

We did find a significant difference in preoperative AHI between cohorts. The mean preoperative AHI was 46.07 in the elevated BMI cohort, compared to 31.42 (p=0.009).

Conclusion

If selected properly, UAS can be used successfully to treat patients with OSA and a BMI greater than 32. We suggest selecting patients with a body shape of a proportionally smaller neck and larger waist compared to other patients with a similar BMI.

	BMI <32	BMI >32	p value
Postoperative Titration AHI	6.60±12.14	8.93±10.45	0.857
Postoperative O2 Nadir	88.33±3.46	88.93±2.79	0.140
Titration Voltage	2.43±0.83	2.55±0.95	0.454
Postoperative ESS	5.43±3.35	6.00±3.37	0.742
Postoperative BMI	28.05±2.89	33.18±3.26	0.593

Table 2: Postoperative data of both cohorts. Data represents mean ± standard deviation

	BMI <32	BMI >32	p value
Surgical Success	91.01%	81.25%	0.271
Postoperative AHI <10	84.44%	68.75%	0.160
Postoperative AHI <5	66.67%	43.75%	0.095

Table 3: Surgical success and percentage of patients reaching a postoperative AHI <10 and <5.