

Podcast of the Journal of Clinical Sleep Medicine

Stuart F. Quan, M.D.

*Division of Sleep Medicine, Harvard Medical School, Boston, MA
Editor, JCSM Journal of Clinical Sleep Medicine*

Welcome to the regular podcast of the *Journal of Clinical Sleep Medicine*. I am Dr. Stuart Quan, editor of the Journal. These podcasts are a regular feature of each issue of the Journal and can be downloaded at the Journal's website. Each podcast features summaries of important articles published in the current issue of the Journal, as well as occasional interviews with authors of these papers.

The lead article of this issue of the Journal is entitled, "Working Memory Capacity Is Decreased in Sleep Deprived Internal Medicine Residents," by Drs. Gohar, Adams, Gertner, Sackett-Lundeen, Heitz, Engle, Haus, and Bijwadia from the University of Minnesota and Regions Hospitals in Minneapolis and St. Paul, MN, the School of Psychology, Vanderbilt University in Nashville, TN and the School of Psychology, Georgia Institute of Technology in Atlanta, GA. Work hours and medical errors among house officers are an important issue. Several recent articles have publicized that house officers working extended, overnight shifts commit more medical errors than those who are more rested. As a result of these studies and the publicity engendered from them, the Accreditation Counsel for Graduate Medical Education has limited resident working hours to less than 80 hours per week and no more than 30 hours per shift. The study by Gohar and colleagues attempted to determine the impact of overnight call rotations on sleep-wake times and working memory in a cohort of internal medicine residents. 39 residents had their sleep monitored with actigraphy and completed working memory tasks during their on-call rotations and these results were compared to rotations when they did not have call. The investigators found that residents slept less on their call month (6.4 vs 7.3 hours on average) with the sleep per night varying anywhere from 3.7 to 10.1 hours. In addition, when working during on-call rotations, there was greater self-reported sleepiness and a lower scores on working memory tasks. It was also noted that full recovery of working memory capacity did not occur until the fourth day after being on call. Although medical errors were not assessed, it was observed by the authors that decreased working memory capacity could explain impairments of judgment during periods of time when the residents were sleep deprived as a result of being on call.

Another paper in this issue of the Journal is entitled, "The Prevalence and Natural History of Complex Sleep Apnea," by Drs. Javaheri, Smith, and Chung from Sleep Care Diagnostics in the Department of Cardiology, Christ Hospital, Cincinnati, OH. There is increasing recognition that central sleep apnea

events may be observed during titration of continuous positive airway pressure (CPAP) in patients with obstructive sleep apnea. This phenomenon is commonly referred to as complex sleep apnea. In this paper, a retrospective evaluation of 1,288 patients with newly diagnosed sleep apnea was performed over approximately a 12 month period of time. Eighty four of these patients were observed to have the development of central sleep apnea with a central apnea index of 5 events or more per hour while on CPAP. The incidence of this occurrence was thus 6.5%. Of the 84 patients, subsequent polysomnography was performed in 42 of them. Of the 42 patients returning for a second polysomnogram, central sleep apnea was not observed in 33. The remaining patients were characterized by having the most severe obstructive sleep apnea at baseline and two of these individuals were taking opioids. The authors emphasized that complex sleep apnea appears to be a transitory phenomenon in many patients. Severity of obstructive sleep apnea and use of opioids may be risk factors.

A third article in this issue of the Journal is entitled, "Fatigue, Tiredness and Lack of Energy Improve With Treatment for OSA," by Drs. Chotinaiwattarakul, O'Brien, Fan, and Chervin from the University of Michigan in Ann Arbor. Many patients with obstructive sleep apnea complain of fatigue, tiredness, and lack of energy, as well as daytime sleepiness. In addition, some patients do not report sleepiness at all and refer to their symptoms as lack of energy or fatigue. In the current study, surveys were mailed to 1,539 patients six months to three years after they were prescribed positive airway pressure therapy for obstructive sleep apnea. 313 surveys were returned, including 183 who reported using positive airway pressure for more than five hours per night. The authors found that those patients who were adherent to positive airway pressure therapy were likely to have an improvement in fatigue, tiredness and lack of energy in addition to an improvement in their sleepiness. The authors indicate that complaints by patients of fatigue, tiredness and lack of energy, just like sleepiness, can improve with the use of positive airway pressure.

The final article to be highlighted in this podcast is entitled, "No Relationship Between Neurocognitive Functioning and Mild Sleep-Disordered Breathing in a Community Sample of Children," by Drs. Calhoun, Mayes, Vgontzas, Tsaoussoglou, Shifflett, and Bixler from Penn State University, College of Medicine in Hershey, PA. Recent studies indicate that sleep-disordered breathing is commonly observed in children,

as well as adults, at a reported prevalence range from one to four percent. In addition, many studies have reported that there are impairments in neurocognitive functioning associated with sleep-disordered breathing in children and that potentially sleep-disordered breathing could result in permanent impairment of neurocognitive development in children. In this study, a population-based cohort of 571 school children, ages six to 12, underwent polysomnography and a comprehensive neuropsychologic battery. Overall, six children were identified as having moderate sleep-disordered breathing with an AHI of five or greater and 152 with mild sleep-disordered breathing with an AHI between one and five. In contrast to other studies in children, no significant associations were found between sleep-disordered breathing and any of the neurocognitive assessments. These data stand in contrast to a number of previous studies which have reported positive correlations between children with moderate to severe sleep-disordered breathing and neuropsychological functioning. The authors point out that

their investigation did not study the potential association between neural behavioral issues and sleep-disordered breathing. The authors plan further studies in this area.

I would also like to bring the listeners' attention to two additional articles published in this issue of the Journal, which won't be summarized in this podcast. The first is an interesting review entitled, "The Pharmacologic Management of Insomnia in Patients with HIV," by Drs. Omonuwa, Goforth, Preud'homme, and Krystal, as well as a special article summarizing the clinical guidelines for the evaluation, management and long-term care of obstructive sleep apnea in adults. This latter article is a "must read" for all clinicians who care for patients with sleep-disordered breathing.

This concludes the regular podcast of the Journal of Clinical Sleep Medicine. The listener is encouraged to read the contents of the Journal for additional information regarding each of the papers summarized in this podcast, as well as other papers published in this issue of the Journal.