

An observational retrospective study of the efficacy of oral appliance therapy (OAT) in treating obstructive sleep apnea (OSA)

Sarah D. Meskill, MD MS, Riddhi Rege, Kelly Kincheloe, FNP-C, Gerard J. Meskill, MD
Tricoastal Narcolepsy and Sleep Disorders Center, Sugar Land and Austin, TX

Introduction

- Obstructive sleep apnea (OSA) affects approximately 15-30% of males and 10-15% of females in North America.
- While positive airway pressure (PAP) therapy remains the standard in the treatment of OSA, oral appliance therapy (OAT) has emerged as a viable non-invasive alternative.
- There are limited data on OAT efficacy published, so we conducted a 14-month single-center consecutive chart review to evaluate OAT efficacy.

Methods

- A manual chart review was performed for records from 11/1/2020 to 5/24/2023.
- Potential charts were identified in the electronic health record by searching for prescriptions for OAT and orders for home sleep apnea tests (HSAT).
- If a test was performed after the prescription was written, the chart was reviewed manually for previous test results and verified that post-OAT testing was conducted.
- Extracted information included age, BMI, gender, pre-OAT HSAT apnea-hypopnea index (AHI), and post-OAT HSAT AHI.
- The 4% desaturation criteria for AHI was used in accordance with current Medicare guidelines, with the exception of 1 study that only had 3%, in which case 3% was used.
- Multi-night study results were averaged.
- Patients were excluded if pre-OAT testing demonstrated severe OSA
- A paired t-test was performed after ensuring there were no outliers and a normativity.

Results

- There were 17 patients included in the analysis: 11 women, 6 men.
- The average age was 59.1 years (95% CI 51.4-66.9), and average BMI was 28.4 (95% CI 25.9-30.8).
- Prior to intervention, 6 patients had moderate OSA with the rest mild. The average pre-OAT AHI was 12.0 (95% CI 8.4-15.6).
- After OAT device, 9 patients had mild OSA and the rest did not have residual OSA. The average post-OAT AHI was 4.8 (95% CI 3.0-6.7).
- The results of the paired t-test showed that the mean AHI was statistically significantly different between the two groups ($t = -5.55$ with $df = 16$, $p < 0.00005$).
- The mean difference was -7.2 (95% CI $-9.9 - -4.4$).

#	BMI	Age	Pre 3% AHI	Pre 4% AHI	Post 3% AHI	Post 4% AHI
1	21.5	40	10	4	4.5	0.5
2	28.5	43	18	12.5	13	6
3	24.1	69	10	5.5	1.5	0.5
4	33.4	62	10.5	5.5	3	1
5	27.1	50	21	11.5	17	10.5
6	29.0	76	27.5	16	16.7	10.3
7	35.3	65	27.5	17	10.5	7
8	26.9	39	5	1.5	3.5	1
9	35.9	36	20.5	10.5	13	7
10	27.5	42	23	*	7	3
11	29.0	68	*	22.7	17	6.5
12	18.7	69	27.5	22	12	8.5
13	23.7	68	42.9	10.9	8.5	3.5
14	29.2	79	9	3	8.5	1
15	35.4	74	29	12	11.5	6
16	29.1	76	22.5	19	10.5	9
17	28.2	49	*	7.7	2	1

Key: # = patient number; AHI = apnea hypopnea index; Pre = avg pre-treatment; Post = avg post-treatment; * = no data



Contact Information:
Tricoastal Narcolepsy and Sleep Disorders Center
www.tricoastalsleep.com | (281) 566-2621
smeskillmd@tricoastalsleep.com

Discussion

- These results demonstrate efficacy of OAT in reducing the AHI in mild to moderate OSA.
- These results are not comparative to PAP therapy and should not be used as such.
- Clinicians should consider OAT as both primary and secondary therapy for mild-to-moderate OSA.

Abstract ID: 511
Session: P-29
Poster #: 147