

Sleep Watchers

Fall 2020

Dear Colleague,

We hope this quarter's newsletter finds everyone in good health and spirits. As always we genuinely appreciate your support and look forward to continuing to help you improve the quality of life for your patients.

Please let us know if you would like to see a specific topic covered in our next issue. It is our goal to provide as much information as possible to better serve your patients. We appreciate the trust you place in us by allowing us to participate in the care of your patients.

Best Regards,

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who have OSA who did not use continuous positive airway pressure (CPAP) would have higher rates of hospitalization and complications from influenza infection than patients with OSA who were adherent to treatment. Medical records of patients at Dartmouth-Hitchcock Medical Center in Lebanon, New Hampshire who had both OSA and a new, laboratory-confirmed influenza infection between 2016-2018 were reviewed for results of polysomnography, CPAP usage, influenza vaccination records, confirmation of influenza infection, and influenza related hospitalizations and complications.

Patients who were adherent to CPAP, patients who were either conservatively treated without CPAP or who were non-adherent to CPAP therapy had higher odds of hospitalization from influenza infections, but no higher odds of complications from influenza. The patients who had untreated sleep apnea had a higher percentage of influenza vaccination for their season of illness (75% of patients) compared to patients who were adherent to CPAP (56% of patients), although the difference in vaccination was not statistically significant. The authors conclude that patients with obstructive sleep apnea who did not use CPAP appear to have greater rates of hospitalization from acute influenza infection, despite having a higher trend of influenza vaccination compared to patients who were adherent to CPAP. There is evidence that sleep disruption can lead to impaired immune function. Little is known about how diseases such as obstructive sleep apnea that disrupt sleep affect clinical outcomes in respiratory infections such as influenza. *The results of this study suggest that non-adherence to CPAP for treatment of OSA may increase hospitalizations from influenza infection.*

Untreated Obstructive Sleep Apnea is Associated with Increased Hospitalization from Influenza Infection

Eva M Mok, MD, Glen Greenough, MD, et al.
Journal of Clinical Sleep Medicine—Accepted for Publication 2020

There is evidence that sleep deprivation or diseases such as obstructive sleep apnea (OSA) that lead to sleep disruption may adversely impact immune system functioning. The authors hypothesized that individuals

C-reactive Protein Improves the Ability to Detect Cardiometabolic Risk in Mild-to-moderate Obstructive Sleep Apnea

Jordan Gaines, Lan Kong, et al.
Physiological Reports 2017 Sep;5(18)



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Obststructive sleep apnea (OSA), particularly in the mild-to-moderate range, affects up to 40% of the adult general population. While it is clear that treatment should be pursued in severe

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C-reactive Protein...continued

cases of OSA, when and how to best treat OSA in the mild-to-moderate range remains complicated, despite its high prevalence. The purpose of this study was to compare the relative utility of apnea/hypopnea index (AHI) versus a biomarker of inflammation, C-reactive protein (CRP), in identifying the presence and severity of hypertension and hyperglycemia.

Middle-aged (n = 60) adults with mild-to-moderate OSA (AHI between 5 and 29 events per hour) underwent 8-h polysomnography, a physical examination including measures of blood pressure and body mass index, and a fasting morning blood draw for glucose and CRP. CRP levels were associated with greater odds for having hypertension and hyperglycemia compared to AHI. Receiver-operating characteristics (ROC) curves revealed that adding CRP to standard clinical factors (age, sex, and BMI) yielded moderately good to strong risk models for the disorders (AUC = 0.721 and AUC = 0.813, respectively). *These preliminary findings suggest that including a measure of CRP improves the ability for clinicians to detect cases of mild-to-moderate OSA with true cardiometabolic risk, with implications in improving prognosis and treatment within this clinically gray area.*

Increased Incidence of Stroke, but Not Coronary Heart Disease, in Elderly Patients With Sleep Apnea

Pablo Catalan-Serra, Francisco Campos-Rodriguez, et al.
Stroke 2019 Feb;50(2):491-494

The influence of age on the relationship between obstructive sleep apnea (OSA) and the incidence of hard cardiovascular events remains controversial. The authors sought to analyze the relationship between OSA and the incidence of stroke and coronary heart disease in a large cohort of elderly patients, as well as to investigate the role of continuous positive airway pressure (CPAP) treatment in these associations. Post hoc analysis of a prospective observational study of consecutive patients ≥ 65 years studied for OSA suspicion at two university hospitals. Patients with an apnea-hypopnea index (AHI) < 15 were the reference group. OSA was defined by an AHI ≥ 15 and classified as untreated (CPAP not prescribed or compliance < 4 hours/day), mild-moderate (AHI

15-29), untreated severe (AHI ≥ 30), and CPAP-treated (AHI ≥ 15 and CPAP compliance ≥ 4 hours/day).

859 and 794 elderly patients were included in the stroke and coronary heart disease analyses, respectively. The median (interquartile range) follow-up was 72 and 71 months, respectively. Compared with the reference group, the fully adjusted ratios for the incidence of stroke were 3.42, 1.02, and 1.76 for the untreated severe OSA group, CPAP-treated group, and untreated mild-moderate OSA group, respectively. No associations were shown between any of the different OSA groups and coronary heart disease incidence. *The incidence of stroke, but not coronary heart disease, is increased in elderly patients with untreated severe OSA. Adequate CPAP treatment may reduce this risk.*

Sleep Apnea Linked with Higher Spine Fracture Risk Among Women

Technology Org Science and Technology News
September 26, 2020

Emerging evidence suggests that obstructive sleep apnea (OSA) may negatively affect bone health. Results from a new study published in the *Journal of Bone and Mineral Research* now indicate that women with history of OSA may face a higher risk of spine, or vertebral, fractures. Using information from the Nurses' Health Study, investigators examined data pertaining to 55,264 women without a prior history of bone fractures. OSA was self-reported in 1.3% of participants in 2002 and increased to 3.3% by 2012. Between 2002 and 2014, 461 vertebral fractures and 921 hip fractures occurred.

Women with a history of OSA had a 2-fold higher risk of vertebral fracture relative to those with no OSA history, with the strongest association observed for OSA associated with daytime sleepiness. No association was observed between OSA history and risk of hip fracture. *"Our study provides important evidence at the population level that obstructive sleep apnea may have an adverse impact on bone health that is particularly relevant to the development of vertebral fracture,"* said lead author Tianyi Huang, ScD, of Brigham and Women's Hospital. *"Given that we used self-reported clinical diagnoses of sleep apnea and fracture in our study, future studies could use more deeply characterized data to further the understanding of the mechanisms linking sleep apnea to bone health and fracture risk."*



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