Introduction

Sleep apnea is clinically defined in adults as a cessation of breath that lasts at least 10 seconds and in children as a cessation of breath that lasts the equivalent of two and a half missed breaths **(Thorpe and Chairman, 1990).** The prevalence of obstructive sleep apnea in the middle aged population is 4% in men and 2% in women, however, prevalence rises with age, to an estimated 28% to 67% for elderly men and 20% to 54% for elderly women **(Young, et al., 1993).** Snoring which is defined as the noise generated during sleep due to narrowing and partial obstruction of the upper airway is a commoner condition that affects 20% of the population and 60% of men aged older than 40 years **(Hoffstein, et al., 1991).** Although sleep apnea is a common disorder, yet, many people don't seek medical advice because they awaken and start breathing again during night without being aware of these events unless a bed partner or other household member notices it **(Douglas, 2002 and Schlosshan, et al., 2004).**

The etiology of obstructive sleep apnea syndrome is attributed to anatomical and functional factors. Anatomical factors include soft tissue and bone abnormalities (as choanal atresia, micrognathia, mandibular hypoplasia and other skull base abnormalities). Soft tissue abnormalities include bulky nasal polypi, rhinitis, soft palate redundancy, tonsillar hypertrophy, laryngeal web **(Finkelstein, et al., 2000 and Avelino et al., 2002).**

Functional abnormalities include hypotonia of the intercostals muscles and the dilating muscles of the upper airway while sleeping, so patient with neuromuscular diseases causing generalized hypotonia as muscular dystrophy or incoordination as cerebral palsy show increased

risk of presenting severe obstructive sleep apnea syndrome **(Marcus, 2001).**

Sleep apnea is a serious potentially life threatening condition as sufferers may in advanced cases develop strokes, cardiovascular consequences as hypertension, cardiac arrhythmias, heart attack, pulmonary hypertension, and corpulmonal as a result of hypoxia, chronic carbon dioxide retention and polycythemia **(Wiggins and Schmidt, 1987; Marin et al., 2005 and Yakki et al., 2005).**

Treatment modalities continue to evolve to be less invasive, effective and well tolerated by the patients. It can be divided into non surgical and surgical treatment.

Non surgical treatment include weight loss, exercise programs, smoking and alcohol cessation, nasal and oral appliances, mandibular advancement splints, continuous positive airway pressure (CPAP) and recently is the **bilevel positive airway pressure** (bilevel PAP) which builds to a higher pressure during inhalation and decreases to a lower pressure during exhalation **(Becker, et al., 1993).** Continous positive airway pressure is the most successful nonsurgical treatment and is considered the gold standard non surgical treatment for obstructive sleep apnea syndrome **(George, 2001)**.

Surgical treatment is varied and controversial. Recent advances in the surgical treatment of obstructive sleep apnea syndrome & snoring have been developed in the last years.

Injection snoreplasty and radiofrequency ablation are considered new treatment modalities for primary snoring with comparable advantages to other snoring procedures **(Brietzke, et al., 2001).** Stiffening of the soft palate using **a Pillar palatal implant system** is an

innovative technique introduced for treatment of snoring and obstructive sleep apnea syndrome. It is a simple, office- based procedure with minimal morbidity. It is comparable to radiofrequency palate reduction or to stiffening of the palate with sclerosing agents, with respect to simplicity and lack of significant morbidity **(Friedman, et al., 2006).** Radiofrequency of the palate is also used for treating snoring at the velopharyngeal level with the best results if the uvula is spared and the greatest morbidity occurs if the uvula is amputated **(Wilson, et al., 2006).**

Other conventional surgical treatment modalities include adenotonsillectomy, uvulopalatopharyngoplasty (UPPP), laser – assisted uvulopalatopharyngoplasty (LAUP), cautery assisted palatal stiffening (CAPS), hyoid suspension, and lastly is tracheostomy **(Walker, et al., 1995; Mickelson, 1998 and Friedman, et al., 2006).**