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Brief Report: OSA Evaluations for the Anaesthesiologist, Surgeon, Surgery Centre

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1. Abstract

This short report presents a scope of the medical condition of Obstructive Sleep Apnea (OSA). Current methods for assessment and diagnosis of OSA are presented. Complications and potential death from untreated OSA places the anesthesiologist, surgeon and surgical center in a risk situation. Factors related to the risk factors and points toward resolution are presented.

2. Brief Report: OSA Evaluations for the Anesthesiologist, Surgeon, Surgery Center

Obstructive Sleep Apnea (OSA) presents with symptoms of disturbed or restless sleep, non-restorative sleep, frequent unexplained awakenings from sleep, fragmented sleep and fatigue. Additionally, patients with OSA display evidence of loud snoring, choking or gasping during sleep, BMI greater than 30, neck circumference greater than 17 inches in men / 16 inches in women, unexplained nocturnal reflux and morning headache. An all-night polysomnograph test is the standard assessment tool followed by a second night termed "split night" where a patient displaying apnea is placed on a continuous positive airway pressure treatment. Currently, insurance will also reimburse for a home study that is directed by a sleep specialist. Investigation of OSA focuses on the identification of evolving symptoms, assessment and treatment of symptoms and correlates of symptoms such as psychological/cognitive behaviors related to sleep apnea. That is, in addition to the medical symptomology the deficit displayed in cognitive? of attention, memory, problem-solving ability, initiative to task and emotional/mood responses of irritability, aggressiveness, and depression warrant assessment and treatment.

The prevalence of OSA obligates the Health Care Professional to identify as the impact on daily life is significant. The incidence of OSA is expected to increase in the United States with increases in aging society and in obesity.

The Apnea Hyponea Index (AHI) obtained from an all-night sleep study reflects the severity from mild, moderate? and severe number of apnea episodes. With this, an index of hyponeas, the amount of oxygen circulating is attained, that taken together with the AHI values, renders a more comprehensive understanding of the apnea. The clinical interview is essential to identifying the other factors related to the diagnosis such as the extent of excessive daytime sleepiness, the amount of disruption from sleep and day/work activities experience due to symptoms of OSA. The Epworth Sleepiness Scale (ESS) is the standard measure used to evaluate subjective sleepiness. The physical exam including? measures of neck circumference and throat/uvula measures provides a substantial understanding of the possible patient.

There is increasing evidence of the association between untreated OSA and cardiovascular, inflammatory lung disorders, neuropsychiatric and endocrine medical conditions. The hypoxic episodes intermittently cause oxidative stress thus prompting inflammation, psychopathic activation and endothelial dysfunction. These foundational changes place both the medical symptom free and medical condition(s) diagnosed patient at extreme risk. Research studies have identified the prevalence of OSA as 50% in arterial hypertension, refractory arrhythmias, stroke, coronary heart disease and cardiac failure. Arrhythmias and sudden cardiac death are possible outcomes of untreated OSA.

While equivocal results have been obtained with CPAP treatment versus no CPAP treatment due to the absence of predictive factors to OSA resolution, other treatments? to minimal treatment. Positional therapy seeks to train the OSA patient to avoid supine

sleep positions, hypoglossal nerve stimulation is confounded by clinical factors of large dropout rates and experiential factors as to inconsistency in the region identified for stimulation. Ablative and surgical? benefit patients with enlarged tonsils. Thus, CPAP represents the most common, robust treatment for OSA. The STOP-BANG screening measure is used to detect overt symptoms of OSA. An affirmative response to four of eight questions indicates high likelihood of obstructive sleep apnea. Thus, within a minute or two, the physician will have vital information about the health of their patient. Ramachandran and Josephs (2009) reported the 2-4% prevalence of OSA in the United Sates as a significant risk factor for perioperative morbidity and mortality. Further, the guidelines of the American Society of Anesthesiology recommends all-night polysomnogram when indicated (such as 4/8 STOP-BANG affirmative responses. The Berlin questionnaire while accurate for predicting diagnoses of OSA, is considered inferior to all combined techniques (i.e., cephalometry, morphometry, questionnaires) according to Ramachandran and Josephs (2009) meta-analytic study.

Fatigue is decreased physical and/or mental energy. Fatigue is associated with insomnia and fatigue is the most common descriptor of the prominent symptom of their sleep apnea. High fatigue levels reported by OPSA participants in Bailes, Libman, Grad, Kassossia, Cretia, Rizzo and Fichton (2010) study were obtained rather than the expected daytime sleepiness. Fatigue affects psychological-cognitive factors of vigilance, attention, concentration and coordination of motor movements (i.e., inverse relationship). Additionally, while mixed findings, Beebe, Goesz, Wells, Nichols and McGee (2003) reported deficits in delayed-memory tasks with increased OSA severity. These daytime sequelae of the fragmental/reduced sleep of the identical with untreated OSA underscore the impact or neuropsychiatric functioning. There seems to be dose-dependent relationship between neuropsychiatric factors, depression and severity of OSA (Beeb, et al., 2003).

When the undiagnosed OSA patient undergoes surgery, some anesthesia at pre/peri/post-operative? relax upper airway dilator muscles potentially worsening OSA symptoms and leading to a cardiovascular complication. Surgeons, anesthesiologists and surgery centers can reduce the risk of OSA-related complications and deaths by screening patients for OSA or required a pre-surgical specialist evaluation. Kertes (2020) reported an increased rate from 23% to 54% of patients with OSA. This substantial impact allowed for, Kertes (202) reports, patient-specific care for high risk OSA Patients.

Snoring? Do you **Snore Loudly** (loud enough to be heard through closed doors or your bed-partner elbows you for snoring at night)?			Yes O	No O
Tired? Do you often feel **Tired, Fatigued, or Sleepy** during the daytime (such as falling asleep during driving or talking to someone)?			Yes O	No O
Observed? Has anyone **Observed** you **Stop Breathing** or **Choking/Gasping** during your sleep?			Yes O	No O
Pressure? Do you have or are you being treated for **High Blood Pressure**?			Yes O	No O
Body Mass Index more than 35 kg/m^2 ?			**Body Mass Index Calculator** O cm /kg O inches/lb	
Height:	Weight:	Calculate BMI:	Yes O	No O
Age older than 50?			Yes O	No O
Neck size large? (Measured around Adams apple) Is your shirt collar 16 inches/ 40cm or larger/			Yes O	No O
Gender = Male?			Yes O	No O
See Result				
For general population OSA – Low Risk: Yes to 0 – 2 questions OSA – Intermediate Risk: Yes to 3 – 4 questions OSA – High Risk: Yes to 5 – 8 questions or Yes to 2 or more of 4 STOP questions + male gender or Yes to 2 or more of 4 STO questions + BMI >35kg/m^2 or Yes to 2 or more of 4 STOP questions + neck circumference 16 inches / 40cm				

Figure 1: STOP-BANG

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