Dr. James E. Metz

Featured Sleep Literature Article

The Metz Center for Sleep Dentistry | 1271 E. Broad St. | Columbus, OH 43205 | 614.252.4444 | www.themetzcenter.com

On behalf of Dr. James E. Metz and The Metz Sleep Center, I regularly review literature for pertinent information pertaining to sleep-disordered breathing. As relevant information is found, we would like to share it you! We hope this information will be helpful in your daily practice.

Sincerely, Dr. Mickey Harrison

Here are two articles that discuss the impact of adipose tissue directly on the airway. Good to consider when counseling patients on weight loss as part of their treatment plan.

The impact of pharyngeal fat tissue on the pathogenesis of OSA

Pahkala R, et al
Sleep Breath, 18:275-82, 2014

Given that obesity is a major risk factor for obstructive sleep apnea, another study set out to explore the morphology of upper airways in overweight habitual snorers and in mild OSA patients. They also established a one year, randomized, controlled follow-up study to examine the links between weight loss, parapharyngeal fat pad area and OSA after lifestyle changes with weight reduction as a treatment course. Thirty-six overweight adult obstructive sleep apnea patients with an AHI of 5-15 and 24 weight-matched habitual snorers with an AHI <5 were followed. Baseline measurements included nocturnal cardiorespiratory recordings and multislice computed tomography (CT) of the parapharyngeal fat pad area; smallest diameter and area of the naso-, oro-, and hypopharynx; the smallest diameter and area of the whole upper airway; the distance from the hyoid bone to the mandibular plane and cervical tangent; and the distance between the mandibular symphysis and cervical spine. OSA patients were further divided to either an active one year lifestyle intervention with an early weight loss regimen, or routine lifestyle counseling.

The laboratory PSG recordings and CT scans were repeated at 1 year. They found that in individuals with OSA, the pharyngeal fat pad area was markedly larger and the distance from the hyoid bone to cervical spine was longer as compared to the habitual snorers. The group receiving the targeted weight loss intervention over the course of the year demonstrated a reduction in the pharyngeal fat pad area as well as a significant drop in the apnea-hypopnea index.

Tongue fat and its relationship to OSA

Kim AM, et al
Sleep, 37(10:1639-48, 2014

This group examined whether tongue fat is increased in obese sleep apnea patients as compared to obese normal subjects. They evaluated 31 obese controls with an AHI of 4.1±2.7 and 90 obese apneics with an apnea-hypopnea index of 43.2±27.3 events per hour. They then subdivided the population into 18 gender, age and BMI-matched case control pairs to reanalyze. All individuals underwent MRI with three-point Dixon magnetic resonance imaging. They applied volumetric reconstruction algorithms to study the size and distribution of upper airway fat deposition in the tongue and masseter muscles for each group.

After controlling for age, BMI, gender and race, the tongue in OSA patients was substantially larger and had an increased amount of fat compared to controls; the results were similar in the matched evaluation. They also noted that larger fat deposits occur at the base of the tongue in the sleep apnea individuals as compared to normal subjects.