

Association of Obstructive Sleep Apnea with Cardiovascular Health

Dear Editor,

Obstructive sleep apnea (OSA) is a common respiratory disorder characterized by frequent and repetitive airway collapse. It affects more than 936 million people worldwide, almost ten times as many as previously estimated, its prevalence increases with age, body mass index, obesity, use of central nervous system depressants (e.g., opioids, alcohol), older age, male gender, and smoking.^[1]

Patients suffering from OSA typically exhibit a variety of physiologic and biochemical changes known to be risk factors for cardiovascular disease. In some recent studies performed, it has been shown that hypertension and metabolic syndrome were positively associated with severe OSA.^[2] Several studies are showing that sleep apnea syndrome is more common in men than in women, some revealing that it is approximately twice as prevalent in men as it is in women.^[2]

OSA causes hypoxemia which consequently leads to activation of the renin–angiotensin–aldosterone system.^[3] Thus, systemic hypertension has been found to be associated with OSA independent of age, sex, and obesity. Indeed, increased levels of sympathetic activation and aldosterone in patients with OSA lead to hypertension; prospectively the association between sleep-disordered breathing and hypertension in 4-year follow-up among 709 participants of the Wisconsin Sleep Cohort Study suggests that sleep-disordered breathing is likely to be a risk factor for hypertension and consequent cardiovascular morbidity in the general population.^[3]

Coronary artery disease (CAD) has been associated with OSA in many reports. The pathophysiology of ischemic heart disease in OSA patients is not clear, but it is thought to be due to the activation of multiple mechanisms such as sympathetic activity, atherosclerosis, systemic hypertension with endothelial dysfunction, and hypoxemia. In study that has been done in Sweden over 7 years, CAD was observed in OSA patients and showed to be 16.2%.^[4] In the same study, in the OSA group of, CAD was confirmed in 24.6% of 65 patients incompletely treated patients compared with 3.9% of 26 patients treated patients and concluded that efficient treatment of OSA reduced this risk.

Iraq as one of the developing countries that has been constantly in a state of war and faced many psychological stresses, as a result most of Iraqi population have been victims of posttraumatic stress disorder (PTSD). A cross-sectional study that has been performed across a group of Iraqi and Afghani population (195 participants); showed that the prevalence of Sleep Disturbance, including symptoms like OSA, periodic leg movement disorder, sleep terrors and nocturnal anxiety attacks, was higher (69.2%) among those with PTSD.^[5]

In conclusion, researches clearly linking OSA with cardiometabolic diseases and its prevalence are significant among those patients with OSA. The impact of PTSD should be studied more among larger population including different community groups to assess the real role of PTSD on OSA.

This supports the need for physicians to understand OSA's key features, risk factors, and its liability for progression on cardiovascular health and its potentials for better screening and management of OSA.

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Conflicts of interest

There are no conflicts of interest.

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REFERENCES

1. Durán J, Esnaola S, Rubio R, Iztueta A. Obstructive sleep apnea-hypopnea and related clinical features in a population-based sample of subjects aged 30 to 70 yr. *Am J Respir Crit Care Med* 2001;163:685-9.
2. Fietze I, Laharnar N, Obst A, Ewert R, Felix SB, Garcia C, *et al.* Prevalence and association analysis of obstructive sleep apnea with gender and age differences - Results of SHIP-Trend. *J Sleep Res.* 2019;28:e12770. doi: 10.1111/jsr.12770.

3. Patel S, Rauf A, Khan H, Abu-Izneid T. Renin-angiotensin-aldosterone (RAAS): The ubiquitous system for homeostasis and pathologies. *Biomed Pharmacother* 2017;94:317-25.
4. Peker Y, Carlson J, Hedner J. Increased incidence of coronary artery disease in sleep apnoea: A long-term follow-up. *Eur Respir J* 2006;28:596-602.
5. Colvonen PJ, Masino T, Drummond SP, Myers US, Angkaw AC, Norman SB. Obstructive sleep apnea and posttraumatic stress disorder among OEF/OIF/OND veterans. *J Clin Sleep Med* 2015;11:513-8.

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