

## Podcast of the Journal of Clinical Sleep Medicine

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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, "Sustained Use of CPAP Slows Deterioration of Cognition, Sleep and Mood in Patients with Alzheimer's Disease and Obstructive Sleep Apnea: A Preliminary Study." The authors are Jana Cooke, Liat Ayalon, Barton Palmer, Jose Loreda, Jody Corey-Bloom, Loki Natarajan, Lianqi Liu, and Sonia Ancoli-Israel from the University of California at San Diego and the San Diego Veterans Affairs Healthcare System. With the aging of the American population, Alzheimer's disease is becoming recognized as a significant health issue. Acetylcholine cholinesterase inhibitors only slow the progression of the disease and do not reverse its course. For several years, it has been noted that there is a high prevalence of sleep-disordered breathing among patients with Alzheimer's disease. However, it is unclear whether use of nasal CPAP in this population can slow or reverse some of the changes in neurocognition associated with the disease. This study published in the Journal is a continuation of follow-up for a small number of patients who completed a six-week, randomized, placebo-controlled clinical trial of CPAP in mild to moderate Alzheimer's disease and obstructive sleep apnea. Five patients who continued CPAP by their choice, and five patients who chose to discontinue CPAP were included in the analyses. The mean follow-up time was 13.3 months with a range between six and 21 months. All patients had moderate dementia, with a mean mini-mental status examination of 22.6. At the end of the follow-up period, an extensive neurocognitive test battery was administered to both groups. Those patients who used CPAP showed evidence of improvement in executive functioning and psychomotor speed, whereas deterioration was noted in those who did not use CPAP. Another important finding was the sleep quality of caregivers. Sleep symptoms in Alzheimer's disease patients are the number one reason for institutionalization of these patients. The caregivers of patients who used CPAP reported that their subjective sleep quality remained stable, whereas those caregivers of patients who did not use CPAP showed deterioration in their sleep quality. The authors suggest the results indicate that sustained, long-term use of CPAP may

result in a slowing of the cognitive decline in patients with mild to moderate Alzheimer's disease who have concomitant sleep apnea. They propose that these issues should be tested through prospective randomized, controlled trials.

In a commentary that followed this paper, Dr. Kathy Richards from the University of Pennsylvania, School of Nursing and the Polisher Research Institute pointed out that the study was limited by the small numbers of participants, as well as self-reported CPAP usage. Nevertheless, she strongly supported the need for a randomized clinical trial investigating the long-term effects of treatment of co-morbid sleep apnea and Alzheimer's disease with CPAP. If this form of treatment is successful, she indicates that this could help maintain Alzheimer's disease patients independence, delay transfer to a long-term care facility and reduce the burden on caregivers and the healthcare system.

The next article that is being highlighted in this podcast is entitled, "Sleep Disruption in Patients with Sleep Apnea and End-stage Renal Disease," by Andrea Loewen, Andrea Siemens, and Patrick Hanly from the Sleep Center at Foothills Medical Center, University of Calgary in Calgary, Alberta, Canada. In this study, the authors noted that there is not only a high prevalence of obstructive sleep apnea but also restless leg syndrome in patients with end-stage renal disease. They cite anecdotal observations of end-stage renal disease patients with sleep apnea who had difficulty consolidating their sleep, despite treatment with CPAP for their obstructive sleep apnea. They hypothesized that in these patients, restless leg syndrome and/or periodic limb movements might prove to be an additional source of sleep disruption. In their study, they compared the sleep of two groups of patients. One group had obstructive sleep apnea and end-stage renal disease, and the other group had obstructive sleep apnea and normal renal function. The groups were compared with respect to their sleep history, a sleep diary, the Pittsburgh Sleep Quality Index, Epworth Sleepiness Scale, polysomnography and six nights of actigraphy. The authors found that patients with obstructive sleep apnea and end-stage renal disease were less likely than those with normal renal function to report snoring and witnessed apnea and they were less likely to have an abnormal Epworth Sleepiness Scale. In addition, they had a greater prevalence of symptoms consistent with restless leg syndrome. These patients also, according to their sleep diary, slept less and consumed more caffeine. Polysomnography confirmed their shorter total sleep time and a reduction in sleep efficiency, as well as an increase in Stage I sleep. These patients

also had a higher periodic limb movement index, as well as a higher periodic limb movement arousal index. There were no differences with respect to spontaneous and respiratory arousals. The authors emphasized that end-stage renal disease patients with sleep apnea appeared to have greater disruption in their sleep than those individuals without end-stage renal disease. In addition, this sleep disruption, in part, may be related to periodic limb movements and that treatment for periodic limb movements in such patients may improve their sleep quality.

The third paper to be highlighted in this podcast is entitled, "The Epworth Score in African-American Populations," by Amanda Hayes, James Spilisbury and Sanjay Patel from Case-Western Reserve University in Cleveland, Ohio. The Epworth Sleepiness Scale is increasingly used in both population-based research, as well as in sleep clinics, to provide subjective documentation of sleepiness in individuals with complaints of daytime sleepiness. It is a well-validated measure that demonstrates that on average, persons who have obstructive sleep apnea, narcolepsy and other disorders of sleepiness have higher scores than persons without sleep disorders. The authors point out that there has been no formal validation of the Epworth Sleepiness Scale in a primarily African-American population. This study was a retrospective review of all patients in a sleep disorders clinic at a large tertiary care medical center over the course of approximately one year. In addition, data was also used from the Cleveland Family Study to confirm the findings from the clinical cohort. In the clinical population, 359 African-Americans were compared to 328 Caucasians. In the Cleveland Family Study cohort, 408 African-Americans were compared to 304 Caucasians. The authors found that African-Americans in the clinic-based population had a higher mean Epworth score than Caucasians (11.4 vs 9.8). In particular, African-Americans scored higher on three of the eight Epworth component questions pertaining to watching television, sitting and talking with someone and sitting quietly after lunch without alcohol. In the Cleveland Family Study cohort, African-Americans also scored higher (9.1 vs 8.2) and they had elevated scores on questions related to falling asleep sitting and talking with someone, as well as sitting quietly after lunch without alcohol. These findings indicate that African-Americans have greater sleepiness than Caucasians as assessed by the Epworth Sleepiness Scale. However, it is not apparent why these differences exist. The authors suggest that the Epworth Sleepiness Scale needs further validation in African-American cohorts. These data also may have implications for future research using cohorts with large proportions of African Americans.

The fourth paper highlighted in this podcast is entitled, "Cognitive Behavioral Therapy for Insomnia Improves Sleep and Decreases Pain in Older Adults with Co-morbid Insomnia and Arthritis," by Michael Vitiello, Bruce Rybarczyk, Michael Von Korff and Edward Stepanski from the University of Washington in Seattle, Washington, Virginia Commonwealth University in Richmond, Virginia, Center for Health Studies, Group Health Cooperative of Puget Sound in Seattle, Washington and Accelerated Community Oncology Research Network in Memphis, Tennessee. Osteoarthritis is a common condition, resulting in pain and disability in a large number of older adults. It affects approximately 20 million Americans. Impairment of sleep quality by pain is a common problem in those individuals with osteoarthritis. One general concept of the relationship between sleep quality and pain is that pain significantly disrupts sleep and conversely poor sleep quality increases one's perception of pain. Cognitive behavioral therapy is an established and effective means of treating insomnia. However, it is unclear whether using cognitive behavioral therapy to treat insomnia also results in improvement of concomitant pain. This study was a secondary analysis of a randomized, control trial of cognitive behavioral therapy versus an attention control in a group of older adults with co-morbid illnesses. Secondary analysis focused primarily on the effect of cognitive behavioral therapy on pain management. There were 23 patients in the cognitive behavioral therapy group and 28 patients in the control group, which emphasized stress management and wellness. The authors found that cognitive behavioral therapy significantly improved sleep and reduced pain after treatment. Control subjects reported no significant improvements. In a one-year follow-up, there was maintenance of this effect in the cognitive behavioral therapy treatment group, as well as in subjects who crossed over from the control arm to the active treatment.

In a commentary following the paper by Vitiello and colleagues, Patricia Haynes from the University of Arizona noted that whereas cognitive behavioral therapy was very effective in treating the sleep problem in this group of patients, the effect on pain although present was relatively small. She also points out that these rather modest findings are consistent with other randomized controlled trials. She suggests that it makes sense to target other pain issues, as well as treating the sleep problem in these patients.

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.