

Obstructive Sleep Apnea (OSA): An Underestimated Health Problem

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Abstract:

In the last century major death toll was due infections and communicable diseases, but at present major causes of death are non-communicable diseases like cerebrovascular diseases, ischemic heart diseases, chronic respiratory diseases and cancer. Etiology of these listed disorders is multifactorial. Snoring and obstructive sleep apnea was considered as social problem, studies revealed obstructive sleep apnea is important risk factor of life threatening diseases. Morbidity, quality and cost of life depends on good quality sleep which is fragmented by obstructive sleep apnea.

Introduction:

Obstructive sleep apnea (OSA) is the most common sleep-related breathing disorder and is characterized by recurrent episodes of complete or partial obstruction of the upper airway leading to reduced or absent breathing during sleep. These episodes are termed "apneas" with complete or near-complete cessation of breathing, or "hypopnea" when the reduction in breathing is partial. In either case, a fall in blood oxygen saturation, a disruption in sleep, or both, may result. A high frequency of apneas or hypopneas during sleep may interfere with the quality of sleep, which – in combination with disturbances in blood oxygenation – is thought to contribute to negative consequences to health and quality of life.¹ The terms obstructive sleep apnea syndrome (OSAS) or obstructive sleep apnea-hypopnea syndrome (OSAHS) may be used to refer to OSA when it is associated with symptoms during the daytime (e.g. excessive daytime sleepiness, decreased cognitive function).

At present about 85% of adult deaths were due to non-communicable diseases, with ischemic heart disease (21.1%), stroke (22.1%) and chronic respiratory disease (16.4%) comprising about 60% alone among the 65% of community death reporting in Bangladesh¹. Almost all of the causes of death (COD)

due to non-communicable disease are related or very much influenced by obstructive sleep apnea. But unfortunately we are unaware about this problem.

Methods:

PubMed and Google Scholar were searched using the keywords obstructive sleep apnoea without limiting the years of publication. In PubMed 42148 article was found with key word obstructive sleep apnea (OSA). Most recent articles were reviewed in this article.

Results and discussions:

Prevalence of obstructive sleep apnea: Prevalence of obstructive sleep apnea (OSA) ranged from 9% to 38% and it is higher in men. It increased with increasing age and, in some elderly groups, was as high as 90% in men and 78% in women².

Hypertension and OSA: According to a report from American Heart Association prevalence of HTN in the United States adults was 45.6% and OSA is estimated to have a prevalence of 30% to 50% in patients with hypertension³.

OSA causes Stroke: Stroke is directly influenced by OSA. In a study it is determined that 91.2% of the patients had OSA in the acute stage of ischemic stroke, and 70% of the patients had moderate to severe OSA⁴. Apneic and hypoxemic episodes initiate the process of inflammation and there is a cascade of inflammatory markers such as IL-1, IL-6, TNF- α , and interferon- γ . These inflammatory markers damage the endothelial lining of the blood vessels, and there is an increased aggregation of platelets which lead to further oxidative stress and vascular endothelial damage. This repetitive oxidative stress and vascular damage in OSA patients along with fluctuation of blood pressure due to sympathetic activation can cause CVD and stroke.

Type-2 Diabetes and OSA: Sleep fragmentation and intermittent hypoxemia causes sympathetic activation, oxidative stress, inflammation, and neuroendocrine dysregulation which alter glucose homeostasis. Type-2 diabetes has been estimated to be 15% to 30%, with higher prevalence in those with severe OSA⁵.

OSA causes hypogonadism: It is reported an association between sleep disorders and plasma testosterone levels and estrogens and progesterone impact on upper airway stability and respiratory control during the menstrual cycle. Sleep fragmentation, disorganization of sleep cycles and stages, sympathetic activation, intermittent hypoxemia and systemic inflammation has a direct central effect on neurotransmitters, with disturbances in the normal production of hypothalamic pituitary hormones and as well as gonadal functions^{6,7}.

Conclusions:

Obstructive sleep apnea is emerging health problem in developing countries when nutritional deficiency disorders and communicable diseases are near to erased. OSA is important risk factor or predisposing condition of major life threatening non-communicable diseases. To prevent cerebrovascular diseases, hypertension, ischemic heart disease and diabetes OSA management is crucial. Hypo-gonadism, hypo fertility and infertility are also associated with OSA, which is newer problem in our community. So obstructive sleep apnea is not only a social problem and cannot be ignored to achieve healthy life.

MuMC Journal 2023; 2(2): 28-29

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