ALTERNATIVE TREATMENTS FOR OBSTRUCTIVE SLEEP APNEA

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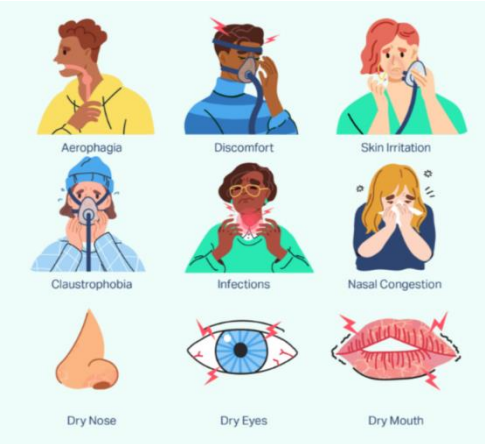
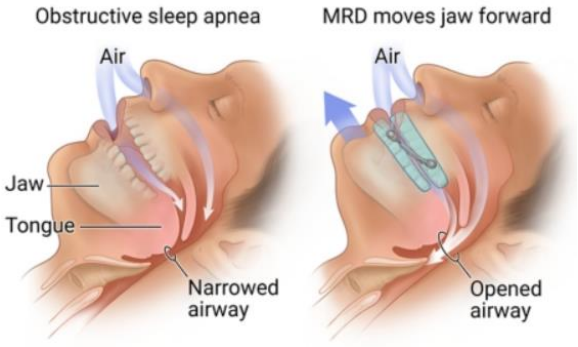
Obstructive sleep apnea (OSA) is characterized by episodes of a complete airway collapse or a partial collapse with an associated decrease in oxygen saturation or arousal from sleep. While several approaches are available for the treatment of OSA, Continuous Positive Airway Pressure (CPAP) therapy is the most effective for adults and is therefore the gold standard treatment. However, non-compliance with CPAP therapy is a common challenge encountered in practice, which often delays the treatment of OSA. Observational studies suggest adherence with CPAP therapy is between 30 and 60%, and in cases of mild OSA, where symptoms do not significantly impair daily functioning, adherence may be even lower. Reasons for this range from discomfort (lack of perfectly fitting masks, difficulties in sleeping still throughout the night, claustrophobia, dry mouth, etc.) to financial burden and psychological stress. Therefore, the treatment of OSA must be multifaceted and individualized for each patient. Several alternative treatments are available for patients who are unable to (or unwilling to) comply with CPAP.



ORAL APPLIANCES



Mandibular repositioning (or adjustment) devices are custom-fitted and titrated oral appliances that bring the lower jaw forward and relieve airway obstruction. These devices are indicated for patients with mild to moderate sleep apnea and can only be applied to those with appropriate dentition. They must be applied by a qualified dentist. A follow-up with a qualified dentist and additional sleep study testing are required to confirm efficacy and rule out dental-related side effects. In general, MRDs are 65-80% as effective as CPAP.

SURGERY

Although CPAP opens the whole airway, surgery aims at specific areas. Surgeries may be performed at the level of:

1)**Nasal cavity** (Polypectomy, ablation of turbinate, septoplasty)

In some patients, a sleep study test may show that upper airway resistance is lower with imposed nasal breathing than with imposed oral breathing. In such cases, surgery to fix a deviated septum, inferior turbinate reduction, alar valve reconstruction, and sinus surgeries (in the presence of sinus disease) improve the quality of sleep and CPAP adherence and compliance, but there is no evidence to suggest that nasal surgery alone can treat OSA.

2)**Nasopharynx** (Adenoidectomy)

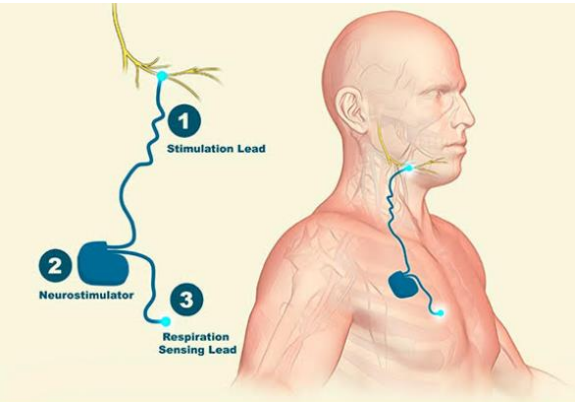
3)**Oropharynx** (Tonsillectomy, uvulopalatoplasty, uvulopharyngoplasty)

Patients with OSA typically have redundant tissue of the oropharynx which tends to be flaccid and elongated. The most common surgery for OSA is Uvulopalatopharyngoplasty (UPPP), which has varying success rates based on factors like tonsil size and the patient's BMI. For snoring, Laser-assisted uvulopalatoplasty and Radiofrequency ablation of the palate, have been developed, but they have unpredictable results on OSA, and may even worsen the condition.

4**) Hypopharynx** (midline glossectomy, tongue base reduction, mandibular advancement, genioglossal advancement, hyoid myotomy suspension)

Maxillomandibular advancement is the best option for patients with retrognathia and is more successful in younger patients, or those with smaller neck circumference.

Hypoglossal Nerve Stimulators (HNS) are another newer option available for the treatment of OSA. Currently, the Inspire device is the only HNS approved for treating OSA. Usually implanted unilaterally, the device works by stimulating the genioglossus during periods of apnea, resulting in protrusion of the tongue and relief. Not only is it effective (with a success rate of 70-80%), it was also reported that 94% of Inspire patients feel it is better than CPAP, and are therefore more likely to adhere to treatment. Adverse events are uncommon, with up to 11% of patients reporting tongue abrasions, and 6% of patients reporting pain.



5) **Bypass of the airway via tracheotomy**

This is reserved for extreme cases, as the patient encounters numerous challenges with home care, durable medical equipment, and family education on tracheostomy management.

6) **Bariatric surgery**

PHARMACOLOGIC TREATMENT

Currently, there are no effective drugs available, except for the treatment of hypothyroidism and acromegaly. Topical nasal corticosteroids may be useful in patients with OSA and concurrent rhinitis. Modafinil is recommended for the treatment of persistent daytime sleepiness in OSA patients with effective treatment. Supplemental oxygen therapy is not recommended as a primary treatment for OSA.

Behavioral treatment

Exercise, weight loss, exercise, positional therapy, and abstinence from alcohol and sedatives before bedtime are indicated in all patients as adjunctive treatment.

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