NAMS Regional Symposium on Sleep Medicine
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ENDOCRINE AND METABOLIC ASPECTS OF OSA

SYNOPSIS

Obstructive sleep apnoea (OSA) is a clinical disorder characterized by repeated spells of apnoea (lasting at least 10 seconds) interspersed with episodes of hypopnea (reduction in inspiratory flow of at least 50% for 10 sec and fall in O_2 saturation of 4%). The increased collapsibility of hypopharynx due to multiple factors including deposition of fat or fluid in the surrounding soft tissue are important contributing factors. The disorder commonly affects obese individuals but can also be seen in non obese subjects. Males are more commonly affected than the females due to disturbing effect of testosterone on sleep. Since estrogen has protective effect the skewed predisposition is decreased following menopause.

The narrowing of the hypopharynx translates into snoring due to fluttering of the uvula and frequent arousal in the night. Presently, sleep polysomnography is the ideal method to diagnose the disease with Apnoea/Hypopnea index (AHI) > 15 being characteristic of the OSA. The fragmentation of sleep leads to day time sleepiness and associated neuro-cognitive disturbances and cardiovascular morbidity and mortality.

The multiple ramifications of OSA on human health include several disturbances in Endocrine and Metabolic system affecting hypothalamic-pituitary-gonadal axis, adrenocorticotrophic and cortisol axis, growth hormone, antidiuretic hormone and degree of insulin resistance. There is a tendency for predisposition to metabolic syndrome or its various components including glycemic disturbances, hypertension , dyslipidemia and visceral adiposity. On the other hand several primary endocrine disorders such as hypothyroidism, growth hormone excess either due to acromegaly or during therapy for growth hormone deficiency, testosterone replacement and polycystic ovarian disease are associated with increased prevalence of metabolic syndrome.

Most of the information associating OSA with above mentioned endocrine disturbances is based on observational studies. There is limited information on the effect of treatment of OSA by continuous positive airway pressure (CPAP) on the endocrine and metabolic disturbances. Thus, there is urgent need to conduct randomized trials using CPAP in patients with OSD and endocrine and metabolic disturbances to study the cause and effect relationship**.**

SUGGESTED READING

1. Attal P, Chanson P (2010). Endocrine aspects of obstructive sleep apnea. *J Clin Endocrinol Metab*. **95**:483-95.

2. Kamenov Z, Gateva A, Hihashino H, Angelova P and Georgiev (2010). Endocrine aspects of obstructive sleep apnea. *Acta Med Kinki Univ* **35** : 67-75.

3. Reutrakul S, Zaidi N, Wroblewski K, Kay HH, Ismail M, Ehrmann DA, Van Cauter E. Interactions Between Pregnancy, Obstructive Sleep Apnea, and Gestational Diabetes Mellitus. *J Clin Endocrinol Metab.* 2013 Aug 21. [Epub ahead of print] PubMed PMID: 23966237.