

Sleep Watchers

Fall 2022

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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Indiana Sleep Center

Symptom Subtypes and Risk of Incident Cardiovascular and Cerebrovascular Disease in Clinic-based Obstructive Sleep Apnea Cohort

A.J. Hirsch Allen, Rachel Jen, et al.
J Clin Sleep Med 2022 Sep 1, 18(9) 2093-2102

Patients with obstructive sleep apnea (OSA) are at increased risk of cardiovascular and cerebrovascular disease but predicting those at greatest risk is challenging. Using latent class analysis, patients with OSA can be placed

into discrete symptom subtypes. The purpose of this study was to determine whether symptom subtypes are associated with future cerebrovascular disease in patients with OSA in a clinic-based cohort. Patients with suspected OSA referred for a polysomnogram at an academic sleep center completed a comprehensive symptom survey. Patients with OSA (apnea-hypopnea index ≥ 5 events/h) were then placed into symptom subtypes based on responses to survey questions using latent class analysis. Cardiovascular events (stroke, myocardial infarction, unstable angina, bypass grafting, percutaneous coronary intervention, cardiac resynchronization therapy, defibrillation) occurring within 8 years of polysomnogram were identified by linkage to provincial health databases.

1,607 patients were studied, of whom 1,292 had OSA. One hundred forty first events occurred within 8 years of polysomnogram. Patients in the excessively sleepy with disturbed sleep subtype had a significantly increased rate of events compared to the minimally symptomatic subtype. Two symptoms (restless legs and dozing off or sleeping while talking to someone) were significantly associated with future risk of cerebrovascular disease. *Patients with OSA in the clinic who are in the excessively sleepy with disturbed sleep subtype are significantly more likely to have a future cardiovascular event. This underscores the importance of understanding clinical heterogeneity and incorporating symptom subtype definitions into routine clinical care.*

Obstructive Sleep Apnea Linked With Higher Risk of COVID-19 Hospitalization, Complications

Matthew Gavidia
The American Journal of Managed Care- January 18, 2021

O bstructive sleep apnea (OSA) was identified as an independent risk factor for severe coronavirus disease 2019 (COVID-19) resulting in hospitalization, according to study findings published last week in *BMJ Open Respiratory Research*. As a result of researchers examining at-risk populations amid the pandemic, OSA has been identified as a potentially prominent factor contributing to COVID-19 hospitalization. C-reactive protein and procalcitonin were significantly higher in patients who were eventually transferred to critical care units compared with those who

were not. Moreover, the researchers of the present study highlight that OSA is associated with several known risk factors linked with severe COVID-19: body mass index (BMI), diabetes, older age, and male gender. "Such risk would have substantial effect as OSA is a common disease affecting at least 8% of



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the population, with higher prevalence in older age groups reaching to over 20% in individuals over 60 years of age," noted the study authors.

Examining patients who participated in the FinnGen study (N = 260,405), the researchers sought to investigate whether OSA is a risk factor for COVID-19 infection or for severe COVID-19, defined by requirement of hospitalization, independent of these potential risk factors: age, sex, BMI, hypertension, type 1 and type 2 diabetes, coronary heart disease, asthma, and chronic obstructive pulmonary disease. Association was assessed through statistical analysis, with comorbidities for either COVID-19 or OSA selected as covariates. The researchers also performed analysis with previous studies, analyzing the association between OSA and severe COVID-19. In the analysis, 445 patients (37.3% male; mean age, 52.7 years) with COVID-19 were identified, 38 of whom had diagnosed OSA (8.5%; 50% male; mean age, 61.3 years). "This reflects a similar prevalence of OSA diagnoses in COVID-19-infected [individuals] as in the normal population in FinnGen, where prevalence is 8%," noted the researchers.

Of the patients requiring hospitalization for severe COVID-19 (n = 91; 36.3% male; mean age, 65.9 years), more than 1 in 5 had OSA (n = 19; 20.9%), which was shown to be associated with COVID-19 hospitalization independent from age, sex, BMI, and comorbidities. However, there was no significant difference in risk for contracting COVID-19 between patients with OSA and those without. The analysis also showed that among 15,835 control patients with COVID-19, the patients who had OSA and severe cases of COVID-19 (n = 1294) had more than double the risk of hospitalization. *The authors concluded that their finding may help in identifying high-risk individuals for severe forms of COVID-19 infection, and therefore screening for previous indications of OSA could be beneficial among individuals testing positive for the virus.*

Sleep and HbA1c in Patients With Type 2 Diabetes: Which Sleep Characteristics Matter Most?

Annelies Brouwer, Daniel H van Raalte, et al.
Diabetes Care 2020 43(1): 235–243

Poor sleep has been identified as a risk factor for poor glycemic control in individuals with type 2 diabetes (T2D). As optimal sleep can be characterized in several ways, the authors evaluated which sleep characteristics are most strongly associated with glycated hemoglobin A1c (HbA1c). A total of 172 patients with T2D completed 7-day wrist-actigraphy and sleep questionnaires. Appropriate

statistical analysis was used to evaluate associations between sleep measures (total sleep duration, variability in sleep duration, midsleep time, variability in midsleep time, sleep efficiency, subjective sleep quality, and subjective insomnia symptoms) and HbA1c, individually and in concert.

Variability in sleep duration was individually most strongly associated with HbA1c, followed by total sleep duration, subjective sleep quality, variability in midsleep time, and sleep efficiency. Midsleep time and subjective insomnia symptoms were not associated with HbA1c. In combination, variability in sleep duration, total sleep duration, and subjective sleep quality were significantly associated with HbA1c, together explaining 10.3% of the variance in HbA1c. Analyses adjusted for covariates provided similar results, although the strength of associations was generally decreased and showing total sleep duration and subjective sleep quality to be most strongly associated with HbA1c, together explaining 6.0% of the variance in HbA1c. *The authors conclude that sleep in general may be a modifiable factor of importance for patients with T2D. The prevention of sleep curtailment may serve as a primary focus in the sleep-centered management of T2D.*

Sleep Apnea and Chronic Kidney Disease: A State-of-the-Art Review

Chou-Han Lin, Renee C Lurie, et al.
Chest 2020 Mar;157(3): 673–685

Patients with chronic kidney disease have increased morbidity and mortality, mainly due to cardiovascular disease. Compared with the general population, patients with chronic kidney disease have an increased prevalence of both OSA and central sleep apnea, and the presence of sleep apnea in this population has been associated with an increased risk of cardiovascular events and mortality. Although OSA can lead to an increase in the rate of kidney function decline, there is also evidence that the presence of end-stage renal disease can lead to worsening of sleep apnea, indicating a bidirectional relation between sleep apnea and chronic kidney disease.

The objective of this review was to describe the epidemiology of sleep apnea in chronic kidney disease, understand the pathophysiological mechanisms by which OSA can lead to progression of chronic kidney disease, and consider the role of treatment with CPAP in this regard. *The review also explores the pathophysiological mechanism by which end-stage renal disease can lead to sleep apnea and considers how intensification of renal replacement therapy or extra fluid removal by ultrafiltration may attenuate the degree of sleep apnea severity in this population.*



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